



Yale PEABODY MUSEUM
OF NATURAL HISTORY



YPM-IP workflow with voice recognition imaging

Susan Butts
Yale Peabody Museum
Invertebrate Paleontology



Division of Invertebrate Paleontology

- estimated 4.5 M specimens
- 23,000 are type specimens (1,716 holotypes)
- over 317,000 specimen lots are available in the online specimen index including all known type specimens worldwide in scope
- 73% from North America
- over 150 years of curatorial and student collections





Collection strengths:

- Early Pz Maritime Canada and the Appalachians
- Late Pz Mid-Continent
- Western Interior Seaway
- Schuchert Brachiopod Collection
- Ciurca Eurypterid Collection
- St. Jean/Galloway Stromatoporoid Collection





TCN: Fossil Insect Collaborative: A Deep-Time Approach to Studying Diversification and Response to Environmental Change

- Lead: University of Colorado Museum of Natural History, Smith and Karim, 6 other collaborating institutions & 2 participating
- YPM will digitize >10,000 specimens, educational component

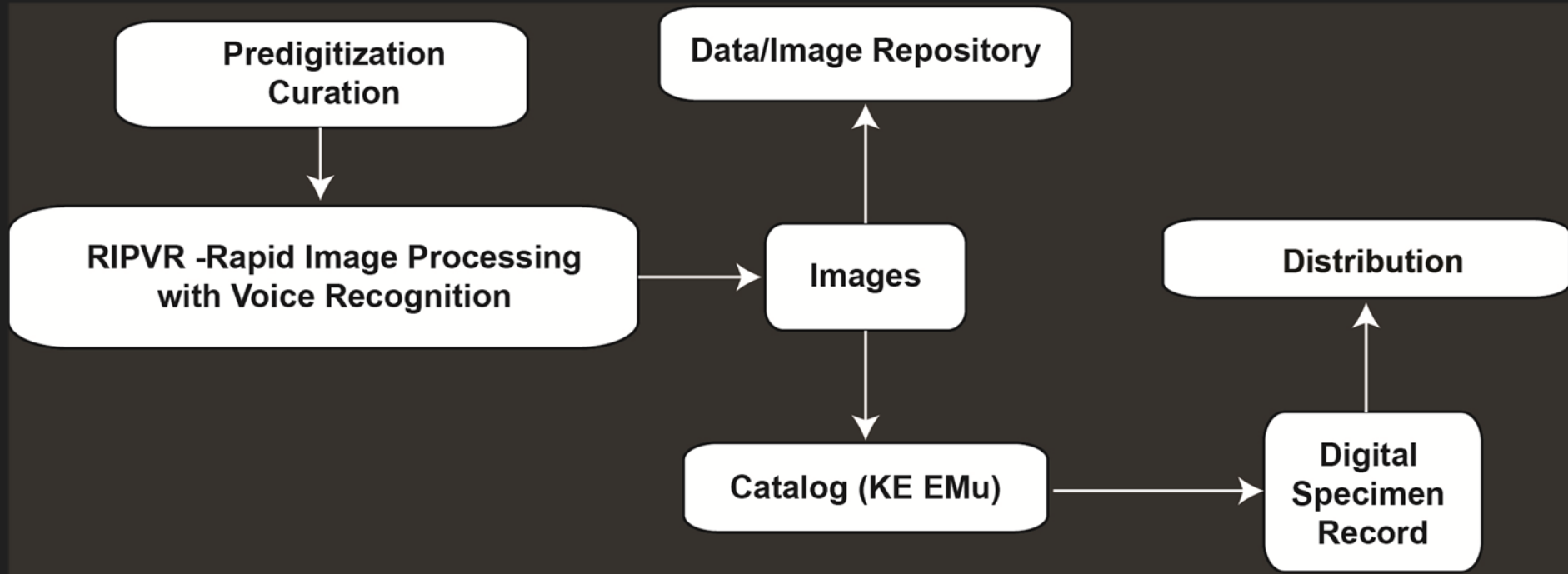




PEN: Increasing the Robustness of the Ordovician and Pennsylvanian Dataset of PALEONICHES-TCN

