

Engaging downstream users of paleocollections through iDigBio E&O (Education and Outreach)

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SPNHC – Rapid City SD

20 June 2013



This material is based upon work supported by the National Science Foundation under Cooperative Agreement EF-1115210. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.



Talk Outline

1. Rationale and background
2. Fossils of Panama digitization project
3. California STEM Teachers Partnership
4. Fossils in the Cloud talks to fossil clubs
5. The FOSSIL project
6. Quantifying impact & Intended outcomes

1. Rationale

- Approx. 100 million fossil specimens are curated in non-federal natural history museums in the U.S.
- Once these are digitized into a Cloud, they become available for E&O to downstream users
- **Downstream User**—someone who may use digitized paleocollections other than for research
- Target audiences for this talk--
 - K12 teachers, students
 - Fossil club members
 - Paleontologists E&O



Late Miocene Gatun Formation, Panama

Background, progress, and plans

Paleocollections digitization activities

- Workshop, April 2012*
- 1st TCN funded “Paleoniches” Bruce Lieberman, University of Kansas; another also funded 2013
- iDgiBio Paleocollections Working Group formed, mid 2012
- Several upcoming paleocollections-related activities
 - iDigBio Workshop Yale September
 - GSA Denver 2013
 - NAPC Gainesville February 2014



Paleocollections Workshop
Gainesville FL April 2012

*NSF Supplement 123447 (P. Soltis PI)

