

# Data collection and analysis of paleonetworks

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## Data collection

the first step was to collect data from the paleodiversity database, from there we gathered occurrences using the following code. Which collected all occurrences from the Rhaetian to the Sinemurian, within the bounding box of latitudes 34 to 85 degrees north and longitudes 28.85 west to 41.078 east.

```
All <- read_csv("https://paleobiodb.org/data1.2/occs/list.csv?datainfo&rowcount&interval=rhaetian,sinemurian",
  skip = 22) %>% mutate(Binomial = paste(genus, species_name))
```

## Data cleaning

### Environment

we filtered the data to include only occurrences that occurred in the environments

### Taxonomy

Occurrences were excluded if they were part of the Phyla Problematica, Ginkgophyta, Cycadeoideophyta, Cycadophyta, Equisetophyta, Pinophyta, Peltaspermatophyta, Tracheophyta or if they belonged to the class Insecta or Mammalia, or belonging to the orders Pterosauria.

## Data exploration

The final dataset had 10,398 occurrences, belonging to 17 Phyla (Table 1) and 2,821 species.

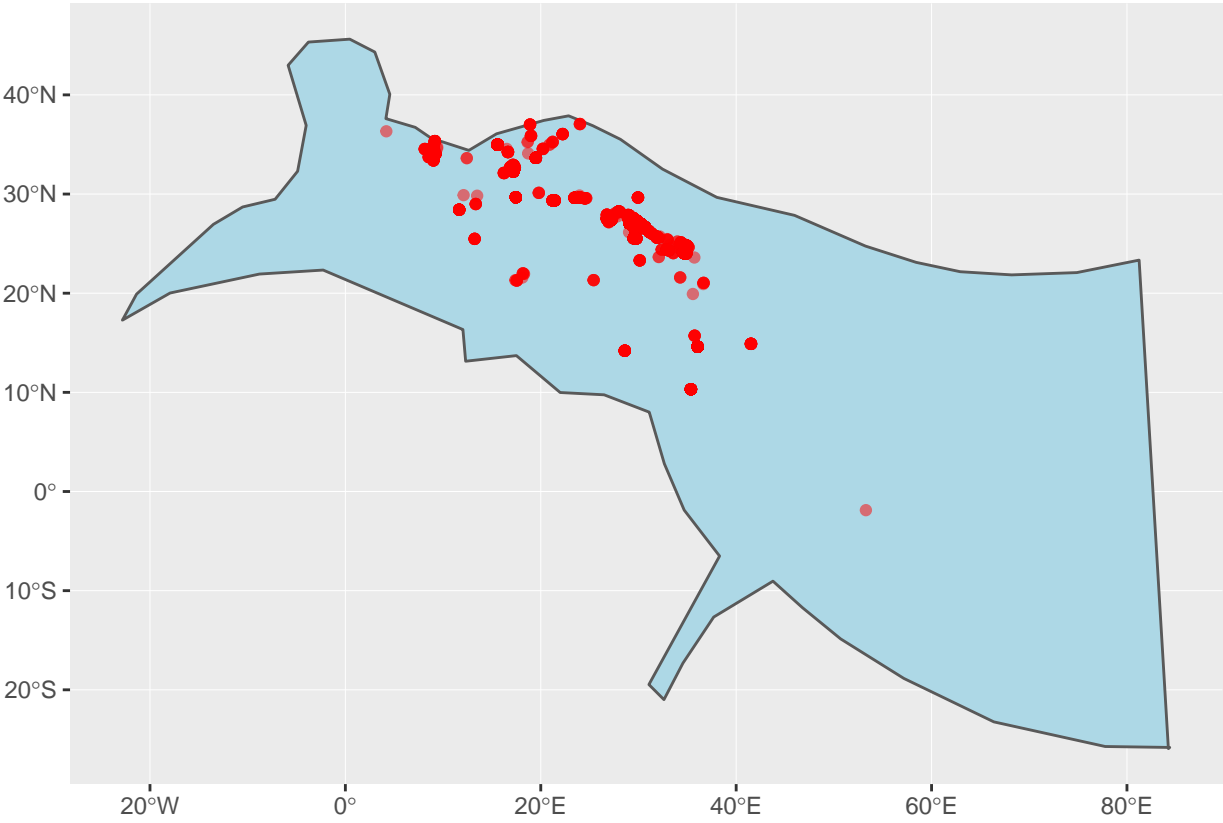
Table 1: Number of occurrences for each Phylum present in descending order

phylum	n
Mollusca	4,559
Brachiopoda	1,872
Chordata	1,114
NA	570
Arthropoda	544
Cnidaria	533
Retaria	522
Foraminifera	339
Porifera	140
Chlorophyta	59
Annelida	40
Rhodophyta	28
Echinodermata	27
Problematica	23
Bryozoa	16
Cyanobacteria	11
Nematoda	1

