Foundations to Actions:

Extending Innovations to Digital Libraries in Partnership with NDSR Learners

INSTITUTE of Museum and Library SERVICES

BHL
Biodiversity Heritage Library

April 21 | DPLAFest Chicago IL 2017

BHL NDSR grant

- Funded by Institute of Museum and Library Services (IMLS)
- Dates: June 2016-May 2018
- Overall Goal: Plan and develop a next generation digital library using the Biodiversity Heritage Library (BHL) as a test-bed.

Objectives

- ❖ Connect Museums, Libraries, Archives & Scientific Data
- ❖ Collaborate to develop a community of leaders
- ❖ Innovate for Functionality

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BHL NDSR grant

BHL Institutions/Mentors/Residents

- Ernst Mayr Library, MCZ, Harvard (lead)
  - Connie Rinaldo & Joe deVeer; Katie Mika
- Smithsonian Institution Libraries
  - Carolyn Sheffield; Pamela McClanahan
- Missouri Botanical Garden
  - Trish Rose-Sandler & Doug Holland; Ariadne Rehbein
- Natural History Museum, Los Angeles County
  - Richard Hulser; Marissa Kings
- Chicago Botanic Garden
  - Leora Siegel; Alicia Esquivel

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NDSR Overview

National Digital Stewardship Residency

Mission:

build a dedicated community of professionals who will advance our nation's capabilities in managing, preserving, and making accessible the digital record of human achievement

Began 2013 - pilot project between Library of Congress and IMLS

NDSR grants focused in certain regions and subject areas:

-DC, NY, Boston

-AV preservation, Biodiversity, Art

Cohort Model - preliminary immersion course, ongoing mentorship, frequent educational opportunities

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What is BHL?

Mission: BHL improves research methodology by collaboratively making biodiversity literature openly available to the world as part of a global biodiversity community.

Consortium of partners from natural history and botanical libraries from across the globe

Began as collaboration between US and UK now spread to Europe, China, Australia, Egypt, Brazil, Africa, Singapore

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BHL NDSR Timeline

Jun –Dec 2016	Mentor planning
Jan-Feb 2017	**Resident Onboarding**
Mar-Aug 2017	**Resident Off and running**
Sep-Dec 2017	**Resident Regroup , Reflect, Revise**
Jan-May 2018	Mentor Wrapup

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Onboarding Residents

Jan-Feb 2017

- BHL Bootcamp Jan 31-Feb 2nd Washington DC
- Establishing communication strategies among mentors and residents –regular meetings, sharing information
- Introducing residents to their local institutions

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Off and Running

March – August 2017

- Residents flesh out their project plans
- Participate in BHL team meetings (Collections, Technical, Cataloging, All staff)
- Present at conferences (DPLAFest, NDSR conference, DLF, Internet Librarian)
- Research
- Interviews
- Surveys

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Regroup, Reflect, Revise

September – December 2017

September 12th 2017 - In person meeting for residents and mentors

Final Deliverables: best practice documents

- Transcriptions
- Image search
- Collection analysis
- Use case/user priorities
- Improved connections to museums, archives & data providers

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Wrapup

Mentor's Deliverables:

1) A series of public reports on each of the 5 focus areas for use by the digital library and biodiversity informatics community.

2) Report on transferability to other digital library or biodiversity data services (GBIF, EOL, DPLA, Museums) of each discrete project.

3) An overall review of the BHL NDSR distributed program with an analysis of the shared resident case.

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Mentorship Planning

- Conference calls every two weeks
- Online training in project management
- Hiring process for residents
  - Job descriptions, advertising,
  - Select top candidates, conduct interviews
  - Chose candidates, make offers
- Prepared resident workspaces

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Mentoring in Action

- Hard skill acquisition for next generation of BHL
- Soft skills, informal learning process
- Mentors as advisors, counselors, and supervisors
- Mentoring at the Chicago Botanic Garden

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Mentor – Resident
Future Opportunities

- Networking
- Reference for employment
- Colleague
- Professional development

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Alicia Esquivel

Content Analysis

Chicago Botanic Garden

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Content Analysis

What is in BHL?

Analyze:

- full text
- Use metadata tables
- MARC records

What is not in BHL?

- Previous estimates of amount of biodiversity literature
- Statistical analysis using capture-recapture

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Text Mining Analysis

Evaluate BHL full text to create visualizations that represent the collection:

- temporally
- geographically
- taxonomically
- topically

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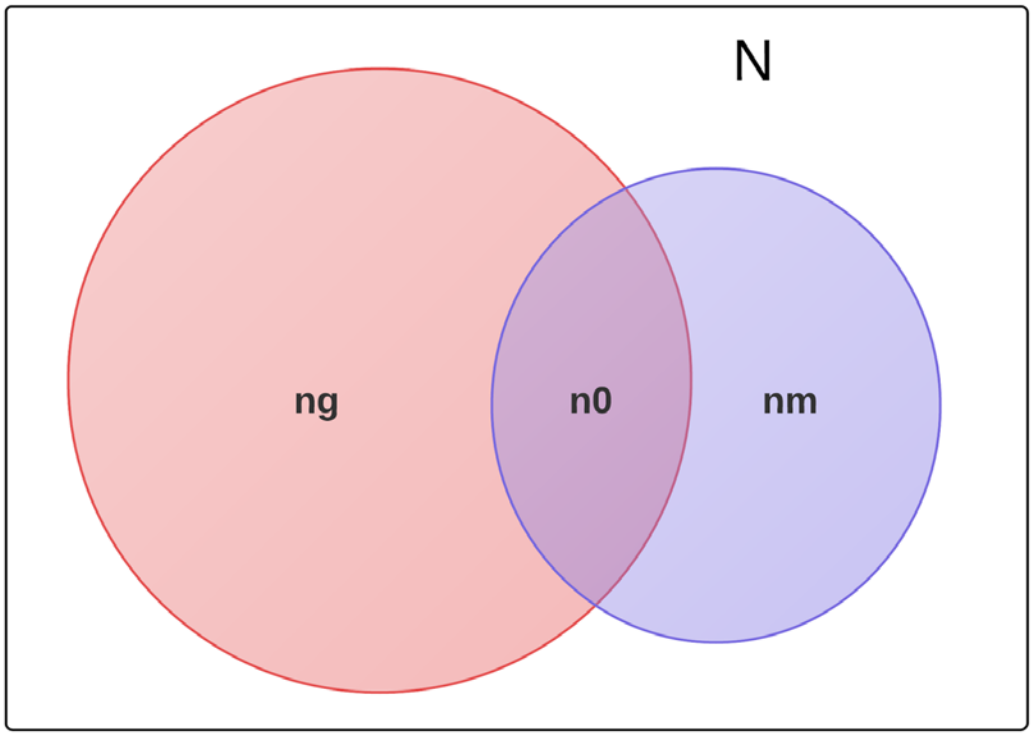
Statistical Analysis

Capture-recapture



N= total population
ng = first capture
nm= second capture
n0= recaptured

$$\frac{n0}{nm} = \frac{ng}{N}$$

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Taxon Name Finders

How do name finding algorithms work?

