

LBCC - Lichens Bryophytes and Climate Change

Corinna Gries

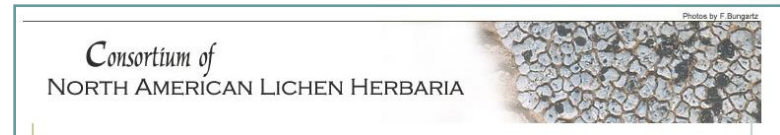
Thomas H. Nash III

Edward Gilbert

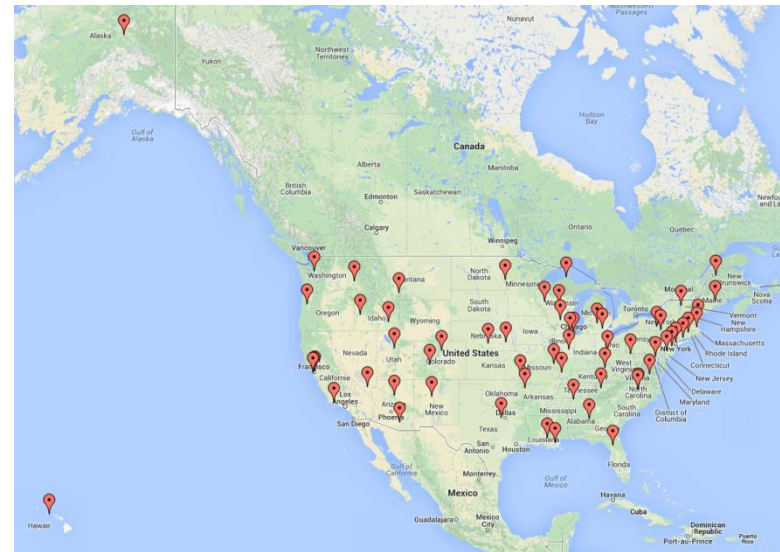
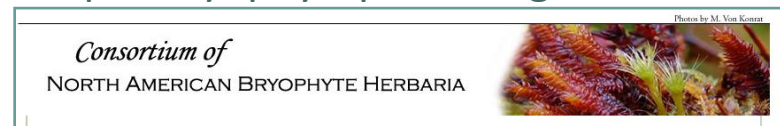
Goals and Scope

- 16 digitization centers (collaborators)
- 4 collections added as PEN
- > 60 non-governmental US herbaria (95%)
- ~ 2.3 million specimen (90%)
 - 900,000 lichens
 - 1.4 million bryophytes
- Mobilizing existing digital records

