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Integrative taxonomy of araneomorph spiders: Breathing new life into an old science

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Stellingen

Behorend bij het proefschrift

“Integrative taxonomy of araneomorph spiders: Breathing new life into an old science”

van F. A. Rivera Quiroz

1. To understand anything in science, things have to have a name; taxonomy provides a vocabulary to discuss the biological world.
2. Without the help from revisionary taxonomy, biodiversity and conservation research would remain restricted to less than 10% of the known species diversity; i.e., mostly vascular plants, butterflies, mammals, and birds.
3. Species names should be treated as hypotheses of evolutionary relationship that hold biological information instead of mere categories for specimen descriptions (This thesis).
4. Nature conservation can only be achieved by the generation and utilization of fundamental knowledge about species, environments, and their interactions and patterns. It's difficult to protect what we don't know is there.
5. Information contained in taxonomic papers can aid in reconstructing biological specimens' history, and unveiling patterns that ultimately help in biodiversity study and conservation. Therefore, minimum data quality standards for species descriptions should be implemented—by researchers and journals—to make taxonomy a more powerful data driven science (This thesis).
6. Taxonomy will largely rely on computers, these changes will irritate most taxonomists, taxonomists will rise to fight the machines, the machines will win (after an opinion paper by Jahn, 1961; still much relevant today).
7. Technologies like high-resolution imaging, genomic mapping, and a robust internet-based infrastructure will allow documenting global biodiversity in a fraction of post-Linnean era time.
8. Molecular data has greatly revolutionized and expedited the systematic and ecological work—and will continue to do so; however, this does not diminish the importance of taxonomy and morphology as a way of making sense out of these relations.
9. Sexual selection is an extremely powerful mechanism; it can re-shape morphology, modify behaviors, and drive major transitions in evolution (This thesis).
10. In some insect orders, genital asymmetries seem to be the groundplan, while in some others it is sparser having several independent origins. Spiders with their paired male copulatory organs were thought to have less selective pressure to evolve asymmetric genitalia.
11. After all my years doing spider research, I can relate to what the German-American Arachnologist Herbert W. Levi famously said whenever he forgot to do bureaucratic work due to his studies: “Och! My head is full of spider genitalia”.