

***Partnering for posterity: Community  
collaboration in the furtherance of collections-based  
paleontology at Cincinnati Museum Center***

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**CINCINNATI  
MUSEUM CENTER**  
AT UNION TERMINAL



# PALEONTOLOGY- The study of ancient life, AND what fossils can tell us about our world.



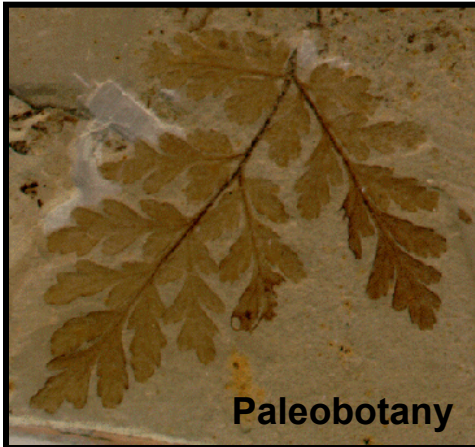
**Vertebrate Paleontology**



**Invertebrate Paleontology**



**Micropaleontology**



**Paleobotany**



**Ichnology**



**Palynology**



**Paleoecology**



**Paleoanthropology**

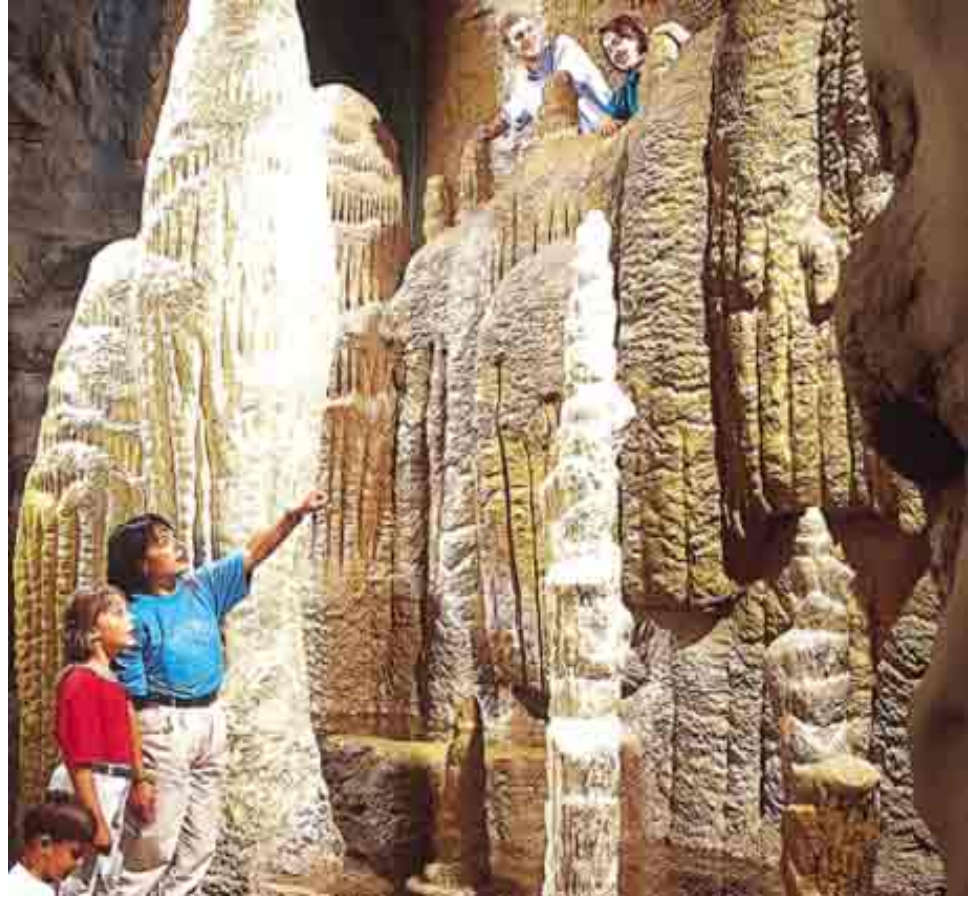


**Taphonomy**





- Informal Science Education
- Natural Objects (Fossils)
- Inquiry-based Learning
- Immersion Environments



