

Lognom, Assisting in the Decision-Making and Management of Zoological Nomenclature

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Abstract

Nomenclature is the discipline of taxonomy responsible for managing the scientific names of groups of organisms. It ensures continuity in the transmission of all kinds of data and knowledge accumulated about taxa. Zoologists use the International Code of Zoological Nomenclature (International Commission on Zoological Nomenclature 1999), currently in its fourth edition. The Code contains the rules that allow the correct understanding and application of nomenclature, e.g., how to choose between two names applying to the same taxon. Nomenclature became more complex over the centuries, as rules appeared, disappeared, or evolved to adapt to scientific and technological changes (e.g., the inclusion of digital media) (International Commission on Zoological Nomenclature 2012).

By adhering to nomenclatural rules, taxonomic databases, such as the Catalogue of Life (Bánki et al. 2023), can maintain the integrity and accuracy of taxon names, preventing confusion and ambiguity. Nomenclature also facilitates the linkage and integration of data across different databases, allowing for seamless collaboration and information exchange among researchers.

However, unlike its final result, which is also called a nomenclature, the discipline itself has remained relatively impervious to computerization, until now.

Lognom^{*1} is a free web application based on algorithms that facilitate decision-making in zoological nomenclature. It is not based on a pre-existing database, but instead provides an answer based on the user input, and relies on interactive form-based queries. This software aims to help taxonomists determine whether a name or work is available, whether spelling rules have been correctly applied, and whether all the relevant rules have been respected before a new name or work is published. *Lognom* also allows the user to obtain the valid name between several pre-registered candidate names, including the list of synonyms and the reason for their synonymy. It also includes tools for answering various nomenclatural questions, such as determining if two different species names with the same derivation and meaning should be treated as homonyms; if a name

should be treated as a *nomen oblitum* under [Art. 23.9](#) of the Code; and another tool to determine a genus-series name's grammatical gender.

Lognom includes most of the rules regarding availability and validity, with the exception of those needing human interpretation, usually pertaining to Latin grammar. At this point of its development, homonymy is not completely included in the web app, nor are the rules linked to the management of type-specimens (e.g., lectotypification, neotypification), outside of their use in determining the availability of a name.

With enough data entered by the users, *Lognom* should be able to model a modification of the rules and calculate its impact on the potential availability or spelling of existing names. Other perspectives include the possibility of working simultaneously on common projects, which should lead to dynamic lists of available names, as well as automatically extracting nomenclatural data from pre-existing databases, where relevant information is disseminated. A link to attach semantic web labels to names throughout [Zoonom](#) (Saliba et al. 2021) or [NOMEN](#) (Yoder et al. 2017) is also under consideration.

Keywords

software, web application

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Conflicts of interest

The authors have declared that no competing interests exist.

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Endnotes

- *1 *Lognom* is currently undergoing its last security checks and is under alpha testing. An update on the status as well as a working URL will be findable at the following address: <https://infosyslab.fr/index.php/en/resources/software/lognom/>