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## Editorial

### From character observation to species delimitation – Taxonomy as empirical science

There is sometimes the notion expressed that taxonomy based on morphology alone is not an empirical science, or at least that this was the case before the introduction of molecular approaches to this basic biological discipline. In response, the question arises what constitutes an empirical science? Popper understood it as a science that deals with observable processes that can be explained by empirical, falsifiable theories. This procedure should be familiar to a taxonomic since it involves the description of observable characters of organisms and to arrange these organisms in a way that they reflect the basic and the only objective category in nature, i.e. species. Conceivably, if the taxonomic procedure is regarded as empirical in a sense that Popper had in mind, then taxonomy can be regarded as an empirical science par excellence.

An inherent property of every empirical science is the continuous search for new observable characters that are apt to scrutinise, falsify, or improve current theories. Traditionally, taxonomy relies on externally visible characters, an approach which generally provides a species level taxonomy that is reasonably close to the situation in nature. As a natural extension, internal characters have been extensively used in taxa that lack a distinctive external morphology. If the presence of cryptic species obscures the situation and if there is a demand, for economic or other reasons, a concerted effort with a range of methodological approaches often provides sufficient means to resolve difficult species complexes. When molecular tools became readily available, it did not take long for taxonomists to incorporate this technique. Whatever types of characters are used to set apart the limits of a species, they all are observations in a classical sense, and as such suitable to support or falsify the theory that defines a species. With this conception in mind, SPIXIANA will continue to encourage authors to submit original research papers that are in line with the notion that the question should determine the methods and characters used, and not vice versa.

The Zoologische Staatssammlung in Munich (ZSM) is a research institution with a resource that constitutes the very basis of all taxonomic research: a collection of zoological objects, the proficiency to maintain this resource, and the competence to extract relevant information from these objects. SPIXIANA is the house journal of the ZSM and aims to reflect the research that is conducted at the ZSM. The scope of research articles published in the journal reflects those biological disciplines that researchers at the ZSM are primarily engaged in, covering taxonomy, morphology, phylogeny, and zoogeography.

Martin Baehr edited the journal for about 20 years. In the name of the editorial board we wish to express our deeply felt thanks for his highly motivated work that established SPIXIANA in the field of international taxonomy. After his retirement two managing editors will take over his job and continue the tradition of SPIXIANA as the house journal of the ZSM dedicated to the publication of contributions in zoological systematics and related disciplines. However, the new editors use the opportunity to make a few changes to the layout of the journal and the way how manuscripts are submitted and handled, moving away from hard copy to electronical manuscript submission and subsequent processing. Readers of SPIXIANA will also notice some changes of the author guidelines that are intended to help reduce time and effort for processing manuscripts for both authors and editors. The new editors are looking forward to maintaining a journal that is attractive to authors of contributions in zoology and to a wide range of readers.

Roland R. Melzer and Stefan Schmidt  
(managing editors)