## ***Museums and Paleontology***



**[www.cincymuseum.org](http://www.cincymuseum.org)**



## ***Direct Education & Outreach Opportunities***

Notably the use of collections, research and staff in public programming

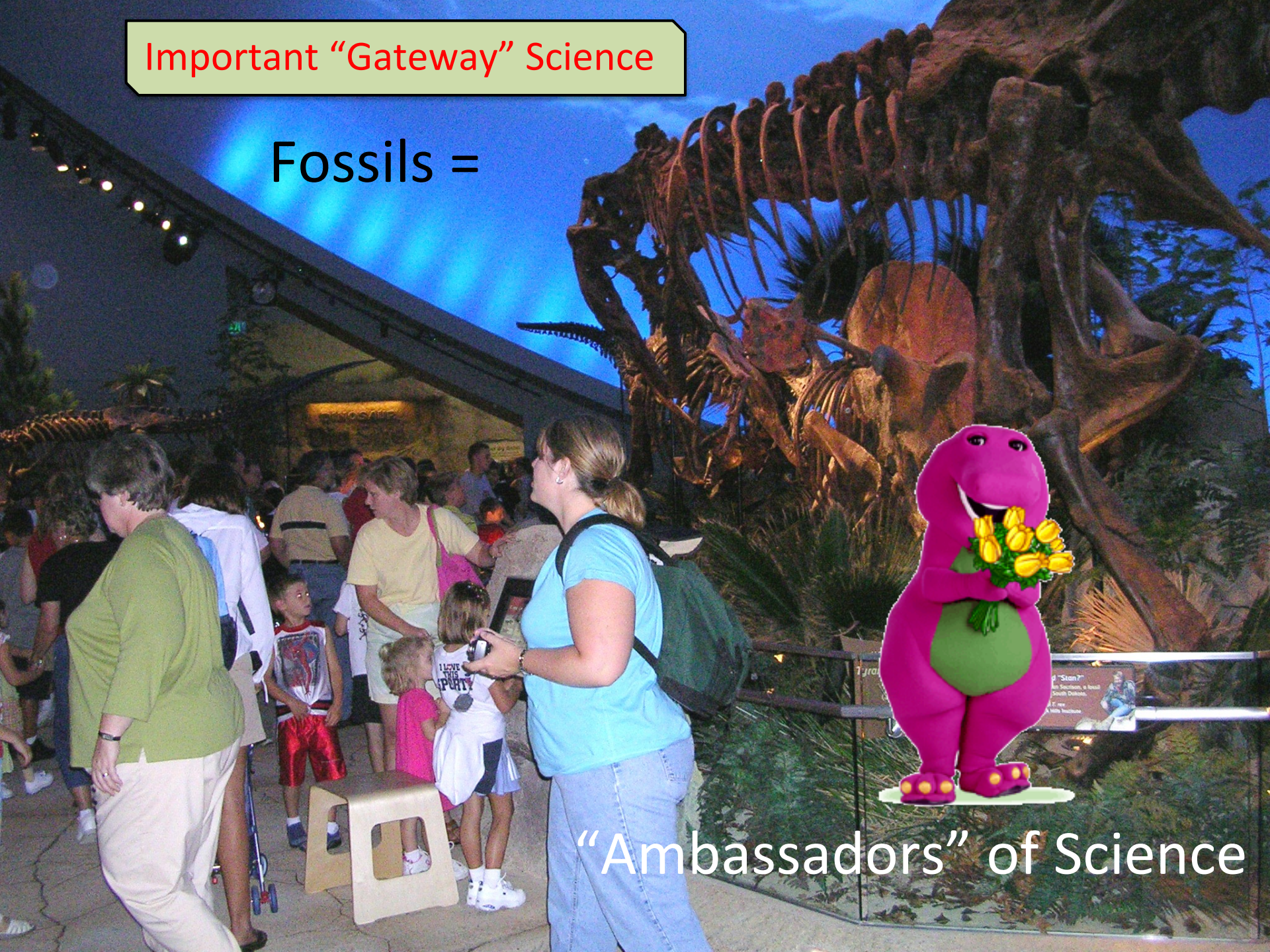
Fossil Fest





Important “Gateway” Science

Fossils =



“Ambassadors” of Science





Smithsonian – 599,834 online records



AMNH – 4.75 million fossils



Royal Ontario Museum  
– major repository for Canada



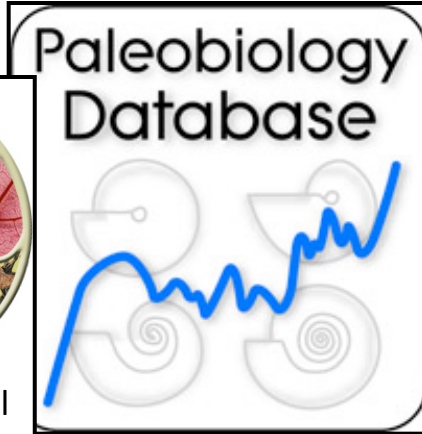
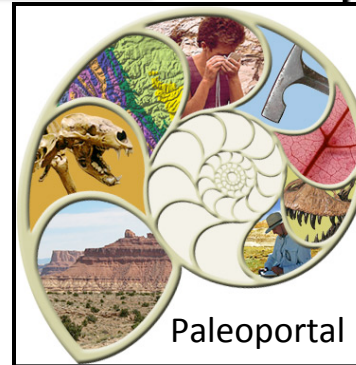
UCMP Berkeley  
