

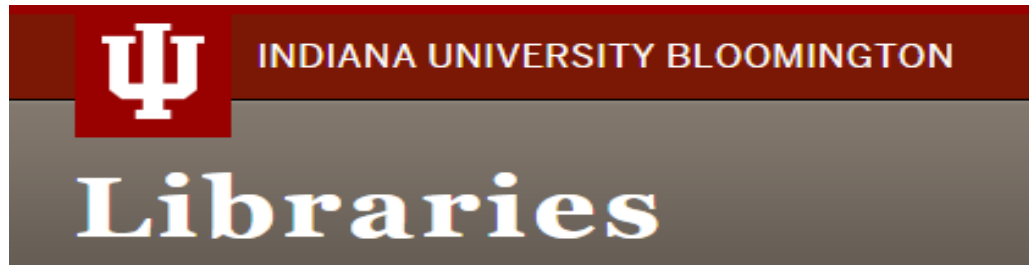
Boundless Use of Indiana University's Biological Research Collections Possible in Partnership with IU Libraries

Jennifer Laherty & Gary J. Motz



Creating Opportunities for Specimen Collections

- Libraries and academic units in partnership
 - Co-curators of research data



William R. Adams Zooarchaeology
Laboratory
(Anthropology)



Indiana University Herbarium
(Biology)



IU Paleontology
Collection
(Geological Sciences)

This is important for “big data” research

Grand Challenges



Ellen Ketterson, PhD: IU Biology

Indiana University Herbarium



~150,000 plant specimens

Indiana University Herbarium



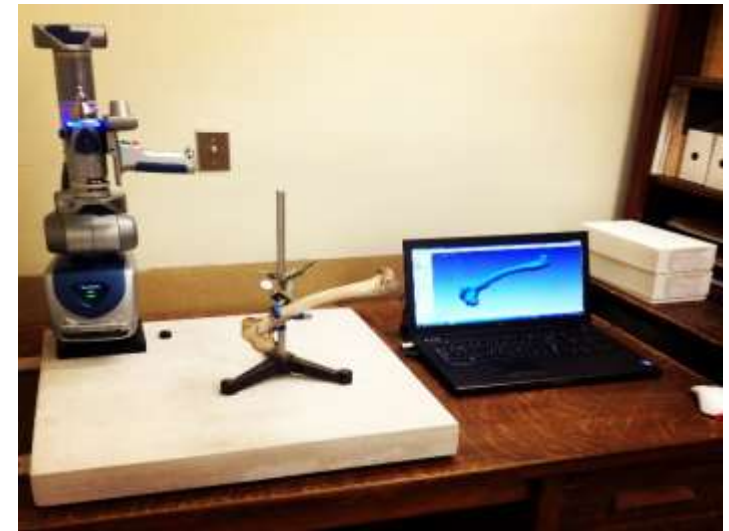
William R. Adams Zooarchaeology Lab



>10,000 vertebrate skeletons



- ~20 student volunteers per semester
- 1 graduate assistant
- FARO laser scanner
- Dedicated scanning coursework



Indiana University Paleontology Collection

It's not just 1.3 million fossils...



Indiana University Paleontology Collection



- ~4600 35mm slides
- ~1750 sheets of film
- 30 rolls of film
- ~2250 SEM negatives
- ~7300 photo prints
- ~750 lantern slides
- ~35 field notebooks

INDIANA UNIVERSITY
Archives Online
at Indiana University

Home | Browse | Search | Advanced Search | Help

Search Archives Online | Search

Browse Repository: Paleontology Collection, IU Bloomington Displaying 1 - 5 of 5 items

Sort by: Collection Title | Go! Page: 1

Alan Stanley Horowitz Media Materials, ca. 1940-1999. Horowitz, Alan Stanley, 1930-. Paleontology Collection, IU Bloomington. PC005.
Abstract: Alan Stanley Horowitz was curator of paleontology and part time professor of geology at Indiana University from 1966-1996. His collection consists of materials relating to his research interests and position at IU, including geological and paleontological research, publications, and records relating to professional organizations with which he was involved.

