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

Bruce J. MacFadden
Curator of Vertebrate Paleontology, FLMNH
iDigBio Director of Education & Outreach

UF UNIVERSITY of FLORIDA

FLORIDA MUSEUM OF NATURAL HISTORY

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iDigBio Integrated Digitized Biocollections

Talk Outline

1. Rationale and background
2. Panama PIRE and California STEM Teacher Partnership
3. *Fossils in the Cloud* talks to fossil clubs
4. The FOSSIL project
5. Celebrating public participation--NAPC

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 uses 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

- Paleocollections Workshop, April 2012
- Paleo-related TCNs funded
  - 1st "Paleoniches" Bruce Lieberman, University of Kansas;
  - 2nd– paleo-insects funded 2013
- iDigBio Paleocollections Working Group formed 2012
- This Workshop
- Several upcoming paleocollections-related activities
  - iDigBio E&O Workshop Gainesville Jan 2014
  - NAPC Gainesville February 2014

2. Panama PIRE* Project

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

Partnerships in International Research and Education--*NSF 0966884

California STEM Teachers--RET

Gatun, Panama, July 2012

Gatun, Panama July 2013

PIRE/iDigBio--Digital learning resources

Gatun, Panama, July 2013

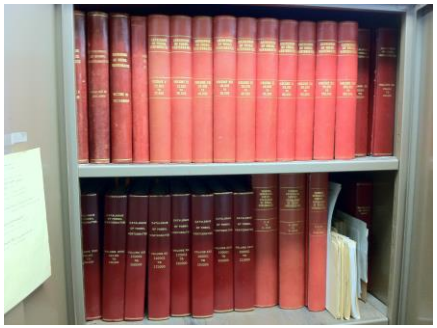
In the Classroom: PIRE-iDigBio K12 E&O

- Develop
  - New curricula aligned to the NGSS
  - On-line atlas of digitized specimens for the CSTP (California STEM Teachers Partnership)*

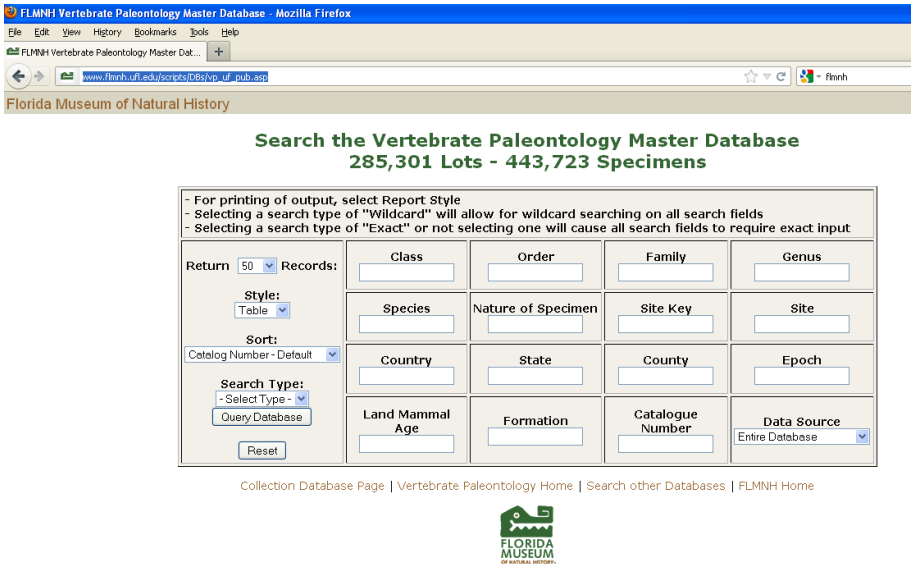
Harbor High School (Santa Cruz CA)
AP Biology, Dec. 2012

BUT--Challenges of the digital divide in K12 education

3. “Fossils in the Cloud”: Talks about paleocollections digitization to fossil clubs



