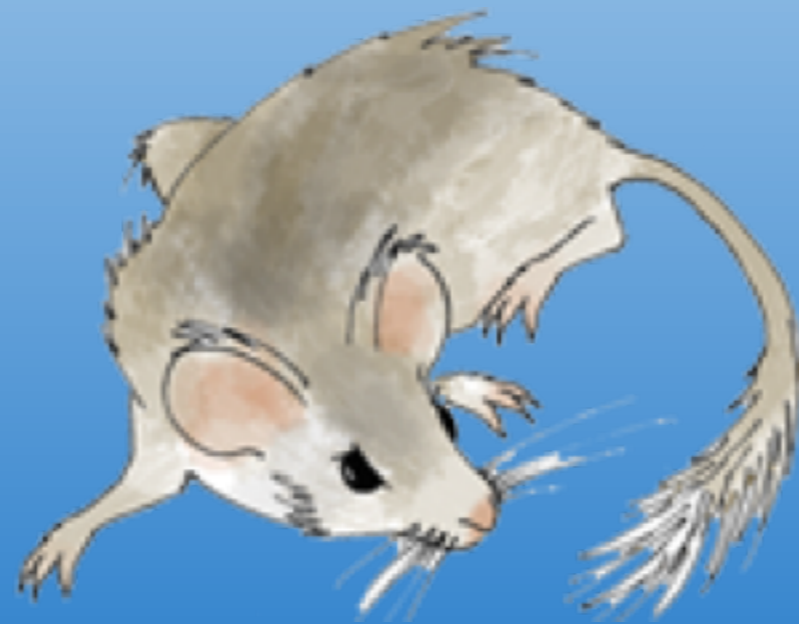


# Integrating Paleontological and Neontological Data Across Time and Space



Paleobiology  
Database



Neotoma  
Database



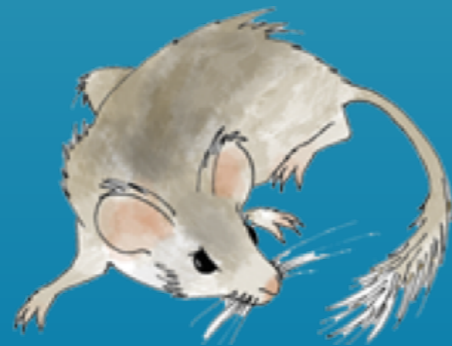
