

Paleoniches

digitizing fossils to enable new syntheses in biogeography



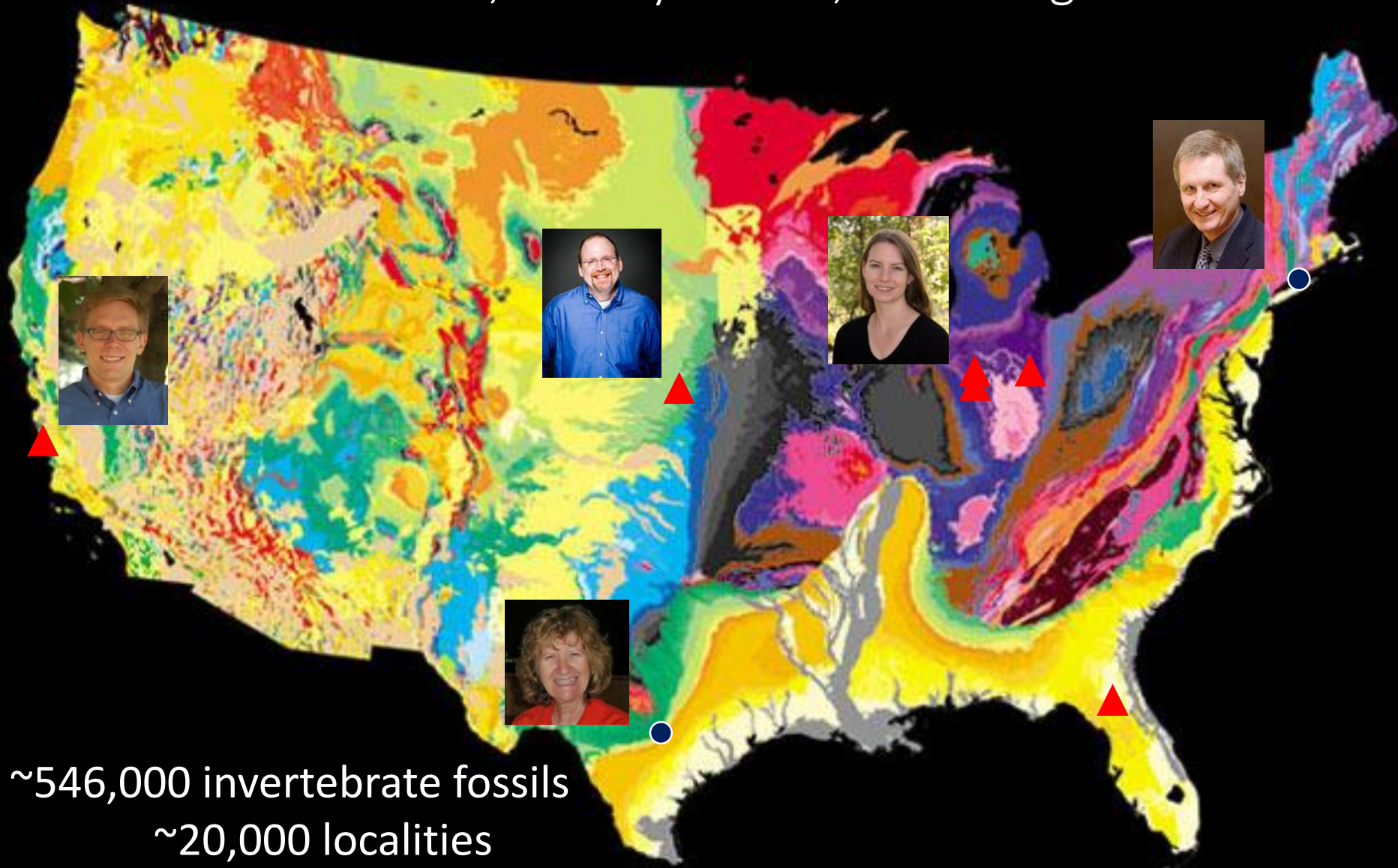
Project Aims

Create a spatial database suitable for investigating long term effects of climate change - paleo-biogeographic studies and paleo-ecological niche modeling.

Outreach component: resources for fossil identification, classroom/lab worksheets, museum displays and activities.