2. Panama fossil digitization Outcome of PIRE Project*

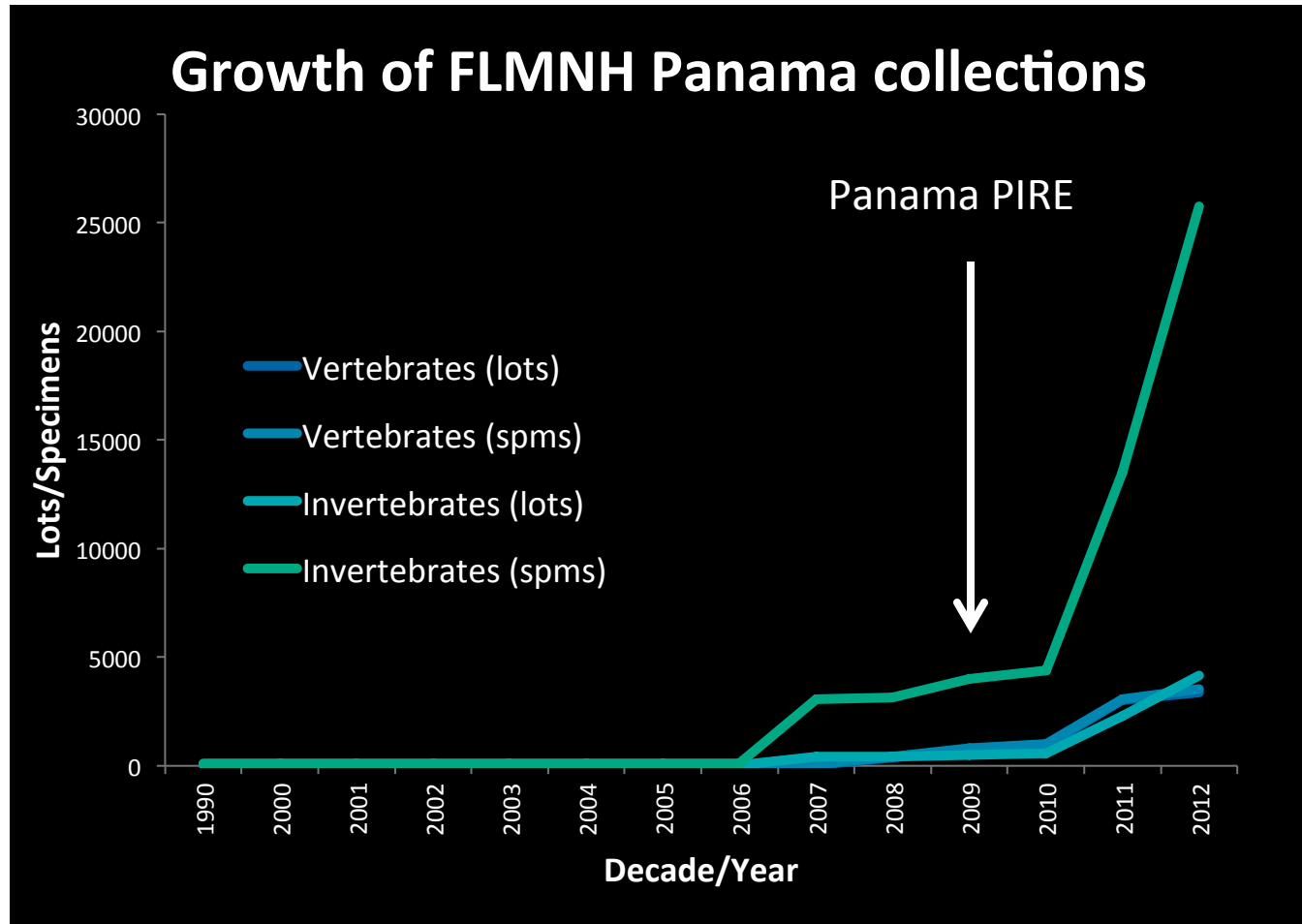


*NSF 0966884



Block of 19-million-year-old fossils
Cucaracha Formation, Panama

Goal—digitize 50 K specimens in FLMNH



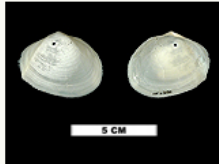
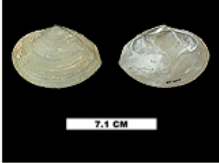










Develop on-line atlas e.g., FLMNH Florida fossil bivalves

Firefox | Image Gallery Results | Invertebrate Pale... | www.flmnh.ufl.edu/invertpaleo/gallery.asp?gallery=Florida Mollusca-Bivalvia

Google

Collections
Degree Programs
Staff & Volunteers
Current Research
Student Post-Docs, Grants & Awards
Resources & Links

 4.92 CM	 4.85 CM	 5 CM
MACROCALLISTA MACULATA	GLOBIVENUS RUGATINA	LEPORIMETIS INTASTRIATA
 7.1 CM	 5.55 CM	 1.7 CM
SEMELE PERLAMELLOSA	CHAMA MACEROPHYLLA	BRACHTECLAMYS ANTILLARUM
 1.55 CM	 4 MM	 4 CM
GREGARIELLA CORALLIOPHAGA	LIMATULA SUBOVATA	ANADARA AEQUALITAS
 3.5 CM	 6.3 CM	 2.97 CM
SPONDYLUS AMERICANUS	MODIOLUS AMERICANUS	HIATELLA ARCTICA

EN 10:56 AM 5/30/2013

Integrated Digitized Biocollections

3. California STEM Teachers Project--RET



Gatun,
Panama,
July 2012



Canopy Crane, Panama, July 2012



AP Biology
Harbor High,
Santa Cruz CA
December 2012

PIRE-iDigBio K12 E&O

- Develop an on-line atlas of digitized specimens for the CSTP (California STEM Teachers Partnership)*
- Process informed by front-end needs assessment and focus group feedback
- Challenges of the digital divide in K12 education

