The Specific Problems of Palaeontological Databases and How NQMDB Deals with Them

Jesús Rodríguez

National Research Center on Human Evolution (CENIEH), Paseo Sierra de Atapuerca 3, 09002 Burgos, Spain

Watch the Video

Keywords: uncertainty, taxonomy, chronostratigraphy, database structure

The Neogene-Quaternary Mammals Database (NQMDB), hosted at CENIEH and accessible through ROAD, records information on mammalian species from the Neogene and Quaternary of Europe. As in many other databases focused on paleontological data, lists of fossil taxa by site and stratigraphic unit constitute the core of the database. Moreover, to be useful for researchers, paleontological databases should link the fossil occurrences to information on chronology. Thus, occurrence of a taxon at a place at a moment in time constitute the minimum information that should be recorded in a paleontological database. However, out of this three variables, only the spatial location of the site where the fossils where found is known with certainty, and sometimes even this is not true. The two major problems that any paleontological database should deal with are the uncertainty on the taxonomic identity of fossils and the uncertainty in their age. Given the fragmentary nature of the fossil record, it is frequent for different specialists to sustain different opinions about the taxonomic identity of a single fossil. Even worst, different taxonomists usually support alternative hypotheses about the phylogeny of a group, which produce different taxonomic classifications. The uncertainty about the age of a fossil is created by the existence of different dating methods, their accuracy and their reliability. Biostratigraphy is usually a highly reliable method, but it is very inaccurate. The accuracy of radiometric dating methods is variable, as well as their reliability. The challenge for any paleontological database is to record and organize all these uncertainties but, at the same time, be capable of providing data susceptible of being analyzed by researchers.

ORCID®
Jesús Rodríguez https://orcid.org/0000-0002-2834-0694

Rodríguez, J. (2022). The Specific Problems of Palaeontological Databases and How NQMDB Deals with Them. In A. W. Kandel, M. N. Haidle, & C. Sommer (Eds.), *Human Origins – Digital Future: An International Conference about the Future of Archaeological and Paleoanthropological Databases* (p. 25). Propylaeum, Heidelberg.
DOI: https://doi.org/10.11588/propylaeum.882.c13435