Charles Deiss Media Materials, 1928-1947. Deiss, Charles F. (Charles Frederick), 1903-1959. Paleontology Collection, IU Bloomington. PC004.
Abstract: Charles Deiss was the chair of the Department of Geological Sciences and the Indiana State Geologist. Deiss is well-known for his work on the geology of Indiana and the geology of the United States.

Edgar Roscoe Cumings Published Research Media Materials, 1908. Cumings, E. R. (Edgar Roscoe), 1874-1967. Paleontology Collection, IU Bloomington. PC003.
Abstract: Edgar Roscoe Cumings was a long-time chair of the Geology Department of Indiana University from 1904 to 1942. He was notably responsible for the discovery of the first trilobite fossils in the United States.

Jesse James Galloway Media Materials, 1947-1959. Galloway, J. J. (Jesse James), 1882-1962. Paleontology Collection, IU Bloomington. PC002.
Abstract: Jesse James Galloway was a professor of Geology and Paleontology at IU from 1931-1953. Galloway's collection consists of materials relating to foraminifera, stromatoporoids, and bryozoans.

N. Gary Lane Media Materials, bulk, ca. 1973-1995. Lane, N. Gary. Paleontology Collection, IU Bloomington. PC001.
Abstract: Norman Gary Lane was a geology and paleontology professor at IU from 1973-1995. The Lane collection consists of media materials and research notes relating to his work spanning the period from 1973 to 1995.

Sort by: Collection Title | Go! Page: 1

[IU Digital Library Program](#)
Comments: dilib@indiana.edu

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~160 years of research at IUB on half a billion years of the history of life on Earth

We need to talk based geoscience

Matty Mookerjee*, **Daniel Vieira**,
University, Rohnert Park, California
Dept. of Geology & Geophysics, T.
City, Utah 84112, USA; **Yolanda Gil**
University of Southern California,
USA; **Charles Goodwin**, Dept. of A
California at Los Angeles, Los Ang
Thomas F. Shipley, Dept. of Psych
Philadelphia, Pennsylvania 19122,
Geoscience, University of Wiscon
Wisconsin 53706, USA

A UNIQUE OPPORTUNITY FOR



The screenshot shows a web browser window with the address bar displaying "earthcube.org/group/isamples". The page header features the EarthCube logo, a search bar, and a "Login" button. Below the header is a navigation menu with buttons for "Home", "About", "Documents", and "Announcements". A secondary menu includes "Group Listing", "Calendar", "Forums", and "Galleries". The main content area has two tabs: "View" and "Members", with "Members" selected. Below the tabs, the text reads "View the iSamples Forum" and "Share this page". The main heading is "The Internet of Samples in the Earth Sciences (iSamples)". The introductory paragraph states: "The iSamples RCN seeks to advance the use of innovative cyberinfrastructure to connect physical samples and sample collections across the Earth Sciences with digital data infrastructures to revolutionize their utility for science. The ultimate goal of this RCN is to dramatically improve the discovery, access, sharing, analysis, and curation of physical samples and the data generated by their study for the benefit of science and society."

