

PREDATION OF THE GREEN IGUANA *IGUANA RHINOLOPHA* (SQUAMATA: IGUANIDAE) BY THE RUFOUS MOTMOT *BARYPHTHENGUS MARTII* (CORACIIFORMES: MOMOTIDAE), COSTA RICA

DEPREDACIÓN DE LA IGUANA VERDE *IGUANA RHINOLOPHA* (SQUAMATA: IGUANIDAE) POR EL MOMOTO CANELO *BARYPHTHENGUS MARTII* (CORACIIFORMES: MOMOTIDAE), COSTA RICA

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Resumen.— Reportamos el primer evento de depredación de la Iguana Verde *Iguana rhinolopha* por el Momoto Canelo *Baryphthengus martii* en Costa Rica. Es probable que las interacciones de depredación entre las dos especies sean comunes debido a que comparten hábitats y comportamientos similares. Este nuevo registro contribuye al conocimiento sobre la historia natural, comportamiento y la ecología de estas especies.

Palabras clave.— Ave, comportamiento, depredador, dieta, ecología, Sauria.

Abstract.— We report the first event of predation of the Green Iguana *Iguana rhinolopha* by the Rufous Motmot *Baryphthengus martii* in Costa Rica. Predatory interactions between the two species are likely to be common due to shared habitats and behaviors. This report contributes to the knowledge about the natural history, behavior and ecology of these species.

Key words.— Behavior, bird, diet, ecology, predator, Sauria.

The green iguana *Iguana rhinolopha* (Linnaeus, 1758) is a Neotropical lizard that inhabits lowland rainforests and gallery forests from southern Mexico to western Panama, as well as on several eastern Caribbean islands, from near sea level to 1,000 m (Leenders, 2019; Breuil et al., 2019; Breuil et al., 2022). Young iguanas are preyed on by reptiles (*Crocodylus acutus*, *Basiliscus basiliscus*, *B. plumifrons*, *Boa imperator*, *Corallus enydris*, *Oxybelis koheleri*; Greene et al., 1978; Alvarado et al., 2022), birds (*Sarcophaga papa*, *Elanoides forficatus*, *Buteogallus meridionalis*, *Caracara plancus*, *Harpagus bidentatus*, *Pandion haliaetus*, *Ramphastos sulfuratus*, *Crotophaga major*, *Megascops torquatus*, *Nyctanassa violacea*, *Athene cunicularia floridana* and *Pulsatrix perspicillata*, Greene et al., 1978; Engeman et al., 2005; McKie et al., 2005; Filipiak et al., 2012) and mammals (*Nasua narica*, *Eira barbara*, *Leopardus pardalis* and *Procyon lotor*; Greene et al., 1978; Smith et al., 2006). Here, we document two events of predation of *I. rhinolopha* by the Rufous Motmot (*Baryphthengus martii*), in Costa Rica.

The Rufous Motmot a bird that inhabits the primary and secondary humid forests from northeastern Honduras to southern Brazil and northeastern Argentina, in the lowlands, up to 1,600 m (Stiles & Skutch, 1989; Master, 2020). Its diet is wide and includes fruits, many invertebrates (e.g., insects, arachnids, centipedes, millipedes and crustaceans), fishes, frogs and lizards (Stiles & Skutch, 1989; Remsen et al., 1993; Master, 2020).

On June 7th, 2024 at 09:11 h, at Tirimbina Biological Reserve, La Virgen, Sarapiquí, Heredia, Costa Rica (10.416667° N, 84.116667° W; 180 m a.s.l.), the second author observed an adult *B. martii*, preying on a juvenile *I. rhinolopha*, in the reserve's garden. A group of small juvenile iguanas was basking in the sun when the motmot, perched on a nearby branch, took advantage of the opportunity to capture one of them. The motmot then carried the iguana to another branch, where it began striking the iguana against the branch. The bird then descended to the ground and continued to hit the iguana against the ground until it was killed

(Fig. 1). Finally, it swallowed the iguana whole. The entire event lasted at least 4 min.

The second event occurred on June 10th, 2024 at 08:10 h, in the same area as the first event. The second author observed an adult individual of *B. martii*, preying on a juvenile individual of *I. rhinolopha*. The young iguana was basking, when the motmot took advantage to catch it and take it to a branch. Then, it began to hit it against the branch until kill and swallow it posteriorly. This event lasted at least 3.5 minutes (Fig. 2).