- Lead (TCN): University of Kansas (Lieberman, Beach, and Farrell)
- YPM will digitize
 1. specimens that have been cataloged in EMu, but lack georeferenced data,
 2. material cataloged in ledgers, and
 3. uncataloged material from our stratigraphic collection.







predigitization curation

Undigitized material: received from the stratigraphic collection





predigitization curation

1. Identification, lexicon check (optional: sites, georef)
2. Assignment to undergraduate
3. Conservation assessment (note in database)

assignment board

Drawer	Retroyed	Taxonomy	Sites	Georef.	Staff	Notes
042.21	✓					
031.03	✓	✓	✓	✓	EP.	Done.
032.08	✓					
031.05	✓	✓	✓	✓	EP	3/4 cataloged.
026.17	✓	✓	✓	✓	EP	Done.
029.14	✓	✓	✓	✓	EP	Done.
031.04	✓	✓	✓	✓	EP	Done.
029.22	✓	✓	✓	✓	EP	Done.
031.09	✓					
028.01	✓					



predigitization curation

4. Retray in acid-free archival trays
5. Clean labels with Groomstick



retraying station



Groomstick
conservationresources.com



- KE EMu database with custom data entry form (mandatory fields and authority controlled fields)
- Apply specimen number directly to fossil with Pigma pen



Pigma
art supply stores

Catalog (1) - Display

File Edit Select View Tools Tabs Multimedia Window Help

IP.222149: *Aulacera plummeri*: HOLOTYPE.IPE.01373: Indiana. Wayne County. Elkhom Creek, 4 mi S of Richmond. Coll: Shideler, W. H. Late Ordovician. Saluda Fm. LatLon: 39.77091 1015682

Cataloging
Catalog No.: IP.222149
Accession: 1 YPM.10753: St. Jean, J. [10/12/2006] Joseph St. Jean Collec *
Department: Invertebrate Paleontology
Site: IPE.01373: Indiana. Wayne County. Elkhom Creek, 4 mi S of Rich *
Collection: 1 Type *
Reassess? Yes No
Location: LotCount: 4 LotOrig: LotMod:

Copied Data
Taxon: 1 *Aulacera plummeri* *
2 *Aulacera plummeri*
3 *Aulacera plummeri*
Det. By: 1 Steam, C. W.; Webby, B. D.; Nestor, H.; Stock, C. W.
2 Galloway, J. J.; St. Jean, J.
3 Galloway, J. J.; St. Jean, J.
Det. Date: 1 1999
2 1961
Anat. Element: *
Citation: 1 IPR.07328 - Steam, Colin W., et al. 1999. Revised classification and terminology of Pal
2 IPR.06082 - Galloway, Jesse J. & St. Jean, Joseph. 1961. Ordovician stromatoporoides
Pagination: 1 p. 20
2 p. 27-30; pl. 3, figs. 1a

Type	Value	Authority	Storage	Date	Remarks
1	institutional specimen number	I-12-23	Department of Geological S...		Also storage number (Tier 1, Drawer 12, specimen 23)
2	other number	285-46	Department of Geological S...		slide number

Preparation Details

Preparation Type	Count	Storage	Prepared By	Date	Remarks
*					

Catalog (IP) Inv. Paleo. Detemination Locations Notes Associations Multimedia EAD (1) EAD (2) Archives Admin Security Measurements Analysis

Display Object 1 of 1 shb IP 20103



Text description

Collection Events / Sites (1) - Display

File Edit Select View Tools Tabs Multimedia Window Help

IPE.07059: New York. Schoharie County. intake building, E foot of Pine Mtn, 2.75 mi S of Gilboa. Middle Devonian. Givetian. Tully 158654