3 major time periods/biogeographic regions: Ordovician, Pennsylvanian, and Neogene



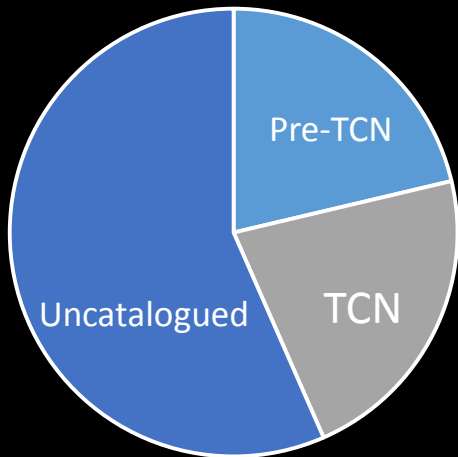
~546,000 invertebrate fossils
~20,000 localities
8 institutions

Pennsylvanian Specimens

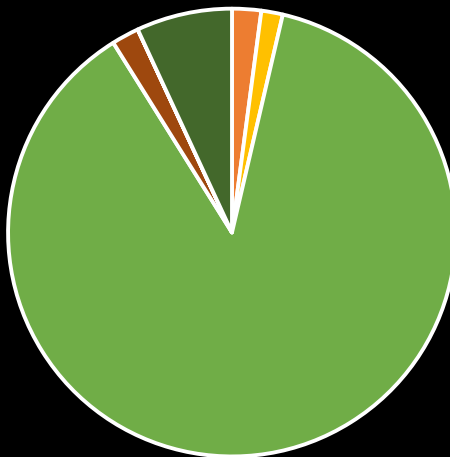
Taxonomic Breakdown

Pennsylvanian Localities

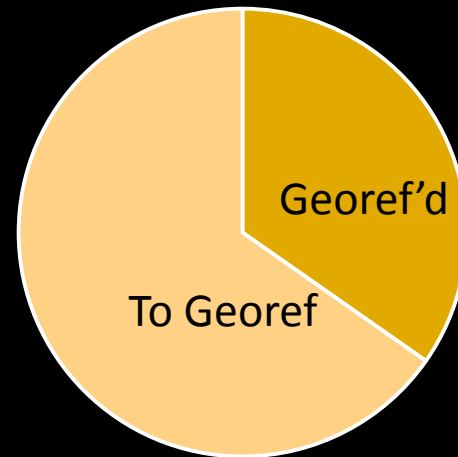
May 2013



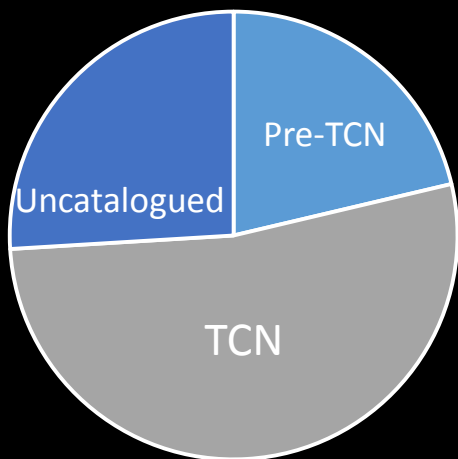
May 2013



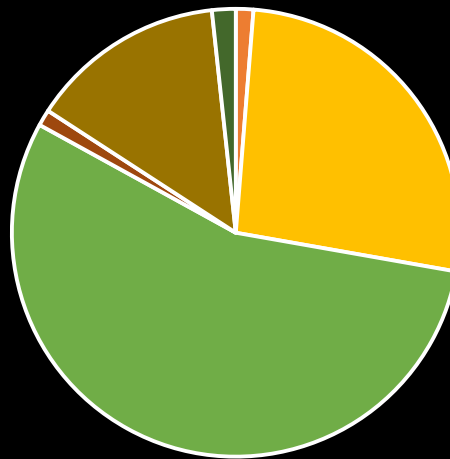
May 2013



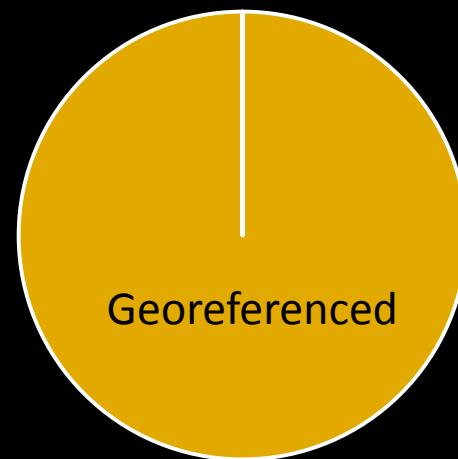
Sept. 2014



Sept. 2014



Sept. 2014

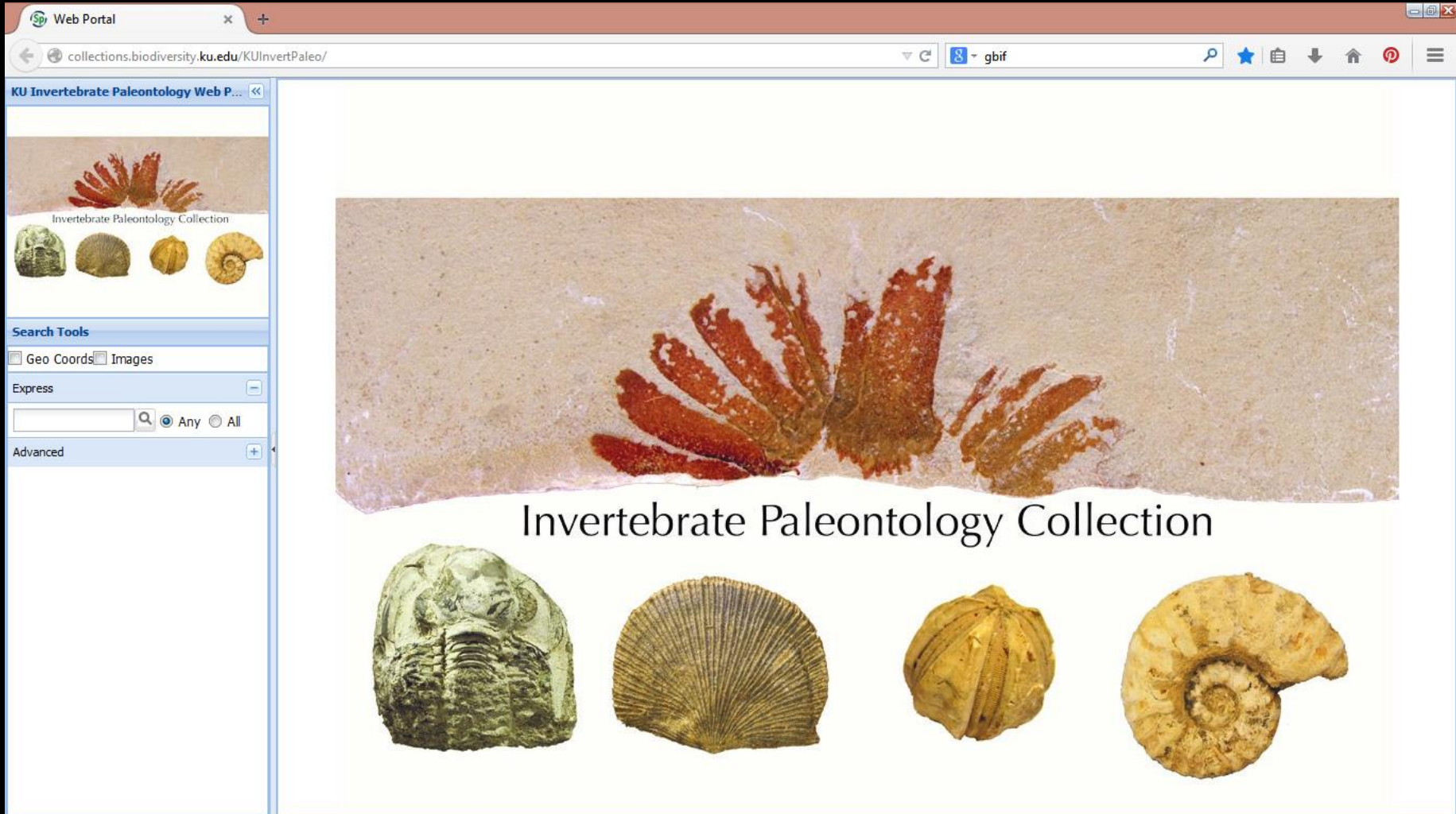


- Arthropoda
- Echinodermata
- Brachiopoda
- Cnidaria
- Mollusca
- Other

UT Austin-NPL PEN progress year two:

- Ordovician
 - 2282 records-6700 specimens
 - 1132 georeferenced
- Carboniferous
 - 14115 records-42000 specimens
 - 3630 georeferenced
- Paleogene/Neogene
 - 22000 records- 66000 specimens
 - 7100 georeferenced
- Quaternary
 - 12310 records- 37000 specimens
 - 3913 georeferenced
- Images
 - 3k attached in Specify
 - 10k imaged awaiting attachment
 - 20k (type & figured) attached in PaleoCentral.org
- Web
 - PaleoCentral.org with deep time mapping in beta testing

Institutional Database Access



The image shows a web browser window displaying the KU Invertebrate Paleontology Web Portal. The browser's address bar shows the URL collections.biodiversity.ku.edu/KUInvertPaleo/. The page features a search interface on the left with options for "Geo Coords" and "Images", and a search box with "Any" selected. The main content area displays a large image of a fossilized trilobite, with the text "Invertebrate Paleontology Collection" centered below it. Below the text are four smaller images of various fossils: a trilobite, a bivalve shell, a brachiopod, and an ammonite.

<http://collections.biodiversity.ku.edu/KUInvertPaleo/>

KU Invertebrate Paleontology Web P...



