From Paper to Computer: Exploring and describing Philippine derbids biodiversity from an e-taxonomic perspective

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Entomofauna in the Philippines is rich: more than 20000 different species have already been described with an overall endemism of 70% for the current inventory of Philippine insects. From this, Hemiptera represents about 12.5% of this known fauna with more than 14% known endemism (Gapud, 2005).

With about 160 genera and 1500 species, Derbidae represents the third larger family of the Fulgoromorpha after the Delphacidae and the Cixiidae (FLOW, 2010). However, since its establishment by Spinola in 1839, it was only in 1917 that F. Muir was able to comprehensively collect and study them in the Philippines. He identified and described a total of 39 genera and 98 species based on the large collection of Prof. C. F. Baker and his own. Muir also stated that he was not able to satisfactorily identify a dozen of species that belongs to Rhotanini (Muir, 1917).

Even though the Philippines is considered as a megadiversity hotspot, only few hemipterists have paid attention to the derbid fauna of the Philippines, aside from those that are found attacking corn, sugarcane, coconut and other palm species, and other economically important plants (Lepesme, 1947; Pemberton, 1963; Zelazny and Pacumbaba, 1982; Gabriel, 2000). In 1981, B. Zelazny conducted a survey of sucking insects feeding on coconut palms in the Philippines, and of the 51 derbid species that he described, 16 were reported to have wider distribution outside the Philippines. Currently, the most accurate overview of Philippine derbids is an unpublished list of V. P. Gapud consisting of 43 genera and 151 species. Subsequently, there is no doubt that with 7,107 islands that comprise the Philippine archipelago, the high endemicity of the Derbids noted by Muir (1917), many more species remain to be discovered.

In that frame, a taxonomic study of Philippine derbids has been set up to document and analyze their high endemism and rich diversity. Phase one of this long term project is to gather the already known taxonomic data of the group from an e-taxonomy perspective, and to provide a structured basis that will receive the forthcoming knowledge of this project for dynamic updates. Using Xper2 - an open e-tool to manage descriptive data - we present here the first illustrated computer-aided identification key for the known Philippine derbid genera based on diagnostical morphological characters. Among others, morphological data from papers of Muir, 1913, 1917; Melichar, 1915; Fennah, 1952; Zelazny, 1981; Yang and Wu, 1993; and Szwedo, 2005 were summarized in a character matrix. Up-coming e-links between FLOW (to store taxonomic data) and Xper2 (to store diagnostical characters) will allow newly described genera, species and other data from phase two of this project to be easily added for immediate updating on-line.

As direct results, this computer-aided key would facilitate much faster identification of Philippine derbids in the field and would be helpful to those studying derbids with limited access to foreign literature.

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