Lichens and Bryophytes – Pacific Islands

Michael Thomas, Joseph F. Rock Herbarium
University of Hawaii at Mānoa
Lichens & Mosses

- Lichens are composite organisms consisting of a fungus and a photosynthetic partner growing together in a symbiotic relationship. The partner is usually either a green alga or cyanobacterium.

- Mosses - after flowering plants and ferns, mosses are the most diverse group of plants, with more than 10,000 species.
Goals and Scope

North American Lichens and Bryophytes: Sensitive Indicators of Environmental Quality and Change (C. Gries PI)

- 16 digitization centers (collaborators)
- > 60 non-governmental US herbaria (95%)
- ~ 2.3 million specimens (90%)
  - 900,000 lichens
  - 1.4 million bryophytes
- Photographing labels and mobilizing existing digital records
Lichens, Bryophytes and Climate Change

Documenting North American lichen and bryophyte collections...

1,290,727 images
2,991,566 records

Get Involved...
Learn more about volunteering to digitize bryophyte and lichen collections.
Visit our lichen and bryophyte record sets of historic expeditions and special collections.
Go directly to the data portals for lichens or bryophytes.

Recent LBCC Blog Posts
- More resources for Bryophyte taxonomy
- Georeferencing best practices
- Resources for bryophyte taxonomy

Other blogs
- How is finding a consensus among citizen science transcriptions like aligning gene sequences AND textual analysis of medieval codices? Part 2
- How is finding a consensus among citizen science transcriptions like aligning gene sequences AND textual analysis of medieval codices? Part 1

Upcoming Events
No upcoming events
View events calendar

News...
- 143,000 labels were imaged this summer
- Lichen Exsiccati now searchable
- Frutallia Collaborative Research Network now online
- Harriman Alaskan Expedition added to bryophyte and lichen volunteer pages
Data Access and Dissemination

- National Portals (Symbiota software)

- Search across collections
- Map distributions
- Create checklists, descriptions and keys
Connecting to Collections

33 islands
2180 species
280 genera
Pacific lichen flora

- Notwithstanding the comparatively small area of land, the lichen flora is highly diverse due to the great climatic and environmental ranges as well as the long-term isolation of many of the islands.

- Includes many locally or regionally endemic taxa in addition to east Asian, Australasian, cool-temperate South American, Neotropical, western North American and Pantropical elements.

- Huge constraint - few resident lichenologists in the Pacific.

- Lichen flora remains poorly documented in the Pacific Islands.
Consortium of Pacific Herbaria

Only 7 of 20 partners have Lichen or Bryophyte collections
- Univ. of Hawaii
- Bishop Museum
- Univ. of Guam
- NTBG
- US National Parks (3)

56,000 specimens
20,000 (57%) Hawaii records

Currently: <10,000 Pacific records in NA Lichen portal

<table>
<thead>
<tr>
<th>Region</th>
<th>Lichen Species</th>
<th>Bryophyte species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melanesia</td>
<td>694</td>
<td>3353</td>
</tr>
<tr>
<td>Micronesia</td>
<td>37</td>
<td>51</td>
</tr>
<tr>
<td>Polynesia</td>
<td>12875</td>
<td>21673</td>
</tr>
</tbody>
</table>
Consortium of
North American Lichen Herbaria

Joseph F. Rock Herbarium - University of Hawaii (HAW)

Founded in 1908, the Joseph F. Rock Herbarium (HAW) serves as the official university repository for botanical plant specimens. It is the result of decades of plant exploration by some of the leading researchers in the Pacific basin and collections continue to expand. Today, the herbarium is part of the University Museum Consortium, and comprises approximately 50,000 dried preserved specimens. There are currently more than 6500 lichens databased and imaged with an additional 5000 specimens remaining undetermined.

Contact: Michael Thomas, Collections Manager (mthomas@hawaii.edu)
Home Page: http://www.herbarium.hawaii.edu/
Management: Data snapshot of central database
Last Update: 11 March 2014

Global Unique Identifier: e4aaab6b-0900-42e7-8034-b15b8a9e0e75

Usage Rights: CC BY-NC-SA (Attribution-NonCommercial-ShareAlike)

Rights Holder: University of Hawaii

Collection Statistics
- 4334 specimens
- 9% georeferenced
- 71 families
- 166 genera
- 920 species

Extra Statistics
Show Family Distribution
Show Geographic Distribution

Geographic Distribution
Click on the specimen record counts within the parenthesis to return the records for that term
- Argentina (4)
- Australia (48)
- Austria (14)
- Bosnia and Herzegovina (1)
- Bulgaria (2)
- Canada (205)
- Chile (12)
- Colombia (1)
- Costa Rica (73)
- Cuba (1)
- Czechoslovakia (1)
OCR and NLP
Archives – 35 mm slides

• C. Smith’s 35 mm slides digitized (1960-90s)
  – Nikon Super CoolScan 9000 ED
  – 50 slides per session
• 2000 photographs
• Metadata editing completed
• Plan to add collection to portal following taxonomic review
Data Visualization

D3.js is a JavaScript library for visualizing data.
Acknowledgments

Dr. Cliff Smith, Emeritus
Tianli Mo, Botany Department
Travis Young, Botany Department
Alma Herrera-Mendoza, Botany Department
Corinna Gries