

Velvet spiders emerge from underground in new cybertaxonomic monograph

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Dozens of social velvet spiders participate in a mass attack on a beetle. Credit: Photograph by Teresa Meikle

[Velvet spiders](#) include some of the most beautiful arachnids in Europe and some of the world's most cooperative species. Social species can be very abundant in parts of tropical Africa and Asia with conspicuous colonies dotting the landscape. Social colonies may consist of hundreds of closely-related individuals that participate in dramatic mass attacks on prey (Figure 1) and care for their young. The ecology of these social species is fascinating and has been the subject of several landmark scientific papers. The study was published in a special issue of the open access journal [ZooKeys](#).

By contrast, most kinds of velvet spider are rarely encountered. Most [species](#) keep well hidden or dig burrows and live underground. Because of the cryptic habits of most velvet spiders, scientific knowledge of this spider family is uneven to say the least. The name velvet spider accurately describes the dark and shiny appearance of these spiders. Some species also have brightly colored highlights, such as the red, white, and black ladybird spiders of Europe and North Asia (Figure 2). With the exception of one species from Brazil, velvet spiders live in Europe, Asia, and Africa.



This is a colorful ladybird spider. Credit: Photograph by Pavel Krásenský

The international team assembled to advance [basic knowledge](#) about velvet spiders included people and institutions from the Netherlands, Denmark, United States, Czechia, Hungary, and Iran. International collaboration in taxonomic research was the goal of the EDIT ([European Distributed Institute of Taxonomy](#)) Integrated Research grant, which provided most of the funding for this project. The team assembled a hefty library of images documenting the anatomy of all the major kinds of velvet spider. This included both portrait-like color photographs and [electron micrographs](#) showing details of the spigots that these spiders use to make silk. San Francisco-based artist Giovanni Maki contributed beautiful drawings of the male genitalia. The project also used [DNA](#)

[sequence data](#) to reconstruct the evolutionary history of velvet spiders. The DNA data confirmed that one particularly enigmatic species belongs to a new genus (Figure 3).

In recognition of the fact that this velvet spider lives underground, the new genus has been named *Loureedia* in a whimsical salute to [the musician](#) who began his distinguished career leading the 60s rock band "The Velvet Underground."



This is the velvet spider *Loureedia*. Credit: Photograph by Martin Forman

In spite of all the progress that this new monograph represents, there is much more work still to be done. Taxonomy is a fundamental science, and advances in it can promote research in other areas. Some of the most obscure groups of velvet spiders from the Mediterranean and Southern Africa will now be more easy to identify and study. This is thanks to the progressive approach taken by publisher Pensoft. The full-color monograph is [freely available for download](#) through the web site of the journal *ZooKeys*. [Pictures and descriptions](#) also appear on the wiki web site Species-ID and [an interactive map](#) of the specimens used in the study is explorable using [Google Earth](#) (please note you must have it installed in order to view the map). So this publically-funded research on a remarkable and often beautiful group of spiders will be freely available

not only to scientists but to the public as well.

More information: Miller JA, Griswold CE, Scharff N, Řezáč M, Szűts T, Marhabaie M (2012) The velvet spiders: an atlas of the Eresidae (Arachnida, Araneae). *ZooKeys* 195: 1-144. [doi: 10.3897/zookeys.195.2342](https://doi.org/10.3897/zookeys.195.2342)

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