

## COMUNICACIÓN CORTA/SHORT COMMUNICATION

**Distribution and depredation notes of Moustached Puffbird *Malacoptila mystacalis* (Bucconidae) in northwestern Ecuador**Marco F. Monteros<sup>1,2,3,\*</sup>, Javier Robayo<sup>1</sup>, Glenda M. Pozo-Zamora<sup>2</sup><sup>1</sup>Fundación EcoMinga, 270 12 de Noviembre y Luis A Martínez, Baños, Tungurahua, Ecuador.<sup>2</sup>Instituto Nacional de Biodiversidad (INABIO), Rumipamba 341 y Av. de los Shyris, Quito, Ecuador.<sup>3</sup>Reserva The Youth Land Trust, Washington, D.C., USA.

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**Distribución y notas sobre depredación del Buco Bigotudo *Malacoptila mystacalis* (Bucconidae) en el noroeste de Ecuador****Resumen**

El conocimiento sobre las dietas de la mayoría de los bucónidos neotropicales es aún poco conocido, y esta información puede ser relevante para desarrollar estrategias de conservación. Presentamos una nota de depredación del Buco Bigotudo *Malacoptila mystacalis*. Incluimos evidencia fotográfica del proceso de deglución de una lagartija del género *Anadia*. Presentamos, además, nuevos registros de presencia de esta especie en el noroeste de Ecuador. Esta breve nota contribuye al conocimiento sobre la dieta y distribución de esta especie en Ecuador.

**Palabras clave:** Bucconidae, presa, comportamiento de depredación, interacciones de presa.

**Abstract**

Knowledge about the diet of most Neotropical bucconids is still deficient, and this information could be relevant to develop conservation strategies. We present a note on depredation behaviour of Moustached Puffbird *Malacoptila mystacalis*, including photographic evidence of the swallowing process of a lizard of the genus *Anadia*. New records of the presence of this species in northwest Ecuador are also presented. This brief note contributes to our knowledge about the diet and distribution of this species in Ecuador.

**Keywords:** Bucconidae, predation behaviour, prey interactions, prey items.

The Bucconidae family comprises 38 species in 12 genera, including *Malacoptila*, distributed across the Neotropics (Rasmussen & Collar, 2020). The genus *Malacoptila* comprises eight allopatric or parapatric species found in the understory of tropical rainforests, which seemingly have similar habitats and ecological requirements (Ferreira *et al.*, 2017). The diet of *Malacoptila* species includes insects (Lopes *et al.*, 2005; Ríos *et al.*, 2008; Siqueira *et al.*, 2015), arachnids (Polis *et al.*, 1981), and lizards (Skutch, 1958); in addition, depredation on hummingbirds (Robinson, 2003) and snakes (Smith, 1969) has been reported.

Moustached Puffbird *Malacoptila mystacalis* is an uncommon bird distributed from coastal Venezuela south to the boundary between Colombia and Ecuador, between 350–2200 m a.s.l. (Hilty & Brown, 2001; McMullan *et al.*, 2010; Rasmussen & Collar, 2020). Loaiza *et al.* (2019) reported the first Ecuadorian record from Dracula reserve, northwest Carchi province. However, the distribution and general natural history of this species in Ecuador, including diet, are not well known (Freile & Restall, 2018; Loaiza *et al.*, 2019).

Trophic relationships between birds and other organisms are poorly documented, especially in the Neotropics (Poulin *et al.*, 2001). Records of opportunistic depredation are important to increase knowledge of a species'

diet and predator-prey interactions (Gurgel & Quintas-Filho, 2014). A broader understanding of these interactions contributes to elucidating feeding modes, niche dynamics, and natural history. Therefore, it is an important component to develop conservation strategies for species and ecosystems alike (Jaksic & Marone, 2007). Here, we report a new prey item of *M. mystacalis*, describe the process of swallowing, and report new localities of this species in northwest Ecuador. This report increases our knowledge on the distribution and feeding habits of a species only recently documented in Ecuador for the first time.

Field observations were opportunistically made during several expeditions to Dracula Reserve, Carchi province, northwest Ecuador, by the park rangers and the technical team of Fundación EcoMinga, in lower montane evergreen forest of the western Andes (MAE, 2013). The event of depredation was recorded in September 2018, while the two new localities were obtained, and photographic records secured, in January 2019, July 2021 and October 2021. Bird identification followed Hilty & Brown (1986) and Freile & Restall (2018), and prey identification was made by the curator of the herpetology collection of the Instituto Nacional de Biodiversidad (INABIO) (M. Yáñez-Muñoz, com. pers., 2020) after examining photographic material.