Young iguanas spend a large part of the daytime sitting and basking on the ground, relatively immobile and forming large groups (Greene et al., 1978; Savage, 2002; Leenders, 2019). During this time, they are exposed to many predators, although they have developed several antipredator strategies, such as camouflage, remaining motionless, head shaking, and tail lashing (Greene et al., 1978; Savage, 2002). *Baryphthengus martii* prefers to capture lizards that are on the ground or in low vegetation (Stiles & Skutch, 1989; Master, 2020). Therefore, it is possible that juvenile



Figura 1. *Baryphthengus martii* depredando a *Iguana rhinolopha*, Reserva Biológica Tirimbina, Costa Rica, 7 de junio, 2024. Fotos: Luis Fernández Sánchez.

Figure 1. *Baryphthengus martii* preying on *Iguana rhinolopha*, Tirimbina Biological Reserve, Costa Rica, June 7, 2024. Photos: Luis Fernández Sánchez.

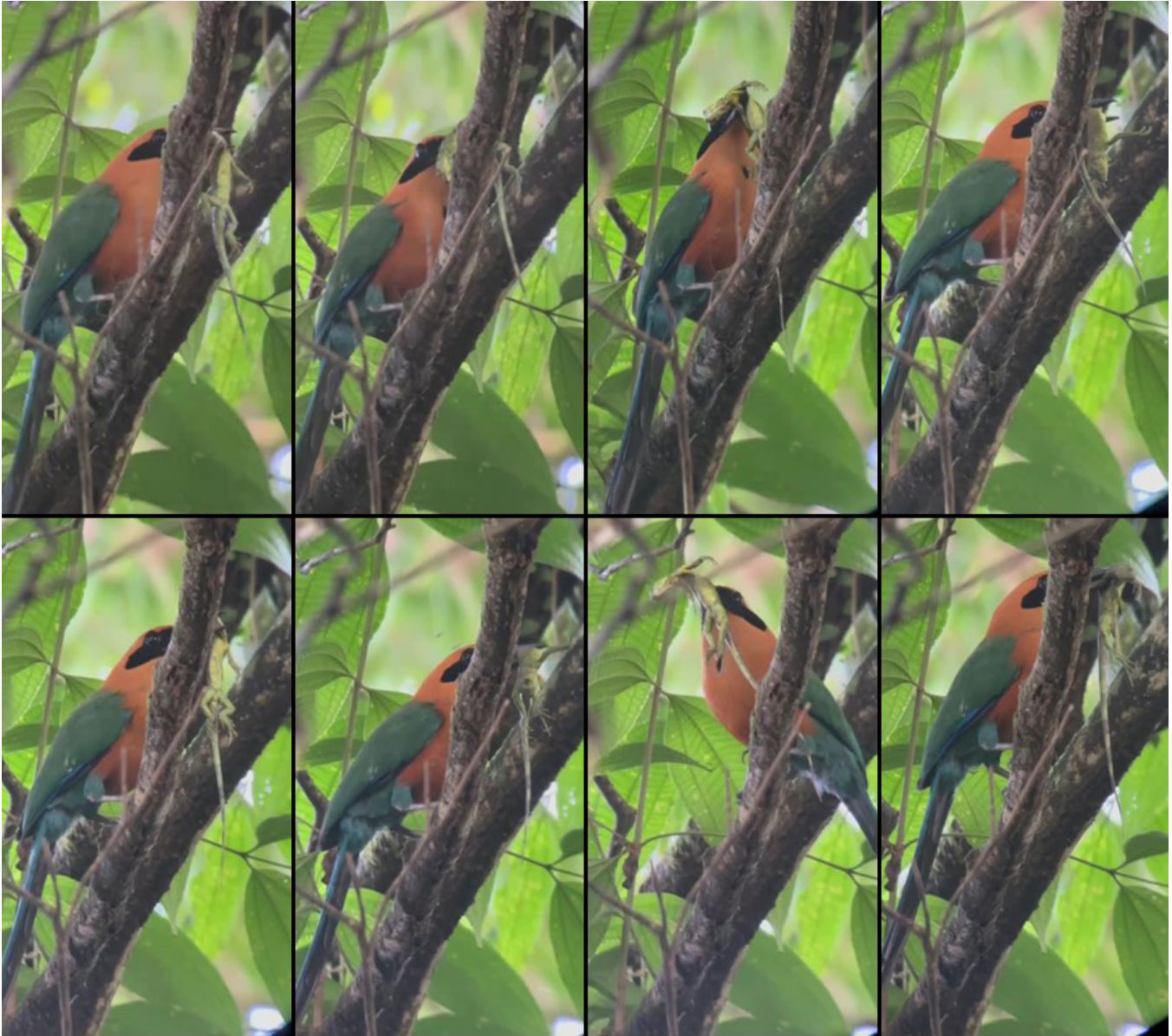


Figura 2. *Baryphthengus martii* depredando a *Iguana rhinolopha*, Reserva Biológica Tirimbina, Costa Rica, 10 de junio, 2024. Fotos: Luis Fernández Sánchez.

Figure 2. *Baryphthengus martii* preying on *Iguana rhinolopha*, Tirimbina Biological Reserve, Costa Rica, June 10, 2024. Photos: Luis Fernández Sánchez.

green iguanas are part of its diet. To our knowledge, this is the first record of *B. martii* predating *I. rhinolopha*.

The primary component of motmot diets is arthropods, supplemented by fruits (Remsen et al., 1993). Nevertheless, some motmot species also consume vertebrates (Stiles and Skutch, 1989). Recent studies have documented events of motmots preying on vertebrates (e.g. Alvarado et al., 2022; Mora & Rodríguez, 2023). Predatory interactions are more likely when

predator and prey share similar habitats and behaviors (Villegas, 2020; Alvarado et al., 2022). In this case, both *B. martii* and *I. rhinolopha* are diurnal, inhabit lowland and foothill rainforests and occur at similar altitudinal ranges in Costa Rica (Stiles and Skutch 1989; Leenders, 2019). We hypothesize that, as a result, encounters between both species are common.

