

2. Introduction to the Paleobiology Database

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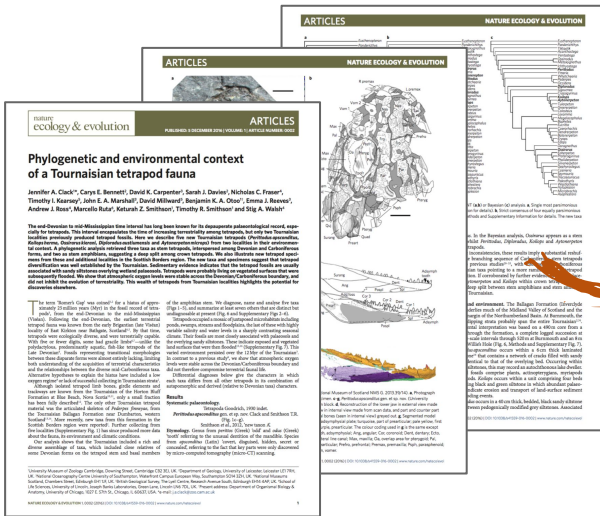
Thursday 25/08/2022



What is the Paleobiology Database?



- Non-governmental, non-profit, public resource
- Organized and operated by a multidisciplinary, multi-institutional, international paleobiological researchers
- Provides **global occurrence and taxonomic data** for organisms of all geological ages, as well as services to allow **easy access to data**
- Broader goal is to enable data-driven collaborative efforts that address large-scale paleobiological questions
- Licensed under a **CC BY 4.0 International License**



OCCURRENCE DATA:

Taxonomy
Location
Stratigraphy
Specimen no. etc.



All available data
added to the
Palaeobiology
database

Publications describing a fossil(s)

Analyses of
deep-time
biodiversity



Accessible by the whole palaeo
community & public



Let's open it up and explore!

<https://paleobiodb.org/>

History of the Paleobiology Database

- Began in 1998 - Phanerozoic Marine Paleofaunal Database initiative
- John Alroy (Macquarie University) and Charles Marshall (UC Berkeley)
- Contains data from Sepkoski compendia
- Financial supported by the US National Science Foundation (NSF) and the Australian Research Council (2000–2013)
- Since 2013, funding from several sources (e.g. NSF) for specific projects



Organisational structure

Executive Committee

12 members of palaeo community (e.g. academics, educators, museum personnel). 3-year terms. Approve new enterers etc.

Authorizers

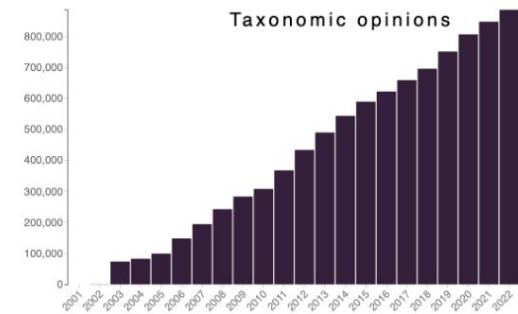
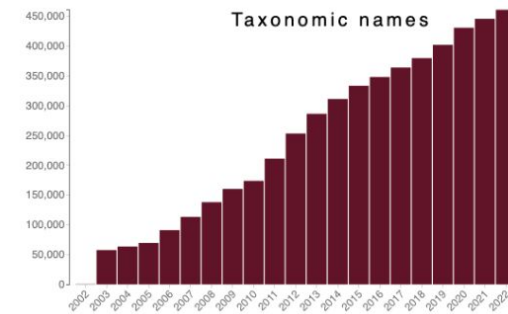
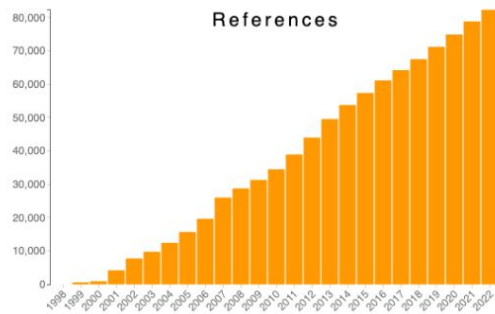
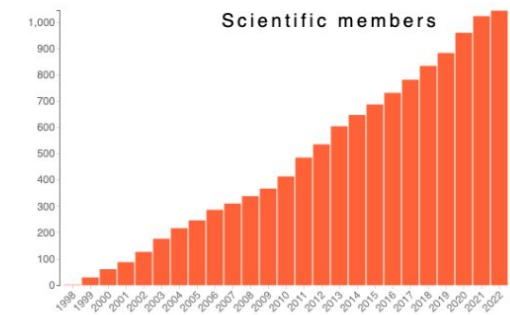
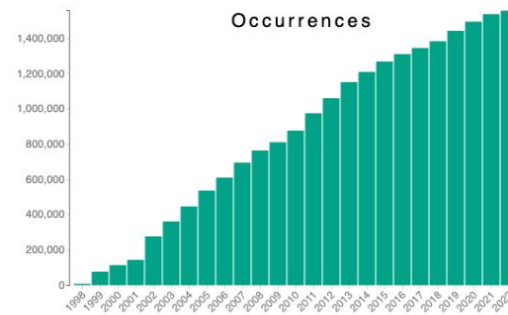
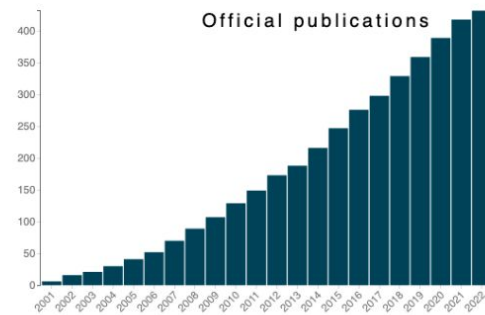
Members responsible for Enterers, students, etc., with slightly more editing capabilities. Requires PhD and extensive experience