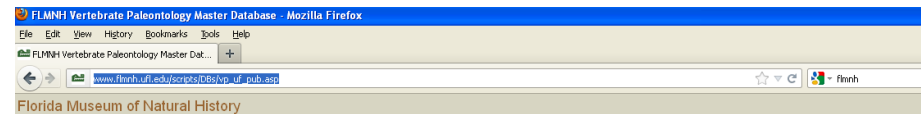


*NSF 1237203, 1321453

4. Talks about paleocollections digitization to fossil clubs



CATALOGUE OF FOSSIL VERTEBRATES				FLORIDA	
Number	Locality	Description	Measurements	Age	
				Stage	Time
101376	"	Reptiles, Fossil, One Partial, One Complete	"	late P ₂ -P ₃	2-3 m. Pleistocene
101377	"	Partial, One Complete Partial, One Complete	"	1	1
101378	"	Partial, One Complete Partial, One Complete	"	1	1
101379	"	Partial, One Complete Partial, One Complete	"	1	1
101380	"	Partial, One Complete Partial, One Complete	"	1	1
101381	"	Partial, One Complete Partial, One Complete	"	1	1
101382	"	Partial, One Complete Partial, One Complete	"	1	1
101383	"	Partial, One Complete Partial, One Complete	"	1	1
101384	"	Partial, One Complete Partial, One Complete	"	1	1
101385	"	Partial, One Complete Partial, One Complete	"	1	1
101386	"	Partial, One Complete Partial, One Complete	"	1	1
101387	"	Partial, One Complete Partial, One Complete	"	1	1
101388	"	Partial, One Complete Partial, One Complete	"	1	1
101389	"	Partial, One Complete Partial, One Complete	"	1	1
101390	"	Partial, One Complete Partial, One Complete	"	1	1
101391	"	Partial, One Complete Partial, One Complete	"	1	1
101392	"	Partial, One Complete Partial, One Complete	"	1	1
101393	"	Partial, One Complete Partial, One Complete	"	1	1
101394	"	Partial, One Complete Partial, One Complete	"	1	1
101395	"	Partial, One Complete Partial, One Complete	"	1	1
101396	"	Partial, One Complete Partial, One Complete	"	1	1



“Fossils in the Cloud” talk —SW Florida Fossil Club



- For printing of output, select Report Style
 - Selecting a search type of "Wildcard" will allow for wildcard searching on all search fields
 - Selecting a search type of "Exact" or not selecting one will cause all search fields to require exact input

Return <input type="text" value="50"/> Records: Style: <input type="text" value="Table"/> Sort: <input type="text" value="Catalog Number - Default"/> Search Type: <input type="text" value="Select Type -"/> <input type="text" value="Query Database"/> <input type="button" value="Reset"/>	<div>Class</div> <input type="text"/>	<div>Order</div> <input type="text"/>	<div>Family</div> <input type="text"/>	<div>Genus</div> <input type="text"/>
	<div>Species</div> <input type="text"/>	<div>Nature of Specimen</div> <input type="text"/>	<div>Site Key</div> <input type="text"/>	<div>Site</div> <input type="text"/>
	<div>Country</div> <input type="text"/>	<div>State</div> <input type="text"/>	<div>County</div> <input type="text"/>	<div>Epoch</div> <input type="text"/>
	<div>Land Mammal Age</div> <input type="text"/>	<div>Formation</div> <input type="text"/>	<div>Catalogue Number</div> <input type="text"/>	<div>Data Source</div> <input type="text" value="Entire Database"/>

[Collection Database Page](#) | [Vertebrate Paleontology Home](#) | [Search other Databases](#) | [FLMNH Home](#)



Digital Imaging of fossil collections

- 2 dimensional—relatively easy, digital photo



- 3 dimensional—more advanced technology



How will this work for fossils?



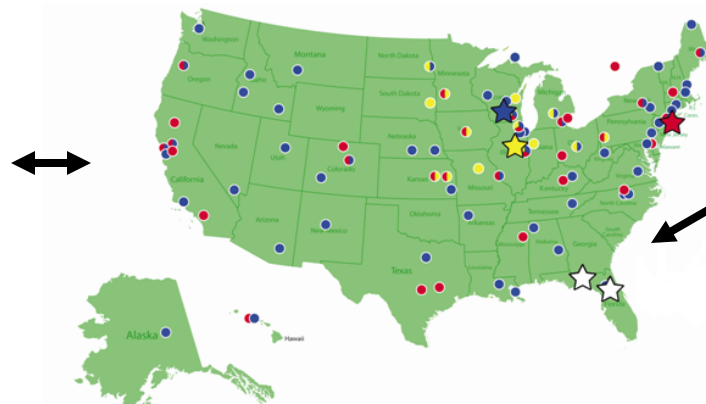
Return Records:

Style:

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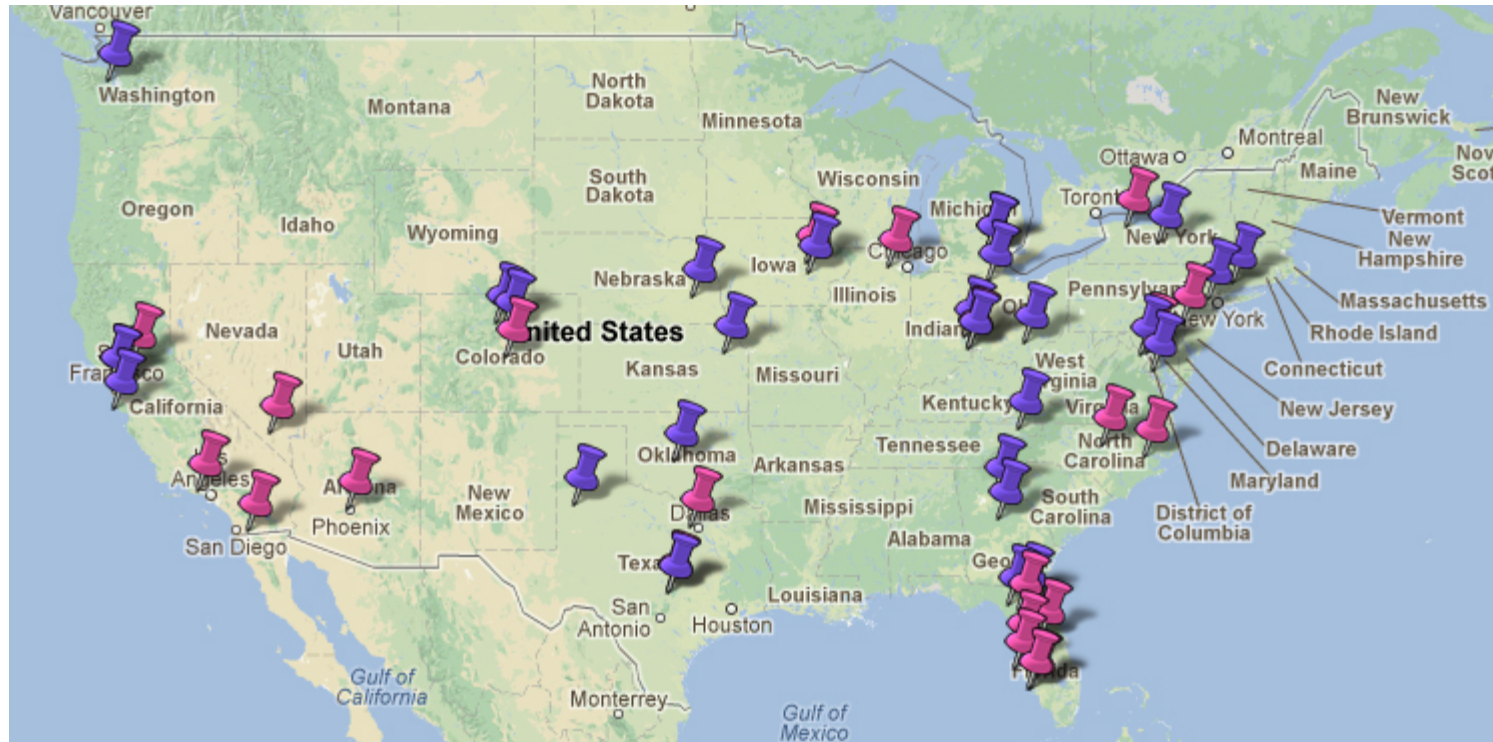
Class	Order	Family	Genus
Species	Nature of Specimen	Site Key	Site
Country	State	County	Epoch
Land Mammal Age	Formation	Catalogue Number	Data Source



- Feedback indicates high degree of interest among amateur paleontologists
- Willingness to be trained and volunteer to help curator digitize collections.