iSamples | EarthCube x
earthcube.org/group/isamples

EARTH CUBE

Search

Login

Home About Documents Announcements

Group Listing Calendar Forums Galleries

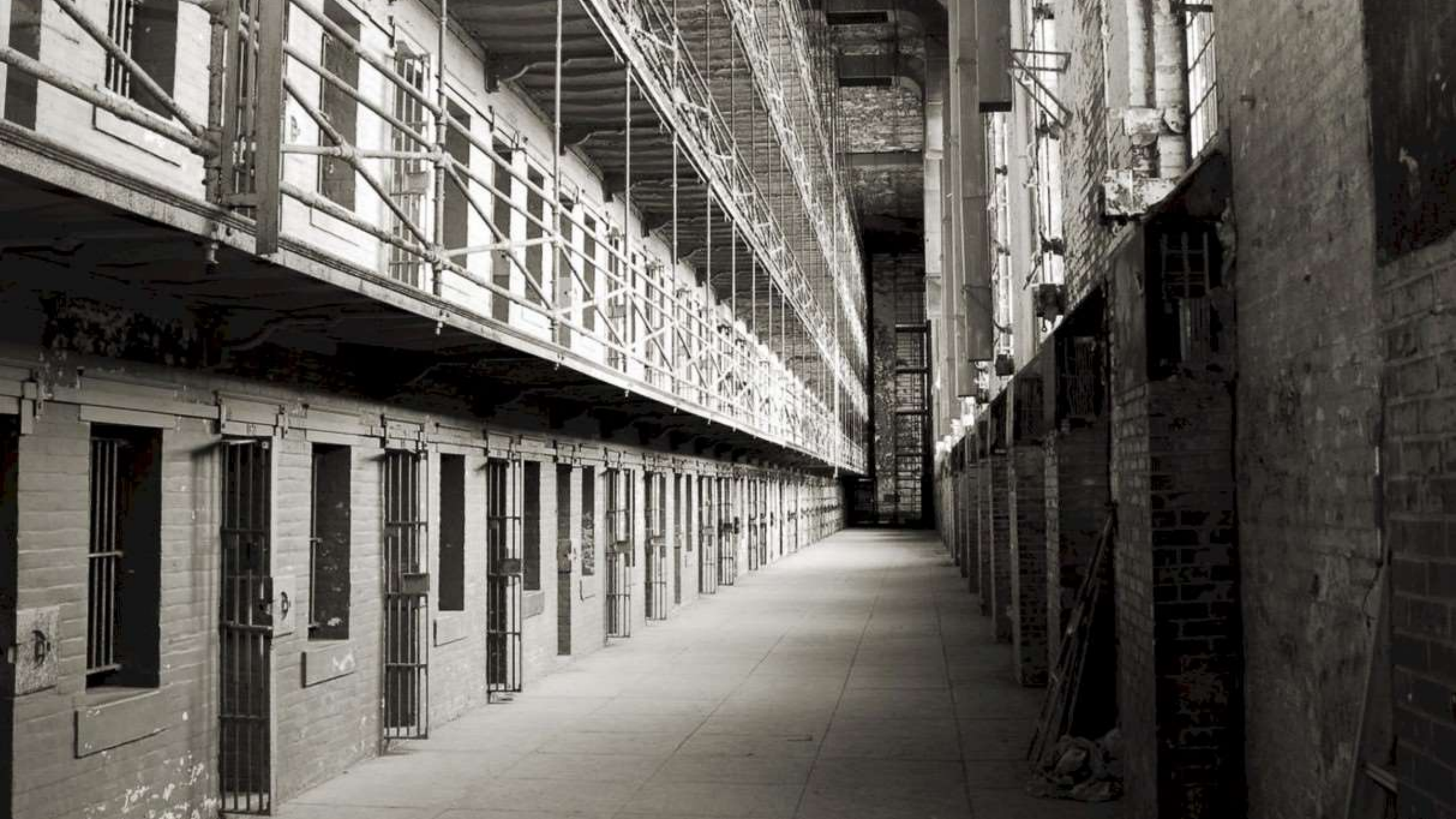
iSamples

View Members

View the iSamples Forum [Share this page](#)

The Internet of Samples in the Earth Sciences (iSamples)

The *iSamples* RCN seeks to advance the use of innovative cyberinfrastructure to connect physical samples and sample collections across the Earth Sciences with digital data infrastructures to revolutionize their utility for science. The ultimate goal of this RCN is to dramatically improve the discovery, access, sharing, analysis, and curation of physical samples and the data generated by their study for the benefit of science and society.