What types of bias does this introduce to my data?

How can these processes be adapted to transcription workflow?

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Katie Mika

Crowdsourced Data Corrections and Enhancements

Museum of Comparative Zoology
Harvard University

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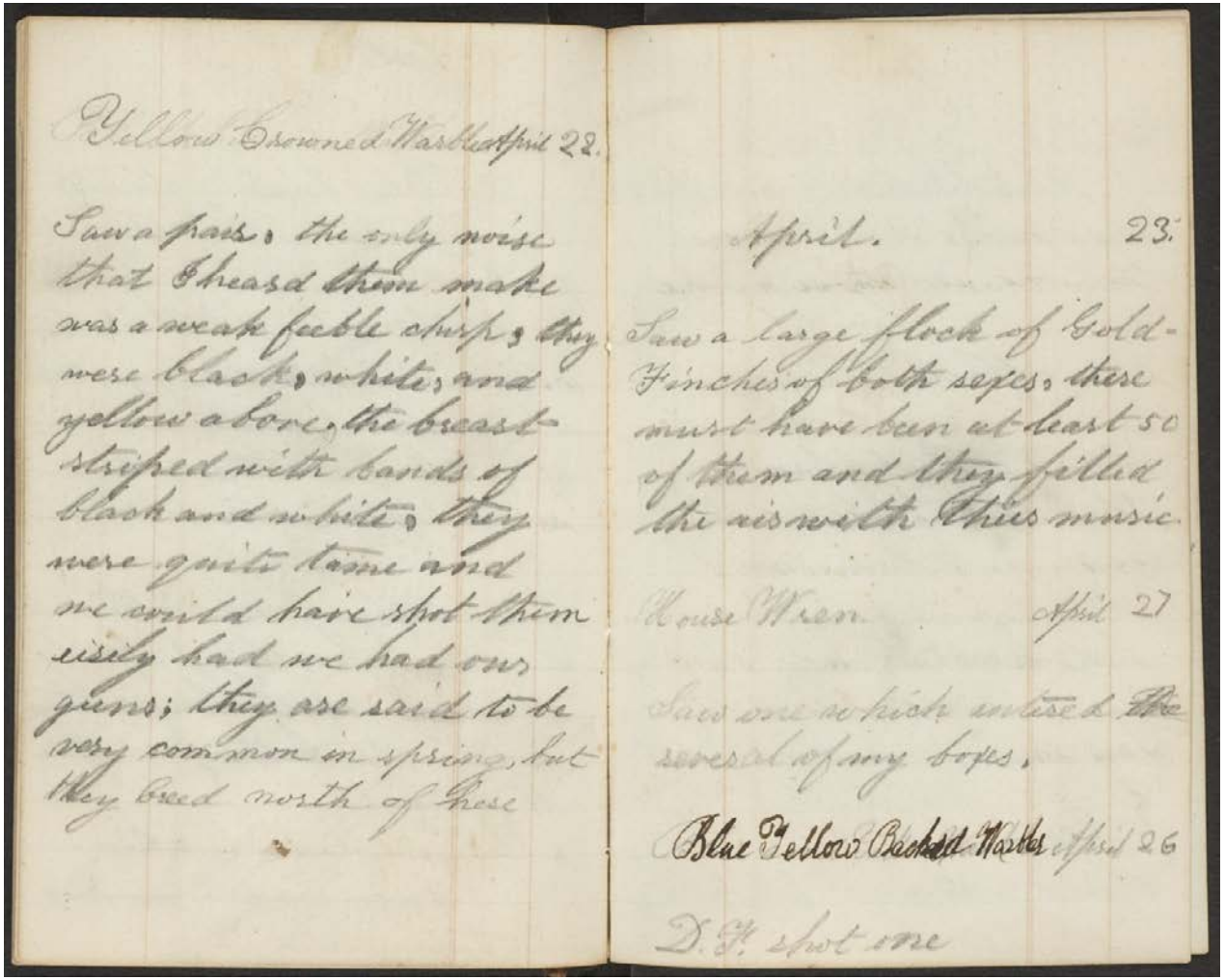
Species Occurrences in Manuscripts



Yellow Crowned Warbler April 22.

Saw a pair, the only noise that I heard them make was a weak feeble chirp, they were black, white, and yellow above, the breast striped with bands of black and white, they were quite tame and we could have shot them easily had we had our guns; they are said to be very common in spring, but they breed north of here

April. 23.

Saw a large flock of Gold-Finches of both sexes, there must have been at least 50 of them and they filled the air with their music.

House Wren April 27

Saw one which entered the several of my boxes.