5. FOSSIL project*

(Fostering Opportunities for Synergistic STEM with Informal Learners)



- Networked between fossil clubs (red) and professional paleontologists
- More added recently

*Under consideration – NSF EHR (DRL)

FOSSIL Activities

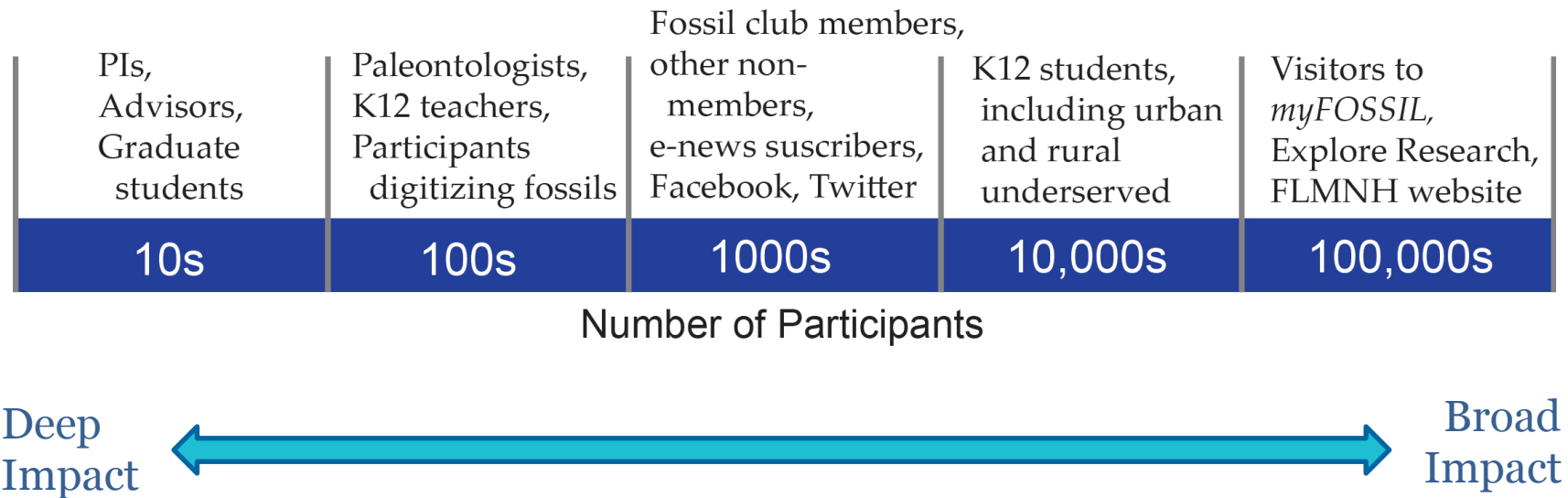
- The two target audiences will collaborate in cyberenabled learning
- Fossil club members will be trained about digitization
 - To help professionals with collections
 - Some will digitize their own fossil collections
- Activities will be mediated by myFOSSIL Community of Practice (CoP)



6. Quantifying Impact:

Digitizing paleocollections & downstream users

Example from FOSSIL project



Intended outcomes—Paleocollections E&O

- Bring digitized paleocollections to downstream users
- K12 outreach—formal education
- Lifelong learning in fossil clubs
- Feedback loop—these target audiences could become citizen scientists helping with national digitization effort

Overarching strategic goal:

“Downstream Users” and the general public better understand the value (to society) of digitized collections in the 21st century.