Search Tools

Geo Coords Images

Express

composita Any All

Advanced

		KUMIP#	image	Kingdom	Phylum	Subphylum	Superclass	Class	Subclass	Superorder	Order	Sut
1	Q	140189		Animalia	Brachiopoda	Rhynchonellifor...		Rhynchonellata			Athyridida	^
2	Q	33491		Animalia	Brachiopoda	Rhynchonellifor...		Rhynchonellata			Athyridida	
3	Q	33492		Animalia	Brachiopoda	Rhynchonellifor...		Rhynchonellata			Athyridida	
4	Q	33493		Animalia	Brachiopoda	Rhynchonellifor...		Rhynchonellata			Athyridida	
5	Q	36429		Animalia	Brachiopoda	Rhynchonellifor...		Rhynchonellata			Athyridida	
6	Q	255129		Animalia	Brachiopoda	Rhynchonellifor...		Rhynchonellata			Athyridida	
7	Q	139917		Animalia	Brachiopoda	Rhynchonellifor...		Rhynchonellata			Athyridida	
8	Q	139918		Animalia	Brachiopoda	Rhynchonellifor...		Rhynchonellata			Athyridida	
9	Q	139919		Animalia	Brachiopoda	Rhynchonellifor...		Rhynchonellata			Athyridida	
10	Q	139920		Animalia	Brachiopoda	Rhynchonellifor...		Rhynchonellata			Athyridida	
11	Q	139921		Animalia	Brachiopoda	Rhynchonellifor...		Rhynchonellata			Athyridida	
12	Q	139922		Animalia	Brachiopoda	Rhynchonellifor...		Rhynchonellata			Athyridida	

KU Invertebrate Paleontology Web P...

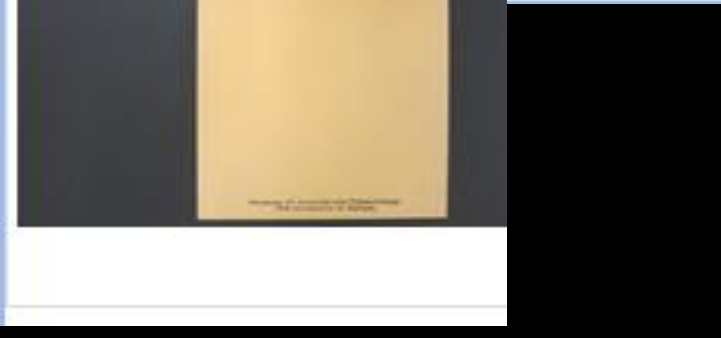


Search Tools


Geo Coords Images

Records Images Ma

Preview (page 1 of 1)



KU Invertebrate Paleontology Web P...



Invertebrate Paleontology Collection

Search Tools

Geo Coords Images Fit to Map

Express

Advanced

Genus:	Composita	=	▼
Species:		=	▼
Subspecies:		=	▼
LocalityNum:		=	▼
Collectors:		=	▼
Start Date:		=	▼
End Date:		=	▼
Location:		=	▼
Country:		=	▼
State:	Kansas	=	▼
County:		=	▼
Latitude:		=	▼

Detail

Specimen

KUMIP#: 37167

image:

Kingdom: Animalia

Phylum: Brachiopoda

Subphylum: Rhynchonelliformea

Superclass:

Class: Rhynchonellata

Subclass:

Superorder:

Order: Athyridida

Suborder: Athyrididina

Superfamily: Athyridoidea

Family: Athyrididae

Subfamily: Spirigerellinae

Full Name: Composita sp.