iDigBio



**EARTH CUBE**  
TRANSFORMING GEOSCIENCES RESEARCH



EarthLife  
Consortium

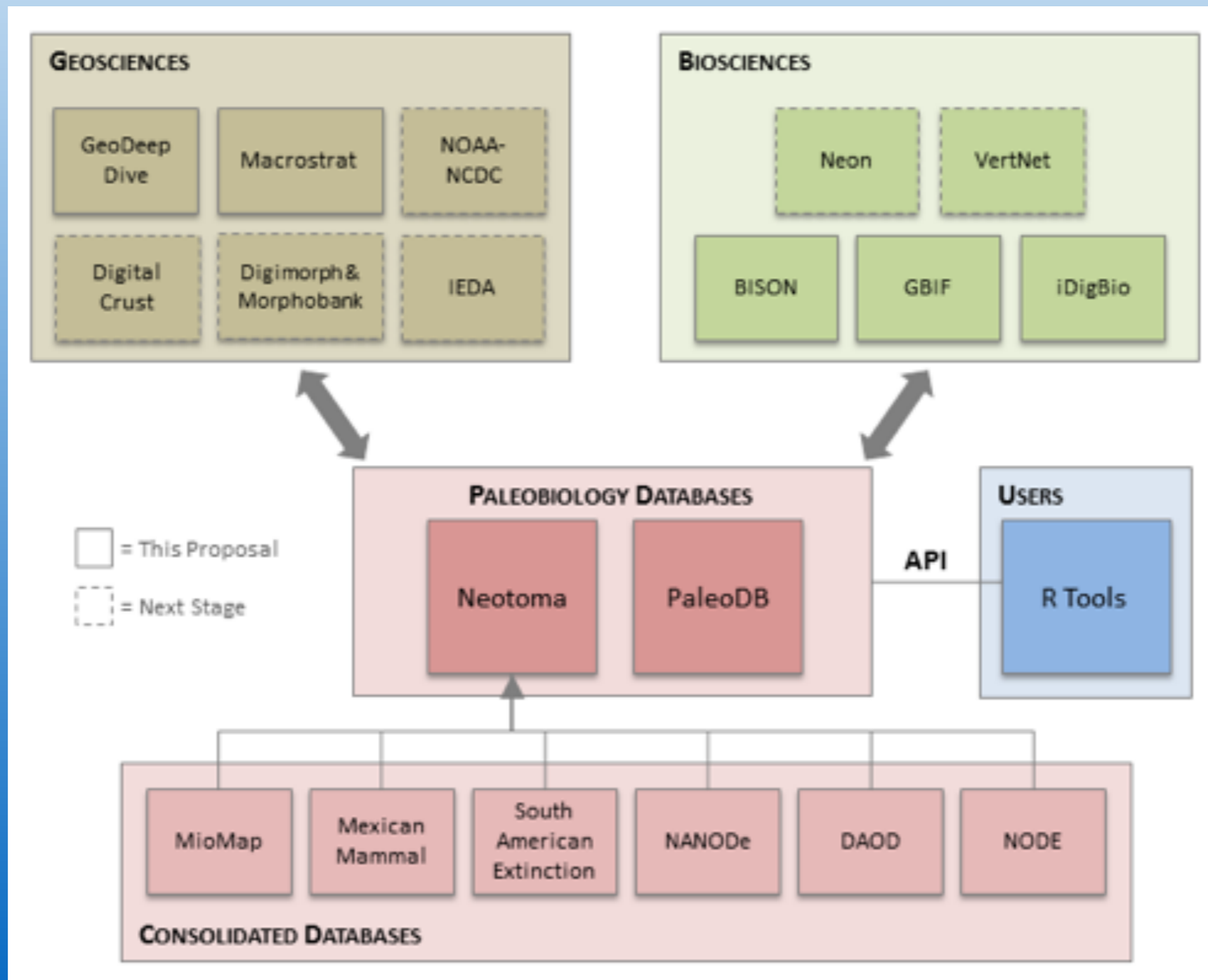


ePANDDA



The goal of both projects is to make data more accessible.