Site Number: IPE.07059	Department: Invertebrate Paleontology	Reassess? <input type="checkbox"/>
Site Details	Accession	
Continent: North America	IPA.07664: Cooper, G. A. [04/1937-04/1937] invertebrate fossils, includes	
Country: USA	Biogeography	
State/Prov.: New York	Region:	
County/Dist.: Schoharie County	Oceanic	
City/Town:	Ocean:	
Nearest Place:	Sea/Gulf:	
Precise Locality: intake building, E foot of Pine Mtn, 2.75 mi S of Gilboa	Bay/Sound:	
Context:	Riverine	
	Drainage:	
	River:	

Site Collecting Stratigraphy Lat/Long Mapping Associations Notes Multimedia Security Admin

Display Record 180 of 466 shb IP 20103



catalog (georeferencing)

USGS GeoLex

The screenshot displays the USGS GeoLex web application interface. The window title is "Collection Events / Sites (1) - Display". The main content area shows a record for "IPE.07059: New York. Schoharie County. intake building, E foot of Pine Mtn, 2.75 mi S of Gilboa. Middle Devonian. Givetian. Tully" with the ID "158654".

The interface is divided into several sections:

- Geostratigraphic:** Period: Middle Devonian, Epoch: (empty), Age: Givetian.
- Lithostratigraphic:** Supergroup: (empty), Group: (empty), Formation: Tully Ls, Member: (empty), Facies: (empty), Bed: (empty).
- Biostratigraphic:** Zone: (empty), LMA: (empty).
- Stratigraphy Details:** (Empty text area).
- Other Terms:** A table with columns "Level" and "Value". One row contains an asterisk (*).
- Term Authority:** A table with columns "Level" and "Authority".

At the bottom, there is a navigation bar with tabs: Site, Collecting, Stratigraphy, Lat/Long, Mapping, Associations, Notes, Multimedia, Security, Admin. The status bar shows "Display Record 180 of 466" and user information "shb IP 20103".



catalog (georeferencing)

Point-radius method (Wiecozorek et al., 2004) – using GEOLocate or GoogleEarth

Collection Events / Sites (1) - Display

File Edit Select View Tools Tabs Multimedia Window Help

IPE.07059: New York. Schoharie County. intake building, E foot of Pine Mtn, 2.75 mi S of Gilboa. Middle Devonian. Givetian. Tully 158654

Latitude/Longitude Details

	Latitude (DMS)	Latitude (Dec.)	Latitude Verbat...	Longitude (DMS)	Longitude (Dec.)	Longitude Verbat...	Modifier	Comment
1	42 21 21 N	42.35585		74 26 40 W	-74.44444			
*								

Determination Method: digital resource Radius (Verbatim): Probability:

Determination Source: USGS National Map Radius (Numeric): 50 Units: ▾

Determined By: Utrup, J. Geometry: Datum: NAD27 ▾

Determination Date: 04 Apr 2013 Derive Centroid: System User Preferred: Yes ▾

Centroid Latitude (DMS): 42 21 21 N Dec.: 42.35585 Centroid Longitude: 74 26 40 W Dec.: -74.44444