Functions

Subsetting dataset by Age

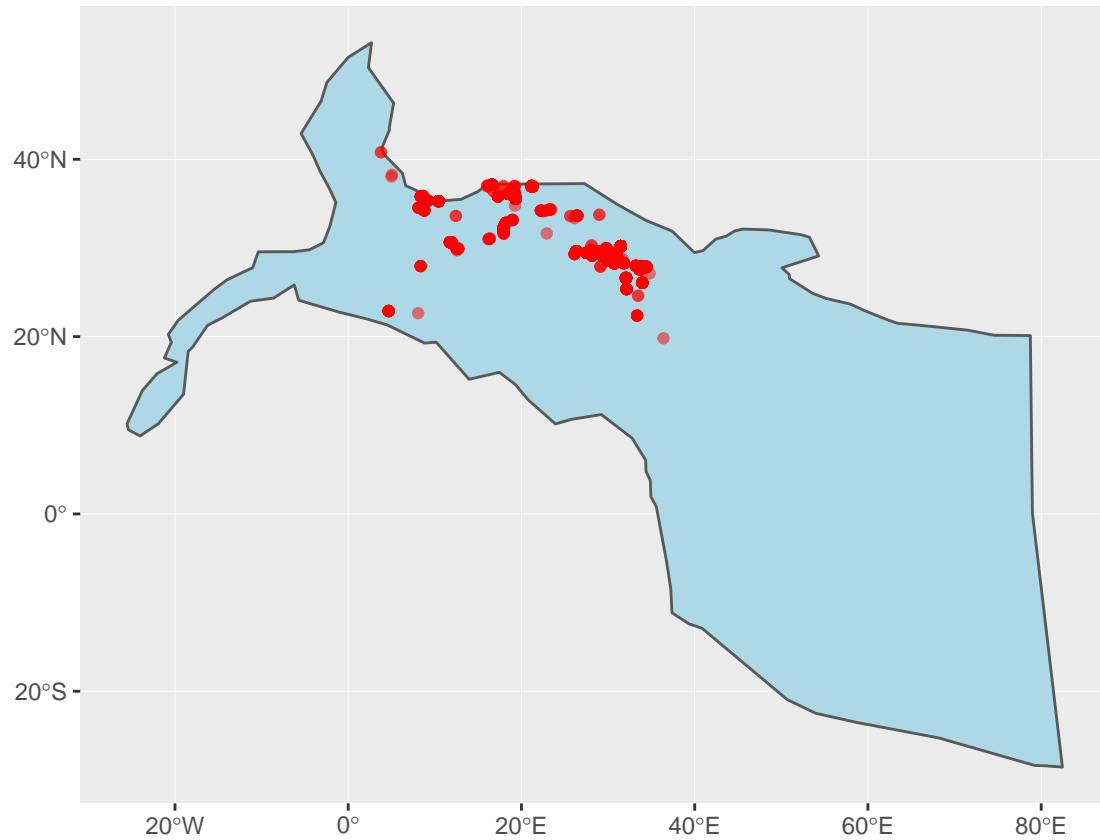
Rahetian



The Rahetian dataset had 3,879 occurrences, belonging to 16 Phylla (Table 1) and 947 species. The value for Good's U for the Rahetian is 0.88

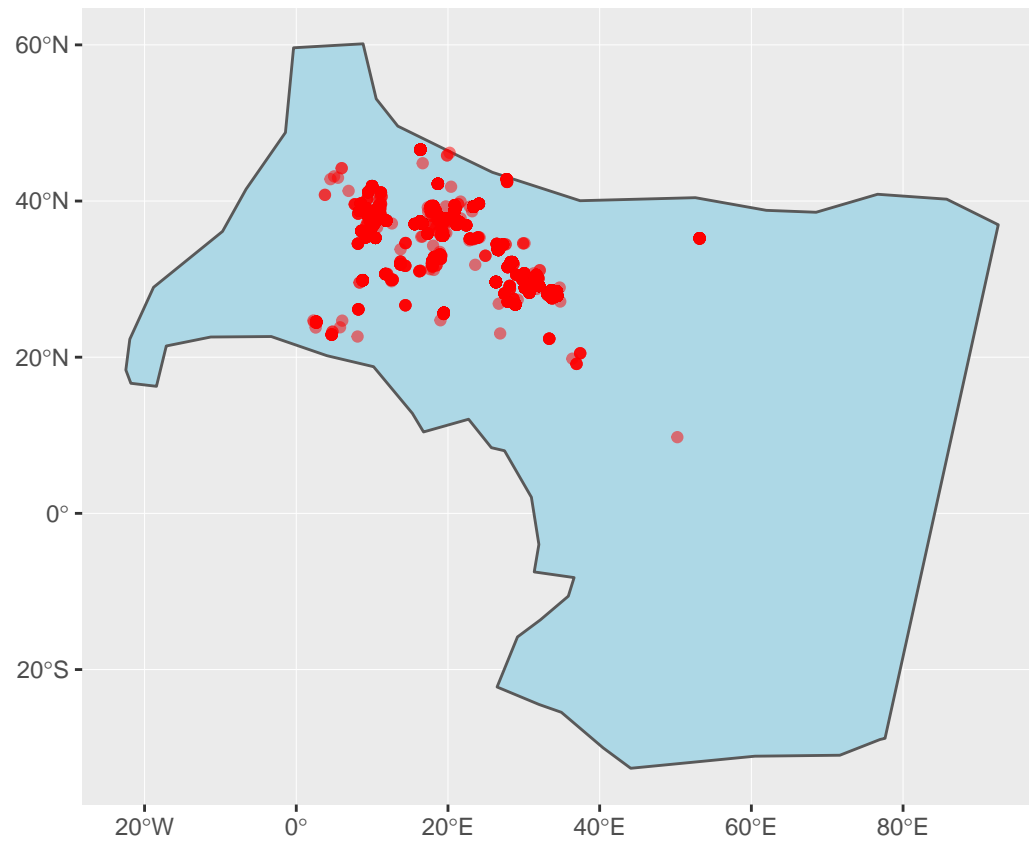
### Hettangian

In order to subsett by age we have to take into account an occurrence to be present in an age if any of its



The Hettangian dataset had 1,881 occurrences, belonging to 13 Phylla (Table 1) and 822 species. The value for Good's U for the Rahetian is 0.74

## Sinemurian



The Sinemurian dataset had 5,007 occurrences, belonging to 14 Phylla (Table 1) and 1,582 species. The value for Good's U for the Rahetian is 0.838

## Appendix