We observed one *M. mystacalis* feeding on a lizard of the genus *Anadia* at 9h20 on 3 September 2018 in Cerro Oscuro (0.90964, -78.19569) at 1330 m a.s.l. It swooped to the ground, caught with its bill an *Anadia*, and flew to a new perch. We estimate that the perpendicular distance between perch and prey was 4–5 m, and that this action lasted 5–7 s. Then, the swallowing process lasted 167 s. The first 66 s, the puffbird was grabbing the lizard by its neck, squeezing hard to strangle and weaken it. At the same time, the bird moved its bill to position the prey as to facilitate swallowing. Finally, in 8 s it started swallowing the prey whole (Fig. 1).

This report adds new information on the diet of *M. mystacalis*, which has previously been recorded following army ants (Ríos *et al.*, 2008), as also reported for White-whiskered Puffbird *M. panamensis* (Willis, 1982). Other reports have documented insects and plant material in the stomach content of Crescent-chested Puffbird *M. striata* specimens in the Atlantic Forest, as well as the consumption of arachnids by Rufous-necked Puffbird *M. rufa* (Polis *et al.*, 1981).

Depredation on vertebrates by some *Malacoptila* species has been widely reported. Skutch (1958) and Smith (1969) reported the consumption of lizards and poisonous snakes by *M. panamensis*. Our report documents, for the first time, the consumption of small vertebrates by *M. mystacalis*. We suggest considering *M. mystacalis* as an opportunistic and potentially omnivorous species. Further studies are necessary to elucidate whether this species feeds on vertebrates as a regular part of its diet.

Predation on the genus *Anadia* has been reported in the past by Ochraceous Attila *Attila torridus* on *Anadia buenaventura* in Ecuador (Garzón-Santomaro *et al.*, 2020). Other lizard genera such as *Anolis* are also preyed upon by bird species in Neotropical forests (Poulin *et al.*, 2001). We recommend developing targeted studies to evaluate the diet of *M. mystacalis*, including analysis of faecal content, a non-invasive and less stressful alternative than the administration of emetic substances (Manhães *et al.*, 2010).

We identified the puffbird we observed as *M. mystacalis* because it had a completely dark bill, whereas *M. panamensis* has greenish yellow mandible (Hilty & Brown, 1986). Furthermore, *M. mystacalis* has uniform reddish brown sides of the head, while *M. panamensis* has paler striped sides of the head. Finally, *M. mystacalis* has rufous cinnamon throat and chest with stripes on the belly, and *M. panamensis* has rufous limited to the upper chest, and has strongly striated belly (Hilty & Brown, 1986).

All previous records of *M. mystacalis* in Ecuador came from northwest Carchi province, in the Dracula Reserve (Loaiza *et al.*, 2019). Our first new locality is also in Dracula Reserve, but in El Goaltal sector, where *M. mystacalis* was recorded on 25 January 2019, at 12h00, inside forest (1.005923, -78.227058), at 1070 m a.s.l.; it was later found at a nearby spot at 1160 m a.s.l. (1.00400, -78.22589) on 29 July 2021. This locality is 10 km northwest of the locality reported by Loaiza *et al.* (2019). Our second locality is in Peñas Blancas sector, 6 km north of the locality reported by Loaiza *et al.* (2019). In Peñas Blancas the species was recorded on 13 October 2021, at 10h00, near the border of Dracula Reserve (0.97475, -78.20882), at 1230 m a.s.l. (Fig. 2).



Figure 1: Moustached Puffbird *Malacoptila mystacalis* preying upon an *Anadia* lizard. (1) *M. mystacalis* perched before attacking the prey; (2-4) after prey capture, it moved its bill to manoeuvre the prey; and (5-6) begin to swallow it (Marco F. Monteros).

Our records of *M. mystacalis* contribute to our knowledge of the species distribution in Ecuador (Loaiza *et al.*, 2019) and extend the altitudinal range to 1070–1400 m a.s.l., as it was previously reported to occur at 1200–1400 m a.s.l (Freile *et al.*, 2022). Dietary information and new localities reported herein provide a basis for further developing new studies on the species ecological interactions, conservation status, and distribution to the south of its currently known range.