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



Digital Imaging of fossil collections

- 2 dimensional—relatively easy, digital photo

- 3 dimensional—more advanced technology

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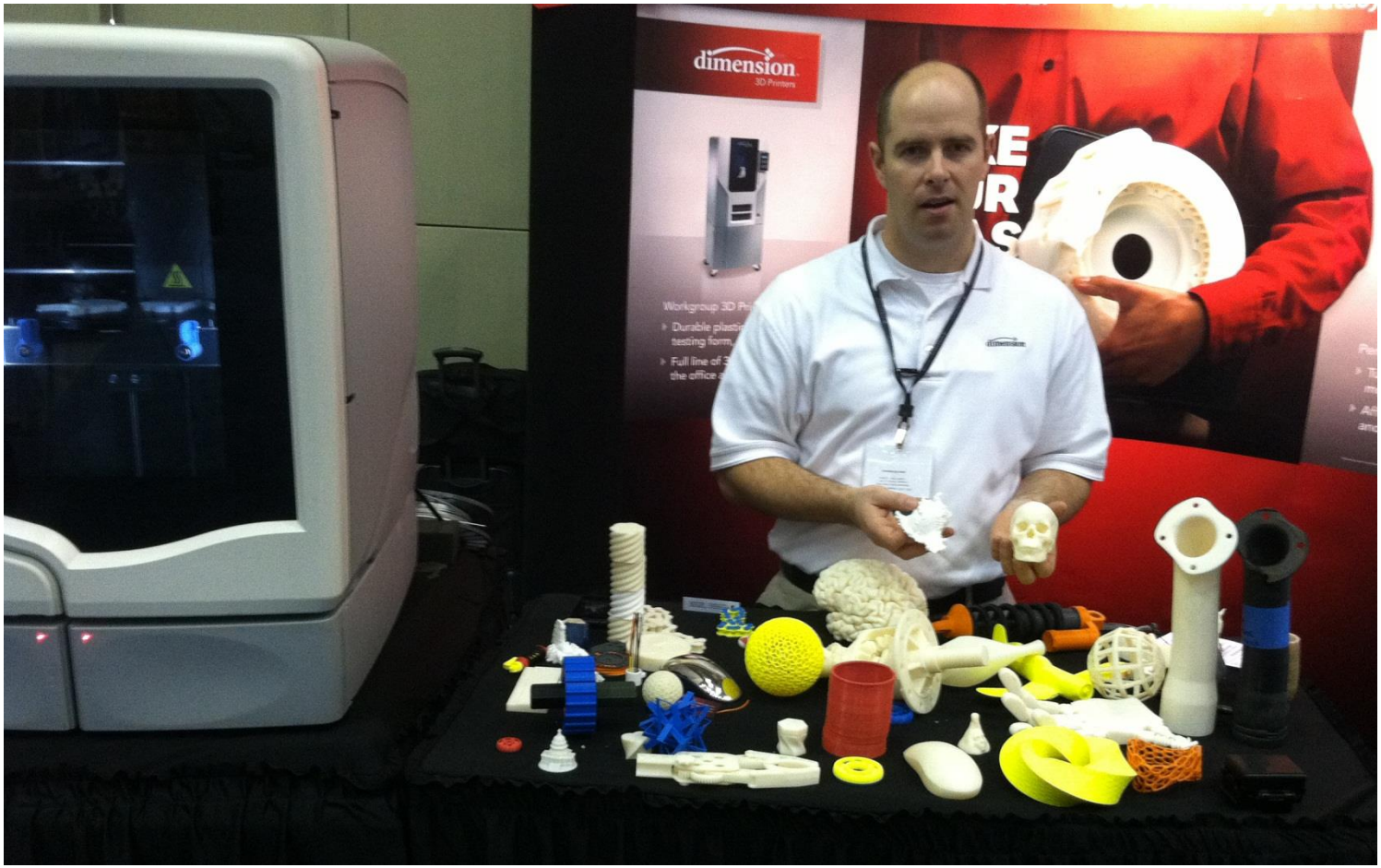
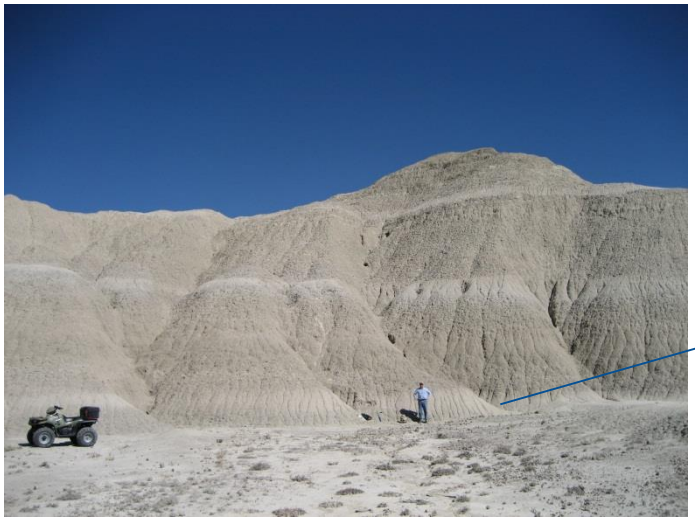
Integrated Digitized Biocollections

3-D Printer technology



The potential applications and access to *Fossils in the Cloud* are astounding!