Blue Yellow Backed Warbler April 26

D. H. shot one

Source: http://biodiversitylibrary.org/page/40222533

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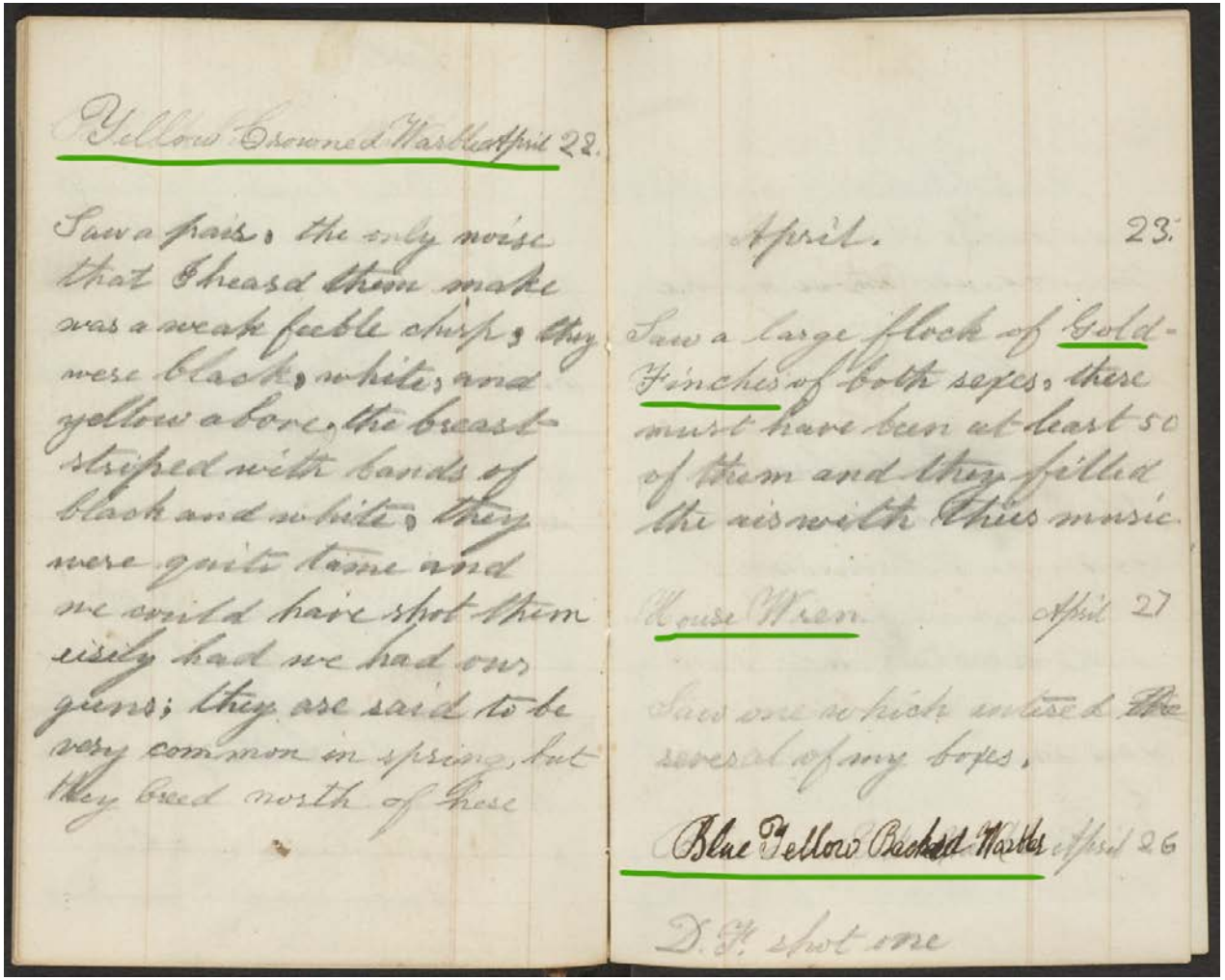
Species Occurrences in Manuscripts



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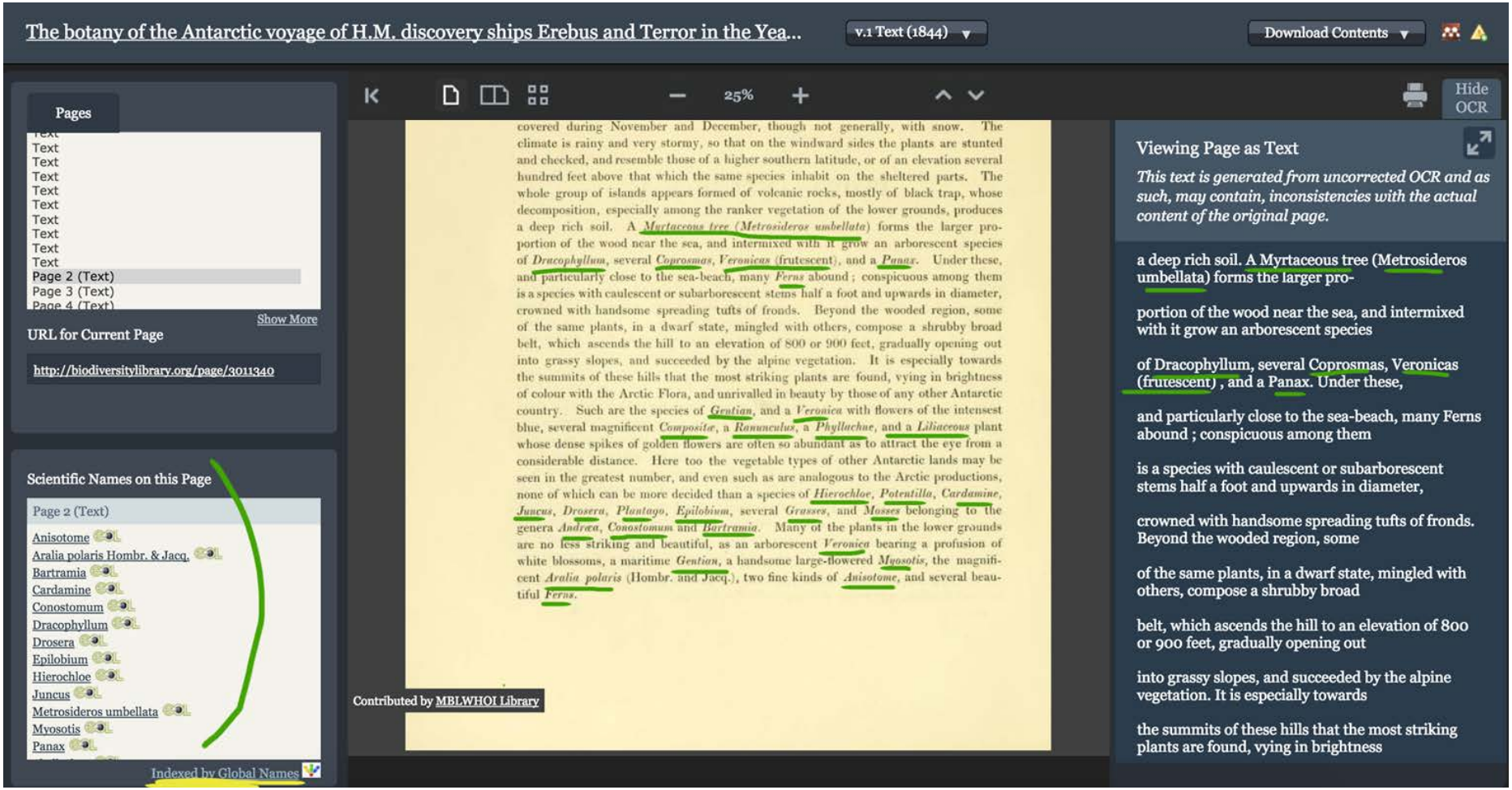
Optical Character Recognition