Genus: Composita

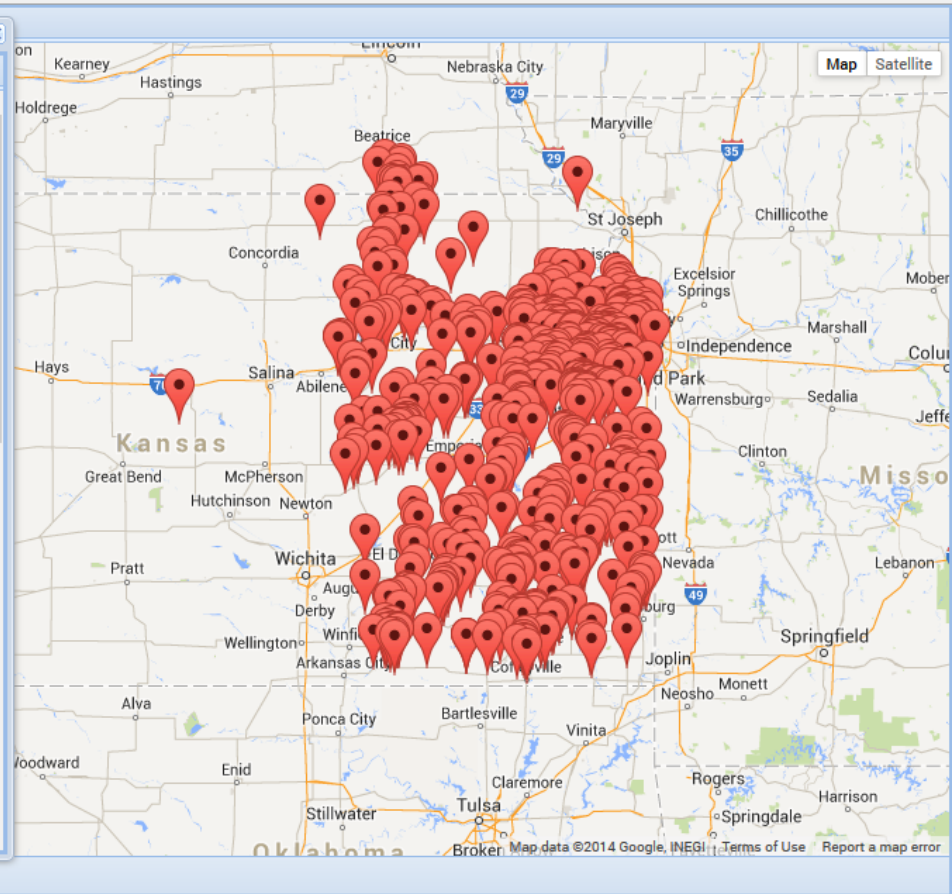
Species: sp.

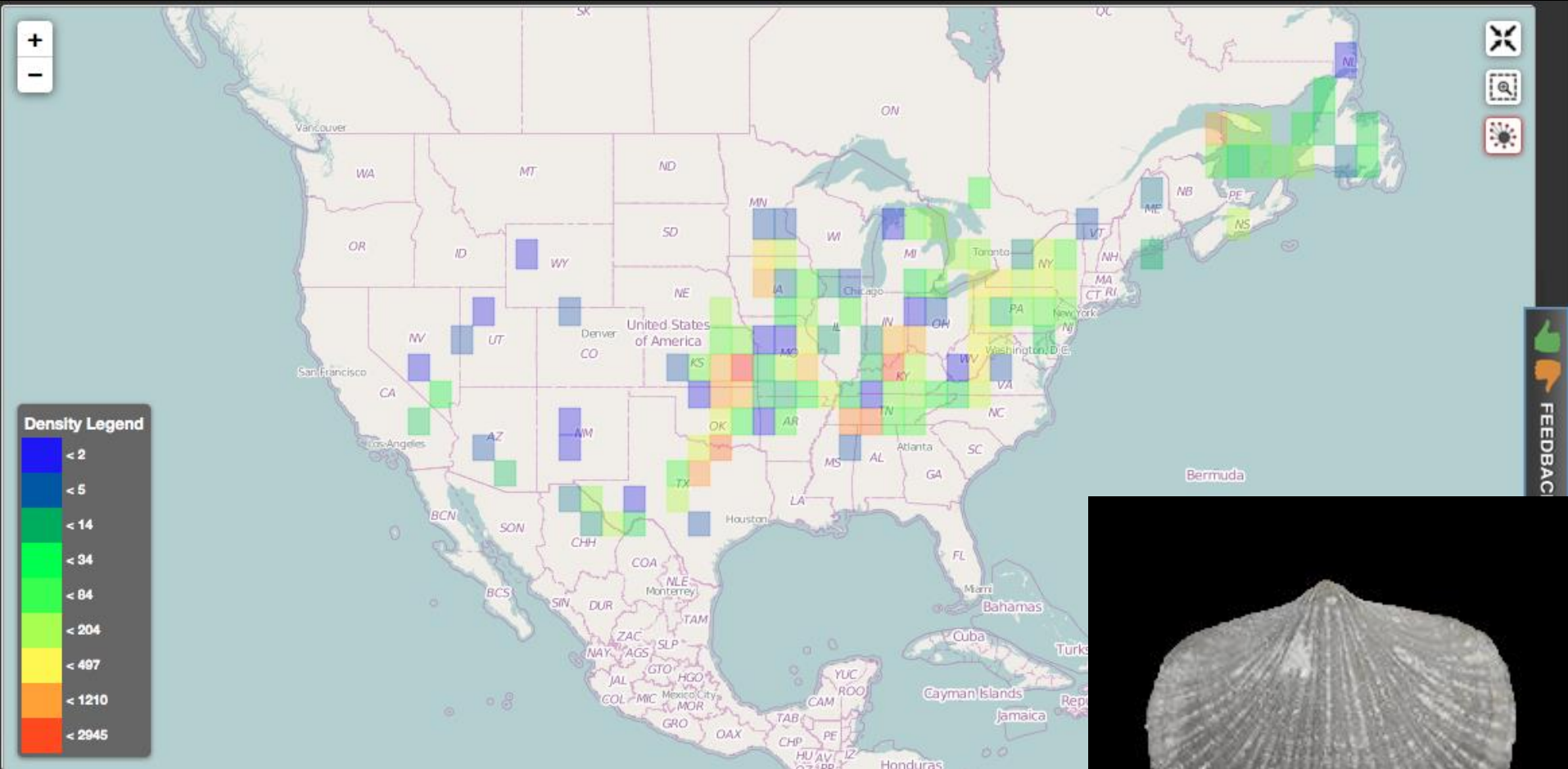
Subspecies:

LocalityNum: 773

Collectors:

Search Mapped 12304 records at 608 points.