# EarthLife Consortium concept map



# Consolidate databases with Neotoma

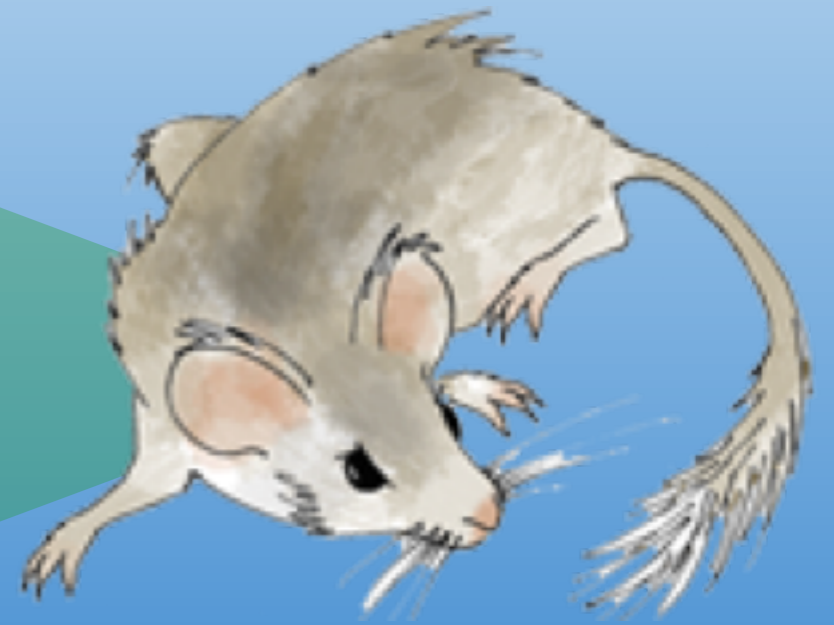
MioMap

Mexican Quaternary  
Mammal Database

North American Nonmarine  
Ostracode Database

Delorme Autecological  
Ostracode Database

Nonmarine Ostracode  
Database in Europe



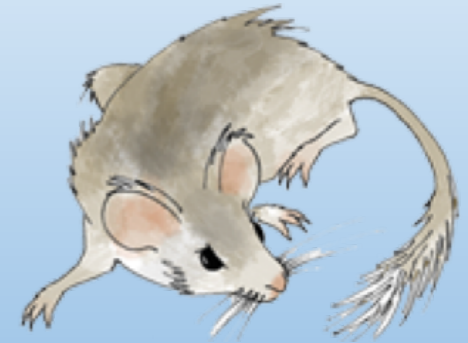
Neotoma

# Upload data to GBIF



PBDB

## Data Field Crosswalk



Neotoma

PaleoBioDB	Block	PaleoBioDB field name	GBIF field name	Output table	GBIF Term Link	DWC Term Link	Neotoma Variable Name	Neotoma Table	Choice of DwC	Comments
occurrence	basic	occurrence_no	occurrenceID	occurrences, identificatio	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	AnalysisUnitID + TaxonID	AnalysisUnits	occurrenceID	Combinatio
occurrence	basic	record_type: "Occurrence"	type	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	"Dataset" or "Occurrence"		dcterms:type	Check PBD
occurrence	basic	collection_no	collectionID	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	AnalysisUnitID	AnalysisUnits	datasetID	Some poter
			datasetID	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	DatasetID			
			associatedTaxa	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>			associatedTaxa	This can be
occurrence	basic	accepted_name	scientificName	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	TaxonName	Taxa	ScientificName	Neotoma d
occurrence	basic	accepted_rank	taxonRank	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	n/e			
occurrence	basic	accepted_no	taxonConceptID	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	n/e			
occurrence	basic	accepted_attr	scientificNameAuthorship	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	Author	Taxa		
occurrence	basic	reid_no	identificationID	identifications	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	n/e			No Neotom
occurrence	basic	identified_name	scientificName	identifications	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	TaxonName	Taxa	scientificName	
occurrence	basic	identified_rank	taxonRank	identifications	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	n/e			Many morp
occurrence	basic	identified_no	taxonID	identifications	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	TaxonID	Taxa	scientificNameID	
occurrence	basic	early_interval	earliestAgeOrLowestStage	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	CalAgeOlder	RelativeAges	earliestAgeOrLowestStage	
occurrence	basic	late_interval	latestAgeOrHighestStage	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	CalAgeYounger	RelativeAges	latestAgeOrHighestStage	
occurrence	basic	early_age	no corresponding field		<a href="http://tools.gbif.org">http://tools.gbif.org</a>		AgeOlder	SampleAges	earliestAgeOrLo	Changed fr
occurrence	basic	late_age	no corresponding field		<a href="http://tools.gbif.org">http://tools.gbif.org</a>		AgeYounger	SampleAges	latestAgeOrHigh	Changed fr
occurrence	basic	ref_author	recordedBy	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>		ContactName	Contacts		This can be