Source: http://biodiversitylibrary.org/page/3011340

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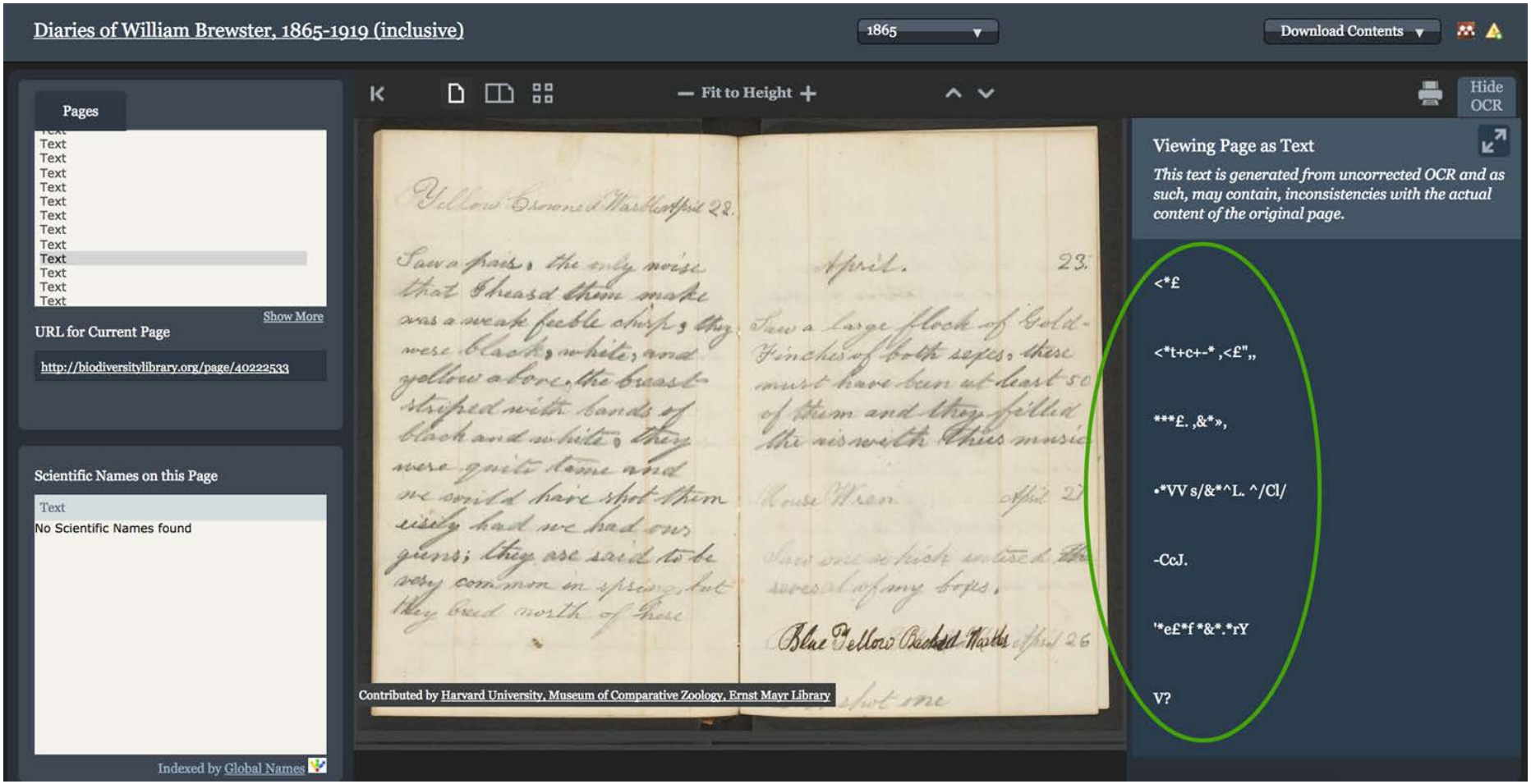
OCR and Manuscript Items



Source: http://biodiversitylibrary.org/page/40222533

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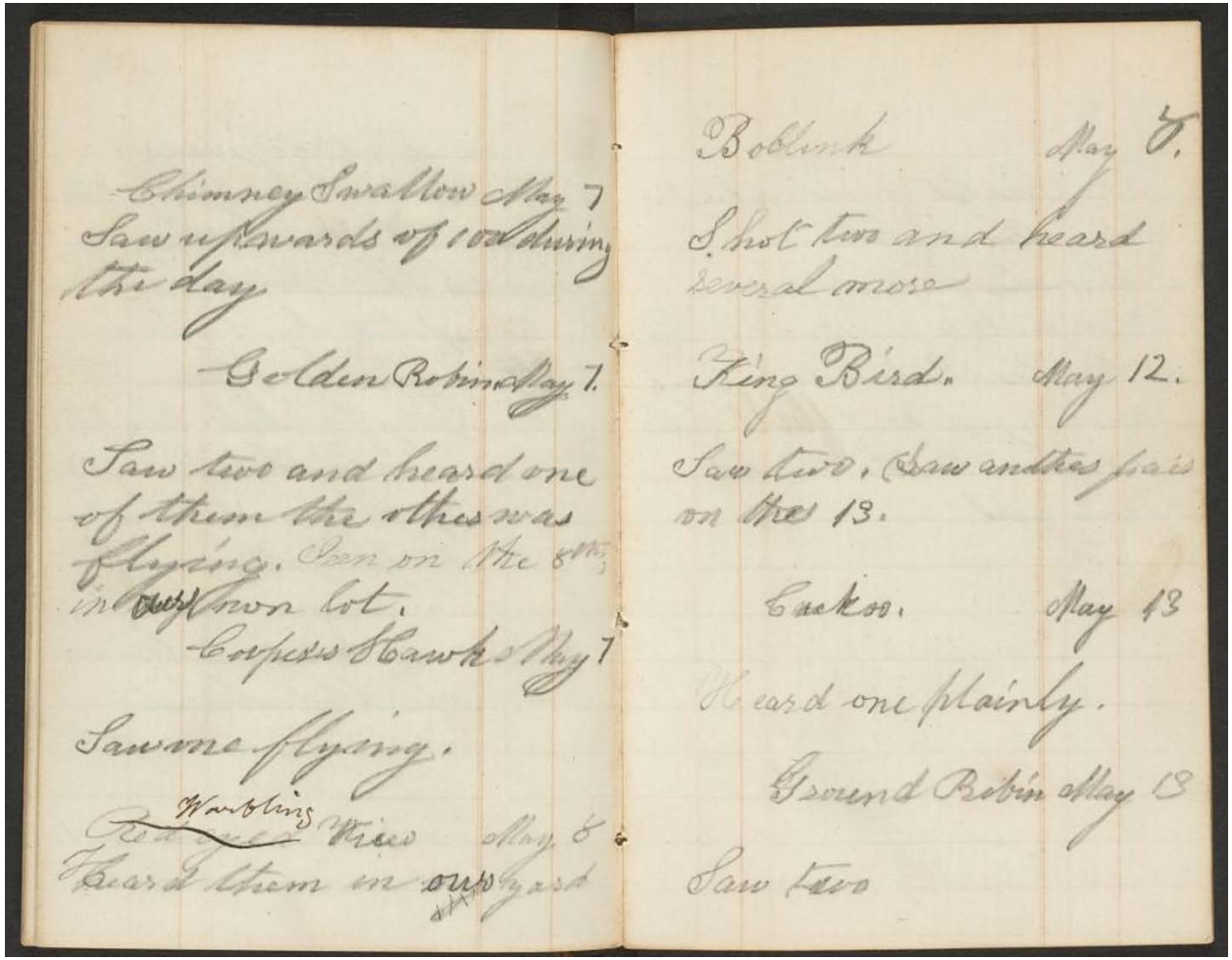
Transcriptions