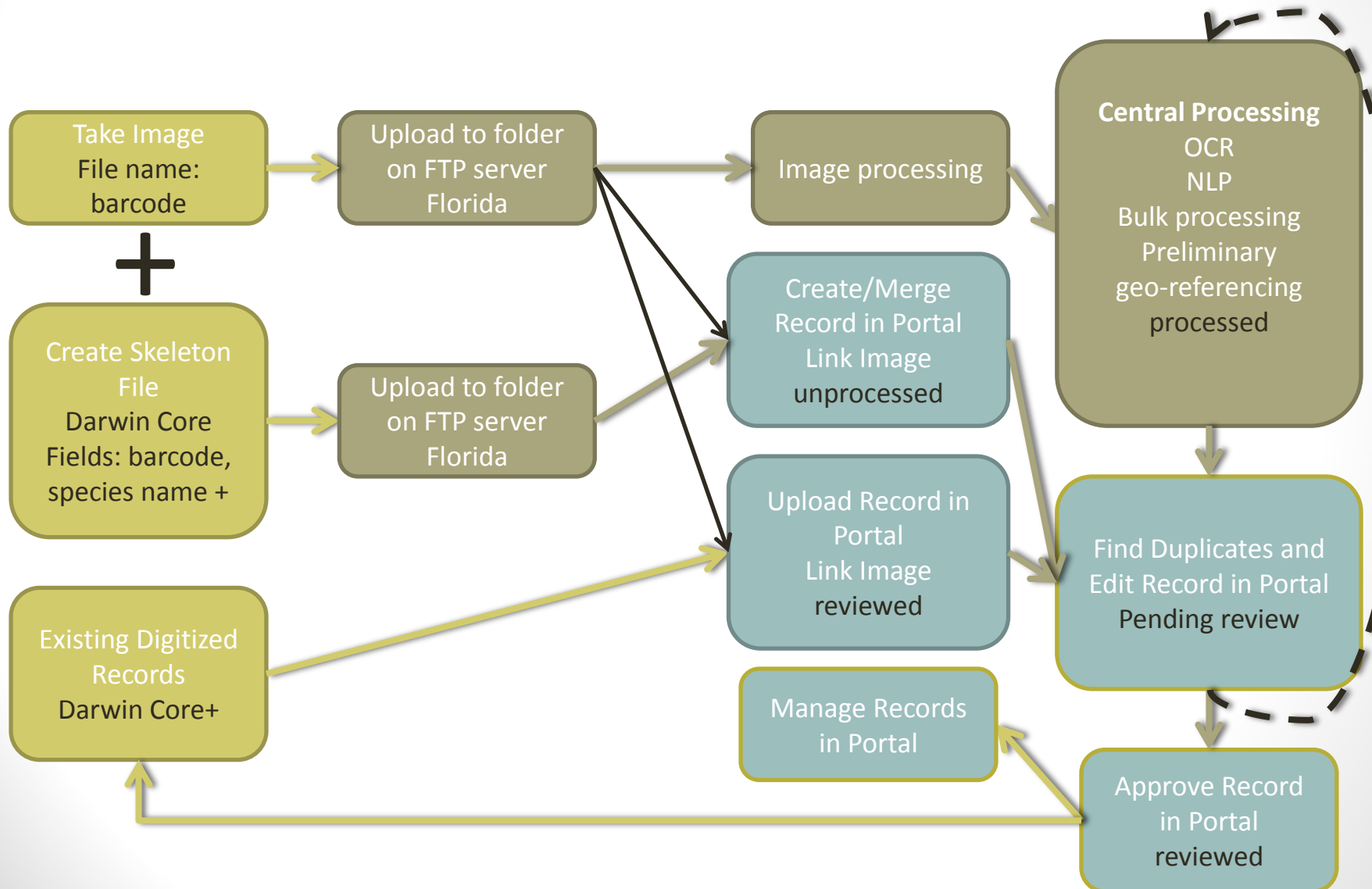
<http://lichenportal.org>



<http://bryophyteportal.org>



Well established workflow

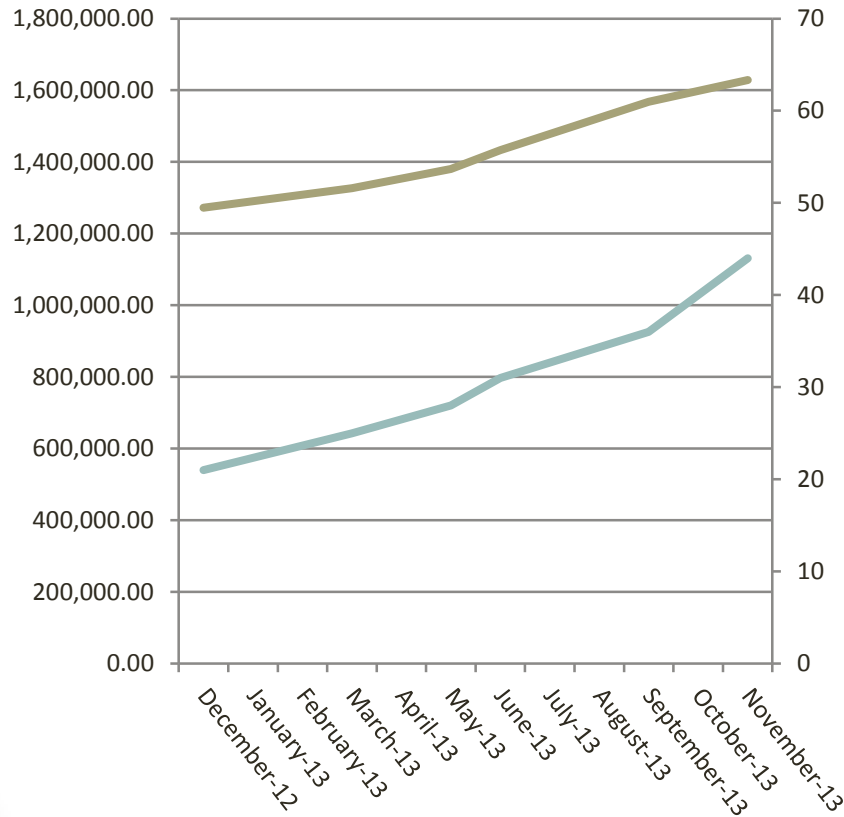


Experiences

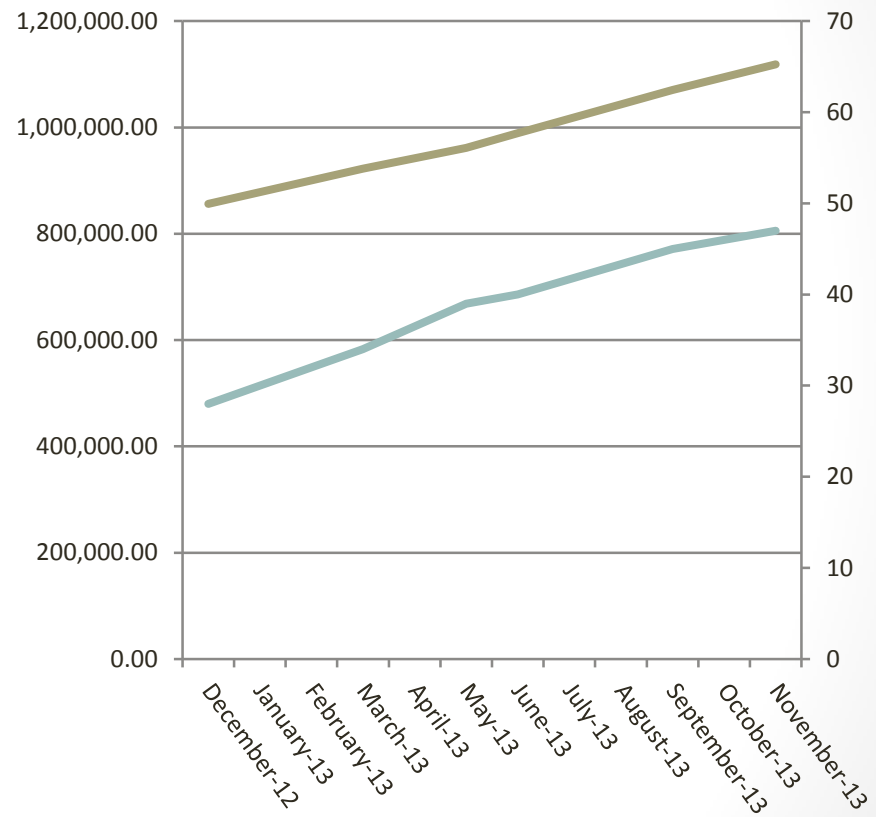
- **Curatorial at Collections**
 - Estimated number of specimens deviates from reality
 - Many specimens need curatorial work
 - Shipping works well
- **Imaging at Collections**
 - 300 – 500 images per 8 hour day
 - Cost of digitization \$0.3 - \$1 per specimen (excluding transcription and long-term maintenance expenses)
 - Ability to create skeletal label data records varies
 - Backlog of images to upload
- **Noticeably increased visibility of collections in general and specific records**

Progress since December 2012

Bryophytes



Lichens



Institutions with records online: 58

Total number of records online: 2.7 Million

Progress Technology



Symbiota

*Promoting
Bio-Collaboration*



Metadata capture program

Silver
BIOLOGY



tesseract-ocr

An OCR Engine that was developed at HP Labs between 1985 and 1995...

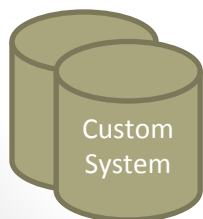
Specify 6

ABBYY



Arctos

Multi-Institution, Multi-Collection Museum Database



Custom
System

GEOLocate 

Progress: OCR and NLP

University of Wisconsin - Madison (WIS)

[Home](#) >> [Crowd Sourcing Central](#) >> Editor

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Occurrence Data

Determination History

Images

Genetic Links

Admin

Collector Info

Catalog Number ? Other Numbers ? Collector ? Number ? Date ? Short Form <<
WIS-L-0013032 Teuvo Ahti 1967-07-27 Dupes?

☐ Auto search

Associated Collectors ? Verbatim Date ?

Exsiccati Title Number

Latest Identification

Scientific Name ? Author ?
Cladonia bellidiflora (Ach.) Schaerer

ID Qualifier ? Family ? Cladoniaceae
Identified By ? Date Identified ?

Locality

Country State/Province County Municipality
USA Alaska

Locality
Thompson Pass Mile 25.2 Richardson Hwy.

☐ Locality Security

Latitude Longitude Uncertainty ? Datum ? Verbatim Coordinates
61.16667 -145.66667 Tools 61°10'N, 145°40'W

Elevation in Meters Verbatim Elevation
838 - 2750 ft.

Misc

Habitat
In montane tundra.

