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# First report of tritrophic interactions involving *Thepytus thyrea* (Hewitson, 1867)

**(Lepidoptera: Lycaenidae: Theclinae: Eumaeini)**

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The butterfly *Thepytus thyrea* (Hewitson, 1867) is widespread in South America. To date, there is little published information on the immatures and interactions of *T. thyrea*. This study reports, for the first time, the tritrophic interaction involving *T. thyrea*, its food plant, and attendant ant. Lycaenidae larvae were collected, and one of them was reared until emergence. These larvae were found on the flower buds of *Pleroma* aff. *fothergilli* (Schrank et Mart. ex DC.) Triana and *Pleroma heteromallum* (D.Don) D.Don (Melastomataceae), being attended by the ant *Dorymyrmex brunneus* Forel, 1908 (Dolichoderinae). Field observations confirmed that *D. brunneus* imbibed the secretions from the dorsal nectary organ. These results contribute to the knowledge of Neotropical lycaenids.

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## Introduction

*Thepytus thyrea* (Hewitson, 1867) occurs east of the Andes in South America, ranging from the Guianas and the Amazon Basin to southern Brazil (Robbins et al. 2010). There are few publications on the immature stages and interactions of *T. thyrea*. Based on current knowledge, only one food plant has been documented for *Thepytus* Robbins, 2004, *Qualea grandiflora* Mart. (Vochysiaceae), and specifically for *T. thyrea* (Silva et al. 2011). Although interactions with ants and parasitoids have been documented for other Eumaeini (Silva et al. 2014, Guedes & Kaminski 2023), such associations remain unknown for *Thepytus*. Herein is reported the first evidence of a tritrophic interaction involving *Pleroma* D.Don (Melastomataceae), *Thepytus*, and *Dorymyrmex* Mayr, 1866 (Dolichoderinae).

## Material and methods

Last instar lycaenid larvae (n = 2) were collected on two Melastomataceae species at the Universidade Federal do Paraná (25°26'57''S, 49°13'59''W, 924 m), in association with an ant. The specimens were taken to the Laboratório de Estudos de Lepidoptera Neotropical. The larvae were reared under uncontrolled conditions, and the ant was preserved in 70 % alcohol for subsequent mounting and identification.

