Lycaenidae Larvae Feeding on Peixotoa parviflora (Malpighiaceae) in a Semi-Deciduous Forest in Southeastern Brazil

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LYCAENIDAE LARVAE FEEDING ON *PEIXOTOA PARVIFLORA* (MALPIGHIACEAE) IN A SEMI-DECIDUOUS FOREST IN SOUTHEASTERN BRAZIL

Additional key words: *Allosmaitia strophius*, *Strymon mulucha*, *Panthiades hebraeus*, *Parrhasius polibetes*

The knowledge of the host range used by Lycaenidae is a major element in ecological studies as it may be correlated with several characteristics of population dynamics, life histories and interactions with other insects (see Robbins & Aiello 1982, Fiedler 1991, Pierce et al. 2002). In Brazil studies regarding lycaenid and host plant range have increased substantially in the last few years (Schmid et al. 2010, Silva et al. 2011, Kaminski et al. 2012). However in many natural areas, principally in biodiversity hotspots, lycaenid life histories, occurrence and host plant are poorly described when compared to those used by other butterfly groups (Brown Jr. & Freitas 2002, Dessuy & Morais 2007).

Knowledge of lycaenid-plant relationships is important for two reasons. First Lycaenidae is very important in tropical trophic cascades and multi-trophic interactions because larvae have ant-organs and associated behaviors and anatomical structures related to myrmecophily (Pierce et al. 2002, Kaminski et al. 2010). Second, butterflies are highly sensitive to environmental perturbations; departures from their ideal habitat conditions may have negative impacts on their occurrence and performance (Brown Jr. 1993, Brown Jr. & Freitas 2002, Rabasa et al. 2008). In Brazil Malpighiaceae is a host plant family of major interest for the study of lycaenids because it was shown to support a diverse florivorous lycaenid assemblage, principally in Brazilian tropical savanna (Kaminski & Freitas 2010, Silva et al. 2011). In other Brazilian biomes, however, the Malpighiaceae-lycaenid interactions remain to be studied. Thus in this study we provide the first record of the lycaenid community associated to *Peixotoa parviflora* A. Juss. (Malpighiaceae) in a Brazilian Atlantic Forest, and discuss aspects of lycaenid ecology and host association.

Samplings occurred in February 2012 at the Serra do Japi Ecological Reserve, located in Jundiaí city, Brazil (46°53'–47°05' W, 23°13'–23°19' S). The area is composed of semi-deciduous forest (Atlantic Forest) and presents two well established seasons, a dry/cold season from April to September and a wet/warm season from October to March (Morellato 1992). *Peixotoa parviflora* is a climbing vine common at the edges along the Observatory trail at Japi, receiving direct sunlight all day long. Its flowers are pentamerous and yellow; flower buds contain oil glands at the base and leaves bear a pair of extrafloral nectaries at the base near the petiole. We were able to sample a total of 40 *P. parviflora* inflorescences. Because *P. parviflora* is a climbing vine delineating differences between individuals was difficult to accomplish. Thus, the inflorescences were sampled within a more restricted range of 200 meters along the forest edge. All Lycaenidae individuals (eggs and larvae) were collected and reared in transparent covered plastic pots (200 ml) and fed whenever necessary with flowers of *Banisteriopsis malifolia* (Nees & Mart.) B. Gates (Malpighiaceae). *Banisteriopsis malifolia* was used as alternative food source because of the lack of *P. parviflora*. Moreover *B. malifolia* is consumed by several florivore lycaenid species. During samplings we observed all the ant species co-occurring with lycaenids on the plants and whether ants performed tending behavior or not, which is indicative of myrmecophily (positive association with ants - Fiedler 1991). Voucher specimens of the immature stages were deposited at the Museu de Zoologia, Universidade Estadual de Campinas, Campinas, São Paulo, Brazil.

We found 16 Lycaenidae larvae belonging to three species. The most abundant was *Allosmaitia strophius* (Godart, 1924) (n = 9), followed by *Strymon mulucha* (Stoll, 1780) (n = 5) and *Panthiades hebraeus* (Hewitson, 1867) (n = 2). All larvae were found feeding on flower buds of *P. parviflora*. Twelve lycaenid eggs were found attached to flower buds, but 10 were already hatched. Eggs belonged to *Strymon* spp. (n = 8) (species level identification from eggs is not possible in *Strymon*), *A. strophius* (n = 3) and *Parrhasius polibetes* (Stoll 1781) (n = 1). No lycaenid larvae found in *P. parviflora* was parasitized. However two eggs (one belonging to *A. strophius* and one belonging to *P. polibetes*) were already parasitized by an unidentified microhymenopteran species. No pupa was found on the plant. *Allosmaitia strophius* larvae were polychromatic, individuals became yellow during their larval stage, camouflaging *P. parviflora* flower color. In field we noticed the presence of four ant species on *P. parviflora*: *Cephalotes pusillus* (Klug, 1824) (Myrmicinae), *Pseudomyrmex flavipes* (Lund, 1831) (Pseudomyrmecinae), and two *Crematogaster* (Lund, 1831) (Myrmicinae) species. Except for *P. flavipes*, all ant species were collecting nectar from the EFNs. We did not observe any type of interaction, neither positive (attendance) nor negative (attack) between ants and lycaenid larvae.

In this study we showed that *P. parviflora* is a new host plant for *A. strophius, S. mulucha, P. hebraeus* and *P. polibetes.* For *A. strophius*, a common species at Japi (Brown Jr. 1992), *P. parviflora* flowers are an important food resource, because larvae are specialist in feeding on Malpighiaceae flowers (Kaminski & Freitas 2010). *Panthiades* and *Strymon* are scarcely studied in regards to host range. *Panthiades hebraeus* is a neo-tropical butterfly occurring in Argentina, Brazil and Paraguay (Robbins & Lamas 2004) and up to date it was found only on a few Leguminosae and Rosaceae (Beccaloni et al. 2008). *Strymon mulucha* is an uncommon species at Japi (Brown Jr. 1992). According to the records, this lycaenid has five host plant species in different families, none being Malpighiaceae (Beccaloni et al. 2008, Silva et al. 2011). In this sense *P. parviflora* represents not only a new host for *P. hebraeus* and *S. mulucha*, but this is also the first register of these lycaenids in Malpighiaceae. According to *P. parviflora* geographical distribution (covering most of southeast Brazil), this species has a great potential of supplying resources for these florivore lycaenids, notably *A. strophius*. In neotropics there is a general lack of information about butterflies, especially Lycaenidae. Thus information about their host plants as well as the interactions with the associated insect fauna are important to understand the general patterns of host plant use within this butterfly family.

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