~ 3 million invertebrate specimens



Cincinnati Museum Center  
~500,000 specimens

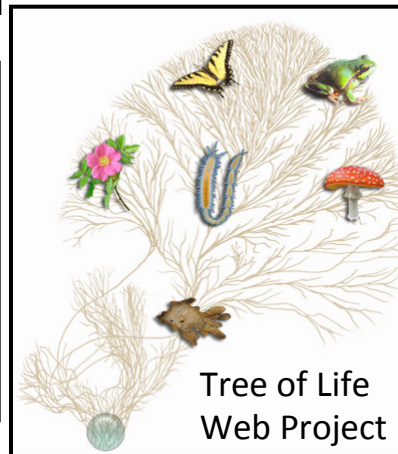
## Museum Paleontology Collections

## The Global Database

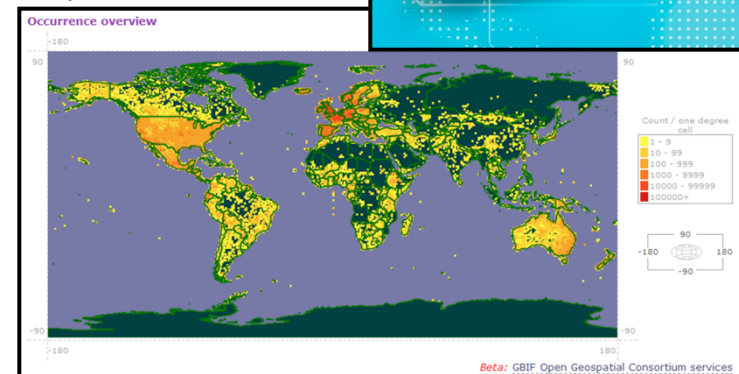


258,712 taxa  
322 scientists  
125 institutions  
23 countries

## Global Biodiversity Databases



456 publishers  
383,027,468 records  
9,962 datasets





# **Common Challenges** **of Collection Management**

- Inadequate staff and resources
- Large historical backlogs
- New acquisitions
- Sizeable, often digital-based initiatives