GBIF

# PaleoAPI

## PaleoAPI

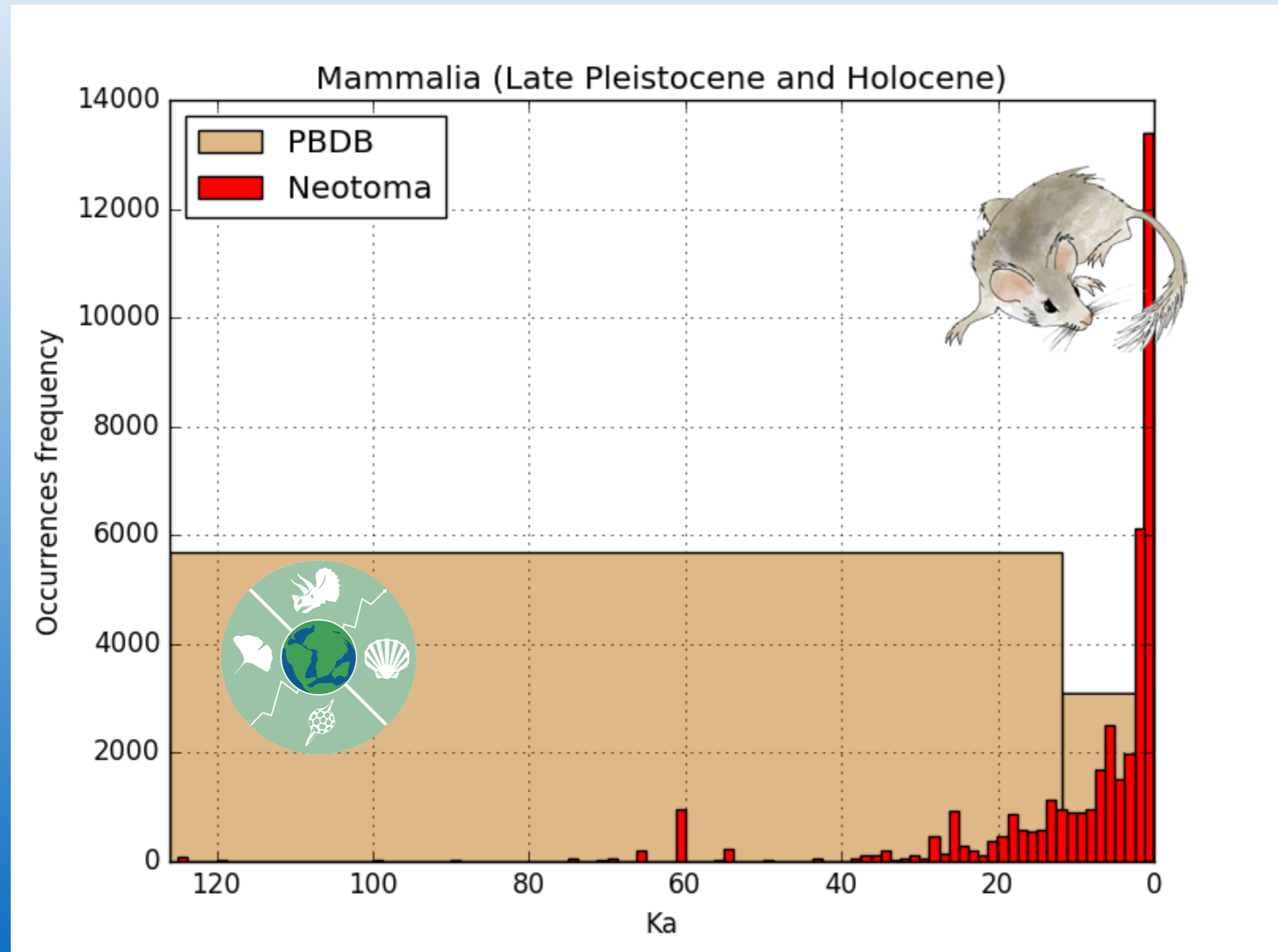
Development of a common application programming interface to enable the simultaneous searching of all paleobiological databases. To explore a preliminary version of this data service, please enter a taxonomic name in the field below and choose to display the raw results on the screen or to download a CSV file suitable for use in a spreadsheet. The resulting data file will include all occurrences from the Paleobiology database followed by occurrences retrieved from the Neotoma Paleocology Database distinguished by the "Database" field. Age ranges may be specified in a selected time unit or left blank to return all occurrences for a given taxon.

Taxonomic Name:

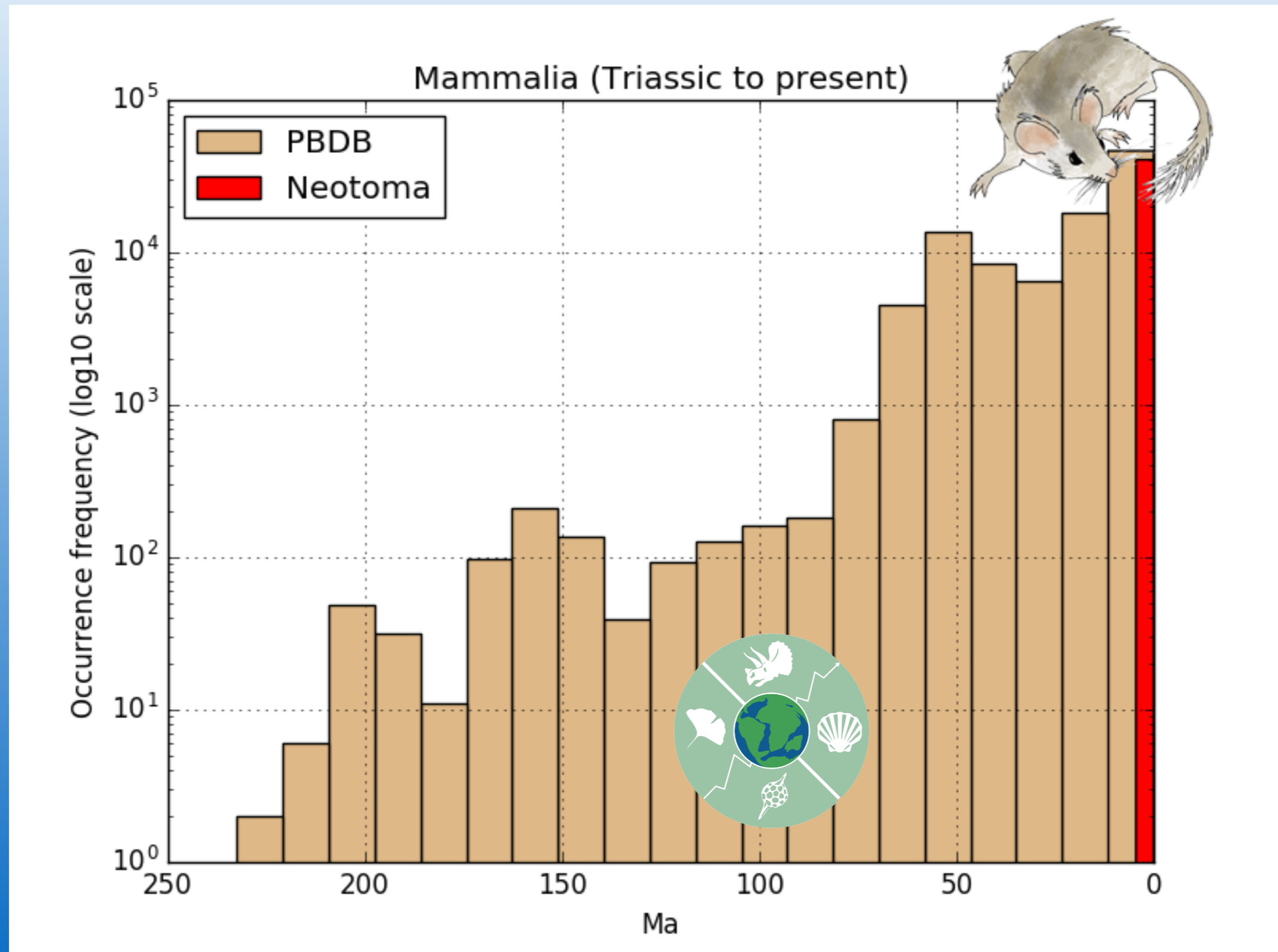
Min Age:  Max Age:  Units:

query Neotoma and PBDB simultaneously @  
[earthlifeconsortium.org](http://earthlifeconsortium.org)