Technology Innovation

- Fedora 4, Sufia 7, Specify
- Systematic digitization
- Application of metadata

Biodiversity
Information
Standards
T D W G



Symbiota

*Promoting
Bio-Collaboration*







IU CBRC Repository

[Home](#) [About](#) [Help](#)

Enter search terms

Recently Uploaded

Depositor	File Details
 jhallida@indiana.edu	IND-0001002-full.jpg IND-0001002- full.jpg no keywords specified
 jhallida@indiana.edu	IND-0001003-full.jpg IND-0001003- full.jpg no keywords specified
 jhallida@indiana.edu	IND-0001004-full.jpg IND-0001004- full.jpg no keywords specified
 jhallida@indiana.edu	IND-0001005-full.jpg IND-0001005- full.jpg no keywords specified

- Repository of ANY digital object
- Built in Sufia (a Ruby on Rails engine)
- Powered by Hydra and Fedora 4

- Jim Halliday, Julie Hardesty, Randall Embry

FULFILLING *the* PROMISE

Sufia Digital Content Repository

IU CBRC Repository

1 jhallida@indiana.edu

Home About Help

Enter search terms All ▾

Back to search results

R38_mandible.obj Institution Name

Descriptions

Resource type:		State Province:	Nunavut
Creator:	garymotz@indiana.edu	Locality:	South Hampton Island
Keyword:	3D	Decimal Latitude:	
Rights:	Attribution-NonCommercial-ShareAlike 3.0 United States	Decimal Longitude:	
		Scientific Name:	Canis familiaris
		Scientific Name Aut...	
Identifier:		Kingdom:	Animalia
Collection Code:	WRAZL	Phylum:	Chordata
Catalog Number:	1900-10-0840	Class:	Mammalia
Other Catalog Num...	R38	Order:	Carnivora
Continent:	North America	Family:	Canidae
Country:	United States	Genus:	Canis
County:	Kivaliq County	Specific Epithet:	Canis familiaris
Higher Geography:	Kivaliq, Nunavut, Canada	Infraspecific Epithet:	
		Type Status:	

Actions

Download

Export to: EndNote | Zotero | Mendeley

Collections

This file is in the following collections:

- 3D Collection Objects

Specify collections management

The screenshot displays the Specify 6.6.01 application window. The interface includes a menu bar (File, Edit, Data, System, Tabs, Help), a toolbar with various icons, and a search bar. On the left, there is a sidebar with 'Create/Update' and 'Record Sets' sections. The main area is divided into several sections:

- Collection Object:** Fields for Catalog Number (1900-10-0840), Original Cat Number (R38), Accession (1900-ZL-000), Object Condition, Specimen Description, Remarks (Skull and mandible), Surface, and Features.
- Determinations:** Common Name (DOMESTIC DOG), Taxon (Canis familiaris, highlighted with a red box), Preferred Taxon (Canis familiaris), Determined Date, Determiner, Method, and Type (None).
- Collecting Information:** Context and Locality (South Hampton Island; Kivalliq County, Nunavut, Canada).
- Collectors:** A table with columns for Last Name, First Name, and Remarks.
- Preparations:** A table with columns for Prep Type, Count, Is on Loan, Preparation Attachments, Description, Solution, and Storage. One entry is visible: Prep Type: Skull, Count: 1, Is on Loan: Yes, Description: NH40H, Solution: 7D, IUZL, Stud...
- Col Obj Attribute:** Fields for Sex, Sex Basis, Cause of Death, Age, Age Basis, Date Born, Specimen Length, Weight, and Tissues Taken. The Specimen Source is W. R. Adams.
- Attachments:** A section for managing attachments.
- Metadata:** Fields for Modified By Agent (Motz, Gary), Timestamp M. (2015/02/10), and Cataloged D. (2010/12/03).

The status bar at the bottom shows the current record: 'Zoarchaeology | William R. Adams Zoarchaeology Collection | garymotz'.

- MySQL application with Java frontend GUI
- Linked data using Darwin Core metadata schema

Repositories working together



Indiana University Herbarium

- Founded in 1885
- Houses 150,000 plant specimens
- Official botanical repository for the state of Indiana
- <http://go.iu.edu/1jCd>