*Isotelus maximus*



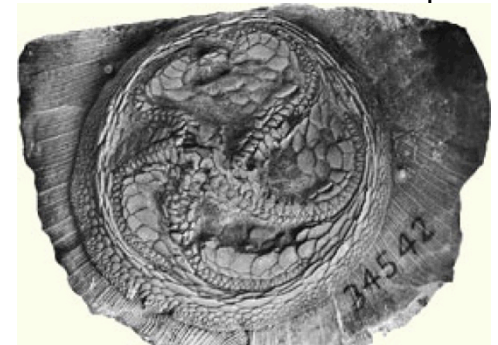
*Heliobatis radians*



*Phalarodon callawayi*



*Flexicalymene meeki*



*Isorophus cincinnatiensis*



# ***Paleontology Collections at Cincinnati Museum Center***

- Housed at the Geier Collections & Research Center facility, 2001
- CMNH + UC collections, 1998
- Includes one of the largest Upper Ordovician collections in the world
- 450,000 – 500,000 invert specimens
- Approx. 30,000 vertebrate fossils, including dinosaurs



## **Geier Collections & Research Center**

Enabling original research and study, this state-of-the-art facility is home to our artifacts and curatorial staff.





# ***The Paleontology Collections, pre-collaboration (1995, 2004)***

- Fewer than 50% of specimens catalogued
- Insufficient cabinetry, supplies and equipment
- Poorly organized
- Inaccessible material
- Large backlog
- Antiquated database system with few records
- No digitized specimens
- Preparation and exhibit challenges

