

Unknown species and larval stages of extremely long-legged beetles discovered by DNA test

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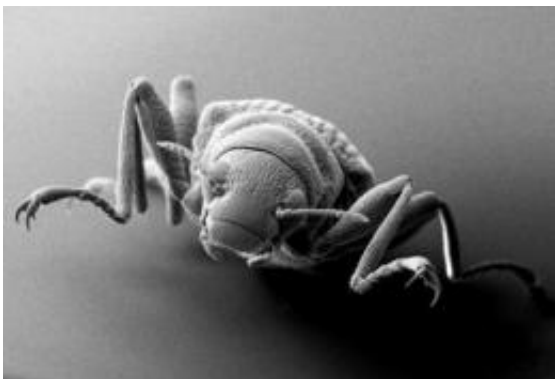


The extremely long legs and cross-like elytral color patterns of *Ancyronyx* beetles remind of spiders. Credit: H. Freitag (2007)

The unknown larval stages and a new species of the curious Spider Water Beetles were described after their assignment by DNA sequences. These taxonomic works are groundwork for the development of water quality bioindicator systems in the tropics. This study of the AQUA Palawana biodiversity program in the Philippines was published in the journal ZooKeys.

The research program AQUA Palawana has been exploring the unique freshwater biodiversity of the Philippine Island and biosphere reserve of Palawan for more than a decade. Scientists from the Senckenberg Museum of Zoology Dresden and the Bavarian State Collections of Zoology in Munich have now described larvae and a new species of the curious Spider [Water](#) Beetles (Ancyronyx) from this biodiversity hotspot. Their study was realized in cooperation with the Palawan Council for Sustainable Development and the De La Salle University Manila.

The scientists conducting this study, Hendrik Freitag and Michael Balke, used mitochondrial DNA, which should be identical in all developmental stages in a species, to assign the previously unknown larval stages to adult imagines. This method was very useful because the outside appearance of immature and mature stages of holometabolous insects look completely different and would not allow an easy assignment to each other.



This is a Philippine Spider Water Beetle in frontal view. Credit: H. Freitag (2009)

The studied insects of the genus Ancyronyx have extremely long legs,

often accompanied by an eye-catching cross-like elytral [colour pattern](#), so that they remind of spiders. In point of fact they are "Riffle Beetles" (Elmidae) that are able to breathe through a plastron, a microfilm of air around their body surface that is microscopically enlarged by setose structures. This enables them to remain permanently under water. Such [beetles](#) are often highly sensitive to [water pollution](#) and are therefore greatly valued as bioindicators. The researchers aim at providing basic knowledge and identification tools for tropical species that are potentially useful as freshwater bioindicators.

One of newly described Philippine species, *Ancyronyx punkti* – named after the German environmental NGO punkt e.V. – was recently chosen by BIONet International for a campaign highlighting the relevance of taxonomy to society which was presented at the tenth COP meeting of the Convention on Biological Diversity in Nagoya, Japan 2010.



A typical habitat of spider water beetles in undisturbed mountain rivers of Palawan Island. Credit: H. Freitag (2008)

The new discoveries from the Philippines lead to the assumption that the region is the actual diversity centre of the genus. By now, ten of the 18

described [species](#) are known solely from the Philippines, of which most are endemic to the country or even to single islands.

More information: Freitag H, Balke M (2011) Larvae and a new species of *Ancyronyx* Erichson, 1847 (Insecta, Coleoptera, Elmidae) from Palawan, Philippines, using DNA sequences for the assignment of the developmental stages. *ZooKeys* 136: 47-82. [doi: 10.3897/zookeys.136.1914](#)

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