Orthida



Digital Atlas of Ancient Life

Digital Atlas of Ancient Life: Ho... x +

www.digitalatlasofancientlife.org

Google Custom Search

Digital Atlas of Ancient Life Homepage

Home About Digital Atlases Guide to Paleontology

Welcome!

The Digital Atlas of Ancient Life is an online "field guide" to help you learn about and identify fossils. Start your visit via the links below.

Learn Explore Identify

Neogene Pennsylvanian Ordovician

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#FossilFriday Long neck plesiosaur at the @AMNH pic.twitter.com/vybC73Imq5

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@PaleoDigAtlas

Mollusca > Gastropoda

Gastropoda

Phylum: Mollusca

Class: Gastropoda



Families of Gastropoda present in the Neogene of the Southeastern United States

Bursidae



Conidae



Fascioliariidae



Muricidae



Personidae



Ranellidae



Arcidae

Acar domingensis*Acar reticulata**Anadara acompsa**Anadara aequalitas**Anadara alumensis**Anadara aresta**Anadara callicestosa**Anadara campsa**Anadara campyla**Anadara cardioides**Anadara catasarca**Anadara crassicosta*



Neogene Atlas of Ancient Life Southeastern United States



Atlas

All Species

Geology

Google™ Custom Search



Mollusca > Bivalvia > Cardiidae > *Acrosterigma* > *Acrosterigma dalli*

Acrosterigma dalli

Phylum: Mollusca

Class: Bivalvia

Family: Cardiidae

Genus: *Acrosterigma*

Species: *Acrosterigma dalli* (Heilprin, 1886)



Information

Images

Maps

Geological Range

Late Pliocene to Early Pleistocene; Extinct.

Paleogeographic Distribution

Southern Florida.

Stratigraphic Occurrences

Early Pleistocene

Caloosahatchee Formation (S. FL)

Late Pliocene

Tamiami Formation (Pinecrest Beds) (S. FL)



Neogene Atlas of Ancient Life Southeastern United States



Atlas

All Species

Geology

Google™ Custom Search



Mollusca > Bivalvia > Cardiidae > *Acrosterigma* > *Acrosterigma dalli*

Acrosterigma dalli

Phylum: Mollusca

Class: Bivalvia

Family: Cardiidae

Genus: *Acrosterigma*

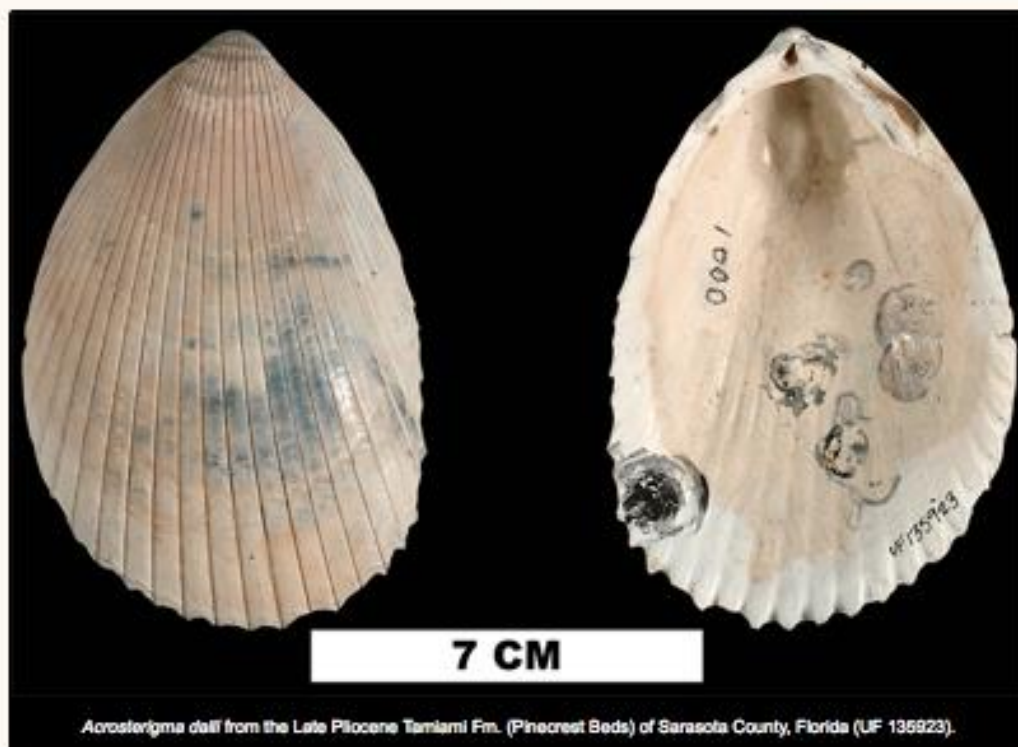
Species: *Acrosterigma dalli* (Heilprin, 1886)



