Exploring the NEON Biorepository data portal with Symbiota

Kelsey Yule & Nico Franz

Biocollections & Biodiversity Knowledge Integration Center

Arizona State University

neon
Operated by Battelle

ASU Biodiversity Knowledge Integration Center
Arizona State University

Ecological Society of America
14 August 2019
Louisville, KY (Osage, Shawnee, & Miami lands)

The National Ecological Observatory Network (NEON) is a continental scale program to monitor and forecast ecological change

The National Ecological Observatory Network (NEON) is a continental scale program to monitor and forecast ecological change

Standardized organismal and environmental data collection for the next 30 years

The National Ecological Observatory Network (NEON) is a continental scale program to monitor and forecast ecological change

Standardized organismal and environmental data collection for the next 30 years

81 terrestrial and freshwater sites within 20 ecoclimatic domains across the US, including AK, HI, and PR

The National Ecological Observatory Network (NEON) is a continental scale program to monitor and forecast ecological change

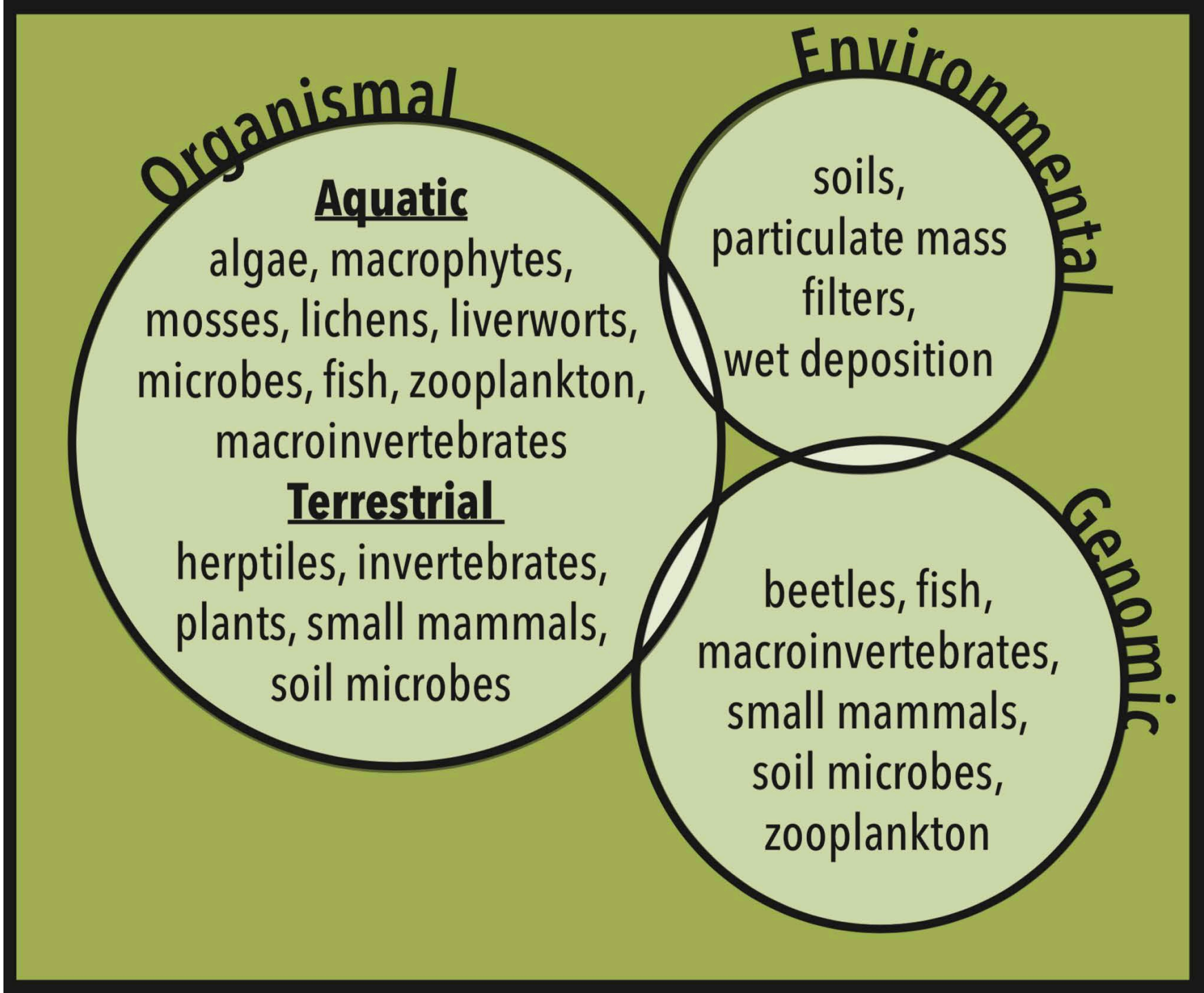
Standardized organismal and environmental data collection for the next 30 years