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## REFERENCES

- Ferreira, M., Aleixo, A., Ribas, C.C., & Santos, M.P.D. (2017). Biogeography of the Neotropical genus *Malacoptila* (Aves: Bucconidae): The influence of the Andean orogeny, Amazonian drainage evolution, and palaeoclimate. *Journal of Biogeography*, 44(4), 748–759. DOI: <https://doi.org/10.1111/jbi.12888>
- Freile, J., & Restall, R. (2018). *Birds of Ecuador*. London, UK: Helm Field Guides.
- Freile, J.F., Brinkhuizen, D.M., Greenfield, P.J., Lysinger, M., Navarrete, L., Nilsson, J., Olmstead, S., Ridgely, R.S., Sánchez-Nivicela, M., Solano-Ugalde, A., Athanas, N., Ahlman, R., & Boyla, K.A. (2022). *Checklist of the birds of Ecuador*. Comité Ecuatoriano de Registros Ornitológicos. URL: <https://ceroecuador.wordpress.com/>
- Garzón-Santomaro, C., Cabrera, L., & Ramírez-Jaramillo, S.M. (2020). Interacciones ecológicas entre el atila ocráceo y la lagartija de Buenaventura: registro de nuevos hábitos alimenticios en el sur del Ecuador. *Huitzil*, 21(2), e-605. DOI: <https://doi.org/10.28947/hrmo.2020.21.2.447>
- Gurgel, G.A., & Quintas Filho, S.S. (2014). Registro oportunístico de *Nystalus chacuru* (Piciformes: Bucconidae) predando *Ameivula ocellifera* (Squamata: Sauria: Teiidae). *Heringeriana*, 7(2), 177–178. DOI: <https://doi.org/10.17648/heringeriana.v7i2.87>
- Hilty, S.L., & Brown, W.L. (1986). *A guide to the birds of Colombia*. New Jersey, NJ: Princeton University Press.
- Jaksic, F.M., & Marone, L. (2007). *Ecología de comunidades*, segunda edición ampliada. Santiago de Chile: Ediciones Universidad Católica de Chile.
- Loaiza, J.M., Crespo, J.C., Boas, A., & Molina, P. (2019). First record of the Moustached Puffbird *Malacoptila mystacalis* (Bucconidae) in Ecuador. *Revista Ecuatoriana de Ornitología*, 5, 30–35. DOI: <https://doi.org/10.18272/reo.vi5.970>
- Lopes, L.E., Fernandes, A.M., & Marini, M.Â. (2005). Diet of some Atlantic Forest birds. *Ararajuba*, 13(1), 95–103. URL: <http://www.revbrasilornitol.com.br/BJO/article/view/2107>
- MAE (Ministerio del Ambiente del Ecuador). (2013). *Sistema de clasificación de los ecosistemas del Ecuador continental*. Quito, Ecuador: Sub-Secretaría de Patrimonio Natural. URL: [https://www.ambi-ente.gob.ec/wp-content/uploads/downloads/2012/09/LEYENDA-ECOSISTEMAS\\_EC-UADOR\\_2.pdf](https://www.ambi-ente.gob.ec/wp-content/uploads/downloads/2012/09/LEYENDA-ECOSISTEMAS_EC-UADOR_2.pdf)
- Manhães, M.A., Loures-Ribeiro, A., & Dias, M.M. (2010). Diet of understory birds in two Atlantic Forest areas of southeast Brazil. *Journal of Natural History*, 44(7–8), 469–489. DOI: <https://doi.org/10.1080/00222930903380947>
- McMullan, M., Donegan, T., & Quevedo, A. (2010). *Field guide to birds of Colombia*. Bogotá, Colombia: Fundación ProAves.
- Polis, G.A., Sissom, W.D., & McCormick, S.J. (1981). Predators of scorpions: Field data and a review. *Journal of Arid Environments*, 4, 309–326. DOI: [https://doi.org/10.1016/s0140-1963\(18\)31477-0](https://doi.org/10.1016/s0140-1963(18)31477-0)

Poulin, B., Lefebvre, G., Ibáñez, R., Jaramillo, C., Hernández, C., & Rand, A.S. (2001). Avian predation upon lizards and frogs in a neotropical forest understorey. *Journal of Tropical Ecology*, 17(1), 21–40. DOI: <https://doi.org/10.1017/S026646740100102X>

Rasmussen, P.C., & Collar, N. (2020). Moustached Puffbird (*Malacoptila mystacalis*). Version 1.0. In: J. del Hoyo, A. Elliott, A., J. Sargatal, D.A. Christie, & E. de Juana (Eds), *Birds of the World*. Ithaca, NY: Cornell Lab of Ornithology. URL: <https://doi.org/10.2173/bow.moupuf1.01>

Ríos, M., Londoño, G., & Biancucci, L. (2008). Notes on birds that follow army ants in the northern Andes. *Ornitología Neotropical*, 19(1), 137–142. URL: <https://sora.unm.edu/node/133411>

Robinson, W.D. (2003). White-necked Puffbird captures Rufous-tailed Hummingbird. *The Wilson Bulletin*, 115 (4), 486–487. DOI: <https://doi.org/10.1676/02-105>

