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Researchers propose preregistration in taxonomy to enhance transparency and credibility and reduce subjectivity

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A new opinion piece published in *Megataxa* today (Conix *et al.* 2023) calls for preregistration in the field of taxonomy and discusses its potential benefits and objections. Preregistration is a practice for researchers to document their hypotheses, design and methods of their proposed studies in a public repository before they start the study and collect the data (Nosek *et al.* 2018). It is believed that preregistration can help reduce bias, increase transparency, and improve study design (especially replicability) of research (*e.g.* Nosek *et al.* 2018; Krypotos *et al.* 2022), including exploratory research such as some aspects of biodiversity discovery and taxonomy (Dirnagl *et al.* 2020). While preregistration has been already employed in other fields such as social sciences (*e.g.* Camerer *et al.* 2016, 2018) and ecology/evolution (*e.g.* Kelly 2019), it has yet been adopted in taxonomy. Conix *et al.* (2023) argue that preregistration could be beneficial for taxonomy, given the challenges it faces, such as subjectivity, disagreement, and credibility:

Advantages of preregistration in taxonomy:

- *Transparency and comparability*: By requiring researchers to explicitly state their hypotheses, criteria and methods (for example) for recognizing a species prior to data collection and analysis, preregistration could improve transparency of taxonomic research, because it enables users to understand disagreements, for example, due to using different species concepts and find the most suitable taxonomic information.
- *Subjectivity*: By ensuring that decisions are made on principled, consistent, and systematic grounds, preregistration can reduce subjectivity in taxonomic research
- *Disagreement*: By making disagreements more transparent, preregistration can reduce duplications in taxonomic research and foster debates within taxonomic communities, potentially leading to better outcomes.
- *Credibility*: By serving as a quality label that reflects a rigorous methodology, preregistration can safeguard the credibility of taxonomy as serious field of study.

Objections and replies:

- *Unknown diversity and flexibility*: Although preregistration can be challenging for complex and unknown topics, taxonomists can build flexibility into their preregistration using "decision trees" or adjusting their methods when unforeseen factors arise.
- *Workload*: Although preregistration may slightly increase the workload of taxonomists, its benefits in improving transparency and research design are worth the additional efforts.
- *Pre-existing data*: If researchers do not explore and analyse the data before choosing their methods, preregistration can still be valuable when dealing with pre-existing data.
- *Preregistration is not infallible*: While preregistration is not a guarantee of good science (*e.g.* Pham & Oh 2021), it can be a useful tool to help researchers avoid bias and questionable research practices.

Conix *et al.* (2023) advocates for the adoption of preregistration in taxonomy and argues that it can enhance transparency, reduce subjectivity, and improve credibility in taxonomic research. The authors also address potential objections by others who may disagree, and they recommend flexible approaches to implementing preregistration in taxonomy. They also call on taxonomic journals to promote preregistration and recommend that they consider offering registered report options for authors. They believe that these would represent a significant step towards improving the quality and impact of taxonomic research.

The views expressed in this opinion piece are those of the authors (Conix *et al.* 2023). This short introduction provides a summary of the main points presented in Conix *et al.* (2023). *Megataxa* and its sister journals (*Zootaxa* and *Phytotaxa*) remain neutral on preregistration in taxonomy. However, we warmly welcome healthy discussions and debates on this important topic.

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