

Ecological and taxonomic examination of Florida *Cladonia* using the Consortium of the North American Lichen Herbaria (CNALH)

Consortium of
NORTH AMERICAN LICHEN HERBARIA



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Lichens are diverse



<http://floridacreate.blogspot.com/2011/02/liberty-parks-february-treasures.html>



<http://www.tropicallichens.net/5536.html>



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Initially created to integrate databases between Arizona State University and the Santa Barbara Botanical Garden, the consortium is growing to extend its network to other partners within North America.

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News and Events

- [NSF Press Release 11-136](#) - US National Science Foundation awarded support to a collaboration of herbaria in order to database ca. 2.3 million North American lichen and bryophyte specimens (NSF ADBC 1115116)
- **September 2011** - 543302 occurrence records integrated into data portal supplied by 15 different data providers

<http://lichenportal.org/portal/>

The CNALH is a centralized hub for:

- Taxonomic, specimen data
- Examine ecological patterns
- Species descriptions
- Educational content

- Enthusiasts and professionals

Cladonia in Florida

- Large genus
- Southeast USA endemics
- Federally listed endangered species, *C. perforata*



<http://www.endangeredspecies.com/cladonia-perforata-endangered/>

Aims of study

- What *Cladonia* species are present in Florida?
- Examine substrate preference and rarity
- Create a key to *Cladonia* on the CNALH

Methods

- Searched *Cladonia* and Florida
- Recorded species presence & rarity
- Recorded substrate: wood/bark, soil/organic matter, sand

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Select/Deselect all Collections

-  Academy of Natural Sciences of Drexel University (PH) [more info](#)
-  Ada Hayden Herbarium at Iowa State University (ISC) [more info](#)
-  Arizona State University Lichen Herbarium (ASU) [more info](#)
-  Boise State University Lichen Herbarium (SRP) [more info](#)
-  Brigham Young University (BRY) [more info](#)
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-  Fairchild Tropical Botanic Garden Herbarium (FTG) [more info](#)
-  Farlow Herbarium (Harvard University) [more info](#)
-  Field Museum of Natural History (F) [more info](#)
-  George Safford Torrey Herbarium (UConn-CONN) [more info](#)
-  Illinois Natural History Survey (ILS) [more info](#)
-  Indiana University Herbarium (IND) [more info](#)
-  Intermountain Herbarium (Utah State University) (UTC) [more info](#)
-  Joseph F. Rock Herbarium - University of Hawaii (HAW-L) [more info](#)

Taxonomic Criteria:



Include Synonyms from Taxonomic Thesaurus

Family or Scientific Name

Locality Criteria:

Country:

State/Province:

County:

Locality:

Elevation: to

Latitude and Longitude:

Bounding box coordinates in decimal degrees

Northern Latitude:

Southern Latitude:

Western Longitude:

Eastern Longitude: 

Point-Radius search

Latitude:

Longitude:

Radius: 

Collector Criteria:

Collector's Last Name:

Collector's Number:

Collection Date: -

Collection Object Criteria:

Catalog Number:

Dataset: All Collections
Taxa: Cladonia (Cladina)
Search Criteria: Florida



1 2 3 4 5 6 7 8 9 10 >> Last

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Ada Hayden Herbarium at Iowa State University



isc

Cladonia arbuscula (Wallr.) Hale and W. Culb.

25103 W.W. Calkins 188

United States, Florida

[Full Record Details](#)



isc

Cladonia beaumontii (Tuck.) Vainio

323340 Paul O. Schallert 224

09 February 1960

United States, Florida, Hillsborough, Hillsborough

[Full Record Details](#)



isc

Cladonia cristatella Tuck.

24074 W.W. Calkins 170

United States, Florida

[Full Record Details](#)

Results- Species diversity

- CNALH: 126 species and/or varieties
- Contains
 - Known species
 - Synonyms
 - Needs review

Cladonia evansii

Cladonia exasperatula

Cladonia fallax

Cladonia fimbriata

Cladonia fimbriata var. *tubaeformis*

Cladonia floerkeana

Cladonia floridana

Cladonia foliacea

Cladonia furcata

Cladonia furcata f. *pinnata*

Cladonia furcata var. *racemosa*

Cladonia gracilis

Cladonia gracilis subsp. *turbinata*

Cladonia gracilis var. *dilatata*

Cladonia grayi

Cladonia humilis

Cladonia hypoxantha

Cladonia incrassata

Cladonia leporina

Cladonia leporina f. *squamulosa*

Cladonia leptopoda

Cladonia leptothallina

Cladonia macilenta

Results- Species diversity

- CNALH: 126 species and/or varieties
- Literature: 42 species and/or varieties (Harris 1995)
- Estimation: 46 species, 3 varieties

Rarity and substrate results

Rarity:

- 9 common, 12 uncommon, 11 rare

Substrate:

- 10 species had an affinity to 1 substrate
- 4 generalists

Species	Abundance rating	Substrate preference
<i>C. botryocarpa</i>	R	
<i>C. chlorophaea</i>	R	
<i>C. didyma</i> var. <i>vulcanica</i>	R	
<i>C. floerkeana</i>	R	
<i>C. furcata</i>	R	
<i>C. grayi</i>	R	
<i>C. macilenta</i> var. <i>bacillaris</i>	R	
<i>C. perforata</i>	R	sand
<i>C. sandstedei</i>	R	
<i>C. subsetacea</i>	R	sand
<i>C. subtenuis</i> f. <i>cinerea</i>	R	
<i>C. abbreviatula</i>	U	wood/bark
<i>C. beaumontii</i>	U	
<i>C. didyma</i>	U	wood/bark
<i>C. floridana</i>	U	
<i>C. hypoxantha</i>	U	
<i>C. incrassata</i>	U	
<i>C. pachycladodes</i>	U	sand
<i>C. parasitica</i>	U	wood/bark
<i>C. prostrata</i>	U	sand
<i>C. ramulosa</i> ³	U	
<i>C. santensis</i>	U	
<i>C. simulata</i>	U	