# Mammalia, Quaternary focus

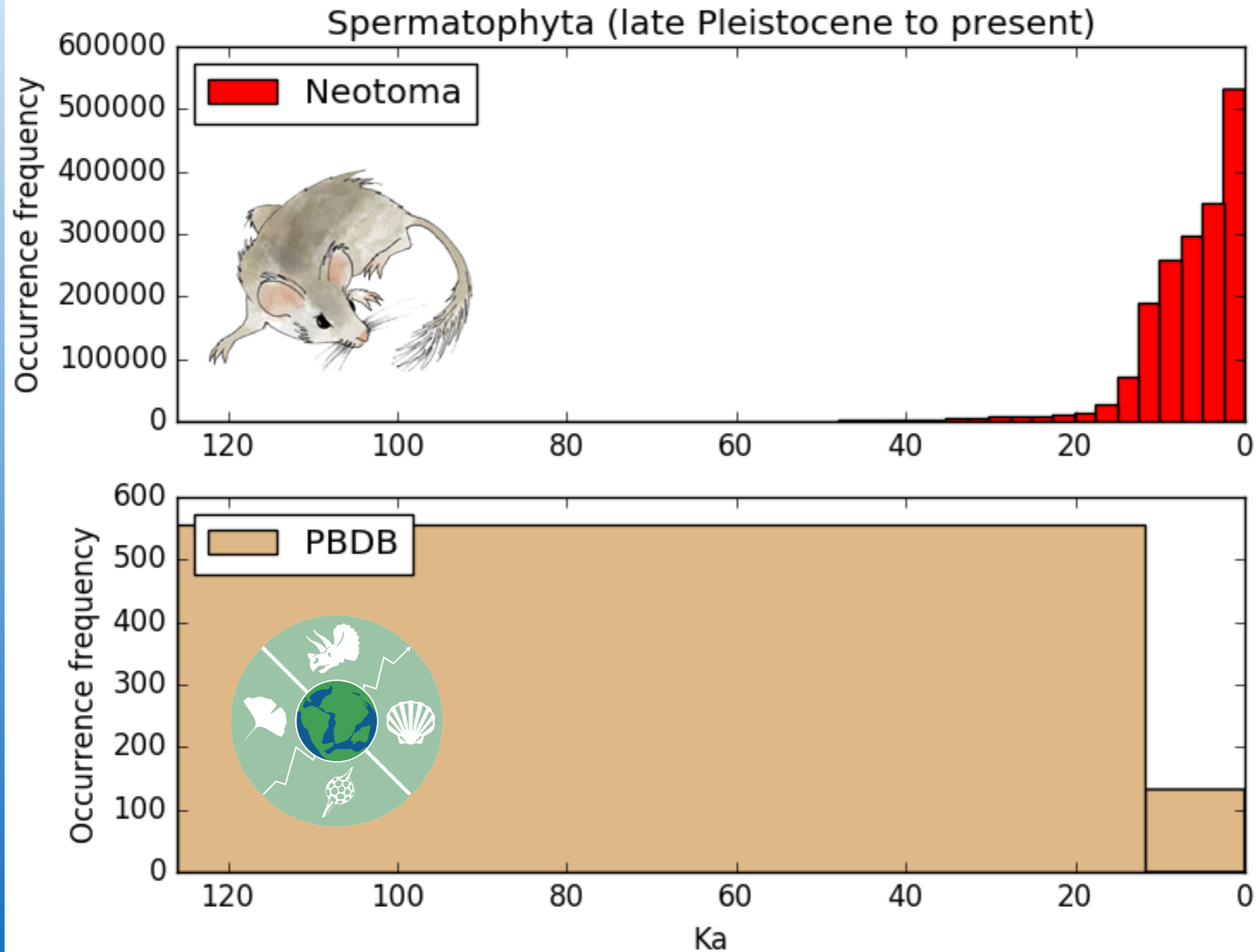


# Mammalia, Phanerozoic focus

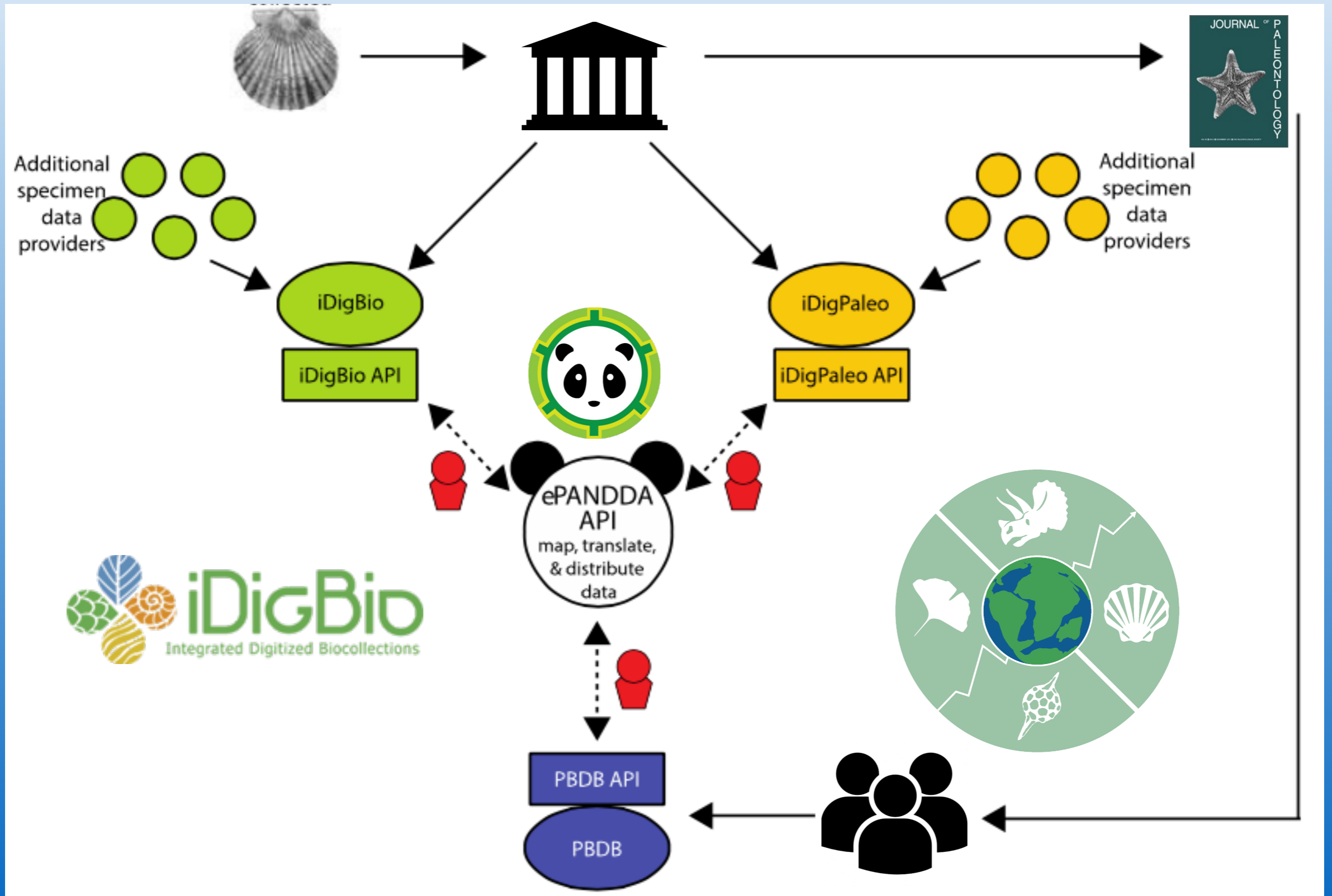




# Spermatophyta



# ePANDDDA concept map





**iDigBio**  
Integrated Digitized Biocollections

occurrence  
data

specimen  
data

PBDB  
data

specimen  
data

add specimen  
fields

compare  
data records



# Specimen Data Sharing



PBDB

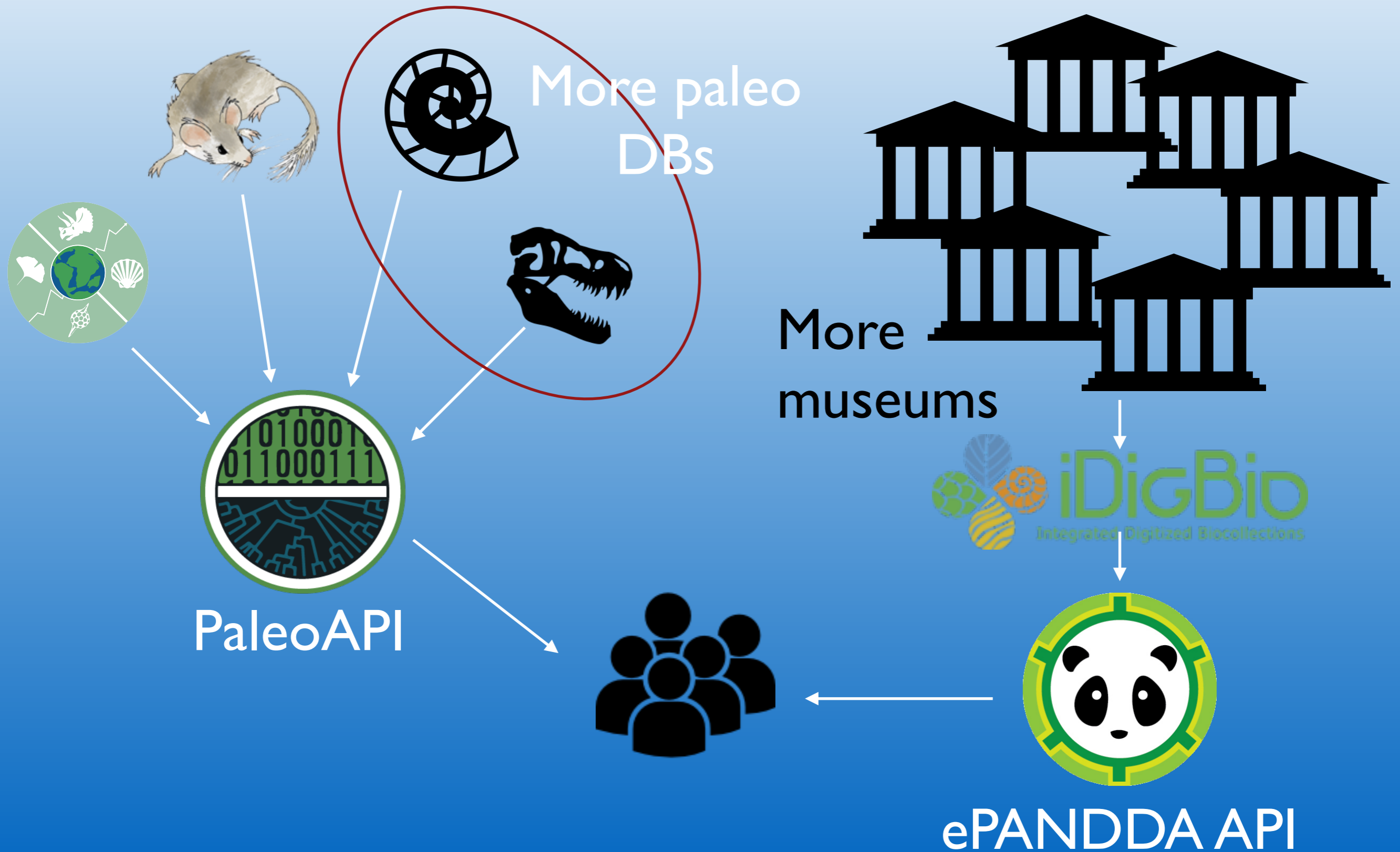
## Data Field Crosswalk



iDigBio

PaleoBioDB	Block	PaleoBioDB field name	GBIF field name	Output table	GBIF Term Link	DWC Term Link	Neotoma Variable Name	Neotoma Table	Choice of DwC	Comments
occurrence	basic	occurrence_no	occurrenceID	occurrences, identificatio	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	AnalysisUnitID + TaxonID	AnalysisUnits	occurrenceID	Combinatio
occurrence	basic	record_type: "Occurrence"	type	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	"Dataset" or "Occurrence"		dcterms:type	Check PBD
occurrence	basic	collection_no	collectionID	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	AnalysisUnitID	AnalysisUnits	datasetID	Some poter
			datasetID	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	DatasetID			