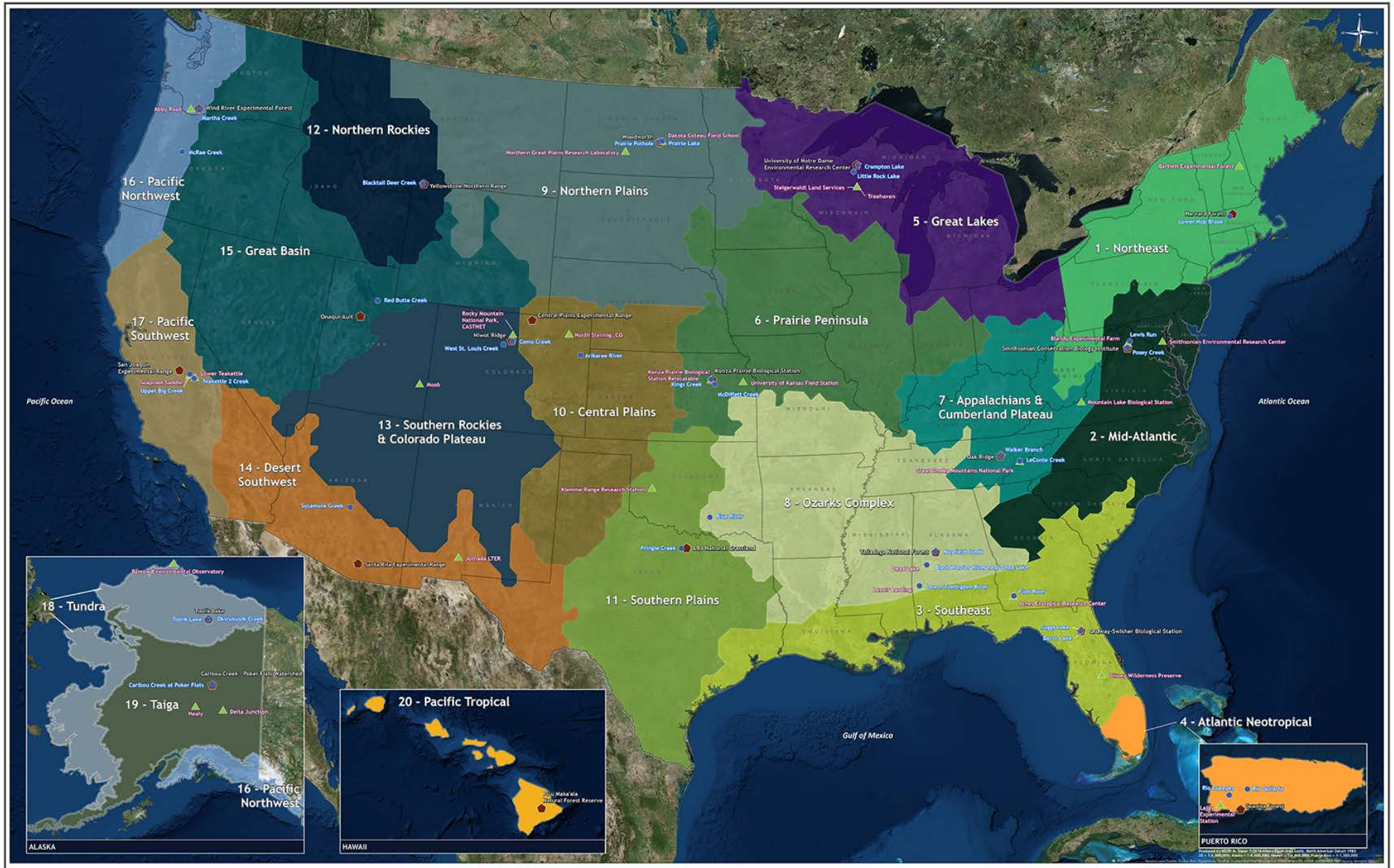
81 terrestrial and freshwater sites within 20 ecoclimatic domains across the US, including AK, HI, and PR

180 data products, openly available at https://data.neonscience.org

100k+ samples / year

40+ sample classes





FIELD SITES MAP

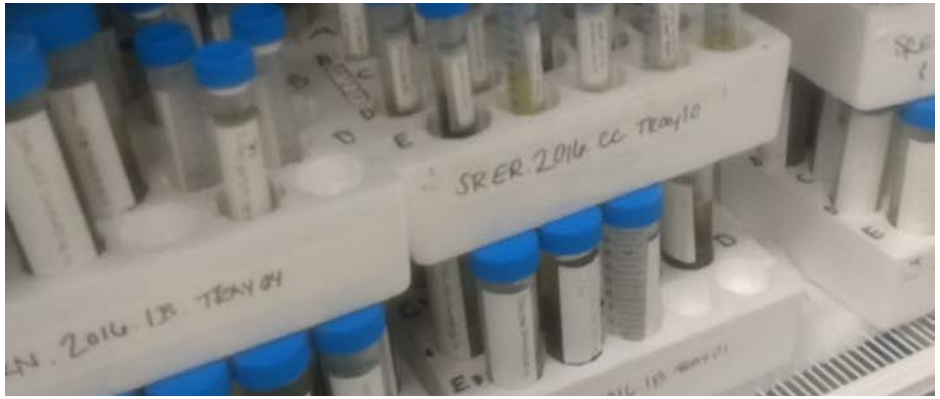
NEON Aquatic NEON Core NEON Relocatable

NEON is sponsored by the National Science Foundation and operated under cooperative agreement by Battelle