Information

Images

Maps



Acrosterigma dalli from the Late Pliocene Tamiami Fm. (Pinecrest Beds) of Sarasota County, Florida (UF 135923).



Neogene Atlas of Ancient Life Southeastern United States



Atlas

All Species

Geology

Google™ Custom Search



Mollusca > Bivalvia > Cardiidae > *Acrosterigma* > *Acrosterigma dalli*

Acrosterigma dalli

Phylum: Mollusca

Class: Bivalvia

Family: Cardiidae

Genus: *Acrosterigma*

Species: *Acrosterigma dalli* (Heilprin, 1886)



Information

Images

Maps





The Digital Atlas of Ordovician Life

Exploring the Fauna of the Cincinnati Region

[Home](#)[Atlas](#)[Geology](#)[Fossil Collecting](#)[Resources for Teachers](#)[Project Overview](#)[Links](#)[References](#)[Site Index](#)

Atlas in progress

**113 species live! Check back
frequently for updates**

A tool for exploring the diversity, systematics,
biogeography, and stratigraphy of Late
Ordovician fossils of the Cincinnati, Ohio region

[Enter the Atlas](#)



Kope through Bellevue strata, Maysville, KY

Vinlandostrophia annieana



Classification

Phylum: [Brachiopoda](#)
 Class: [Rhynchonellata](#)
 Order: [Orthida](#)
 Family: [Platystrophiidae](#)
 Genus: [Vinlandostrophia](#)
 Species: *Vinlandostrophia annieana*
 (Foerste, 1910)

Paleoecology

Extant/Extinct
 Native/Invader
 Stationary/Mobile
 Colonial/Solitary
 Filter/Deposit/Predator/Scavenger

Habitat indicated in green



› Taxonomic Details

Stratigraphic Occurrences

Period	Stage	Occurrence		Formation	Notes	
		Substage	Member			
Cambrian	Ordovician	C6	Upper Whitewater	Bull Fork Formation	Oklahoma	
			Elkhorn			
			Seluda			
		C5	Lower Whitewater			
			Liberty			
			Waynesville			Blanchester
						Clatsville
	Pt. Ancient					
	C4	Rowland	Grant Lake Formation (LS) = McMillan beds?			
		Arnhaim		Oregonia		
				Sunset		
		C3		Terrill	Fairmount "HS Quarry"	
				Mc Auburn/Straight Creek		
				Gilbert/Caryville		
Tate						
Calloway/Creek/Bellevue						
Mammoth						
C2	Gerrard/Fairview	Mc. Hope				
	C1	Clay Ferry/Hope	McMicken			
			Southgate			
Economy/Fulton Beds						
		Lexington/Pt. Reason				



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Oceans of Ohio 5E Unit

Alycia L. Stigall, Ohio University



Description: Students will examine fossils and reconstruct the environment of the Cincinnati, Ohio region 450 million years ago.

Standards Targeted:

- LS4: Earth's Living History – *Using fossil evidence and living organisms to observe that suitable habitats depend on a combination of biotic and abiotic factors*
- LS4: Earth's Living History – *Fossils can be compared to one another and to present day organisms according to their similarities and differences*
- LS5: Interactions within Ecosystems – *Organisms perform a variety of roles in an ecosystem*
- LS7: Cycles of matter and flow of energy- *Matter is transferred continuously between one organisms and another and between organisms and their physical environments*
- LS7: Cycles of matter and flow of energy- *In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors*
- ESS8: Physical Earth- *Evidence of the dynamic changes of Earth's surface through time is found in the geologic record*
- LS8: Species and Reproduction- *Diversity of species occurs through gradual processes over many generations. Fossil records provide evidence that changes have occurred in number and types of species*
- LS8: Species and Reproduction- *Reproduction is necessary for the continuation of every species*
- LS8: Species and Reproduction- *The characteristics of an organism are a result of inherited traits received from parent(s)*

Skills Targeted: Observe fossil data, classify organisms, reconstructing ancient environments

