Comment (Case 3709) – More comments on the proposed conservation of names for western North American *Hesperia comma*-group subspecies through designation of neotypes

(see BZN 75: 88–121 [Case])

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We do not support the application of Scott et al. (2018, Case 3709) to conserve the usage of names of western North American *Hesperia comma*-group subspecies through the designation of neotypes.

The stated purpose of Case 3709 is to "eliminate nomenclatural chaos within *Hesperia comma*-group butterflies in western North America caused by seven lectotypes and a holotype whose appearance and inadequate or mislabeled localities do not allow their taxonomic identity to be determined." Article 75.5 of the Code is cited as justification in asking the ICZN to use its plenary power to set aside these name-bearing types and designate neotypes selected by the authors.

At the center of this lengthy and complex case is the lectotype of the nominal species *Pamphila colorado* Scudder, 1874 (type locality Lake County, Colorado, USA), which is now recognized as *Hesperia colorado*. Figured by Calhoun (2015a, 2015c, 2016) and Warren & Calhoun (2015) for the first time since the late nineteenth century, this specimen has resided in the same prominent institution (Museum of Comparative Zoology,

Harvard University; MCZ) since 1903. It was recognized as the type of *P. colorado* by Barnes & McDunnough (1916), which constitutes a valid lectotype designation per Article 74.5 of the Code. The specimen was labeled as a type around 1930 (Calhoun & Hawkins, 2016).

The lectotype of *P. colorado* does not morphologically agree with the interpretation of nominotypical *Hesperia colorado* as popularized by MacNeill (1975) and as promoted in multiple publications by the senior author of Case 3709. This disparity is a direct result of the failure of MacNeill (1964) and subsequent researchers to consult the lectotype of *P. colorado*, despite that Barnes & McDunnough (1916) mentioned its location, and MacNeill was aware of its existence. Furthermore, the senior author of Case 3709 supposed that "syntypes may be in the MCZ" (Scott, 1998), but he made no effort to confirm this suspicion while advancing a taxonomic concept of nominotypical *H. colorado* that is inconsistent with its lectotype. A similar history is associated with the lectotype of *Pamphila manitoba* Scudder, 1874 (type locality Lac La Hache, British Columbia, Canada), which is currently recognized as either a species or subspecies of *Hesperia*. It, too, was ignored by modern researchers until being figured by Calhoun (2015b) and revealed to contradict the popular interpretation of this nominal taxon.

The morphological appearance of the lectotype of *P. colorado*, as well as evidence regarding its geographical origin, indicate that the name *Hesperia comma oroplata* Scott, 1981, is a junior subjective synonym of the name *P. colorado* (Calhoun, 2015a, 2016). Because *H. c. colorado* occurs almost entirely within the state of Colorado, USA, this change affected only the status of the name *H. c. oroplata*. Nonetheless, the authors of Case 3709 question the origin and identity of the lectotype of *P. colorado*, preferring that a neotype be designated to support their interpretation of this nominal species. In their opinion, such uncertainty affects six additional name-bearing types of *Hesperia*, which they contend are equally unidentifiable and/or poorly labeled. For example, they suggest that the lectotypes of *P. colorado* and *P. manitoba* originated from the same population (rather than the distant localities of Colorado and British Columbia), thereby having a ripple effect on the status of other names within the genus *Hesperia*.

We believe the actions requested by Case 3709 are premature and unnecessary, as it is now possible to determine the taxonomic identities of ancient specimens through revolutionary methods of genomic analysis. We are nearing the completion of a groundbreaking, multi-year research project to determine and analyze genomic sequences of a number of name-bearing types of *Hesperia*, including those involved in Case 3709. Of particular significance, we have determined the geographical origin of the lectotypes of *P. colorado* and *Pamphila manitoba* Scudder, 1874, fully supporting morphological and historical evidence, and confirming that they are not from the same population as suggested in Case 3709. Our investigation contradicts a number of key assumptions in Case 3709, which are too often supported by imaginative, unsupported narratives.

We believe this case undermines the very purpose of the type concept, which is the cornerstone of nomenclatural stability. Not only does this case strive to fix subjective taxonomic concepts by controlling the origin and identity of name-bearing types, at least two long-standing lectotypes (those of *P. colorado* and *P. manitoba*) were completely ignored by modern taxonomic research. Although we appreciate the desire of the authors of Case 3709 to conserve prevailing usage, the six lectotypes and one holotype involved are validly designated and therefore represent the objective standard of reference for the application of the names they bear. The ability to determine the geographical origins of

such old specimens, and associate them with current populations of *Hesperia*, eliminates the need to designate neotypes for the reasons given in Case 3709.

Genomic techniques can be used to greatly improve our understanding of current populations of *Hesperia*, while preserving the taxonomic concepts expressed by existing name-bearing types. To this end, we invite the authors of Case 3709 to participate in our continuing investigations following the publication of our initial findings. Additional comments regarding this case will be submitted after our genomic research appears in print.

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