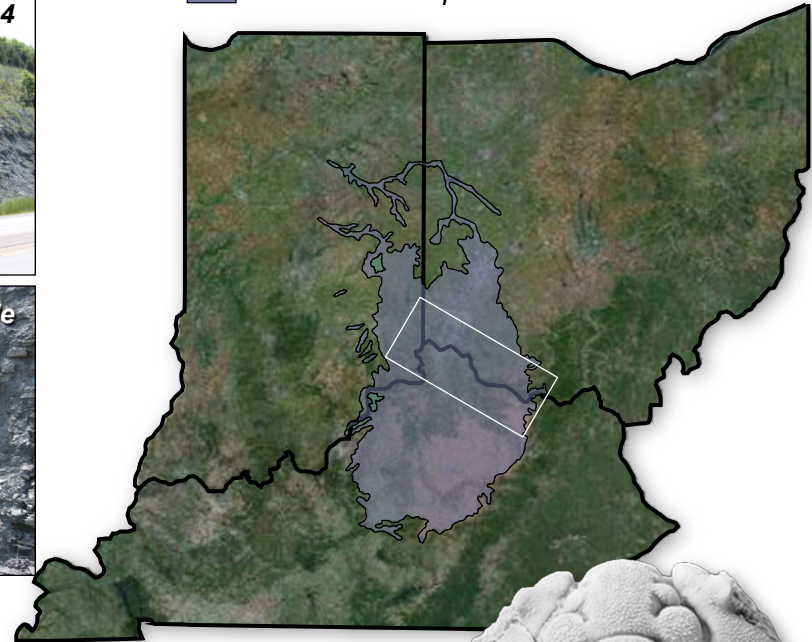




# Local Geologic Setting

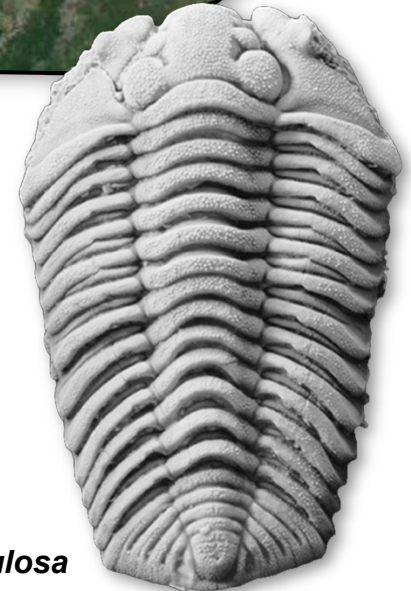


 Cincinnatian exposures



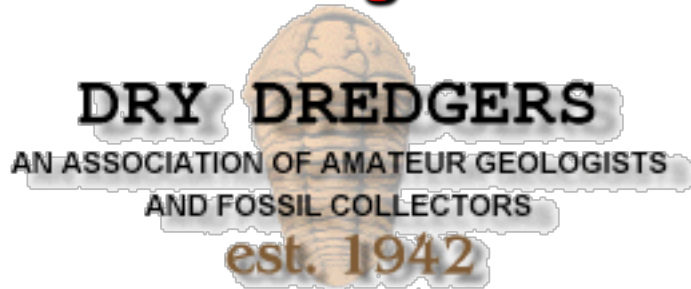
- World-famous Cincinnatian Series strata (450 million years old; Late Ordovician)
- Abundant and easily accessible outcrops at creek beds and road cuts
- Beautifully preserved and abundant fossils
- Sets the stage for community interest and an awareness of this natural, scientifically valuable resource

*Flexicalymene granulosa*





# Local Amateur Paleontological Societies



- Association of amateur geologists dedicated to the knowledge and enjoyment of fossils
- Founded 1942 - continues to bring together those interested in the life of prehistoric times
- Aims to stimulate interest in geology and paleontology, encourage the collection and identification of fossils, and facilitate participation in field trips and exhibitions



- The Kentucky Paleontological Society - 1993 - promotes interest in and knowledge of the science of paleontology
- Intended as a network for the exchange of data between professionals and serious amateurs in the field





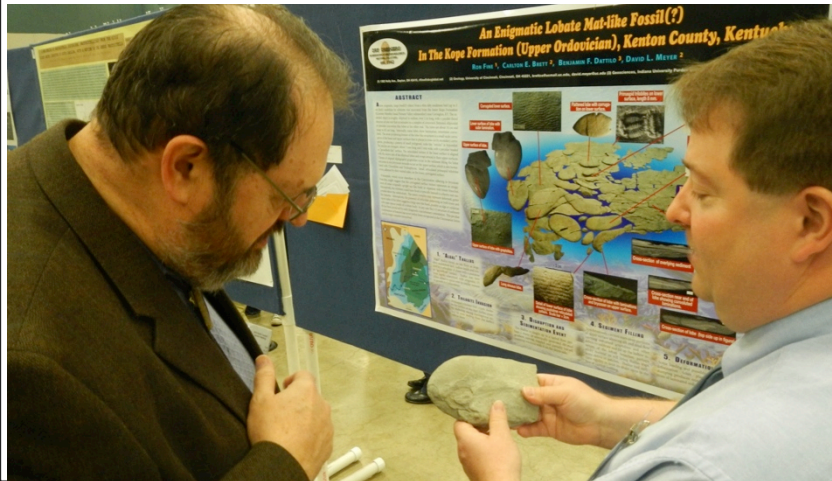


## ***The Dry Dredgers***

Founding Advisor- UC  
Prof. Kenneth E. Caster

Dry Dredgers at NAPC 9  
Cincinnati

Collect, Educate, Research





# Amateur Collectors



- Are interested and easily engaged in museum collections initiatives
- Have in-depth knowledge of local/regional geology and fossils
- Often have time to dedicate to volunteering
- May bring additional resources to a program (personal collections, financial and material gifts, etc.)



# Students

## GEOLOGY 524: MUSEUM CURATORIAL INTERNSHIP

2 CREDITS; OFFERED AS NEEDED

FACULTY: BRENDA HUNDA, ADJUNCT ASSISTANT PROFESSOR

Internship enables students to participate in curatorial duties in a Museum setting.