Understanding predation is one of the initial steps to understand the ecology, ethology and natural history of wildlife

(Curio, 2012; Villegas-Retana & Picado-Masís, 2021; Hernández-Hernández et al., 2024). This evidence contributes to the knowledge about the natural history, behaviors and ecology of *B. martii* and *I. rhinolopha*.

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APPENDICES

Apéndice 1. *Baryphthengus martii* depredando a *Iguana rhinolopha*, Reserva Biológica Tirimbina, Costa Rica, 7 de junio, 2024. Video: Luis Fernández Sánchez. <https://youtu.be/KR5FCLj5k3E>

Appendix 1. *Baryphthengus martii* preying on *Iguana rhinolopha*, Tirimbina Biological Reserve, Costa Rica, June 7, 2024. Video: Luis Fernández Sánchez. <https://youtu.be/KR5FCLj5k3E>

Apéndice 2. *Baryphthengus martii* depredando a *Iguana rhinolopha*, Reserva Biológica Tirimbina, Costa Rica, 7 de junio, 2024. Video: Luis Fernández Sánchez. <https://youtu.be/CCDI3CSHwzU>

Appendix 2. *Baryphthengus martii* preying on *Iguana rhinolopha*, Tirimbina Biological Reserve, Costa Rica, June 7, 2024. Video: Luis Fernández Sánchez. <https://youtu.be/CCDI3CSHwzU>



Nota Editorial

It is important to highlight that the Reptile Database 2024 does not recognize *Iguana rhinolopha* as a separate species from *Iguana Iguana* (http://reptile-database.reptarium.cz/species?genus=Iguana&species=iguana&search_param=%28%28search%3D%27iguana+rhinolopha%27%29%29; accessed in October 16, 2024); however, it seems that it is an unresolved issue since there are no conclusive arguments at least in the webpage. The authors seem to have followed the taxonomy of Breuil (2022), which does not seem to have been refuted by other kind of analyses so far.

Rerference

Breuil, M., D. Schikorski, B. Vuillaume, U. Krauss, J.C. Daltry, G. Gaymes, J. Gaymes, O. Lepais, N. Bech, M. Jelić, T. Becking & F. Grandjean. 2022. *Iguana insularis* (Iguanidae) from the southern Lesser Antilles: An endemic lineage endangered by hybridization. *ZooKeys* 1086:137.