Introduction to the Trilobites: Morphology, Macroevolution and More

An undergraduate laboratory exercise by Michelle M. Casey and Bruce S. Lieberman



Cincinnati Under the Sea

Now open through Nov. 9



Artwork by John Agnew

EVO kiosk – Yale Peabody PEN



- SciCORPS Interpreters to draw people in
 - Do you want to look at/touch some real fossils
 - Do you know what type of fossil animal it is?
- Ordovician assemblage



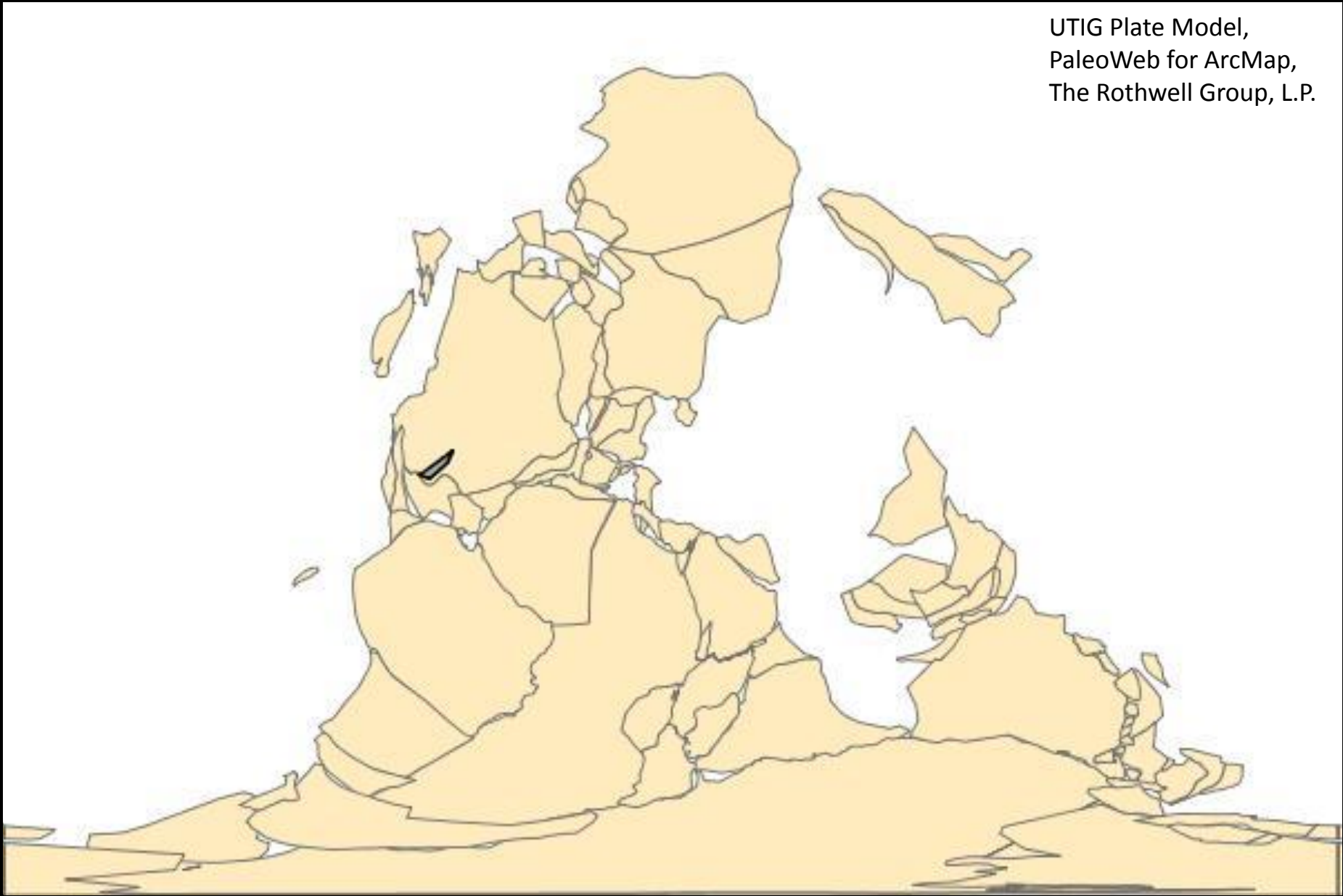
Take a
VIRTUAL TOUR
of the fossil
collections

Try to
IDENTIFY FOSSILS
with a Sci. CORPS
Interpreter

Restart 

Hystriculina 315 Ma – 290 Ma

UTIG Plate Model,
PaleoWeb for ArcMap,
The Rothwell Group, L.P.



Acknowledgements

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- iDigBio Georeferencing Working Group, iDigBio Paleodigitization group
- Theresa Miller, Andy Bentley and Specify staff
- Talk material: Michelle Casey, Jon Hendricks, Susan Butts, Ann Molineux