CNALH: rarity and substrate studies

- Where to look for specimens
- How common a species is
- Inform future policy
 - 1) Sand dependent lichens
 - 2) *Taxodium* dependent lichens

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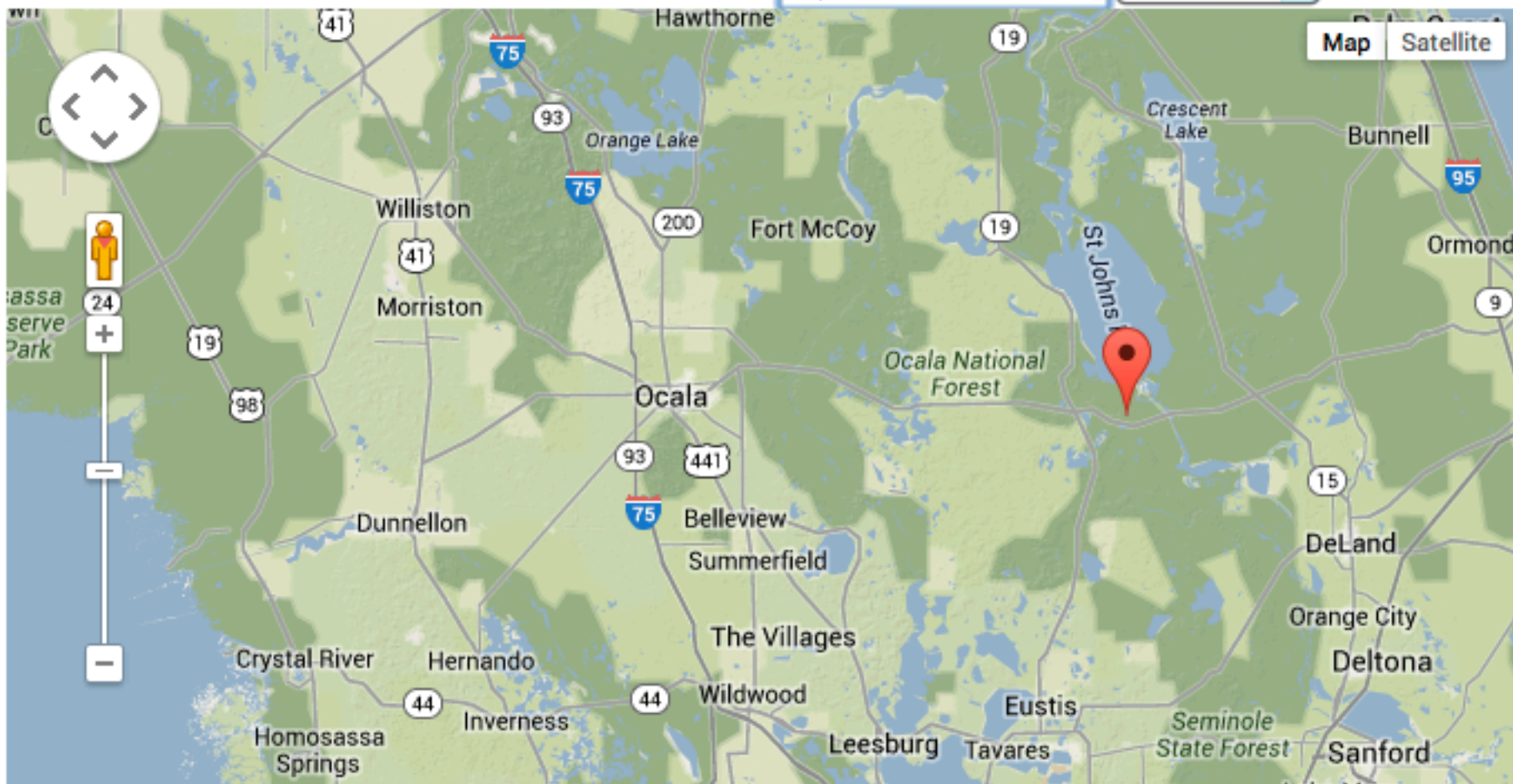
Build Checklist

Cladoniaceae

Point (Lat, Long): 29.16367, -81.58035

Radius: 50

Kilometers



Display as: Scientific Name

General

substrate

- sand
- wood
- bark
- soil
- rock (unspecified)
- lichens
- bryophytes

Thallus

thallus type

- crustose-episubstratal
(verrucose, subsquamulose)
- fruticose
- squamulose

thallus surface colour

- greenish blue
- greyish brown
- greyish yellow
- greyish blue
- green
- bluish green
- whitish yellow

Species Count: 24

Cladoniaceae

Cladonia abbreviatula
Cladonia beaumontii
Cladonia botryocarpa
Cladonia didyma
Cladonia evansii
Cladonia floerkeana
Cladonia floridana
Cladonia furcata
Cladonia grayi
Cladonia hypoxantha
Cladonia incrassata
Cladonia leporina
Cladonia macilenta
Cladonia pachycladodes
Cladonia parasitica
Cladonia peziziformis
Cladonia prostrata
Cladonia ramulosa
Cladonia rappii
Cladonia ravenelii
Cladonia subcariosa
Cladonia subradiata
Cladonia subsquamosa
Cladonia subtenuis

In conclusion

The CNALH can currently be used to study:

Species range

Substrate and rarity

Online keys



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Questions????

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http://texasgirlfindsaloha.com/wp-content/uploads/2013/05/DSC_0731.jpeg