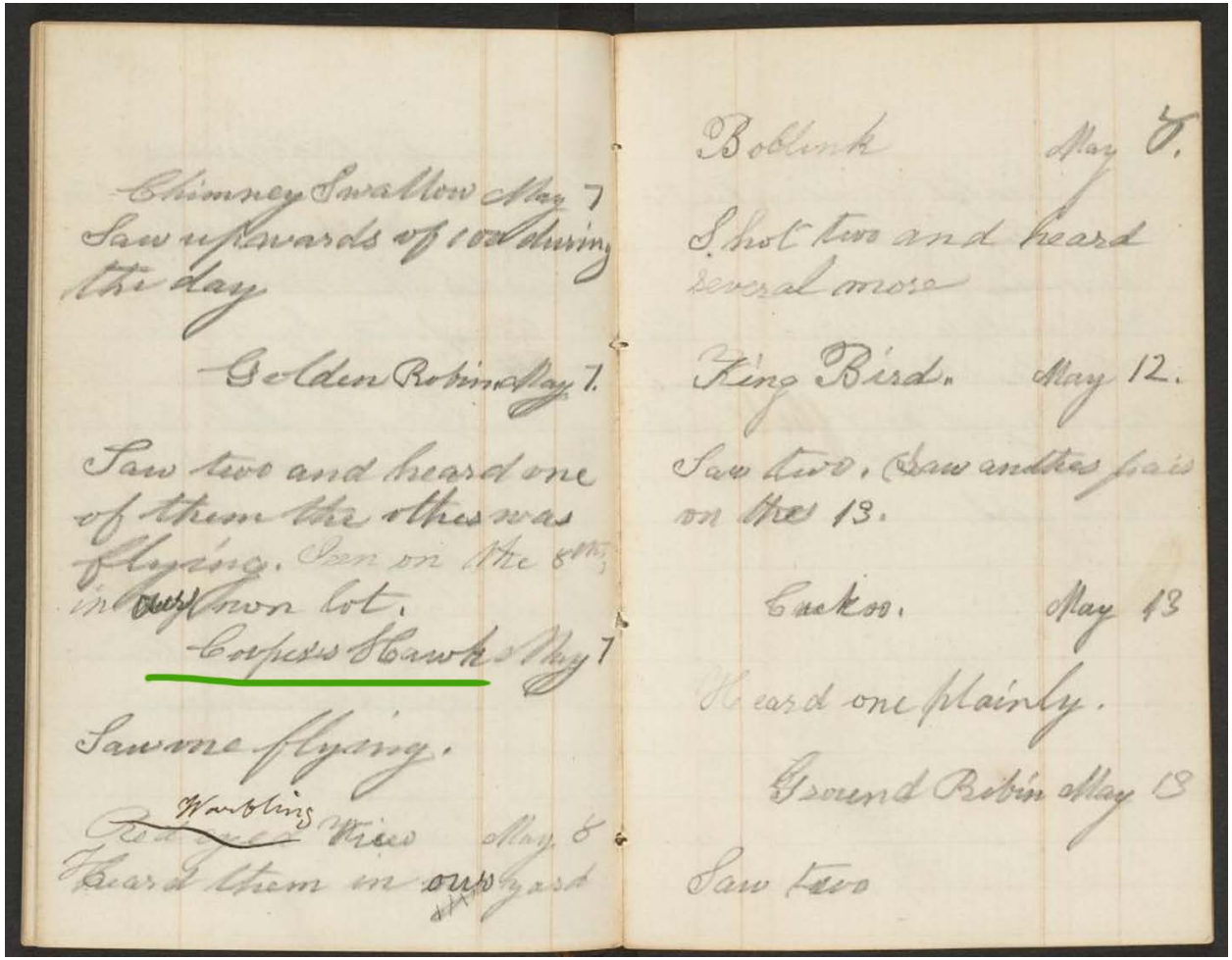


Verso:
Chimney Swallow [margin]May 7, 1865[/margin] Saw upwards of 100 during the day
Golden Robin [margin]May 7. 1865[/margin] Saw two and heard one of them the other was flying. Seen on the 8th, in our own lot.
Cooper's Hawk [margin]May 7, 1865[/margin] Saw one flying.
[delete]Red-eyed[/delete] Warbling Vireo [margin]May 8, 1865[/margin] Heard them in our yard

Source: http://biodiversitylibrary.org/page/40222531

BHL Biodiversity Heritage Library

Transcriptions Are Imperfect



Chimney Swallow May 7
Saw upwards of 100 during the day

Golden Robin May 7.

Saw two and heard one of them the other was flying. Saw on the 8th in our own lot.

Cooper's Hawk May 7

Saw one flying.

Warbling Vireo May 8
Heard them in our yard

Bobolink May 9.

Shot two and heard several more

King Bird. May 12.

Saw two. Saw another pair on the 13.

Cuckoo. May 13

Heard one plainly.