			associatedTaxa	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>			associatedTaxa	This can be
occurrence	basic	accepted_name	scientificName	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	TaxonName	Taxa	ScientificName	Neotoma d
occurrence	basic	accepted_rank	taxonRank	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	n/e			
occurrence	basic	accepted_no	taxonConceptID	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	n/e			
occurrence	basic	accepted_attr	scientificNameAuthorship	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	Author	Taxa		
occurrence	basic	reid_no	identificationID	identifications	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	n/e			No Neotom
occurrence	basic	identified_name	scientificName	identifications	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	TaxonName	Taxa	scientificName	
occurrence	basic	identified_rank	taxonRank	identifications	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	n/e			Many morp
occurrence	basic	identified_no	taxonID	identifications	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	TaxonID	Taxa	scientificNameID	
occurrence	basic	early_interval	earliestAgeOrLowestStage	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	CalAgeOlder	RelativeAges	earliestAgeOrLowestStage	
occurrence	basic	late_interval	latestAgeOrHighestStage	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>	<a href="http://terms.tdwg.org">http://terms.tdwg.org</a>	CalAgeYounger	RelativeAges	latestAgeOrHighestStage	
occurrence	basic	early_age	no corresponding field		<a href="http://tools.gbif.org">http://tools.gbif.org</a>		AgeOlder	SampleAges	earliestAgeOrLo	Changed fr
occurrence	basic	late_age	no corresponding field		<a href="http://tools.gbif.org">http://tools.gbif.org</a>		AgeYounger	SampleAges	latestAgeOrHigh	Changed fr
occurrence	basic	ref_author	recordedBy	occurrences	<a href="http://tools.gbif.org">http://tools.gbif.org</a>		ContactName	Contacts		This can be

# Future Expansion



# Acknowledgements



Jessica Blois  
Russ Graham  
Shanan Peters  
Allison Smith  
Jack Williams



John Czaplewski  
Noel Heim  
Julian Jenkins  
Michael McClennen  
Valerie Syverson



Susan Butts  
Talia Karim  
Gil Nelson  
Christopher Norris  
Jocelyn Sessa  
Dena Smith



Support from NSF EarthCube ICER I540997 (ELC) I540929 (ePANDDA).