National Ecological Observatory Network

Battelle
The Business of Innovation

Physical samples and specimens are collected at all 81 NEON sites



Domain facilities process samples and send them to the Biorepository at ASU

Samples are arriving and being curated daily

Sample Type	Volume/Year	Sample Type	Volume/Year
Algae: periphyton, seston, phytoplankton, diatoms		**Plant**	
DNA extractions (whole) ▲	500	Aquatic macrophytes - vouchers ■	50
Slides ■	700	Belowground biomass ■	900
Whole sample ●	700	Foliage ■	320
Macroalgae - whole sample ●	250	Tissue ▲	250
Aquatic Lichens, Mosses & Liverworts		Voucher ■	900
Vouchers	55	**Vertebrate**	
Invertebrate		Fish – DNA extractions ▲	1,100
Carabids – DNA extractions ▲	4,500	Fish - fin clip ●	275
Carabids – pinned/pointed ■	9,000	Fish – voucher ●	275
Carabids – pooled ●	2,500	Herptiles – pitfall bycatch ●	200
Macroinvertebrates - pooled ●	800	Small mammal - blood ▲	2,000
Macroinvertebrates – DNA extractions ▲	300	Small mammal - DNA extractions ▲	1,750
Pitfall – pooled ●	3,750	Small mammal – fecal ▲	6,000
Mosquitoes – DNA extractions ▲	1,750	Small mammal – hair/whisker ■	4,000
Mosquitoes – disease pools ▲	21,000	Small mammal – ear punch ▲	4,000
Mosquitoes – pinned/pointed ■	3,000	Small mammal - voucher ● ■	750
Mosquitoes– pooled ▲	3,500	**Environmental**	
Tick – disease pools ▲	4,500	Litterfall ■	125
Zooplankton – DNA extractions ▲	75	Soil – frozen ▲	21,000
Zooplankton – pooled ●	75	Soil – dry ■	375
Microbial		Particulate mass filters (PM10) ■	150
Aquatic microbes - Sterivex filters ▲	850	Wet deposition ■	1,100
Soil microbes – DNA extractions ▲	2,500	**Total >104,000 samples per year**	

● Wet

■ Dry / 4°C

▲ LN_2

◆ -80 / -20° C

Dr. Michael Weiser (University of Oklahoma)

Samples are already being used for research

Dr. Michael Weiser (University of Oklahoma)

Bulk invertebrates – Macroecology, species discovery, community dynamics

Identified mosquitos - Phylogenomics

DNA extracts from soil - Microbial ecology

NEON Biorepository Team

Dr. Nico Franz
Principal Investigator

Laura Steger
Environmental & Zoological Collections Manager

Dr. Laura Rocha Prado
Bioinformatician (II)

Ed Gilbert
Bioinformatician (I)

Biodiversity Knowledge Integration Center

Arizona State University

Dr. Kelsey Yule
Project Manager

Azhar Husain
Cryo Collections Manager

Dr. Andrew Johnston
Invertebrate Collections Manager

How do I access NEON sample and specimen data?

How do I access NEON sample and specimen data?

Biorepository Data Portal

https://biorepo.neonscience.org/

How do I access NEON sample and specimen data?