Siqueira, P.R., de Vasconcelos, M.F., Gonçalves, R.M., & Leite, L.O. (2015). Assessment of stomach contents of some Amazonian birds. *Ornitología Neotropical*, 26(1), 79–88. URL: <https://journals.sfu.ca/ornneo/index.php/ornneo/article/view/14>

Skutch, A.F. (1958). Life history of the White-whiskered soft-wing *Malacoptila panamensis*. *Ibis*, 100, 209–231. DOI: <https://doi.org/10.1111/j.1474-919X.1958.tb08792.x>

Smith, N.G. (1969). Avian predation of coral snakes. *Copeia*, 2, 402–404. DOI: <https://doi.org/10.2307/1442098>

Willis, E.O. (1982). *Malacoptila* puffbirds (Aves, Bucconidae) as army ant followers. *Ciência e Cultura*, 34, 924–928.

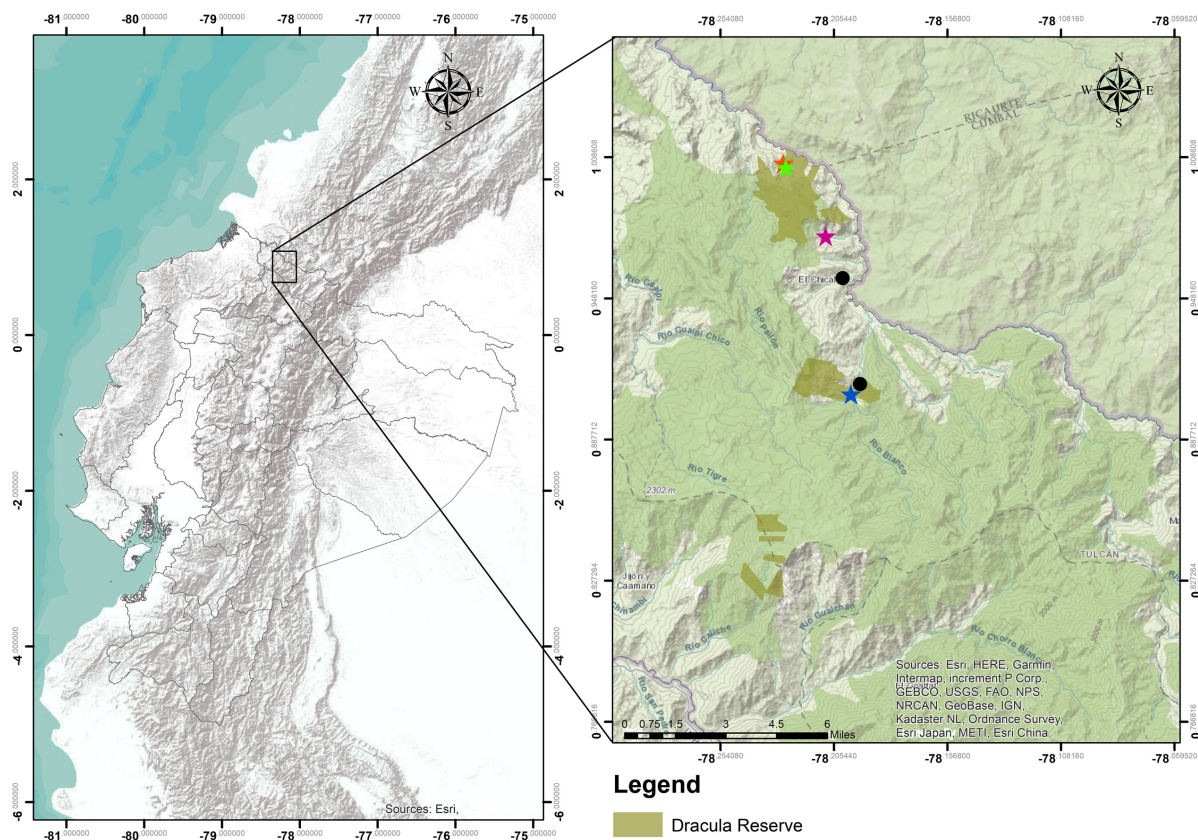


Figure 2: Records of Moustached Puffbird *Malacoptila mystacalis* in northwest Carchi province, Ecuador. Black circles: first records of *M. mystacalis* in Ecuador (Loaiza *et al.*, 2019); blue star: record where the depredation event was observed (see Fig. 1), on 3 September 2018; green and orange stars: new locality recorded on 25 January 2019 and 29 July 2021; magenta star: our second new locality on 13 October 2021 (Marco F. Monteros).