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Type species fixation of the genus *Abloxurina* Johnson, 1992 (Lepidoptera: Lycaenidae: Theclinae)

CARLOS PRIETO¹ & JADWIGA LORENC-BRUDECKA²

¹Departamento de Biología, Universidad del Atlántico, Barranquilla, Colombia. E-mail: cprieto50@gmail.com

²Zoological Museum of the Jagiellonian University, Ingardena 6, 30-060 Kraków, Poland

The goal of this paper is to clarify the status and identity of the type species of the lycaenid genus *Abloxurina* Johnson, 1992 so that the name can be used correctly in future taxonomic work. *Abloxurina* was originally typified with *Thecla amatista* Dognin, 1895. However, the specimen examined and illustrated by Johnson (1992) to diagnose the genus was an individual of *Penaincisalia ismaeli* Busby & Hall, 2005, an undescribed species at that time. Consequently, Johnson's original typification was based on a misidentification. In order to make *Abloxurina* available, its type species is fixed under Article 70.3.2 of the International Code of Zoological Nomenclature (1999) as *P. ismaeli*.

Abloxurina was based on Ecuadorian specimens that Johnson (1992) identified as *Thecla amatista* and unambiguously designated as the type species of the genus. A detailed study of the characters that Johnson (1992) attributed to *Thecla amatista* revealed that they disagree with the traits of this species, but are consistent with the morphology of *Penaincisalia ismaeli* Busby & Hall (in Hall *et al.* 2005). Clearly, the type species of *Abloxurina* was misidentified. This genus subsequently was synonymized with *Penaincisalia* Johnson, 1990 by Robbins (2004) without any allusion to the misidentification of the type species of *Abloxurina*. R. Busby and J. Hall (in Hall *et al.* 2005) noted the misidentification in their original description of *P. ismaeli* and stated "It should be noted that Johnson's (1992) adult (male and female) and male genitalia illustrations of *Abloxurina amatista* are actually referable to male *P. balzapamba* Johnson, 1992." *P. ismaeli* and *P. balzapamba* are sibling species whose males differ superficially only in the bluish appearance, larger size of the former, and slightly differences in wing shape; male genital structures are almost indistinguishable between the species.

As Johnson described *P. balzapamba* in the same work, only a few pages after proposing *Abloxurina*, it is most likely the genital structures illustrated are in fact the specimens he studied to erect the genus and belong to *P. ismaeli* not to *P. balzapamba* as noted by Hall *et al.* (2005). This assumption is partially supported by the fact that wing shape and size of the "amatista" specimen illustrated by Johnson are consistent with *P. ismaeli* (Johnson 1992: image 117), and subtle differences are noticeable between it and the image of *P. balzapamba*, which occurs only a few lines below on the same plate (Johnson 1992: image 120). Moreover, Johnson knew *P. balzapamba* and described it as "deep magenta-purple," whereas he examined other specimens that were bigger and bluer. Consequently, it is more likely that these bluer specimens represent *P. ismaeli* than *P. balzapamba*.

The misidentification was also noted by Bálint *et al.* (2006) where he stated "...More confusingly, the genital documentation of *A. amatista* by Johnson (1990: fig. 9B, "*Thecla amatista* holotype", the same in 1992: fig. 2, "*Abloxurina amatista* holotype") does not represent *Penaincisalia* genus-group species." Clearly, Bálint *et al.* concluded that the illustrated structures belong to a species morphologically distant from *Penaincisalia* sensu Robbins. Although recognizing the problem, neither Busby & Hall (in Hall *et al.* 2005) nor Bálint *et al.* (2006) fixed the type species of the genus *Abloxurina*.

In the description of *Abloxurina*, Johnson illustrates adult male and female "*T. amatista*" in his figure 117 (the male reproduced here in Fig. 1B). However, these specimens correspond to males of *P. ismaeli* (Fig. 1A) not to typical *P. amatista* (Fig. 1C). Johnson also illustrates the purported male genital structures of the *Thecla amatista* holotype in his figure 21 (reproduced here in Fig. 2A). However, based on the current knowledge of this group it is unlikely that these male genital structures belong to the type specimen of *Thecla amatista*. Evidently, these structures were mixed by the author in the revisionary process and illustrated as belonging to this holotype. The genital structures of a male *P. amatista* are illustrated here (Fig. 2) for comparison with those of *Penaincisalia ismaeli* and the illustrated structures in Johnson's work. We were not able to locate the genital dissection of the holotype of *T. amatista* done by Johnson, but it is obvious the figured structures in Johnson's work do not represent those of the holotype of *Thecla amatista*. There are many other

cases documented in which Johnson attributed genital structures to the wrong adult (e.g., see Robbins & Lamas 2002). Under Article 70.3 of the code, an author has the option to select which species is best suited as the type, either the species originally cited (Article 70.3.1) or the species actually involved but misidentified (Article 70.3.2). Since *Abloxurina* was named for a lineage of Eumaeine hairstreaks with distinctive traits, *P. ismaeli* is chosen as the type species of *Abloxurina* to maintain the association of this name with these distinctive traits. Although *Thecla amatista* Dognin can be retained as the type species of *Abloxurina*, in order to best serve stability and universality of nomenclature, the alternative option is preferred here, thus type species of *Abloxurina* Johnson, 1992 is now fixed under Art. 70.3 [ICZN, 1999] as *Penaincisalia ismaeli* Busby & Hall, 2005, misidentified as *Thecla amatista* Dognin, 1895 in the original designation by Johnson, 1992.

When Robbins (2004) synonymized the genera *Abloxurina* Johnson, *Thecloxurina* Johnson, and *Pons* Johnson with *Penaincisalia*, he recognized a group that is very heterogeneous in wing shape but very similar in genital structures and androconial clusters. As noted by Hall et al. (2005), there is no obvious universal synapomorphy for such an extended *Penaincisalia*, but some authors (e.g., Balint & Wojtusiak 2006) consider that the dual scent pad situated in the discal cell apex of males could be a synapomorphy of *Penaincisalia*. Actually, this dual androconial cluster is present in all known species placed in *Penaincisalia* (*sensu* Robbins), except for *P. ismaeli*, *P. balzapamba*, and *P. amatamba* (“*balzapamba* group” *sensu* Prieto 2008). These species have a unique larger androconial cluster at the discal cell apex that occupies the entire width of the cell, and they share a longer and slenderer aedeagus when compared with all species of *Penaincisalia* (Fig. 2D, E). Further analysis is needed to determine whether the *P. balzapamba* lineage is embedded within *Penaincisalia* or is a phylogenetically distinct genus.

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