

CALISTO TASAJERA IN THE HISPANIOLAN CORDILLERA CENTRAL (LEPIDOPTERA: NYMPHALIDAE: SATYRINAE)

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ABSTRACT.— *Calisto tasajera*, a large satyrid butterfly previously known only from its type series, is figured in color from specimens collected recently in remote swamp-grass habitat on Pico Duarte, 1800m. A key including *C. tasajera* in the *lyceia* complex of *Calisto* is provided; voucher material distributed to several museums is listed. Contrasting lowland xerophiles typifying the complex, *C. tasajera* is montane and mesophilic, its disjunct distribution in the Hispaniolan Cordillera Central apparently reflecting a pattern of fire refugia.

KEY WORDS: Caribbean, distribution, Dominican Republic, habitat, Neotropical, Pinaceae, West Indies.

Calisto tasajera Gonzalez, Schwartz and Wetherbee (1991) is one of the largest (FW alar 17-21mm) and most distinctive of Hispaniolan *Calisto*. Along with more well-known *C. pulchella* Lathy and *C. archebates* Ménétriés, *C. tasajera* would readily be displayed by collectors as a "showy" Antillean satyrid. However, since its description, *C. tasajera* has remained virtually unknown. The original description was not widely distributed and, to date, no butterfly book treating the Caribbean region has illustrated the species. When a series of eight specimens was recently collected by the senior author at a remote location on Pico Duarte, Santiago Province, Dominican Republic, the taxon escaped recognition by the present authors as well as reviewers most knowledgeable on Satyrinae in the Antilles. Eventual identification was made by comparison to specimens from the Albert Schwartz Collection (Milwaukee Public Museum, Milwaukee, WI).

To remedy this situation we publish a color photo of a male of *C. tasajera* (Fig. 1) closely resembling the type specimen, particularly in the bi-ocellate condition of the ventral hindwing. We also provide a key to the *lyceia* complex of *Calisto* including this distinctive species and distribute voucher material to five museums, four American and one British. Gonzalez, Schwartz and Wetherbee (1991) recognized *C. tasajera* as the sole member of the *lyceia* complex in the Hispaniolan Cordillera Central but did not amend Gali's (1985) original key to include the species. Relatively large size (FW alar 14.9-21.0mm) and bright brick red ventral colors distinguish species of the *lyceia* complex (Gali, 1985). However, lack of clear association of *C. tasajera* with more well-known members of the group may also contribute to *C. tasajera* not being readily recognized.

Gonzalez, Schwartz and Wetherbee (1991) described *C. tasajera* from a series of specimens from San Juan Province, Dominican Republic, taken on Loma de Tasajera in fire-charred grassland at 2141m. They also reported the species from the base of Loma la Diferencia, 1750-2300m on the border with Santiago Province and from Santiago Province on Pico Platico, 1200-2500m. These localities are not accessible by vehicular traffic. Specimens reported in the present paper were obtained while the



Fig. 1. Upper surface (left) and under surface (right), *Calisto tasajera* male, Valle de Bao (1800 m), north slope of Pico Duarte, Santiago Province, Dominican Republic.

senior author was engaged in herpetological field work in the Cordillera Central in 1993. The specimens were collected at Valle de Bao (1800m) on the north slope of Pico Duarte, Santiago Province some 13km (straight line) from Loma de Tasajera. At 3087m, Pico Duarte is the highest point in the West Indies and located near the center of the Cordillera Central. Gonzalez, Schwartz and Wetherbee (1991) speculated that *C. tasajera* might occur on Pico Duarte.

The habitat of *C. tasajera* in Valle de Bao appears more hydric than that reported for the species hitherto. The collecting locality was the final stop-over camp on a three-day ascent, by foot, of Pico Duarte (from Mata Grande, to the north). In Valle de Bao, the headwaters of the Río Bao coalesce to form this unusually flat, open area, 700m wide by 2km long and located 5km (airline) NW of the twin peaks of Pico Duarte (Loma La Pelona and Pico Duarte). The Río Bao emerges from the northwest end of the

Key to Species of the *Calisto lyceia* Species-Group(after Gali, 1985, adding *C. tasajera*)

1. DFW androconial patch sharply defined 2
DFW androconial patch diffuse or not sharply defined 5
2. DFW androconial patch parallel to outer margin 3
DFW androconial patch not parallel to outer margin 4
3. VHW ocellus pupil within yellow ring; ♀ FW 18-19mm . . . *crypta*
VHW ocellus pupil on yellow ring; ♀ FW 15-16mm *lycaeia*
4. VFW brick red extending past VFW ocellus to basal-submarginal lines; VHW with basal white pupil, virtually on yellow ring *hendersoni*
VFW brick red not extended past VFW ocellus *franciscoi*
5. VHW with one or two ocelli, with at least one very large (3mm) and widely ellipsoidal 6
VHW ocellus single, small and narrowly elliptic (1mm) . . . *raburni*
6. VHW with 4 white dots costad of ocellus *schwartzi*
VHW with 2 white dots costad of ocellus *tasajera*

valley through a narrow gorge. The surrounding region is forested almost entirely with pine (*Pinus occidentalis*), but the valley itself is swamp-like covered with meter-high grass. *Calisto tasajera* was collected on 31 July and 1 August 1993 in grass near the shelter located at the northwest end of the valley, adjacent to the forest (19°04'10" N, 71° 02'05" W).