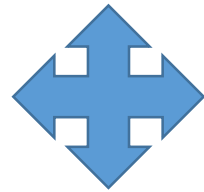
Scholarly Data Archive

- Distributed storage
- ~42 PB of storage
- <https://kb.iu.edu/d/aiyi>



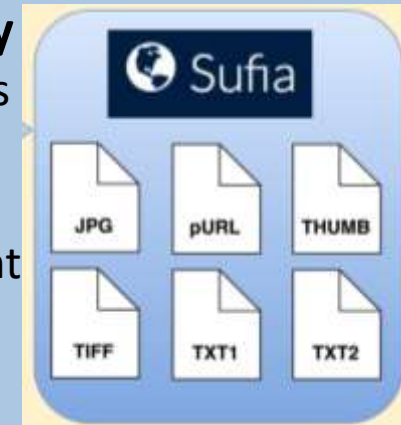
Consortium of Midwest Herbaria Symbiota Portal

- Building a skeletal metadata architecture
- Enhancing metadata via optical character recognition (OCR)
 - We're also using handwritten text recognition (HTR)
- Georeferencing of specimen localities using GEOLocate
- Crowdsourcing modules to engage citizen scientists
- <http://go.iu.edu/1jBr>

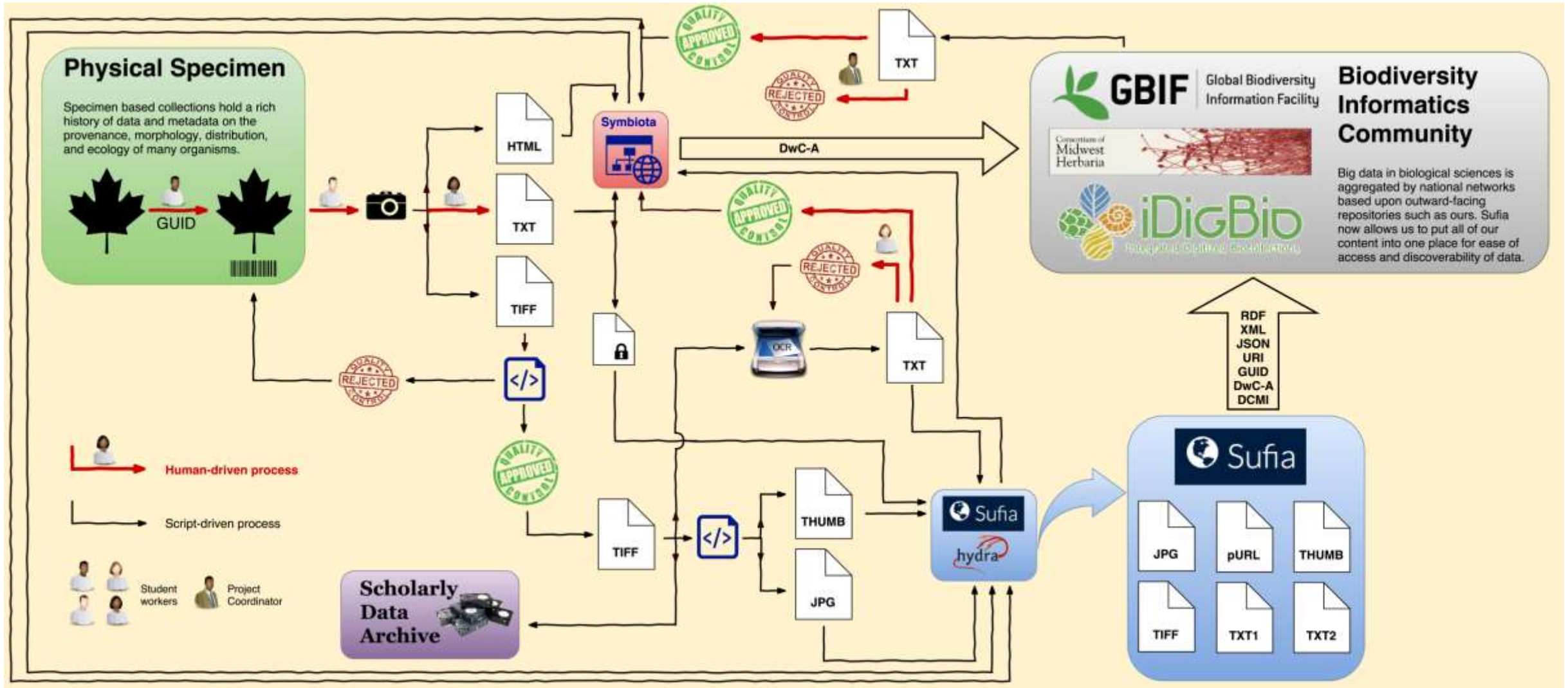


Sufia Digital Content Repository

- Linked framework that preserves and makes digital content available to outside community
- Able to ingest ANY digital content
- Robust repository infrastructure that provides URI for objects
- <http://go.iu.edu/1jCe>