An example: How will this might work for fossils?



Nebraska badlands

How will this work for fossils?

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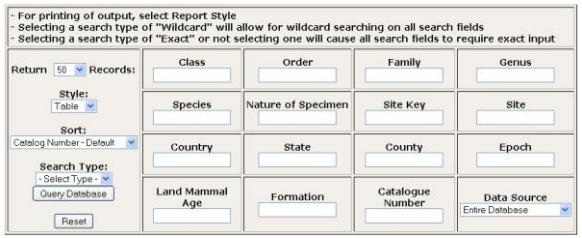


- Feedback indicates high degree of interest among amateur paleontologists
- Willingness to be trained and volunteer to help curator digitize collections.

5. FOSSIL project*

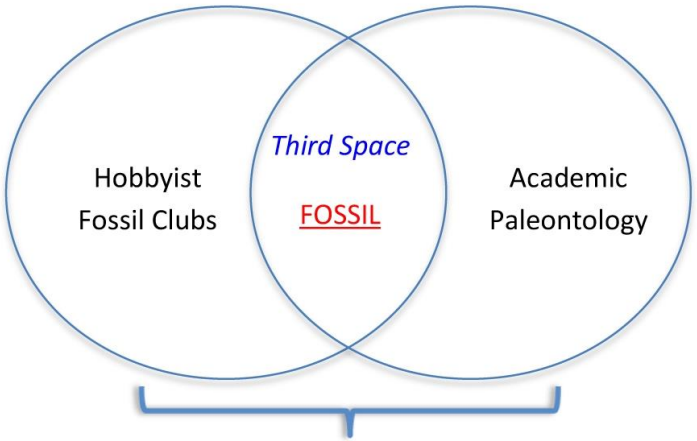
(Fostering Opportunities for Synergistic STEM with Informal Learners)

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

*NSF DRL (EHR) 1322725

FOSSIL Project team & Target Audiences

- 5 PIs
- Coordinators, webmaster, editor
- Graduate students
- **Fossil clubs**
- **Professional paleontologists**
- You (if this appeals to you)!



Cyberenabled Community of Practice

Fossil club characteristics: Front-end research

- About 50 clubs in the U.S.
- Most frequent activity is monthly meeting, oftentimes with speaker; field trips important
- Some have academic ties and sponsor, others do not
- 90 % use web resources and email
- Demographics
  - Lifelong learners (kids through retirees)
  - Few underrepresented minorities, except in some urban areas (e.g., Latinos)
- Motivation for participation
  - Learn about fossils, paleontology
  - Authentic experiences
  - their collections
  - Social aspect very important

Additional Fossil Club feedback

- Preferred reference is “amateur”
- Little (no) contact between (among) fossil clubs outside of local region; but desire to do so
- Very different from other natural history clubs such as birdwatchers and star-gazers.
- High motivation to network with:
  - Other clubs, especially members of like interests
  - Professional paleontologists
- Want to digitize collections
- Keen to learn via web and myFOSSIL

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)

Other FOSSIL project activities

- Annual meeting
- E-Newsletter
- Joint activities
  - fossil field trips
- Cyberenabled talks, webinars, and “amateur” development
- Facebook, Twitter, Blogs, etc.
- TBD, based on formative input from clubs

Summary of Intended outcomes for FOSSIL project:

Better informed and trained amateurs and clubs ready to partner with professionals to advance the science of paleontology

E & O Wrap-up: Intended outcomes

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

Overarching strategic goal:

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

end

10th NORTH AMERICAN PALEONTOLOGICAL CONVENTION

FLORIDA MUSEUM OF NATURAL HISTORY

February 15 - 18, 2014 | Gainesville, FL

Symposium: Celebrating public participation in paleontology