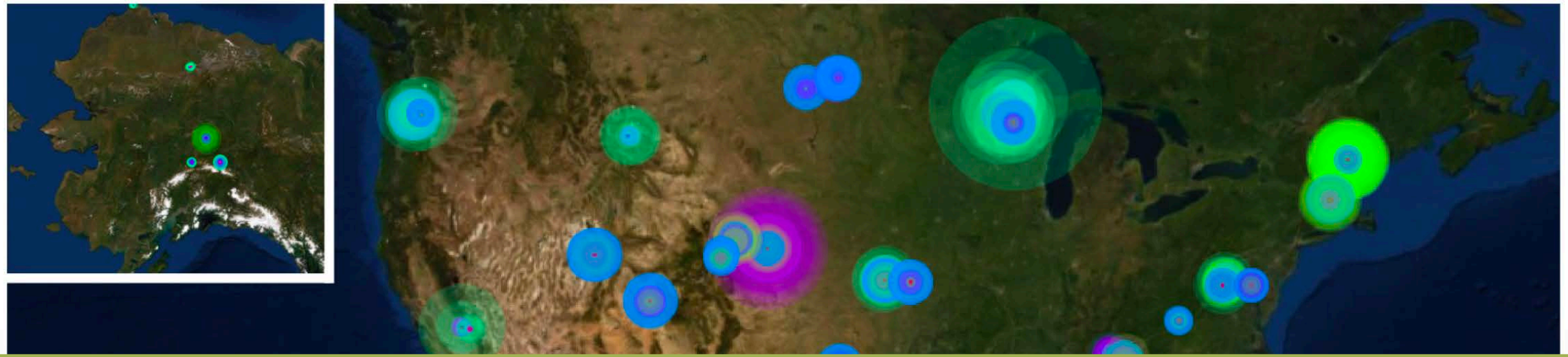
biorepo@asu.edu

Biorepository Data Portal

https://biorepo.neonscience.org/

BIOREPOSITORY DATA PORTAL

Discover and access sample-based data



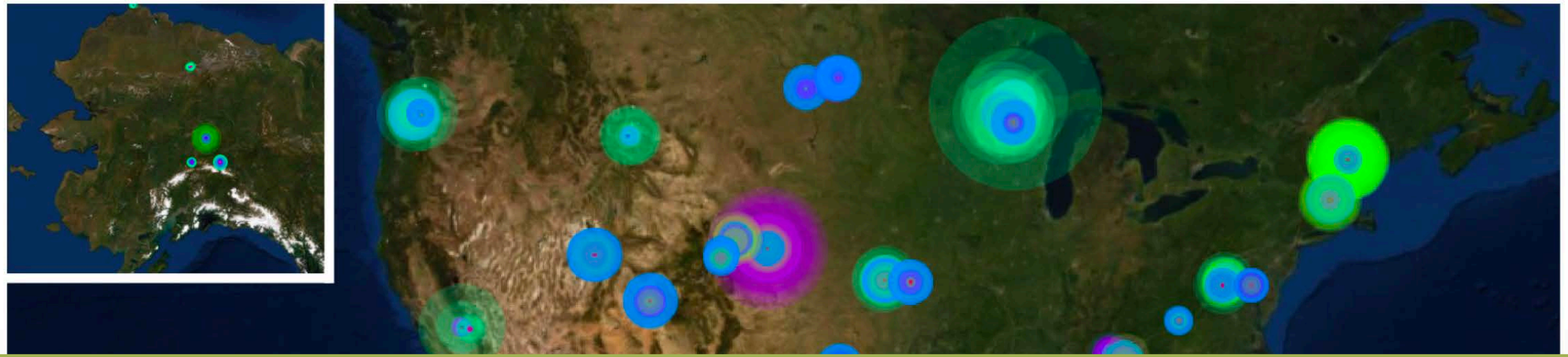
NSF | neon Operated by Battelle

BIOREPOSITORY DATA PORTAL

Symbiota portal like SEINet or SCAN

map

Discover and access samp



Biodiversity Data Journal 2: e1114
doi: 10.3897/BDJ.2.e1114

open access

Software description

Symbiota – A virtual platform for creating voucher-based biodiversity information communities

Corinna Gries†, Edward E. Gilbert‡, Nico M. Franz‡

† University of Wisconsin, Madison, Madison, United States of America
‡ Arizona State University, Tempe, United States of America

Corresponding author: Corinna Gries (cgries@wisc.edu)

Academic editor: Lyubomir Penev

Received: 19 May 2014 | Accepted: 19 Jun 2014 | Published: 24 Jun 2014

Citation: Gries C, Gilbert E, Franz N (2014) Symbiota – A virtual platform for creating voucher-based biodiversity information communities. Biodiversity Data Journal 2: e1114. doi: 10.3897/BDJ.2.e1114

Abstract

We review the Symbiota software platform for creating voucher-based biodiversity information portals and communities. Symbiota was originally conceived to promote small- to medium-sized, regionally and/or taxonomically themed collaborations of natural history

Most frequently used software in North America for managing Natural History Collections records

Based on Darwin Core standards

Mid-level data aggregation platform and user-driven content management system

View and contribute directly to sample data and publish in this portal

Explore available samples

Sample search

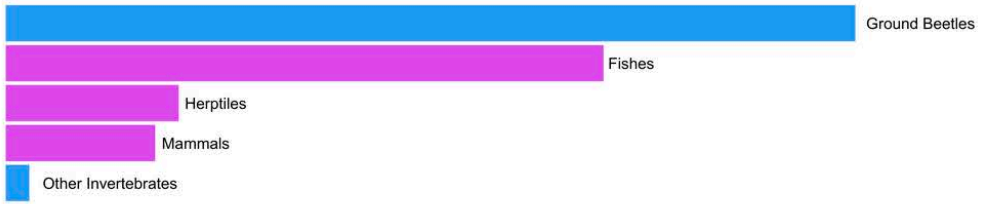
Map search

Checklists

> 62,000 samples

Distribution of samples by collection type.

> 400 taxa



Distribution of samples by top 5 determined taxa.

Data

Visit the Data Usage Policy page for information on how to cite data obtained from the NEON Biorepository Data Portal.