Ground Robin May 13

Saw Two

- Unclear text and misspellings

Source: http://biodiversitylibrary.org/page/40222531

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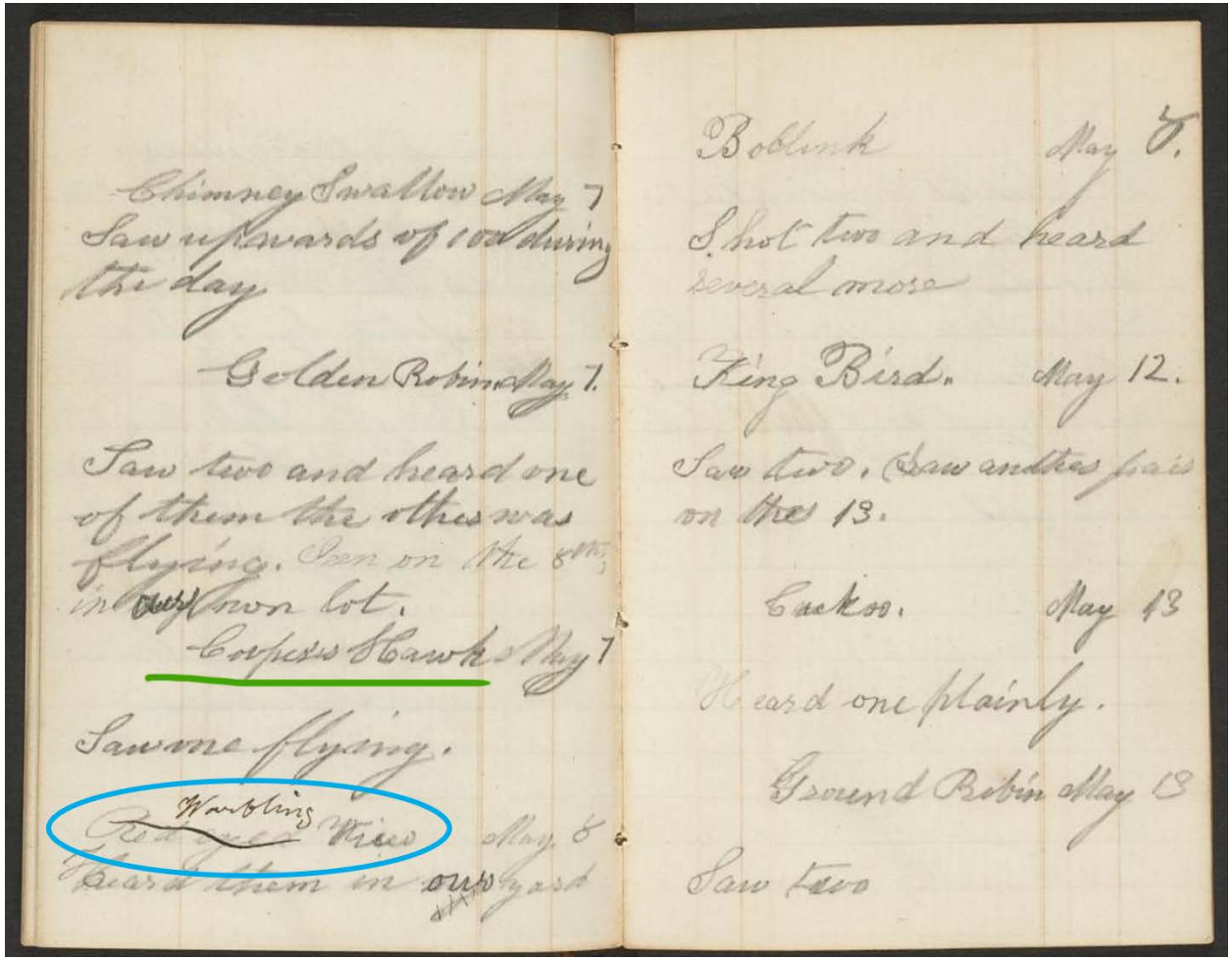

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Source: http://biodiversitylibrary.org/page/40222531

- Unclear text and misspellings
- Additions and abbreviations

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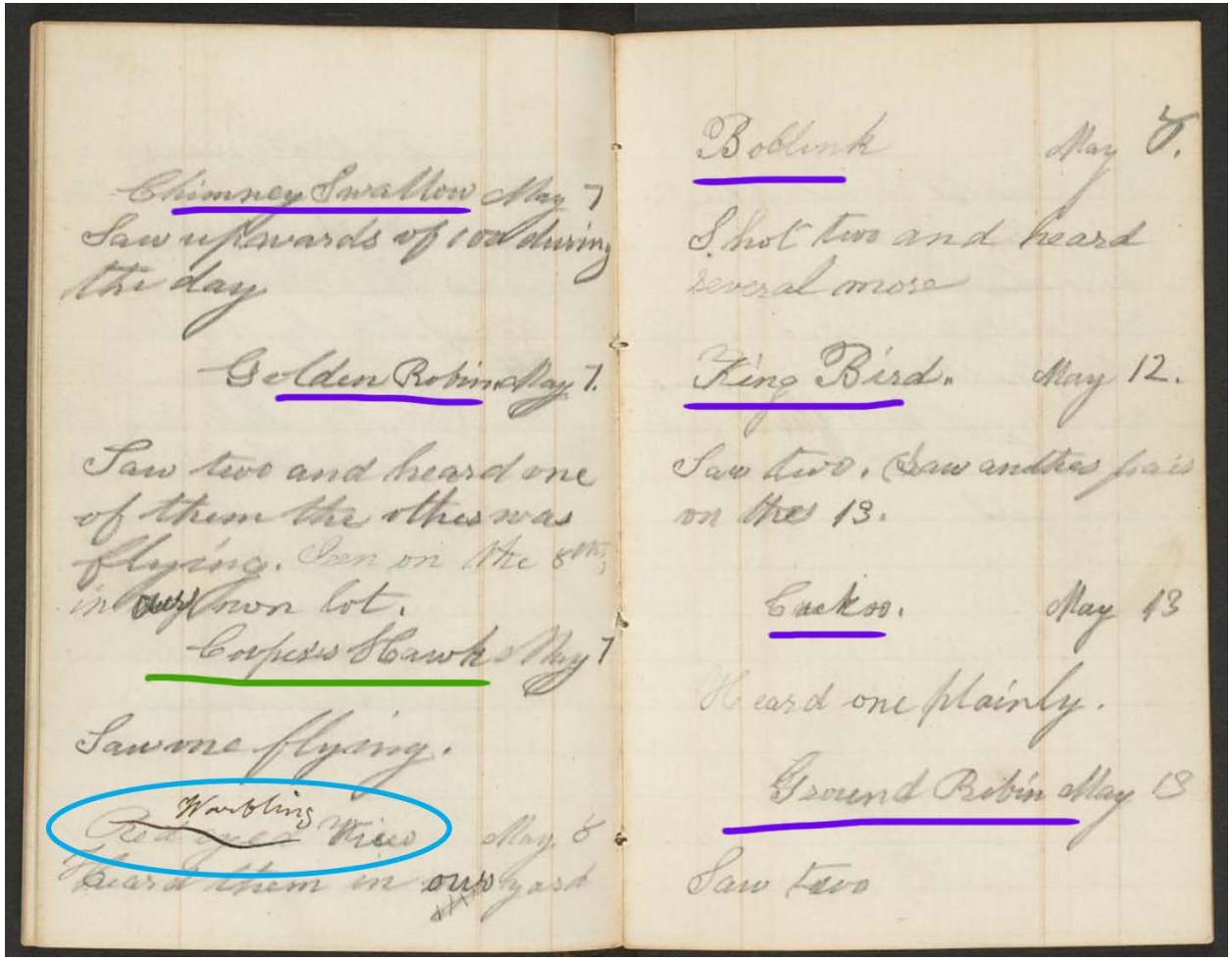
Transcriptions Are Imperfect



- Unclear text and misspellings
- Additions and abbreviations
- Common names

Source: http://biodiversitylibrary.org/page/40222531

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Crowdsourcing

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Crowdsourcing

Source: Hyperboleandahalf.blogspot.com, icanhas.cheesburger.com, memegenerator.net/Zoidberg.

