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# What is *Neoschidium* Mukherjee, Ambrose, Saha, and Bal, 2014 (Hemiptera: Reduviidae: Emesinae: Metapterini)? A reflection on taxonomic practices

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Good taxonomic practice permits not only to adequately document the rapidly diminishing biodiversity of our planet (Wheeler 2008), but also let us set the foundations for phylogenetic assessments among groups of taxa, allowing a more deeply and proper understanding of the biota (Wheeler 2007). Therefore, any taxonomic problems will hinder not only phylogenetic approaches but conservation efforts as well (Dubois 2003; Mace 2004; Wheeler *et al.* 2012).

In a recent paper, Mukherjee *et al.* (2014) proposed a new assassin bug genus, *Neoschidium* Mukherjee, Ambrose, Saha, and Bal, 2014, to accommodate *Ghilianella phasma* Distant, 1904 (Reduviidae: Emesinae: Metapterini). *Ghilianella phasma* was described by Distant (1904) apparently from a single male specimen from "Karennee" (Karenni) in Burma, what is nowadays the Kayah State in Myanmar. Bergroth (1916) erected *Schidium* Bergroth, 1916 and transferred to it a few species previously included in *Ghilianella*, including *G. phasma*. The paper of Mukherjee *et al.* (2014) deals with a single specimen found in India, and although important because it is from an area seldom explored, it is nonetheless an example of a work with multiple taxonomic problems which will impede future phylogenetic analysis by confounding character complexes. We are addressing and discussing here some of the problems of the paper by Mukherjee *et al.* (2014).

**Type material of *G. phasma* and the identity of the specimen examined by Mukherjee *et al.* (2014)**: The type series of *G. phasma* was not examined by Mukherjee *et al.* (2014). Given that Distant's description of *G. phasma* is rather poor no positive identification of this taxon can be made based on the original description. There was no certainty that Distant described *G. phasma* from a single specimen. Dr. M. Webb kindly sent us photographs of a single male specimen (Fig. 1) which is deposited at the Natural History Museum in London, and bears labels with Distant's handwriting (Horn & Kahle 1935). Until evidence of the contrary is presented, we consider this specimen to be a syntype of *G. phasma*. Because Mukherjee *et al.* (2014) did not compare their specimen with Distant's syntype, the species identity of the Indian specimen examined by them is at best doubtful (see also "sex of the Indian specimen" below). More likely the specimen examined by them might represent a different, unidentified species. Differences in the structure of the labium, prothorax and mesothorax, and of the forefemur between the two specimens support this. The actual identity of the specimen studied by Mukherjee *et al.* (2014) cannot be settled without careful examination of additional specimens. Despite the probable misidentification of the single specimen examined by Mukherjee *et al.* (2014), the arguments exposed below warrant the proposed synonymy between *Neoschidium* and *Schidium*.

**Type species of *Neoschidium***: The designation of the type species for *Neoschidium* has to be inferred from the original description, because it was not explicitly stated in the descriptive part. Mukherjee *et al.* (2014) confuse the term "type species", a nominal species defined objectively by its type which provides the objective standard of reference for the application of a genus-group taxon, with "type genus", a genus on which a family-group taxon name is based (ICZN 1999, article 61).

**Characters to distinguish *Neoschidium***: The original description of *Neoschidium* is deficient in our view. There are no useful details that can be drawn from the description and/or photographs provided which will allow adequate differentiation of this taxon from other genera of Metapterini. If this genus has to be included in a phylogenetic analysis, no useful information can be extracted and coded. Mukherjee *et al.* (2014) provided a key and a table to distinguish *Neoschidium* from *Ghilianella* Spinola, 1850 and *Schidium*. Nonetheless, the characters and character states used in the table to delimit the genus are of little value as discussed below.

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