Enterers

Work with authorizer or 'buddy' to enter data

Growth of the PBDB

Database Growth Statistics



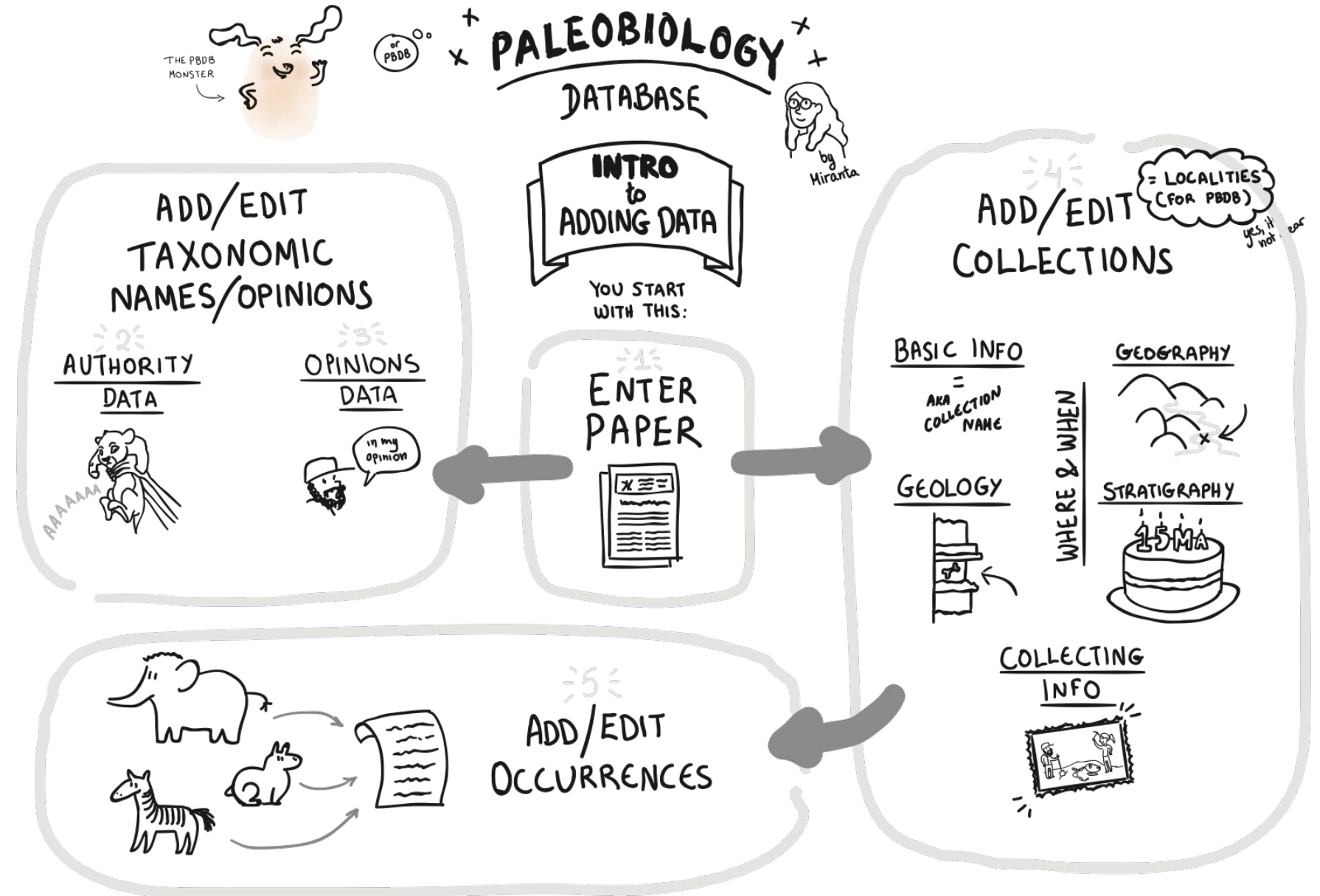
<https://paleobiodb.org/#/project>

Using the PBDB

1. Member of the public
2. Student account
3. Enterer (with buddy/Authorizer)
4. Authorizer

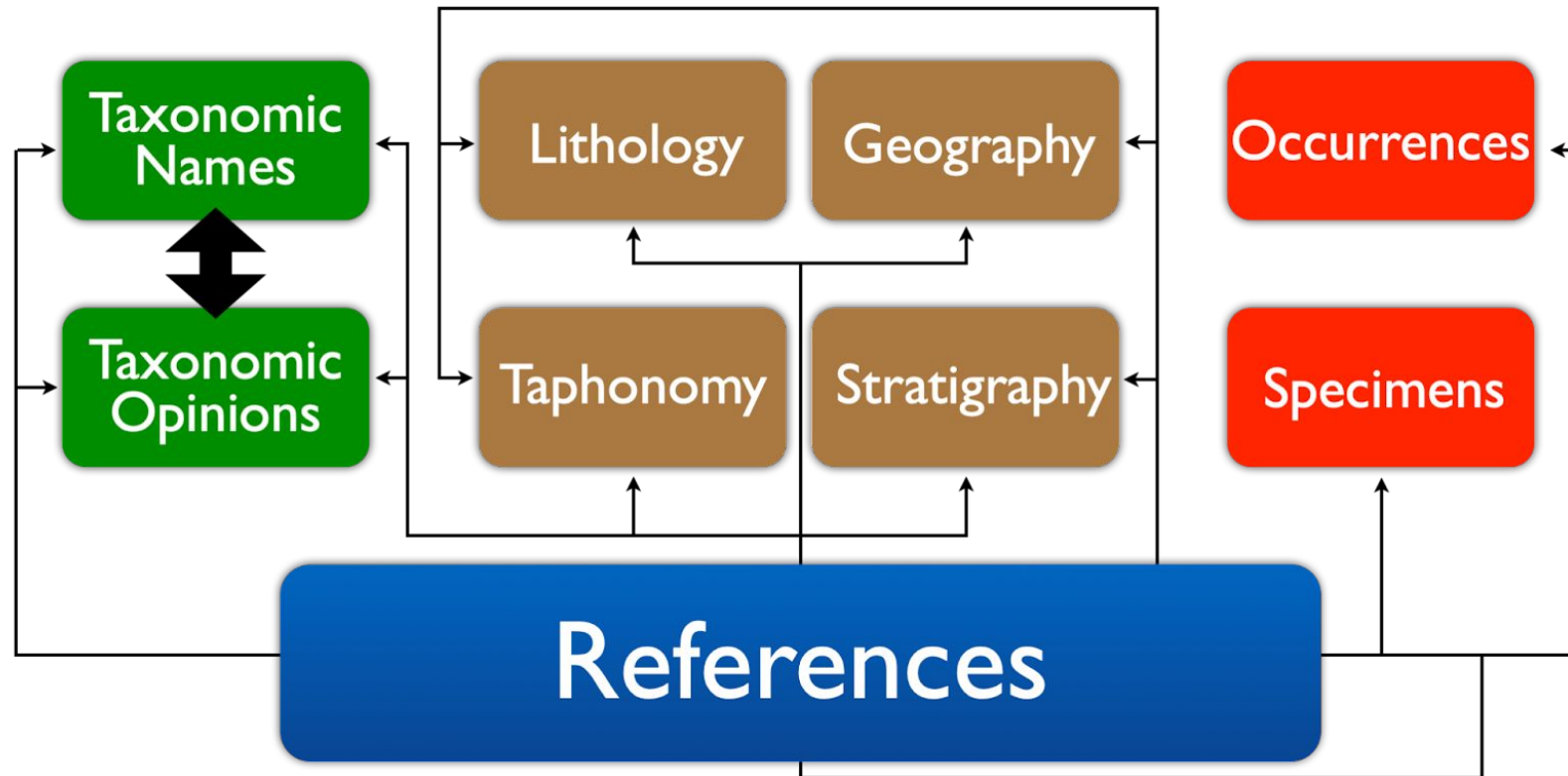


How is the PBDB organised?



References are the foundation:

Bibliographic, Taxonomic, Geologic & Geographic, Occurrence



“Collections” = localities?

Have different meanings depending on research/taxonomic group:

1. Individual localities (i.e. sites where fossils are found)
2. Group of smaller localities in same formation/member
3. Small collection of fossils collected from same place
4. Corresponding to museum collection or research trip

“Collections” = localities?