Students learn procedures for proper collections care + the duties of a curator, including:

- a) organization of a collection;
- b) preparation and identification of specimens;
- c) cataloguing of specimens;
- d) utilizing electronic databases for cataloguing.
- e) exhibit curation

Gain valuable experience and course credit





# ***General Volunteers***

- Specialized knowledge and skills
- Time, dedication and resources
- Passionate desire to contribute and learn

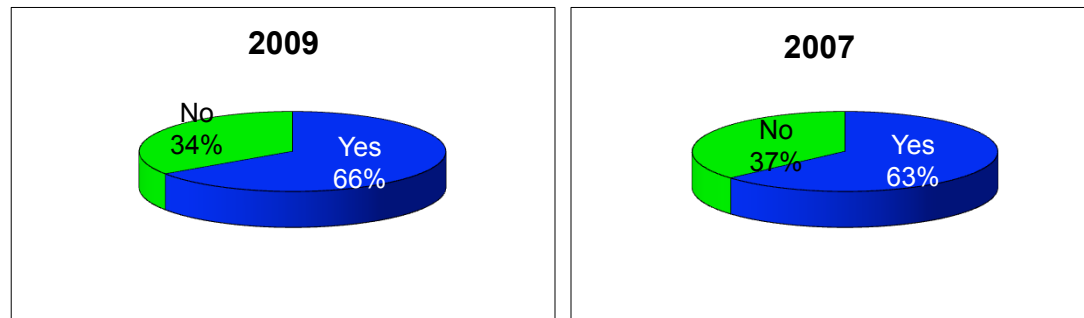




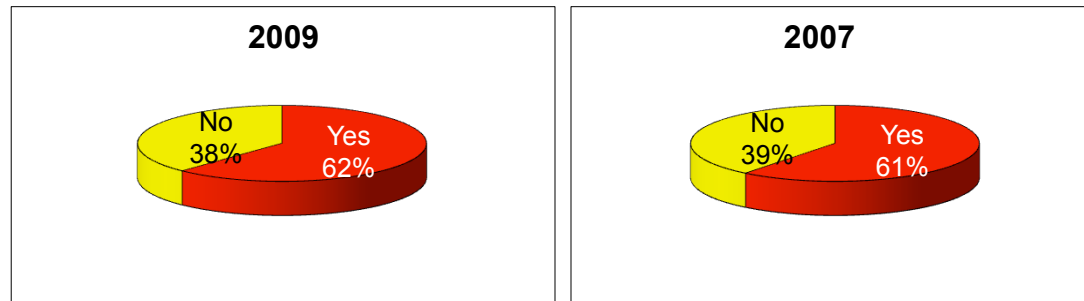
# Cincinnati Museum Center

## Volunteer Commitment Profiles

### Other Volunteer Work



### Volunteer Financial Support to Cincinnati Museum Center



*Q8. Do you currently do any other type of volunteer work?*

*Q9. On average how many total hours per month do you do any type of volunteer work?*

*Q10. In addition to supporting the institution with your time and talents, do you also support it financially through a monetary gift?*



# ***Museum Benefits***

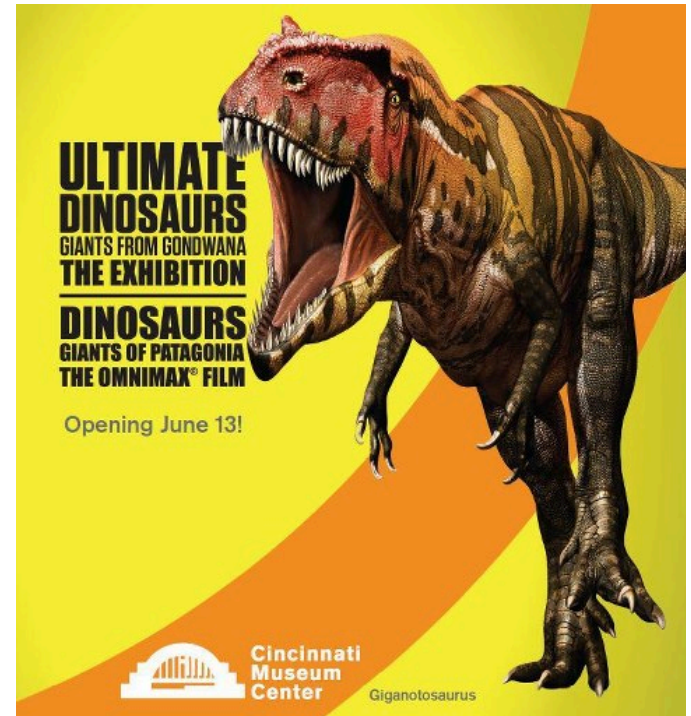
- Collection management
- Research & field assistance
- Fossil preparation
- Collection acquisition
- Specialized knowledge
- Passionate educators
- Philanthropy
- Public ambassadors