Specimens

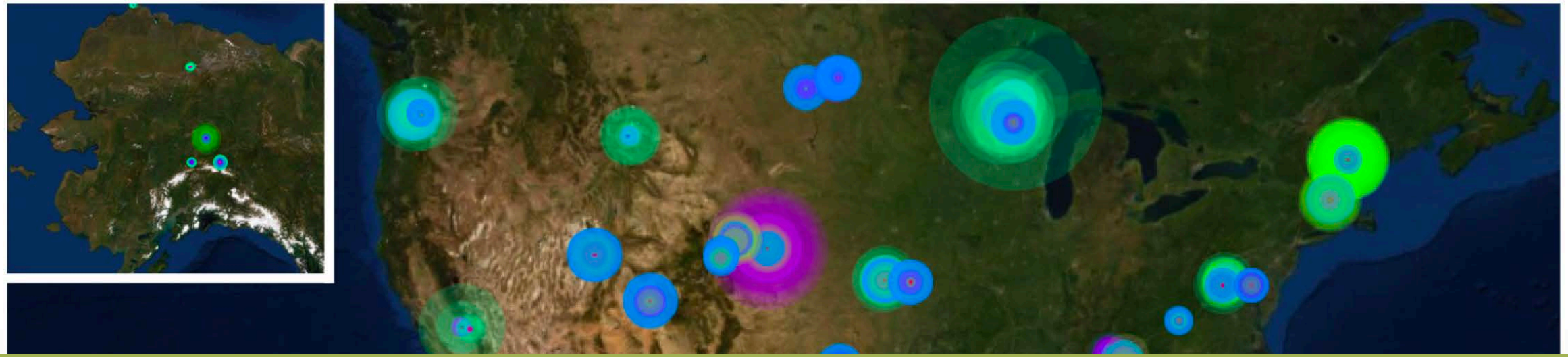
Please consult the Archival Sample Request information page to initiate inquiries about sample accessibility and loans.

Contact

Join the portal as a regular visitor or contributor, and send direct feedback or inquiries to BioRepo@asu.edu.

BIOREPOSITORY DATA PORTAL

Dis d access sample-based data



BIOREPOSITORY DATA PORTAL

Specimens

Select/Deselect All

Environmental (NEON-EN)

- **Litter Sample Collection** (NEON-LISC) more info...
- **Particulate Mass Filter Collection** (NEON-PMFC) more info...
- **Soil Microbe Collection** (NEON-SOMIC) more info...
- **Soil Sample Collection** (NEON-SOSC) more info...

SEARCH >

External Collections

SEARCH >

- [ ] **Litter Sample Collection** (NEON-LISC) more info...
- [ ] **Particulate Mass Filter Collection** (NEON-PMFC) more info...
- [ ] **Soil Microbe Collection** (NEON-SOMIC) more info...
- [ ] **Soil Sample Collection** (NEON-SOSC) more info...

External Collections

- [ ] **SCAN Portal Network Arthropod Specimens** (SCAN) more info...
- [ ] **SEINet Portal Network Botanical Specimens** (SEINet-Plants) more info...

Invertebrata (NEON-IV)

- [ ] **Aquatic Invertebrate Collection** (NEON-AIVC) more info...
- [ ] **Carabid Collection - Archive Pooling** (NEON-CARC-AP) more info...
- [ ] **Carabid Collection - Prepared Specimen** (NEON-CARC-PS) more info...
- [ ] **Carabid Collection - Trap Sorting** (NEON-CARC-TS) more info...
- [ ] **Chironomid Collection** (NEON-CHIC) more info...
- [ ] **Invertebrate Bycatch Collection - Archive Pooling** (NEON-IVBC-AP) more info...
- [ ] **Invertebrate Bycatch Collection - Trap Sorting** (NEON-IVBC-TS) more info...
- [x] **Mosquito Voucher Collection** (NEON-MOSC) more info...
- [ ] **NEON Biorepository Invertebrate Collections at Arizona State University** (ASU-NEON-IV) more info...

BIOREPOSITORY DATA PORTAL

Enter Search Parameters

Fill in one or more of the following query criteria and click "Search" to view your results.

Taxonomic Criteria:

LIST DISPLAY

TABLE DISPLAY

RESET FORM

☑ Include Synonyms

Scientific Name

Locality Criteria

Country:

Elevation (in meters): to

Latitude and Longitude

Bounding box

Northern Latitude: N

Southern Latitude: N

Western Longitude: W

Eastern Longitude: W

Polygon (WKT footprint)

Point-Radius

Latitude: N

Longitude: W

Radius: Kilometers

Collector Criteria

Collector's Last Name:

Collector's Number:

Collection Date: -

Specimen Criteria

LIST DISPLAY

TABLE DISPLAY

Catalog Number: Include other catalog numbers and GUIDs

Limit to Type Specimens

Limit to Specimens with Images

Limit to Specimens with Genetic Data

Include cultivated/captive occurrences

Firefox

BIOREPOSITORY DATA PORTAL

Enter Search Parameters

Fill in one or more of the following query criteria and click "Search" to view your results.