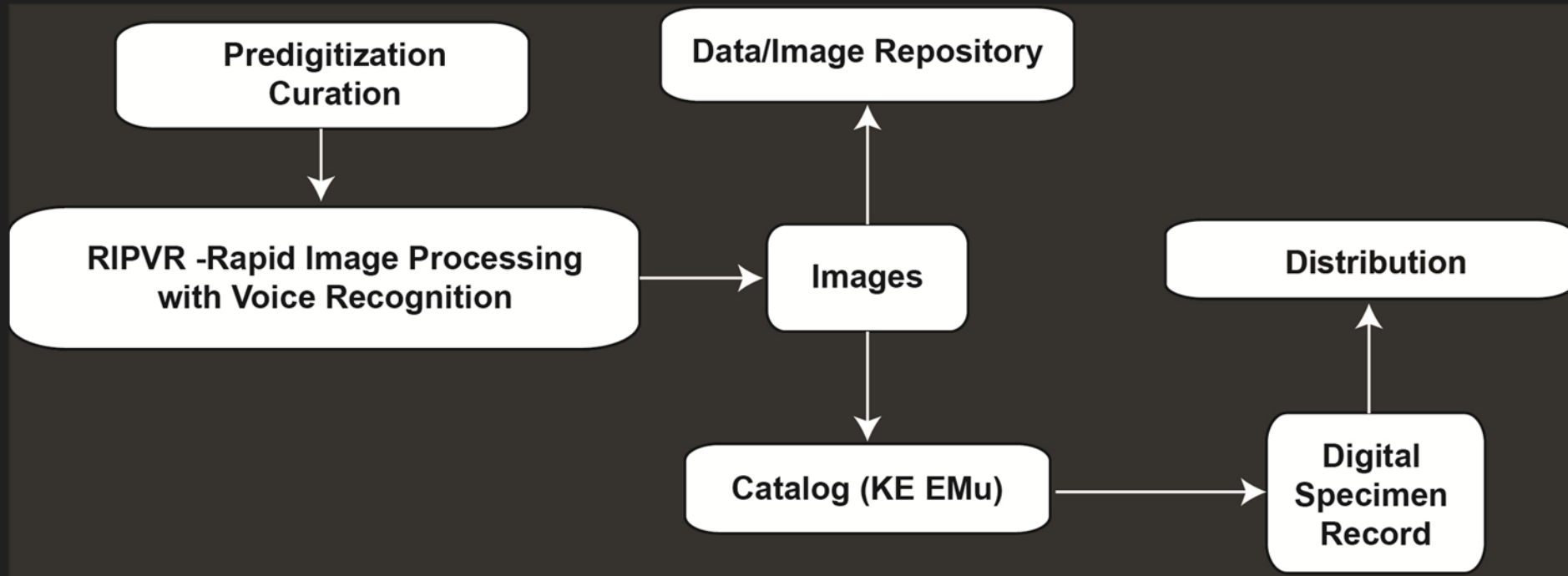
Notes:

Latitude/Longitude List

	Determination Source	Centroid Latitude (DMS)	Centroid Longitude	Preferred
1	USGS National Map	42 21 21 N	74 26 40 W	Yes
*				

Site Collecting Stratigraphy Lat/Long Mapping Associations Notes Multimedia Security Admin

Display Record 180 of 466 shb IP 2013





Imaging station

- copy stand with adjustable lighting
- devoted computer
- consumer-grade camera (Sony H5)
- specimens stabilized with black or white sand (Ward's Scientific)

New:

- Canon D60
- tethered imaging with Canon Digital Photo Professional
- color calibration



