Opening Pandora's box: Integrative taxonomy of *Eresus*

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Species of the genus *Eresus* Walckenaer, 1805 – commonly known as ladybird spiders – are well characterized by the males' distinct abdominal pattern. The bright red background with four to six dots is a rather uniform pattern within the genus with only a surprisingly growing number exceptions. We used both molecular and morphological data to sort out the specimens into species to examine males that have atypical abdominal colours, mainly from the western Mediterranean and Asia, yet placed to Eresus. We present a phylogenetic tree based on COI sequences, which represents the first large scale phylogeny for *Eresus*. Besides the Central European *E. moravicus*, *E. kollari*, *E. hermani* and *E. sandaliatus* a larger sampling of the Western "*E. kollari*" species, as well as a diverse Italian clade and the quickly diversified Asian clade is explored. Furthermore, based on the results from our phylogenetic analysis and morphological examinations we discuss cryptic speciation and possible introgressive events. We are pointing out taxonomic problems to solve to avoid conservation issues of the European populations in the future. Seemingly the molecular taxonomy of velvet spider taxa are almost as challenging as the morphology based studies. Possible explanations in comparison of *Loureedia* is presented.