Taxonomic Criteria:

LIST DISPLAY

TABLE DISPLAY

RESET FORM

Include Synonyms

Scientific Name: Aedes

Locality Criteria

Country:

BIOREPOSITORY DATA PORTAL

Dataset: NEON-MOSC

Taxa: Aedes

Search Criteria: excluding cultivated/captive occurrences

1 2 3 4 5 6 7 8 9 10 11 >> Last

Page 1, records 1-100 of 2781

Mosquito Voucher Collection

NEON:MOSC

Aedes communis (De Geer, 1776)

2016-05-13

United States, Massachusetts, Worcester, Harvard Forest Site, CORE, Plot HARV_082 (plot dimensions: 0m), 42.482279 -72.272148, 172m

Full Record Details

NEON:MOSC

Aedes fulvus pallens

2017-07-18

United States, Alabama, Greene, Dead Lake Site, Plot DELA_032 (plot dimensions: 0m), 32.530107 -87.815715, 27m

Full Record Details

Firefox

Aedes punctor (Kirby, 1837)

Map samples

BIOREPOSITORY DATA PORTAL

Species List | Occurrence Records | Maps

Dataset: NEON-MOSC

Taxa: Aedes

Search Criteria: excluding cultivated/captive occurrences

1 2 3 4 5 6 7 8 9 10 11 >> Last

Page 1, records 1-100 of 2781

Mosquito Voucher Collection

NEON:MOSC

Aedes communis (De Geer, 1776)

2016-05-13

United States, Massachusetts, Worcester, Harvard Forest Site, CORE, Plot HARV_082 (plot dimensions: 0m), 42.482279 -72.272148, 172m

Full Record Details

NEON:MOSC

Aedes fulvus pallens

2017-07-18

United States, Alabama, Greene, Dead Lake Site, Plot DELA_032 (plot dimensions: 0m), 32.530107 -87.815715, 27m

Full Record Details

Firefox

Aedes punctor (Kirby, 1837)

BIOREPOSITORY DATA PORTAL

Google Map

DISPLAY COORDINATES IN GOOGLE MAP

Google Maps is a web mapping service provided by Google that features a map that users can pan (by dragging the mouse) and zoom (by using the mouse wheel). Collection points are displayed as colored markers that when clicked on, displays the full information for that collection. When multiple species are queried (separated by semi-colons), different colored markers denote each individual species.

Google Earth (KML)

This creates an KML file that can be opened in the Google Earth mapping application. Note that you must have Google Earth installed on your computer to make use of this option.

CREATE KML

Add Extra Fields

BIOREPOSITORY DATA PORTAL

Google Map

DISPLAY COORDINATES IN GOOGLE MAP

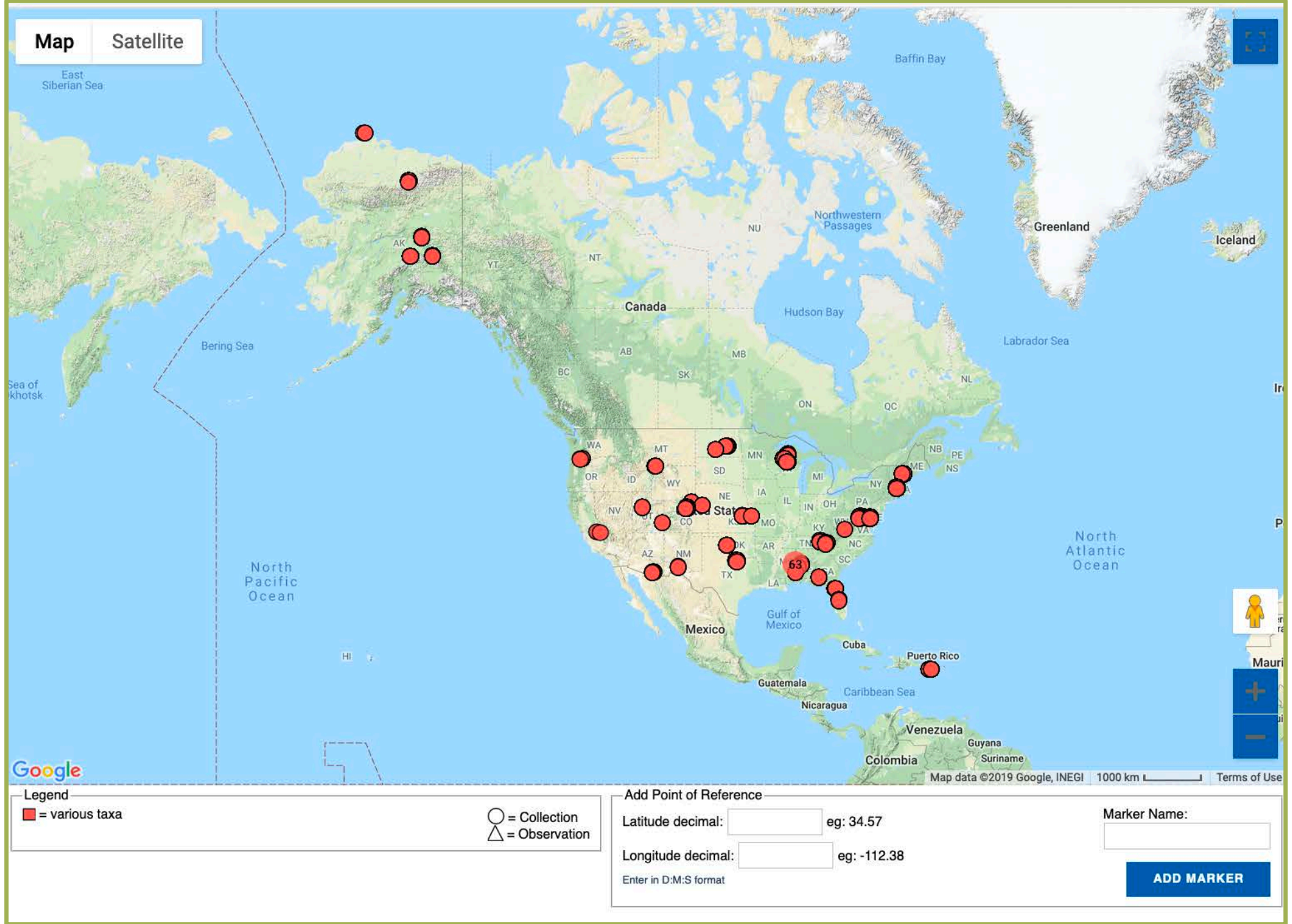
Google Maps is a web mapping service provided by Google that features a map that users can pan (by dragging the mouse) and zoom (by using the mouse wheel). Collection points are displayed as colored markers that when clicked on, displays the full information for that collection. When multiple species are queried (separated by semi-colons), different colored markers denote each individual species.