must occur after catalog number is assigned



voice recognition

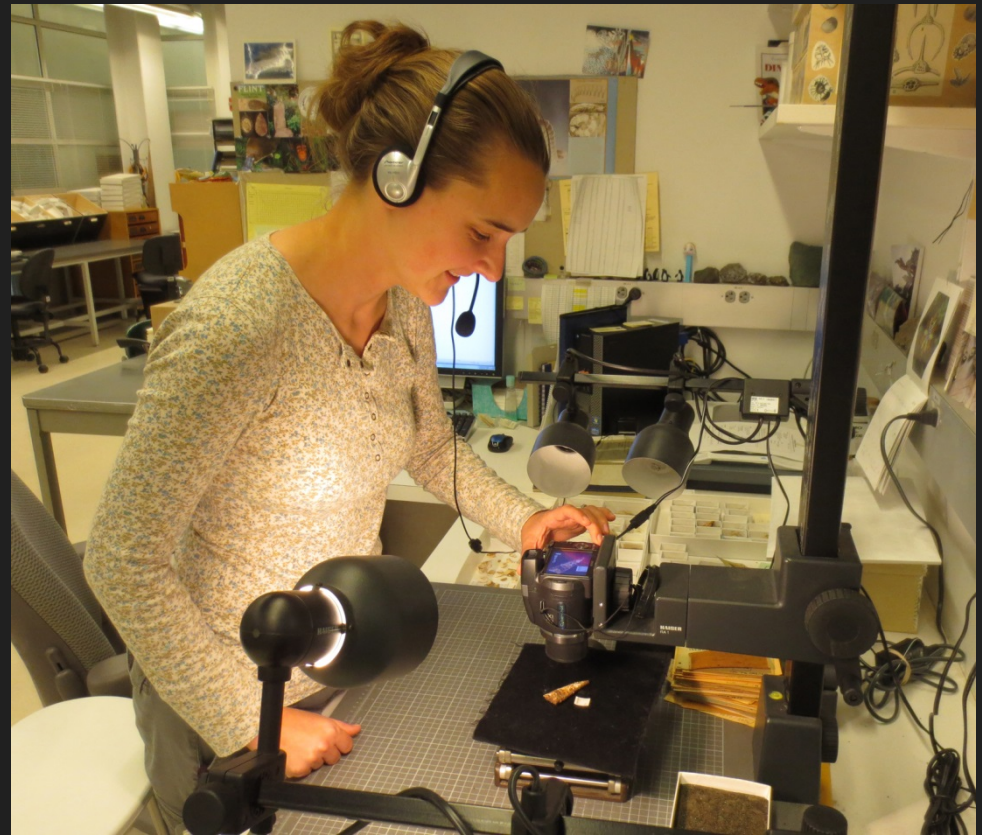
Hands free set up

- Wireless headset (Logitech G930)
- Dragon Naturally Speaking or Windows Speech Recognition
- Voice-driving data entry into Excel

each user needs to “teach” the voice recognition system

simple commands!

look up lists?