Herbarium Digitization Workflow





because good research needs good data.

Search

Home

Digital curation

About us

News

Events

Resources

Training

Projects

Community

Tailored support

[Home](#) > [Drupal](#) > [Resources](#) > [Metadata Standards](#) > Darwin Core

Darwin Core

A metadata standard for biodiversity informatics

A body of standards, including a glossary of terms (in other contexts these might be called properties, elements, fields, columns, attributes, or concepts) intended to facilitate the sharing of information about biological diversity by providing reference definitions, examples, and commentaries.

Sponsored by Biodiversity Information Standards (TDWG), the current standard was last modified in October 2009.

Mappings	ABCD
Related Vocabularies	Audubon Core ; GBIF Vocabularies
Specification	http://www.tdwg.org/standards/450
Standard's website	http://rs.tdwg.org/dwc/index.htm

Extensions

[Apple Core](#)

Darwin Core documentation and recommendations for herbaria.

[Darwin Core Geospatial Extension](#)

A protocol-independent XML schema for a geospatial extension to the Darwin Core.

[DWC Germplasm](#)

An extension to the Darwin Core standard, it includes additional terms required to describe plant genetic resources and in particular germplasm seed samples.

<http://www.dcc.ac.uk/resources/metadata-standards/darwin-core>



Research Data Sharing
without barriers



EARTH CUBE



Biodiversity
Information
Standards
T D W S



SPNHC

ADVANCING COLLECTIONS CARE

The Society For The
Preservation of Natural
History Collections

Making data and images of millions of
biological specimens available on the
web

60,409,876

Specimen Records

16,756,120

Media Records

732

Recordsets

Search the
Portal



Why digitization matters

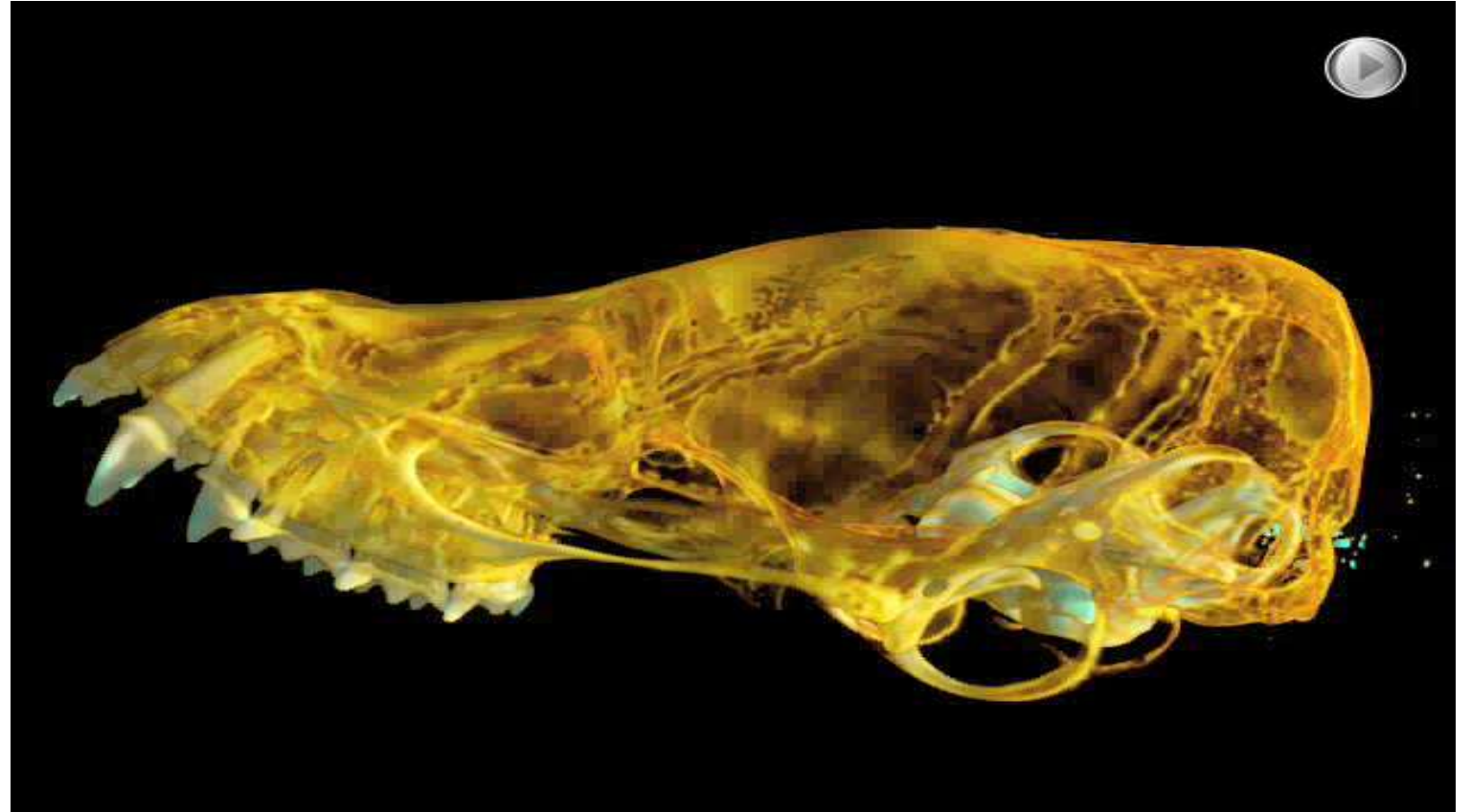
More about what we do and why

Digital Content



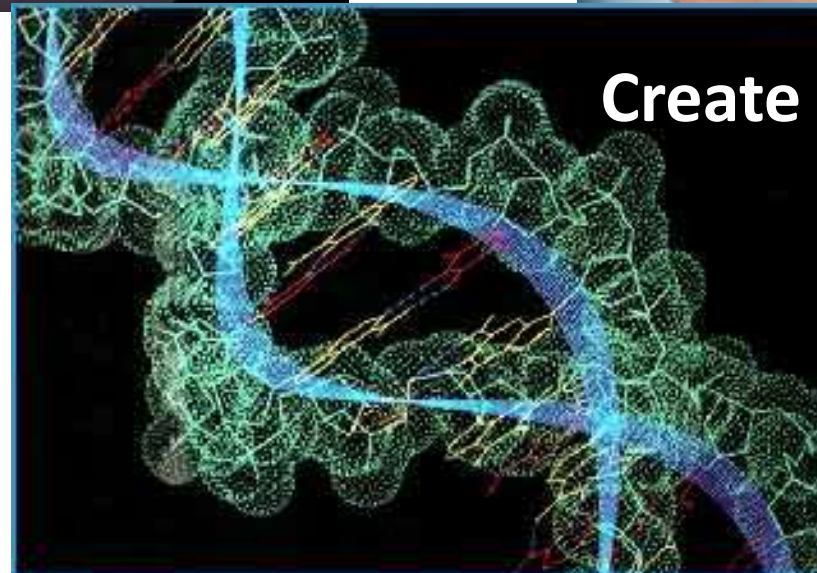
www.arkive.org/pipistrelle-bats/pipistrellus-pipistrellus-and-pipistrellus-pygmaeus/image-A18965.html