Photos: A.A. Chiarenza



Photo: L. Zanno

Entering data to the PBDB

Together, we'll enter data on *Iyuku raathi*, a new dinosaur from the Early Cretaceous of South Africa!

You'll find the .pdf file of the paper on the course webpage



PBDB Official Publications

Papers that have used PBDB data in some way:

- <https://paleobiodb.org/#/publications>
- You can request a number once your publication has been accepted (following all revisions)



The PBDB also has a Google Scholar page:

https://scholar.google.com/citations?hl=en&user=PP946k4AAA-AJ&pagesize=100&view_op=list_works&sortby=pubdate

Acknowledging the PBDB

“We thank all contributors to the Paleobiology Database, without whom this work would not be possible. This is Paleobiology Database official publication number 412.”



“We are grateful for the efforts of all those who have generated Maastrichtian dinosaur fossil data as well as those who have entered these data into the Paleobiology Database, especially Matthew Carrano and John Alroy”

“We thank all contributors to the Paleobiology Database, in particular T. Liebrecht, R. Whatley, J. Dummasch, J. Alroy and M. Carrano.”

Future of the PBDB

- Plans in motion for more sophisticated data entry from DOIs
- GeoDeepDive: <https://geodeepdive.org/>
- Updates to taxonomic organisation
- Webpage updates coming soon!



Other notable fossil occurrence databases

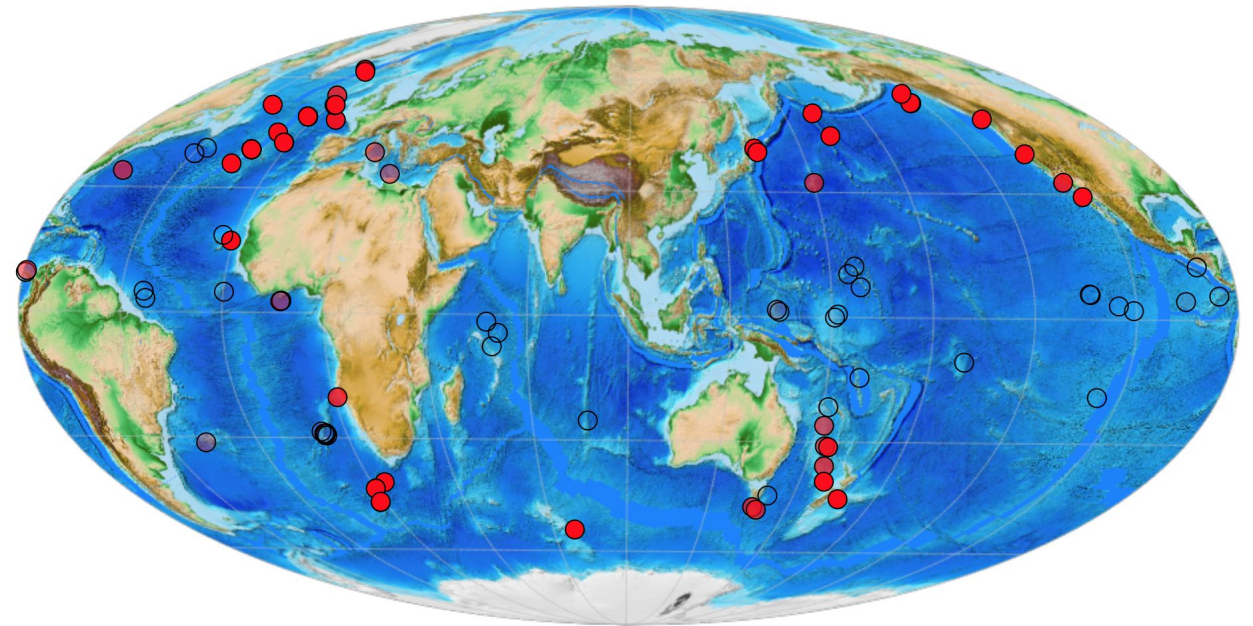
Neotoma Paleoecology Database

- A global effort to document **paleoenvironments**
- Publicly available and free to use (CC-BY 4.0 License)
- Includes data for North American Pollen (NAPD) and fossil mammals (FAUNMAP)
- Together with the PBDB, launched the **EarthLife Consortium** non-profit



The Neptune Database

- A database of **marine plankton microfossil occurrence** records from Deep Sea Drilling Project (DSDP) and Ocean Drilling Program (ODP) publications
- Publicly available through the Neptune Sandbox Berlin
- Inspired by Sepkoski's database and, in turn, inspired the PBDB



Geobiodiversity Database (GBDB)

- Database of the **International Commission on Stratigraphy**
- Based at Nanjing Institute of Geology and Palaeontology
- Focus on invertebrates
- **Section-based** system, incorporating stratigraphical data