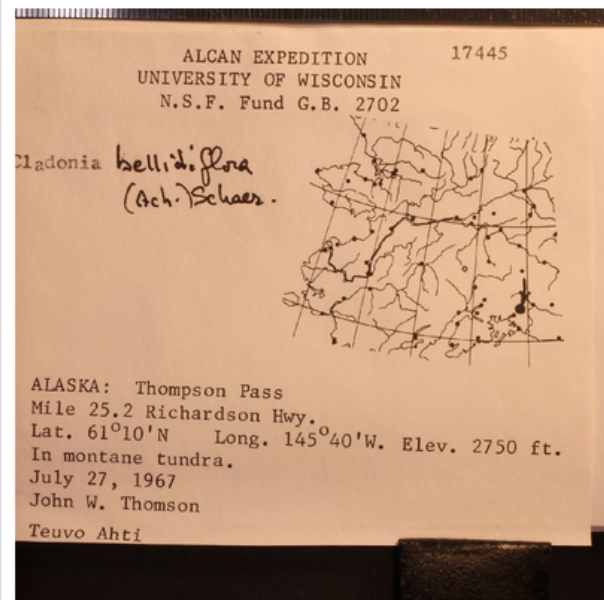
Substrate

Associated Taxa

Description

Notes

Label Processing



OCR Image


Options

- ☐ OCR whole image
- ☐ OCR w/ analysis

Image 1 of 1

ALCAN EXPEDITION
UNIVERSITY OF WISCONSIN
N.S.F. Fund G.B. 2702
Cladonia
J
17445
1 c I
'nr/
ALASKA: Thompson Pass Mile 25.2 Richardson Hwy.
Lat. 61°10'N Long. 145°40'W. Elev. 2750 ft. In
montane tundra.
July 27, 1967 John W. Thomson
Teuvo Ahti

Progress: Volunteer interface

 **Lichens, Bryophytes and Climate Change**

Home Project Digitization Data Information Volunteer Calendar

Documenting North American lichen and bryophyte collections..

962,302
images

2,747,945
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

- Summer of Imaging

[More](#)

News...

- ~143,000 labels were imaged this summer
- [Lichen Exsiccati now](#)

ALCAN Expedition



Map of the Alaska Highway (ALCAN Highway)

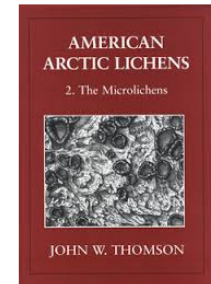
The ALCAN Highway was constructed during World War II for the purpose of connecting the contiguous United States to Alaska through Canada. It begins at the junction with several Canadian highways in Dawson Creek, British Columbia, and runs to Delta Junction, Alaska, via Whitehorse, Yukon. Completed in 1942 at a length of approximately 2,700 km (1,700 mi).



John Thomson



Teuvo Ahti



Flora of American Arctic Lichen

The eminent American lichenologist, John W. Thomson, and the young Finnish lichenologist, Teuvo Ahti, who has since become the world expert in the large lichen genus *Cladonia*., traveled the Alcan Highway together in 1967, after John had spent a sabbatical in Helsinki. The road was primarily gravel at that point in time, and they had to change tires 13 times. This was one of John's early expeditions to the American arctic. Across his 40 year career at the University of Wisconsin, he mounted 14 major expeditions across the Canadian and American arctic resulting in an American Arctic Lichen Flora published in two volumes. The Alcan trip of John and Teuvo cemented a lifelong friendship and spurred continued collaboration over several decades. They were among the first lichenologists to traverse the highway and the lichens collected provided an important contribution to the final flora treatments.

Create Your Own Expedition or Record Set Link

Country State/Province

Family Genus

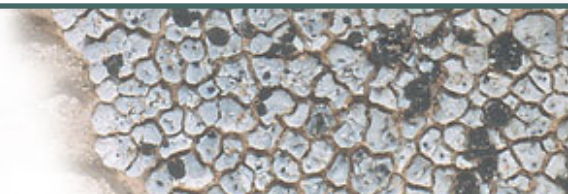
Collection

OCR Fragment

[Click To Go To Records](#)

[Reset](#)

Consortium of NORTH AMERICAN LICHEN HERBARIA



[Home](#) >> Crowdsourcing Score Board

Crowdsourcing Score Board

Top Scores

User	Score
Miadlikowska, Jolanta	2264
Studer, Alyssa	2256
McMullen, Molly	818
Smith, Julie	604
Nash, Thomas	154
Doucette, Alfonso	122
Wonders, Quinn	48
Gilbert, Edward	40
Anglin, Robert	10
Adamo, Michael	4

Current User's Status

Current Standing

Specimens processed: 1
Pending points: 2 ([review records](#))
Approved points: 0
Total Possible Score: 2

User Stats by Collections

Collection	Specimen Count	Pending Points	Approved Points	Open Records
Duke University Herbarium (DUKE) 🖋️	0	0	0	11084
New York Botanical Garden (NY) 🖋️	0	0	0	419
Boise State University Lichen Herbarium (SRP) 🖋️	0	0	0	21614
University of Wisconsin - Madison (WIS) 🖋️	1	2	0	75011

Thank you

- Programmers: Robert Anglin, Benjamin Brandt
- Website testers: John Brinda and others
- > 140 people at the digitization centers
 - > 60 Undergraduates
 - > 20 volunteers and interns
- Many more at the smaller collections



Funded by the NSF ADBC program