Google Earth (KML)

This creates an KML file that can be opened in the Google Earth mapping application. Note that you must have Google Earth installed on your computer to make use of this option.

CREATE KML

Add Extra Fields



Legend

= various taxa

= Collection

= Observation

Add Point of Reference

Latitude decimal: eg: 34.57

Longitude decimal: eg: -112.38

Enter in D:M:S format

Marker Name:

ADD MARKER

View sample record details

BIOREPOSITORY DATA PORTAL

Dataset: NEON-MOSC

Taxa: Aedes

Search Criteria: excluding cultivated/captive occurrences

1 2 3 4 5 6 7 8 9 10 11 >> Last

Page 1, records 1-100 of 2781

Mosquito Voucher Collection

NEON:MOSC

Aedes communis (De Geer, 1776)

2016-05-13

United States, Massachusetts, Worcester, Harvard Forest Site, CORE, Plot HARV_082 (plot dimensions: 0m), 42.482279 -72.272148, 172m

Full Record Details

NEON:MOSC

Aedes fulvus pallens

2017-07-18

United States, Alabama, Greene, Dead Lake Site, Plot DELA_032 (plot dimensions: 0m), 32.530107 -87.815715, 27m

Full Record Details

Firefox

Aedes punctor (Kirby, 1837)

Details | Map | Comments | Linked Resources

Share 0 Tweet

Mosquito Voucher Collection

Secondary Catalog #: MOS.D01.000432

Taxon: *Aedes communis* (De Geer, 1776)

Family: Culicidae

Collector:

Date: 2016-05-13

Locality: United States, Massachusetts, Worcester, Harvard Forest Site, CORE, Plot HARV_082 (plot dimensions: 0m)

42.482279 -72.272148 +-10m. WGS84

Elevation: 172 meters (564ft)

Habitat: woodyWetlands; slope aspect: 159.51; slope gradient: 4.3; soil type order: Inceptisols

Description: List of individual mosquitoes preserved as vouchers

Usage Rights: CC0 1.0 (Public-domain)

Record Id: 7015c1d0-8ea8-49bf-801a-7e794752a8db

For additional information on this specimen, please contact: NEON Biorepository (biorepo@asu.edu)

Details | Map | Comments | Linked Resources

Share 0 Tweet

Mosquito Voucher Collection

Secondary Catalog #: MOS.D01.000432

Taxon: *Aedes communis* (De Geer, 1776)

Family: Culicidae

Collector:

Date: 2016-05-13

Locality: United States, Massachusetts, Worcester, Harvard Forest Site, CORE, Plot HARV_082 (plot dimensions: 0m)

42.482279 -72.272148 +-10m. WGS84

Elevation: 172 meters (564ft)

Habitat: woodyWetlands; slope aspect: 159.51; slope gradient: 4.3; soil type order: Inceptisols

Description: List of individual mosquitoes preserved as vouchers

Usage Rights: CC0 1.0 (Public-domain)

Record Id: 7015c1d0-8ea8-49bf-801a-7e794752a8db

For additional information on this specimen, please contact: NEON Biorepository (biorepo@asu.edu)

Researchers encouraged to become portal managers to link all sample-associated data

Download sample data

BIOREPOSITORY DATA PORTAL

Species List | Occurrence Records | Maps

Dataset: NEON-MOSC

Taxa: Aedes

Search Criteria: excluding cultivated/captive occurrences

1 2 3 4 5 6 7 8 9 10 11 >> Last

Page 1, records 1-100 of 2781

Mosquito Voucher Collection

NEON:MOSC

Aedes communis (De Geer, 1776)

2016-05-13

United States, Massachusetts, Worcester, Harvard Forest Site, CORE, Plot HARV_082 (plot dimensions: 0m), 42.482279 -72.272148, 172m

Full Record Details

NEON:MOSC

Aedes fulvus pallens

2017-07-18

United States, Alabama, Greene, Dead Lake Site, Plot DELA_032 (plot dimensions: 0m), 32.530107 -87.815715, 27m

