

## Nesting of *Phylloscartes* sp. (Passeriformes: Tyrannidae) associated with *Polybia paulista* H. von Ihering, 1896 (Hymenoptera: Polistinae) in southeastern Brazil

Anidación de *Phylloscartes* sp. (Passeriformes: Tyrannidae) asociada con *Polybia paulista* H. von Ihering, 1896 (Hymenoptera: Polistinae) en el sureste de Brasil

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**Abstract.** In Brazil, there are records of bird species from the Tyrannidae family that nest in association with social wasps, but there is no information about this interspecific relationship for the genus *Phylloscartes*. Therefore, this study records the occurrence of nesting by *Phylloscartes* sp. (Passeriformes) near a colony of the social wasp *Polybia paulista* in southeastern Brazil. The supposed reasons behind this possible interaction are discussed.

**Key words:** Bird; interaction; social wasp.

**Resumen.** En Brasil, existen registros de especies de aves de la familia Tyrannidae que anidan en asociación con avispa social, pero no hay información sobre esta relación interespecífica para el género *Phylloscartes*. Por lo tanto, este estudio registra la presencia de anidación de *Phylloscartes* sp. (Passeriformes) cerca de una colonia de la avispa social *Polybia paulista* en el sureste de Brasil. Se discuten las supuestas razones detrás de esta posible interacción.

**Palabras clave:** Aves; avispa social; interacción.

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Species of social wasps (Hymenoptera: Polistinae) establish interspecific interactions with different taxa of vertebrates and invertebrates (Barbosa *et al.* 2021), among which nesting associated with nests of different bird species stands out, such as the family Tyrannidae (Menezes *et al.* 2014; Almeida and Anjos-Silva 2015; Souza *et al.* 2017; Milani and Souza 2018; Barbosa *et al.* 2021; Carvalho *et al.* 2023; Silva *et al.* 2023). In general, this type of interaction has been beneficial to birds, as social wasps can offer protection against potential nest invaders and predators (Wunderle and Pollock 1985; Joyce 1993; Barbosa *et al.* 2021). In Brazil, there are reports of social wasps associated with birds of the Tyrannidae family, but restricted to the genera *Myiozetetes* P. L. Sclater and *Tolmomyias* Hellmayr, 1927 (Menezes *et al.* 2014; Almeida and Anjos-Silva 2015; Souza *et al.* 2017; Milani and Souza 2018; Barbosa *et al.* 2021; Carvalho *et al.* 2023; Silva *et al.* 2023). Therefore, the objective of

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this study is to add information regarding this association by recording the occurrence of nesting of birds of the genus *Phylloscartes* sp. (Passeriformes: Tyrannidae) with a colony of the social wasp *Polybia paulista* H. von Ihering, 1896 in southeastern Brazil.

The record occurred occasionally, photographed (using Nikon D90 equipment), in February 2024, on the edge of BR-494 highway (at KM 161) in the municipality of São Tiago (20°56'05.11"S / 44°28'39.75" W), state of Minas Gerais, Southeast Brazil, a region located within an ecotone area between the domains of the Atlantic Forest and Cerrado (Oliveira *et al.* 2023). For the identification of the social wasp, specimens were collected using an entomological net and identified based on dichotomous keys (Richards 1978), while the bird was determined based on the architecture and size of the nest, as well as the materials used for its construction (Sick 1997; Crozariol 2016). The nest of *Phylloscartes* sp. was approximately 90 cm away from the *P. paulista* colony, and both were approximately 4 m high in a *Styrax* sp. (Styracaceae) (Fig. 1).



**Figure 1.** A. Association between *Phylloscartes* sp. and *Polybia paulista* in a *Styrax* sp. tree (Styracaceae) in southeastern Brazil. B. Detail of the *Polybia paulista* colony. C. Nest of *Phylloscartes* sp. in detail. / **Figura 1.** A. Asociación entre *Phylloscartes* sp. y *Polybia paulista* en un árbol de *Styrax* sp. (Styracaceae) en el sureste de Brasil. B. Detalle de la colonia de *P. paulista*. C. Nido de *Phylloscartes* sp. en detalle.

**Comments.** Species of *Phylloscartes* construct their nests using mosses and lichens to exploit camouflage as an anti-predation strategy (Sick 1997; Crozariol 2016). Therefore, association with social wasps may represent an additional strategy to avoid predation. Nesting near colonies of social wasps has been suggested as beneficial to birds, as social wasps, especially those from the tribe Epiponini, such as *P. paulista*, defend their colonies by stinging potential predators that approach them (Barbosa *et al.* 2021). Species of *Polybia* can offer effective protection against nest predators located within a radius of about 1 m from their colonies (Wunderle and Pollock 1985). In our study, it was not possible to determine which species nested first. However, according to Joyce (1993), birds seem to prefer nesting in vegetation where established colonies of social wasps already exist.

Although different species of *Polybia* have been reported in association with bird nests, such as *Polybia occidentalis* (Olivier, 1791) (Silva *et al.* 2023), *Polybia fastidiosuscula* de Saussure, 1854 (Menezes *et al.* 2014), *Polybia jurinei* (de Saussure, 1854) (Menezes *et al.* 2014; Silva *et al.* 2023), *Polybia rejecta* (Fabricius, 1798) (Somavilla *et al.* 2013; Silva *et al.*

2023; Barbosa *et al.* 2021), *Polybia sericea* (Olivier, 1791) (Almeida and Anjos-Silva 2015), *Polybia ruficeps* Richards, 1978 (Almeida and Anjos-Silva 2015; Carvalho *et al.* 2023), there was only one record of *P. paulista* associated with bird nests (Milani and Souza 2018). The association between nesting birds of the Tyrannidae family and social wasps had already been observed in *Myiozetetes* spp. (Almeida and Anjos-Silva 2015) and *Tolmomyias* spp. (Menezes *et al.* 2014; Souza *et al.* 2017; Milani and Souza 2018; Barbosa *et al.* 2021; Carvalho *et al.* 2023; Silva *et al.* 2023). However, there were no reports of this association with *Phylloscartes* sp.

Although there are several reports of interspecific association involving different species of birds and social wasps, our study records the participation of *Phylloscartes* sp. for the first time. However, further studies are needed to evaluate the frequency and role of *P. paulista* and *Phylloscartes* in this association.

### Author Contributions

**GCSO:** Photographic register. **GCSO, ASM, MMS:** Conceptualization. **GCSO:** Writing. **GCSO, ASM, MMS:** Writing - review & editing.

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