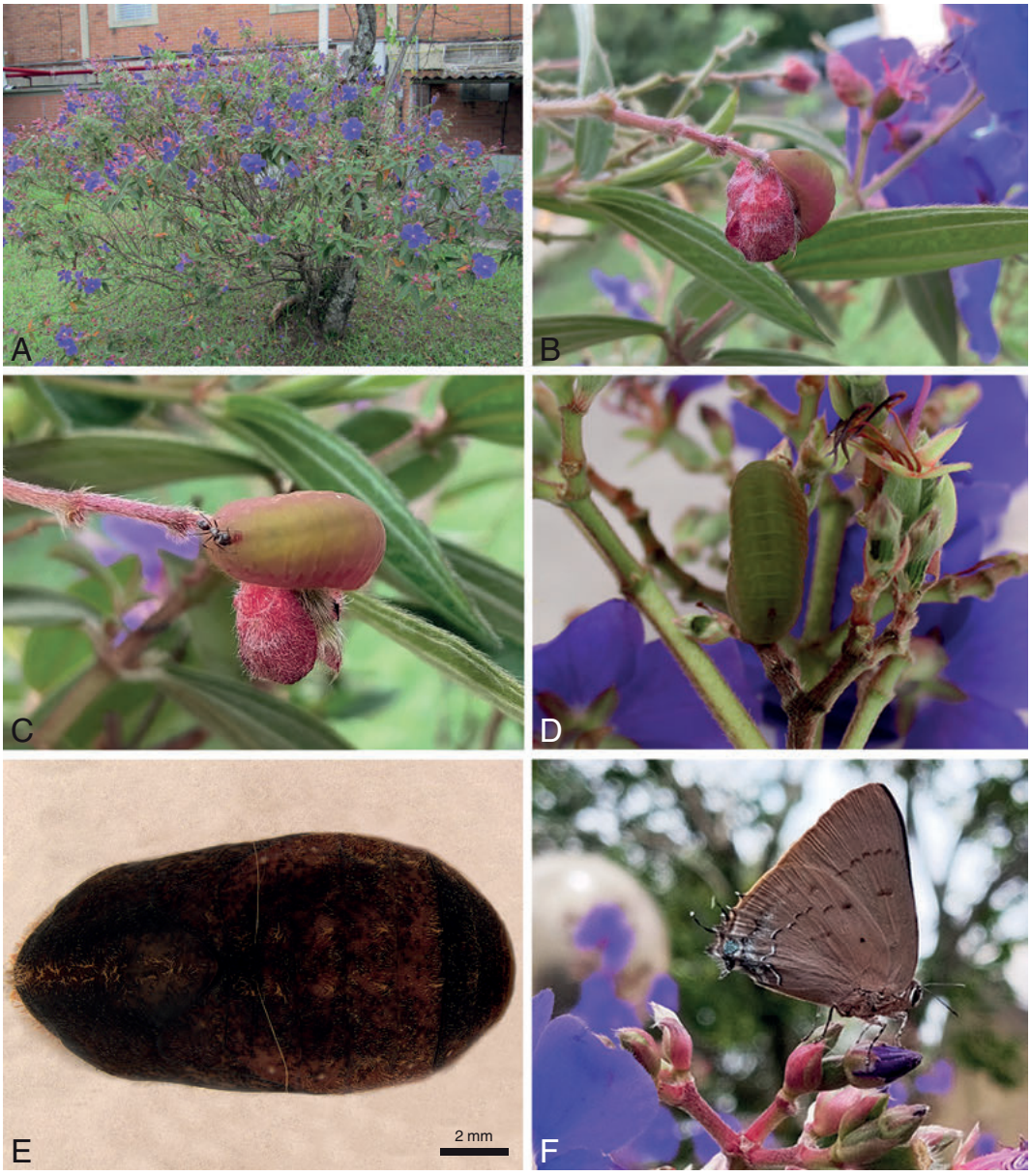


**Fig. 1.** *Thepytus thyrea* (Hewitson, 1867), food plants, and illustrations. **A.** *Pleroma* aff. *fothergillii* (Schrank et Mart. ex DC.) Triana. **B.** Larva of *T. thyrea* on flower bud of *Pleroma* aff. *fothergillii*, highlighting the dorsal nectary organ (arrow). **C.** Larva tended by *Dorymyrmex brunneus* Forel, 1908. **D.** Larva on flower bud of *Pleroma heteromallum* (D.Don) D.Don. **E.** Pupa of *T. thyrea*, dorsal view. **F.** Female resting on flower bud of *P. heteromallum*.

Larvae were reared in plastic containers and were offered small flowering branches, with young and more mature buds and flowers. Both the lycaenids and the ant were deposited in the Coleção Entomológica Padre Jesus Santigo Moure (DZUP), Universidade Federal do Paraná, Curitiba, Paraná, Brazil, under the following codes: DZ 71.154, DZUP 518628, respectively. One larva was sacrificed and preserved according to the procedure described by Cajé et al. (2025), and deposited in the Coleção de Imaturos de Lepidoptera (DZUPIL).


**Fig. 2.** Worker of *Dorymyrmex brunneus* Forel, 1908. **A.** Head, full-face view. **B.** Body, lateral view.

The species of food plants were identified by Fabricio Meyer, under code UPCB 111516, and Renato Goldenberg, with UPCB 107230. The lycaenid was confirmed by the first and third author. The ant was identified to genus using Feitosa & Dias (2024), and then it was identified to species by comparing it with specimens from the DZUP reference collection and using Cuezzo & Guerrero (2012).

## Results and discussion

Both species of food plants were confirmed as Melastomataceae: *Pleroma* aff. *fothergillii* (Schrank et Mart. ex DC.) and *Pleroma heteromallum* (D.Don) D.Don (Fig. 1A–D, F). The lycaenid is *Thepytus thyrea* (Fig. 1F), which is characterized by the absence of an orange-red cubital spot on the ventral surface of the hindwing (Robbins et al. 2010). The attendant ant is a worker of *Dorymyrmex brunneus* Forel, 1908 (Fig. 2).

The larvae were found on the flower buds of *P.* aff. *fothergillii* and *P. heteromallum*. It has also been recorded on inflorescences of *Q. grandiflora* (Silva et al. 2011). In the field, larvae of *T. thyrea* may go unnoticed because their colour and texture resemble plant structures, such as bracteoles and stems (Fig. 1B,D). This camouflage strategy can reduce the chances of being detected by natural enemies (Lima & Kaminski 2019). The use of both food sources, Melastomataceae and Vochysiaceae, reinforces the evidence for oligophagy in *T. thyrea*.

In the last larval instar of *T. thyrea*, the darker pink colour observed on the dorsal area of abdominal segment A7 corresponds to the region where the dorsal nectary organ (DNO) is located (Fig. 1B). Field observations confirmed that *D. brunneus* imbibed the fluid secreted by the DNO (Fig. 1C).

In laboratory, the duration of the pupal stage was approximately 15 days. The pupa is brownish with lighter maculae; thoracic and abdominal segments with lighter setae, either long or short; and wing areas without setae. A silk girdle crosses the pupa on the abdominal segment A2, and it passes between segments A1 and A2 on the dorsal area (Fig. 1E).

Afterwards, a search for pupae was conducted throughout the plant, but no individuals were found. It is likely that prepupal larvae leave the plant in search of another site for pupation. According to Zikán (1956), prepupal larvae were found in a pile of rotting sugar cane peels, likely used for pupation. He described and illustrated both prepupa and pupa, but did not mention the food plant or other interactions. The present report provides new information on the trophic interaction network amongst Neotropical lycaenids.

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