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+

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Guava jelly

From Wikipedia, the free encyclopedia

Guava jelly (Spanish: **bocadillo (de guayaba)**, "*(guava) snack*"), is a, Colombian confectionery made with guava pulp and panela, which is consumed abundantly throughout Colombia, one of the largest guava producers in the world. The town of Vélez, Santander Department, is a major centre of production for the sweet and gives it the alternative name "**bocadillo Veleño**".[1]

In Venezuela, the form of consumption is similar to that of Colombia, where the product is called "conserva". In Venezuela it can be of guava, coco, banana etc.

Bocadillo with leaf packaging.

Bocadillo is commonly accompanied by cheese, spread upon bread, or simply eaten on its own. It most often takes the form of a small rectangular block, with a firm consistency and a deep red colour, giving it a similar appearance to the related Spanish dessert *dulce de membrillo*. Another dessert closely related to bocadillo is the Brazilian *goiabada*, also made from guava.

In 2006, the bocadillo veleño was nominated for the cultural symbol for Colombia in the contest organized by a magazine, *Semana*.[2]

Preparation [edit]

Bocadillo is prepared much like other conserves, jams, and jellies. The guavas are first washed and peeled before being mashed into a pulp, which is strained to remove seeds.

The pulp is then boiled in water along with panela, or refined sugar, at a low temperature for several hours until the mixture has a thick consistency. The liquid is left to cool off to make it be moulded into blocks. It gets its characteristic firm texture once it is fully cooled.[1][3]

Bocadillo de guayaba is traditionally individually wrapped in the leaves of the *bijao* (*calathea lutea*) to preserve it and to enhance its flavour.

Source: Hyperboleandahalf.blogspot.com, icanhas.cheesburger.com, memegenerator.net/Zoidberg, and en.wikipedia.org/wiki/Guava_Jelly

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Ariadne Rehbein

Treasures Unlocked:
Enabling image discovery within the Biodiversity Heritage Library

Missouri Botanical Garden

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Building on the *Art of Life project*

Art of Life goals (2012-2015)

- Identify and describe BHL illustrations
- Expose illustrations to new audiences

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SCIENCE GOSSIP

Treasures Unlocked deliverables (2017)

- Search/browse functionality in BHL portal
  - User studies
  - Image discovery best practices based upon af other digital library repositories

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Who are our users?

- Taxonomist users
  - Development priority survey in 2010
  - Limited use for historic illustrations in taxonomic research process
- "Non-core" artists, historians, citizen scientists, educators, bibliophiles audiences
  - 2 dozen BHL blog user stories out of 90 (beyond testimonials and comments)

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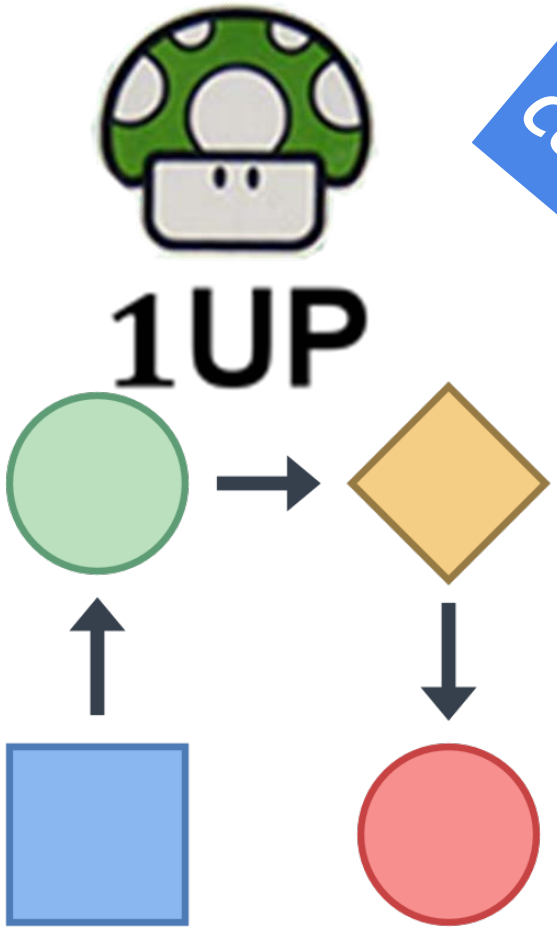
All the options



Librarians, Exhibition, Communications Staff?

flickr™

or

On a mission...

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Taking a step back

Golden Rules of systems analysis and design

- Problems often stated in terms of solutions
- Optimization rather than incrementalism
- Take a goal-centered rather than technology-centered or chronological approach

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Looking forward

How can a digital library grow after crowdsourcing initiatives that exposed its collections to new audiences?

- Deeper dive into motivations of crowdsourcing audiences, scientists, and BHL member institution representatives and staff
- Opportunities offered by outside platforms, new standards, and communities around them

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Pamela McClanahan

User Needs and Usability Analysis

Smithsonian Libraries

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User Needs Project Description

- Define recommendations and requirements for expanding BHL digital library functionality

- Work with members of the larger biodiversity community to collect requirements for new services and features for the BHL platform

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Defining User Groups

1) Consortium Users: A contributor to BHL including Members, Affiliates, Partners, staff, and volunteers

1) System Users: Organizations or individuals who interact with BHL for the purpose of enriching another system via APIs (Application Programming Interface) or manually

1) Individual Users: Anyone visiting the BHL website to search for information to answer their research needs such as, scientists, collection managers, librarians, etc.