voice recognition

Hands free set up

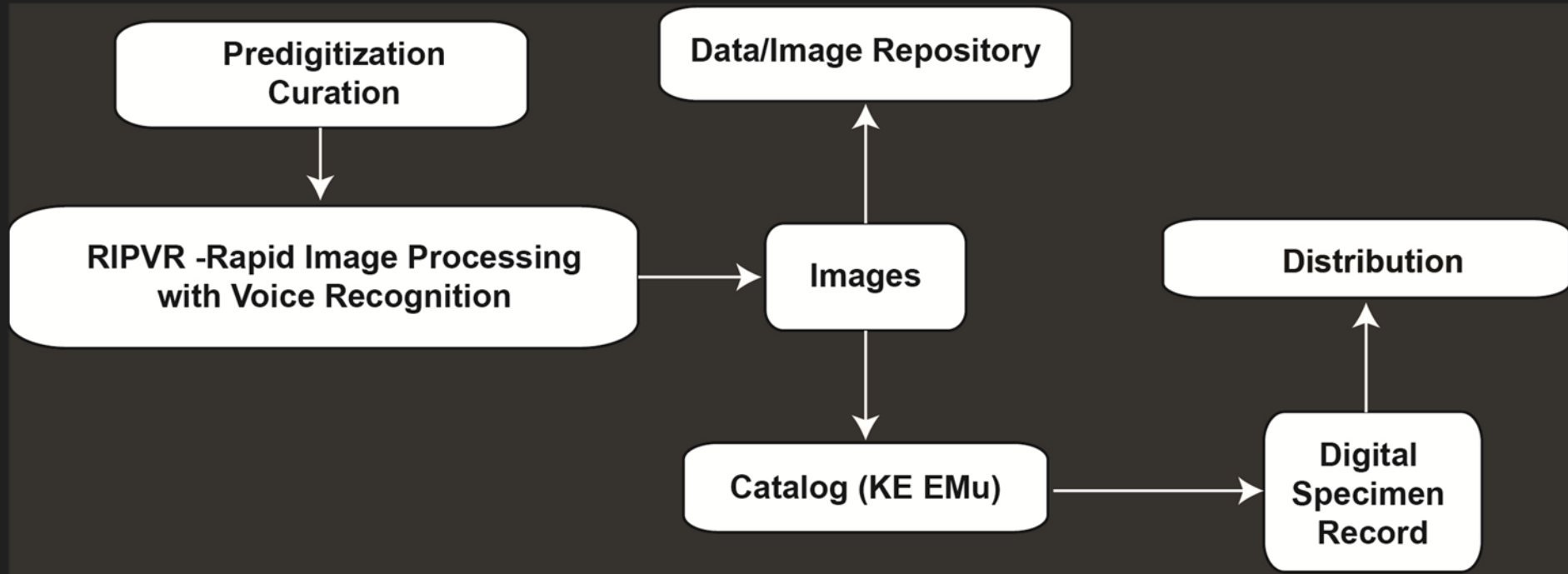
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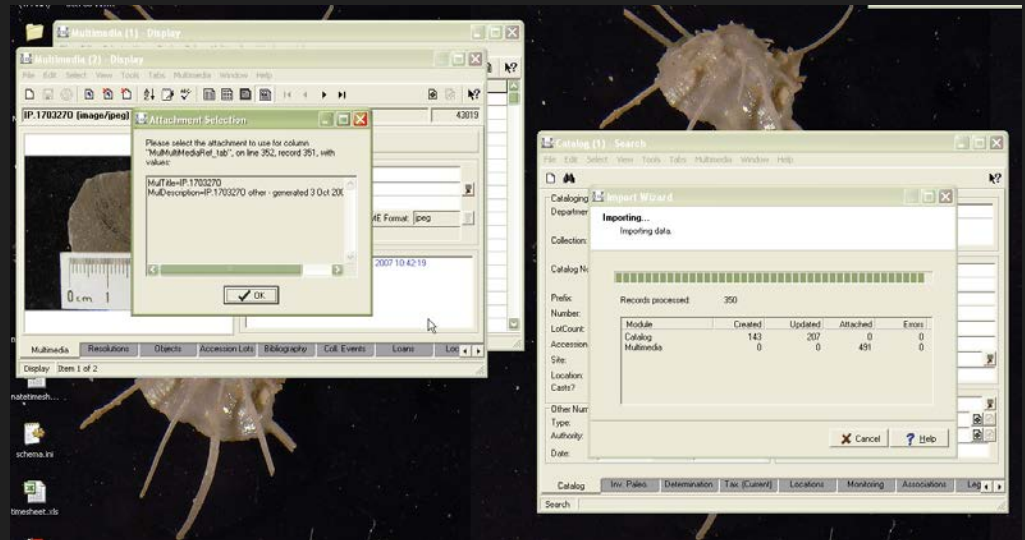
EMu upload

Semi-automated upload

- shell script validates camera images, renames with IP naming protocol – specimen number + suffix (orientation)
- ImageMagick resizes and generates composite image
- 2nd shell script prepares CSV files for automated import to EMu multimedia module and automated attachment of images to object record

All developed by Larry Gall,
YPM Head of Computer Systems

You NEED a Larry!