# ***Volunteer Requirements***

- Mutual respect
- Rewarding experience
- Member/staff-style benefits
- Appreciation events
- Continuing education opportunities
- Career/added value/social experience
- Sense of purpose





# Collection Results, 2014

- *Over 35,000 lots catalogued - 92% of the collection (over 475,000 fossils)*
- *Physical re-organization of entire collection*
- *Complete re-boxing of collection with archival materials*
- *Entry of catalogue records into KeEmu database – now over 77,000 electronic records*
- *Digital imaging of specimens underway*
- *Fossil displays for the Museum of Natural History & Science at CMC*



*Glyptocrinus slab from Maysville, KY*



## *Donation of over \$250,000 to Paleontology collection initiatives:*

- *Cabinetry, equipment, materials and supplies*
- *Specimen purchase*
- *Electronic Database - KeEmu*
- *Internships/scholarships for students to work in collections*



# Results, Continued

- *Donation of specimens to collections*
- *Over 3,500 new fossils collected*
- *Over 600 fossils prepared*
- *5 major exhibits mounted – including skeletal reconstruction of **Allosaurus***
- *Student theses utilizing our collections*
- *Several peer-reviewed papers co-authored by students and volunteers*
- *Preparation laboratories operated by volunteer managers*
- *Community advocacy*



**Stenopterygius skull from Holzmaden**



## *Establishment of curatorial endowments:*

- *Curator of Invertebrate Paleontology*
- *Withrow-Farny Curator of Vertebrate Paleontology*

## *Planned giving in support of paleontology:*

- *At least 3 charitable remainder trusts*



# ***New Initiatives***

Digitization of specimens – photographic imaging of type material is Phase I

Digitization of source material envisioned

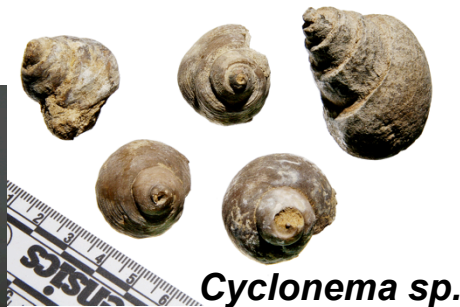
Online searchable database of records with links to GBIF and PaleoPortal – now possible with catalogued records - database cleanup underway