Pipistrellus pipistrellus
Modern bat
London, England



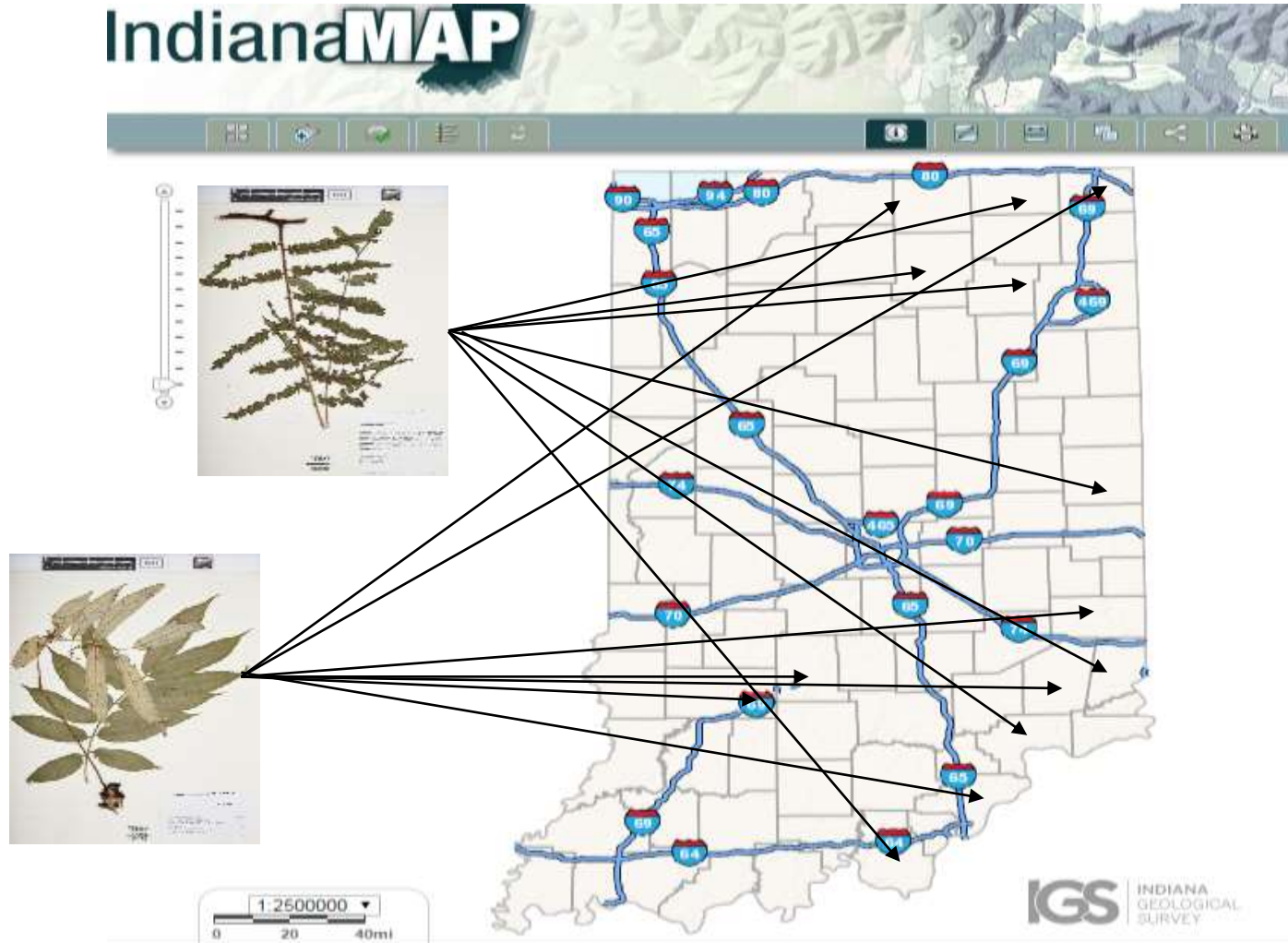
3D files are the product of many composite files and hours of work
(by both computers and humans)

Preserving Digital Assets



On the horizon...

IndianaMAP



<https://skfb.ly/FH9I>



<https://skfb.ly/FGRz>

Thank you!



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 - garymotz@Indiana.edu



INDIANA UNIVERSITY BLOOMINGTON