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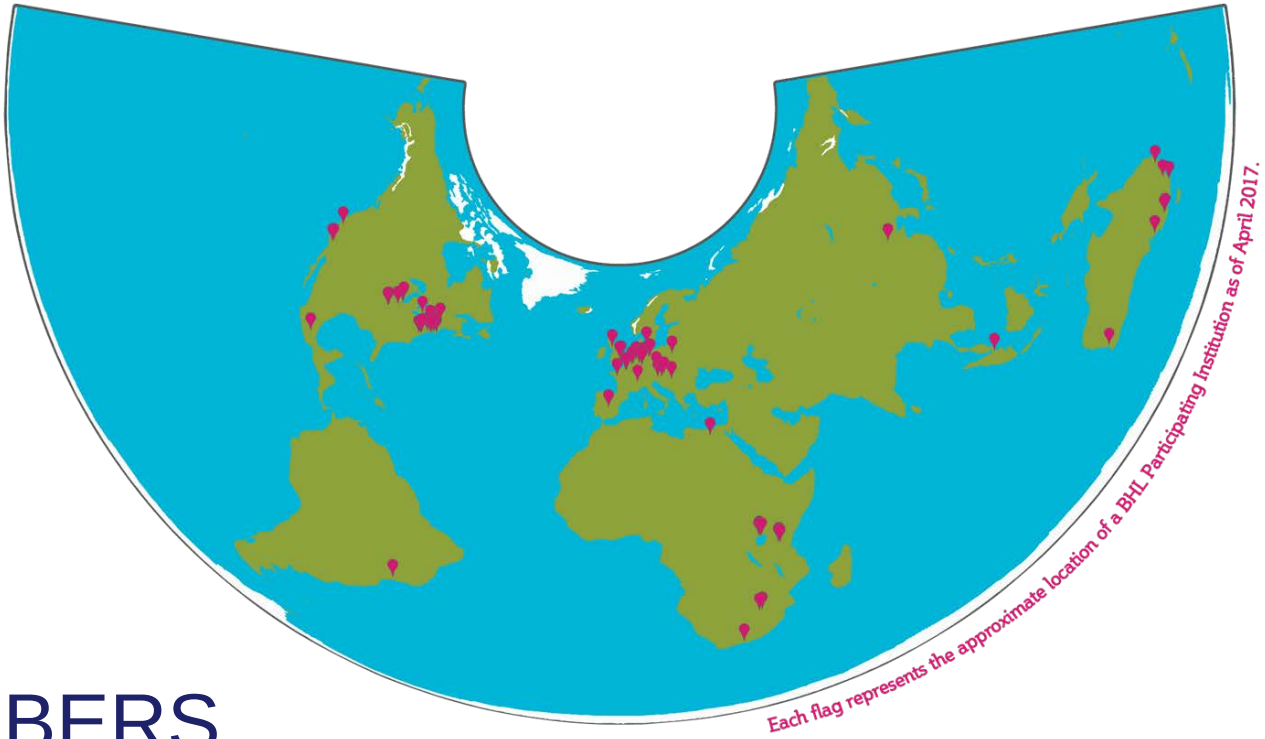
Consortium Users



18 MEMBERS

15 AFFILIATES

60+ WORLDWIDE PARTNERS

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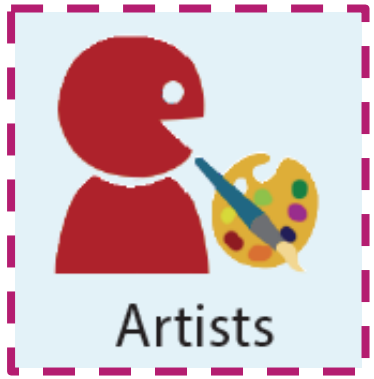
System Users

Individual Users



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Feedback Methods

Initial Information Gathering:

- Learning about BHL
- Informal interviews with System Users

Survey:

- Customized survey to three user groups

Analyze:

- Review survey results and deliver requirements and recommendations
- Consider additional user feedback methods such as formal interviews and focus groups

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Collaboration with Best Practices Project

- Survey Data
- Digital Library Best Practice Research
- Recommendations

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Marissa Kings

Digital Library Best Practices

Natural History Museum of Los Angeles County

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Best Practices Project Overview

Digital Library Best Practices:

- How can large scale digital libraries be evaluated?
- How can Version 2 of the BHL website incorporate innovative digital libraries tools and services?

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Best Practices Project Overview

"Evaluating digital libraries is a bit like judging how successful is a marriage."

Gary Marchionini, "Evaluating Digital Libraries: A Longitudinal and Multifaceted View," *Library Trends* 49, no. 2 (2000).

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Methodology

- Literature Review
  - especially DLF's Assessment Interest Group and different Working Groups - Wikis, white papers, fact sheets, and other resources
  - Definition of digital library
- Case Studies
  - Evaluating 6 large-scale digital libraries

europeana

DPLA

Trove

HathiTrust

www.hathitrust.org

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Evaluation Criteria

- User-centered
- System-centered

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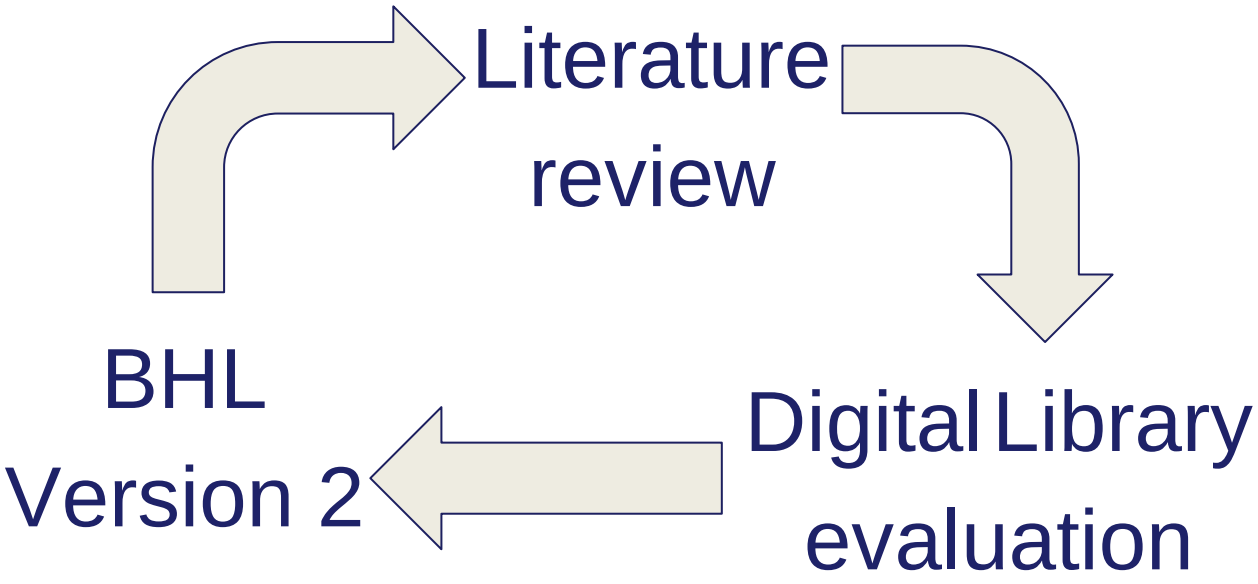
Next Steps



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Thank You!

Questions?

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#BHLNDSR #ndsr
Follow our blog: ndsrbhl.wordpress.com

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