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New *Calisto* species from Cuba, with insights on the relationships of Cuban and Bahamian taxa (Lepidoptera, Nymphalidae, Satyrinae)

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Abstract

Three new species and a new subspecies of *Calisto* Hübner are described from Cuba, *Calisto torrei* **sp. n.** Núñez, *Calisto dissimulatum* **sp. n.** Núñez, *Calisto aquilum* **sp. n.** Núñez, and *Calisto aquilum occidentalis* **ssp. n.** Núñez. The immature stages of *C. torrei* and *C. dissimulatum* are also described. Notes on the distribution and biology of the species are given. All Cuban and Bahamian taxa form a monophyletic group which seems to have originated in northeastern Cuba spreading later to the west. DNA sequence data also allowed to recognize both Bahamian taxa, *Calisto sibylla* and *Calisto apollinis* **stat. n.**, as distinct species, and to synonymize *Calisto herophile parsonsi* **syn. n.** under *Calisto herophile*.

Key words: West Indies, Bahamas, DNA, molecular systematics, genetic distance, taxonomy, immature stages, distribution, checklist, speciation, synonymy

Introduction

The butterflies of the genus *Calisto* have evolved in isolation and radiated in the West Indies (Smith *et al*. 1994; Miller & Miller 2001; Lamas 2004; Sourakov & Zakharov 2011). Until recent times Hispaniola was considered to be the only island where actual diversification took place, from where about 30 native species are known today, with the remaining nearby islands populated by one or two species (Smith *et al*. 1994; Miller & Miller 2001; Sourakov & Zakharov 2011).

The Herophile species group, *sensu* Bates (1935), is used to describe all *Calisto* found on Cuba and Bahamas. Brown & Heineman (1972) reduced this group to two species shared by the archipelagos, a change followed by the majority of subsequent workers (Smith *et al*. 1994; Miller & Miller 2001; Hernández 2004; Lamas 2004).

An intense sampling effort during the last few years in Cuba revealed a very different situation. Núñez *et al*. (2012) proposed specific status for most of the *Calisto* taxa previously described from that island and named a new species based on morphological and molecular data. Núñez *et al.* (2012) also included the description of the immature stages of four Cuban species, known before only by an incomplete description of *C. herophile* by Dethier (1940) and Torre (1968). The results of Núñez *et al*. (2012) also indicated that more findings were on the way. The elevation of former subspecies to species and the presence of "orphan" lineages in the DNA-based phylogeny representing potential new taxa encouraged us to continue research on Cuba. In the present article, three new species of *Calisto* are described from Cuba, including the immature stages of two of them. We also provide a phylogenetic hypothesis of the relationships of Cuban and Bahamian species of *Calisto*. Finally, an updated checklist of all known Cuban and Bahamian species of the genus containing a full synonymy and all recent changes is given.

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