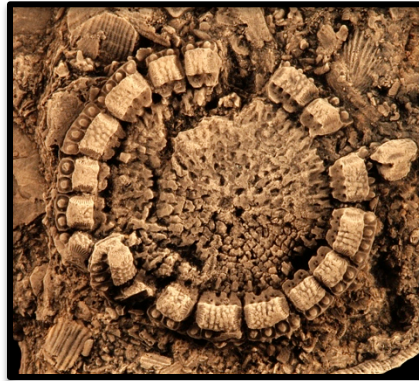
*Merycoidodon culbertsoni*



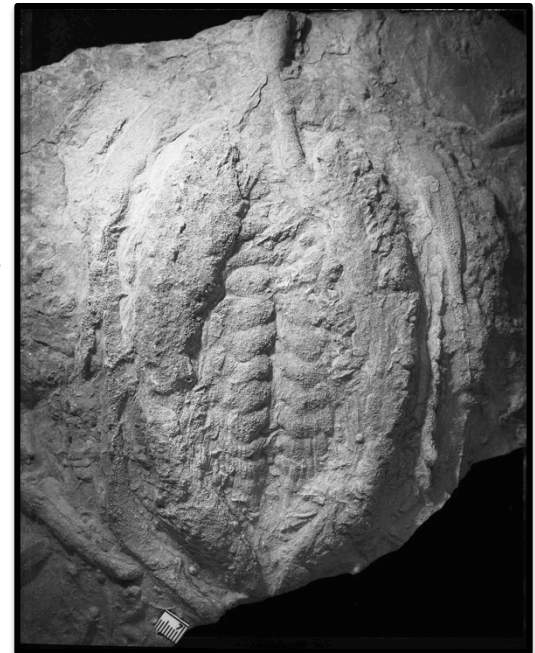
*Mesosaurus brasiliensis*



*Cyclonema sp.*



*Zygyocyclocystoides sp.*



*Rusophycus carleyi*



## Museum Field Work – Community Participation Opportunities





## Value-added Community Education





# ***Dinosaur Field School***

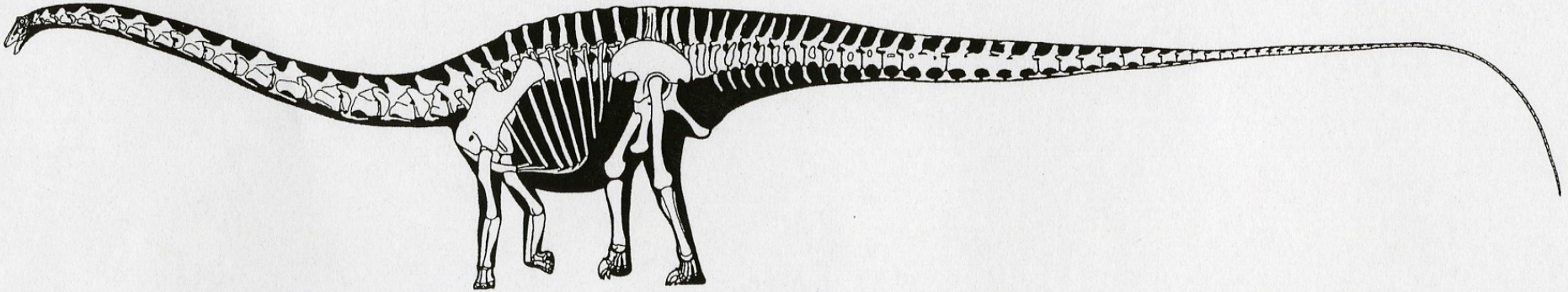
- Community education
- Curator-led program
- Hands-on participation
- Broad participation & support
- Unique volunteer experience
- 1X and repeat participants





- Arguably most successful public program at CMC
- Notable example of community collaboration AND support

Mother's Day *Diplodocus* bonebed





# ***Field School Products***

- Community education tool
- Research opportunities/results
- Student/volunteer opportunities
- Collection/exhibit material
- Positive PR exposure
- Creative program/departmental financing
- Participant loyalty
- Community advocacy
- Volunteer recruitment
- Donor cultivation





# Conclusions

- Community collaborations are a win-win for Paleontology: At CMC, participants gain valuable curatorial experience, continuing education and rewarding volunteer opportunities. CMC's paleontology departments get dedicated, knowledgeable help in the collections, labs and museum programming, and advocacy and support for the future.
- Providing opportunities to collectors, students and volunteers results in multiple benefits to Paleontology. A synergistic energy advances our science beyond what could be achieved independently, when all parties act in a mutually respectful and equally beneficial relationship.



*Glyptocrinus decadactylus*



*Flexicalymene meeki* with bryozoan epibiont



Thank you!

## Acknowledgements



US Dept. Interior Bureau of Land Management, US Dept. Agriculture Forest Service, Yellowstone Bighorn Research Association, The Dry Dredgers, The Kentucky Paleontological Society, National Science Foundation, UC Dept. Geology, Scott Myers, William Garcia, Jason Dennison, Mason Milam, Dale Gnidovec, Charlotte Cox, James Clark, Fred Moore, Kani Meyer, Sara Oser, Mackenzie English, Lauren Scanlon, Dan Striley, Paul Moss, Robert Bergstein, Robin Storrs ...

... and a cast of hundreds!