Genital dissection of the Valle de Bao specimens (Fig. 2) indicates some variation from that illustrated by Gonzalez, Schwartz and Wetherbee (1991), particularly in the produced contour of the uncus, tegumen and valve anterior. The outstanding genital traits distinguishing the species, however the bulbous and dorsally pronged valve terminus and elongate gnathos appear in both samples.

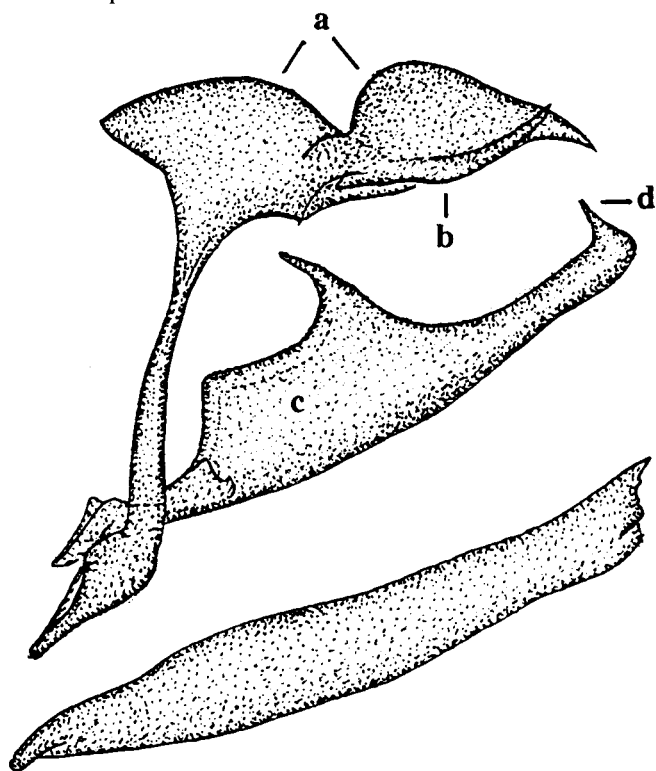


Fig. 2. Male genitalia, *Calisto tasajera* of Fig. 1, lateral view, aedeagus removed and placed below. Features mentioned in text: a, dorsal contour of tegumen and uncus; b, gnathos; c, valve anterior, d, bulbous terminus marked with dorsally-directed prong.

Contrasting the generally lowland and xerophilic distribution of other members of the *lyceia* complex, Gonzalez, Schwartz and Wetherbee (1991) noted the montane and mesic association of *C. tasajera*. They suggested the restricted range of *C. tasajera* perhaps reflected a pattern of fire refugia in uplands of the Cordillera Central. The occurrence of a population at Valle de Bao, significantly disjunct from formerly known populations but differing little from specimens at the type locality, appears to support this notion. It further suggests that this large and distinctive satyrid butterfly will most likely be collected again by workers frequenting the various upland foot trails of the Cordillera Central.

A butterfly as distinctive as *C. tasajera* deserves ready recognition by field workers and museum curators. To this end we add the following Key, associating *C. tasajera* with the *lyceia* complex of *Calisto* and noting the apparent close relation of the species to two other little-known *Calisto*, *C. schwartzi* Gali and *C. raburni* Gali. Specimens of *C. tasajera* from Valle de Bao have been deposited as follows (all males): 1, Allyn Museum of Entomology, Florida Museum of Natural History (Sarasota, FL); 4, American Museum of Natural History (New York, NY); 1, Carnegie Museum of Natural History (Pittsburgh, PA); 1, Florida State Collection of Arthropods (Gainesville, FL); 1, The Natural History Museum (London, England).

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LITERATURE CITED

- Gali, F.
1985. Five new species of *Calisto* (Lepidoptera: Satyridae) from Hispaniola. *Milwaukee Public Mus. Contr. Biol. Geol.*, 63:1-16.
- Gonzalez, F. L., A. Schwartz, and D. K. Wetherbee
1991. A new species of *Calisto* (Lepidoptera: Satyridae) of the *lyceia* Complex on Hispaniola. *Milwaukee Public Mus. Contr. Biol. Geol.*, 80:1-8.