EMu upload

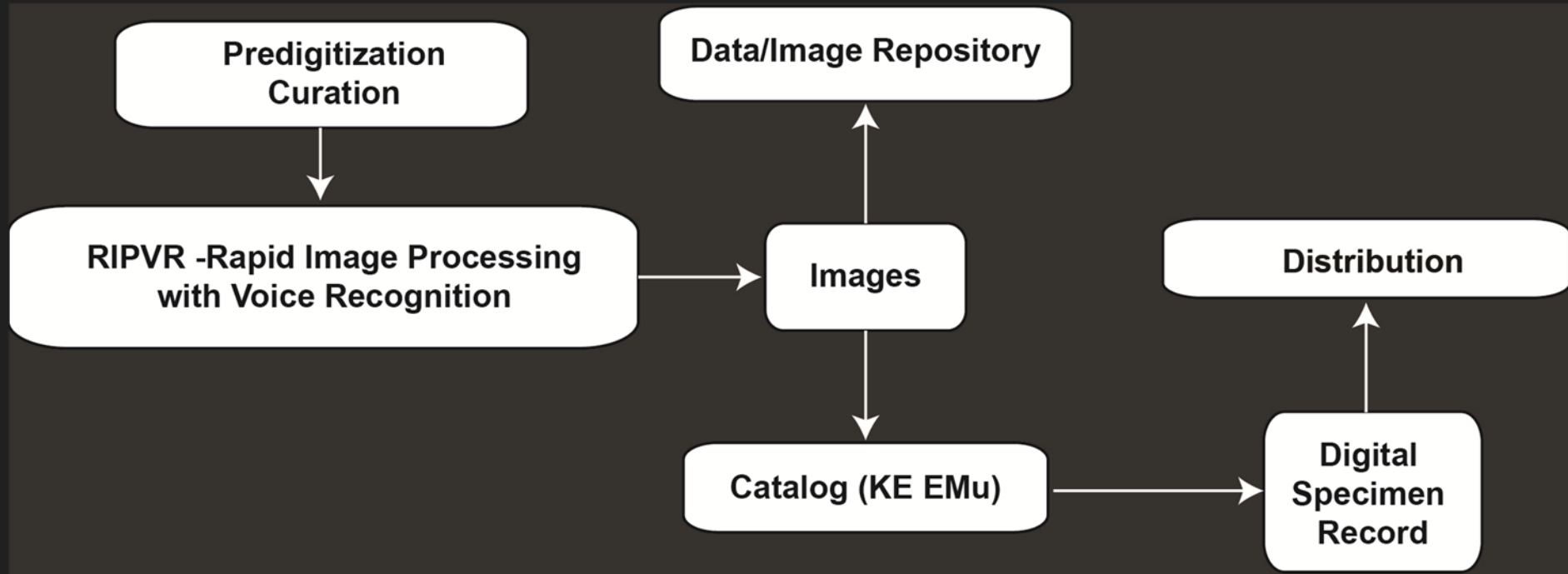
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Archiving – Yale University Digital Asset Management

- replicates image under multiple file types
- open access jpgs, restricted access tiffs (controllable)
- Administered by Yale Digital Collections Center (YDC2) – museums and libraries at Yale

YPM search

Data aggregators

- iDigBio
- PaleoPortal
- iDigPaleo (TCN:FIC)
- gbif

Discover Yale Digital Content

Yale CA
English

Search 1,500,000 records; 250,000 digital assets
from across Yale's collections

anthracospirifer occiduus Find Advanced Search

Office of Digital Dissemination
Open Yale Courses
Yale Center for British Art
Yale Peabody Museum
Yale University Art Gallery
Yale University Library



Archiving – Yale University Digital Asset Management

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YPM search

Data aggregators

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- gbif

The screenshot shows the 'Discover Yale Digital Content' search results page. The main heading is 'Discover Yale Digital Content' with a search bar and 'Find Advanced Search' button. The page is for the item 'Anthracospirifer occiduus' under 'Holdings'. On the left, there is a 'Similar Items' section with four entries, each listing the species name, author (Sadlick, 1960), and publication year (1919, 1999, 1999, 1999). The main content area shows the item details for 'Anthracospirifer occiduus; North America; USA; Nebraska; Otoe County; SW of Syracuse'. It includes a thumbnail image of the fossil, a title, and a table of metadata: Locality (North America; USA; Nebraska; Otoe County; SW of Syracuse), Stratigraphy (Early Permian; Americus Ls), Taxon (Animalia; Brachiopoda; Rhynchonellata; Spiriferida; Spiriferidae; Anthracospirifer), Rights (http://hdl.handle.net/10079/8931zqj), Catalog number (YPM IP 217445), Collection (Invertebrate Paleontology), Repository (Yale Peabody Museum of Natural History), and Tags (No Tags, Be the first to tag this record!). At the bottom, there are tabs for 'Links', 'Description', and 'Comments'.