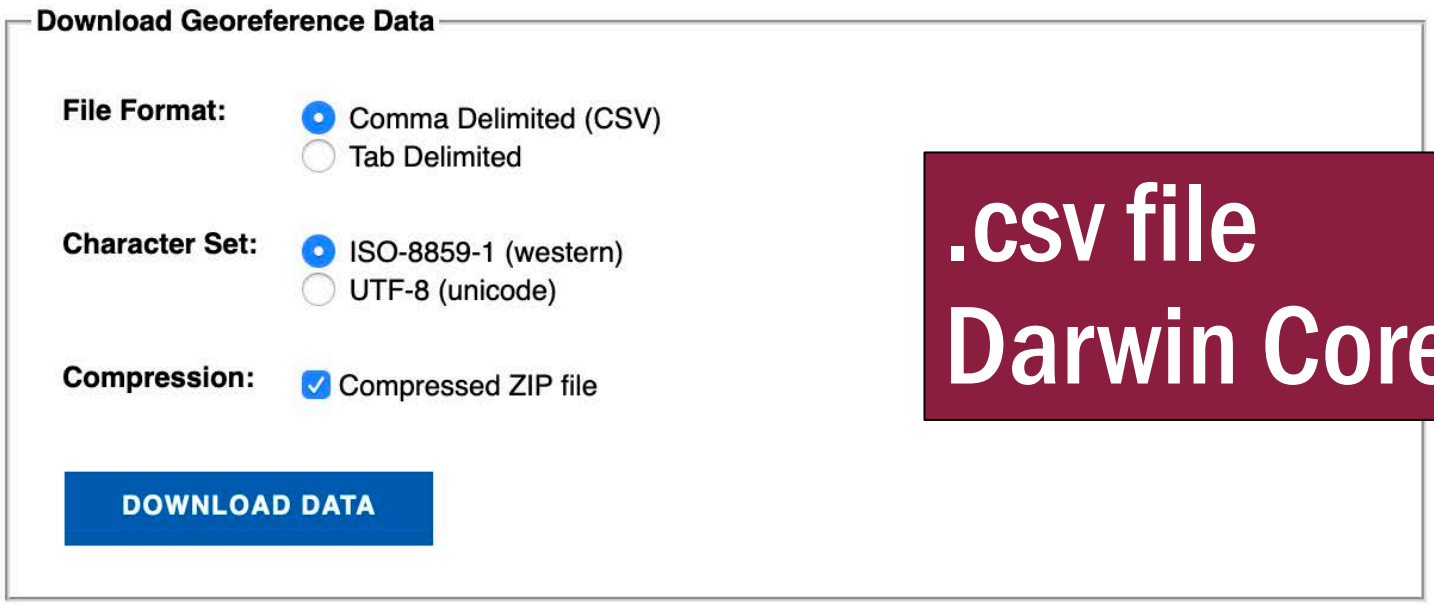
Full Record Details

Firefox

Aedes punctor (Kirby, 1837)

Data Usage Guidelines

By downloading data, the user confirms that he/she has read and agrees with the general data usage terms. Note that additional terms of use specific to the individual collections may be distributed with the data download. When present, the terms supplied by the owning institution should take precedence over the general terms posted on the website.

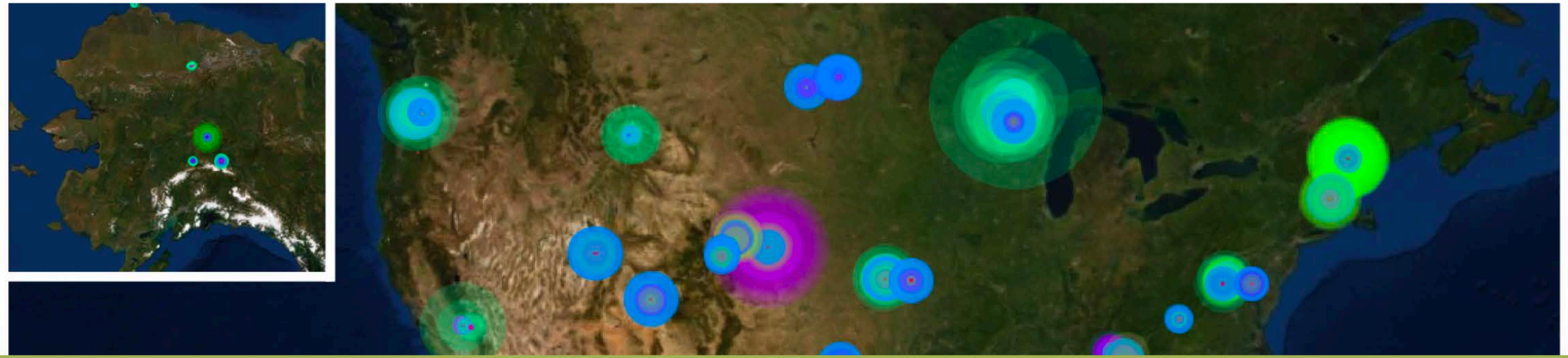


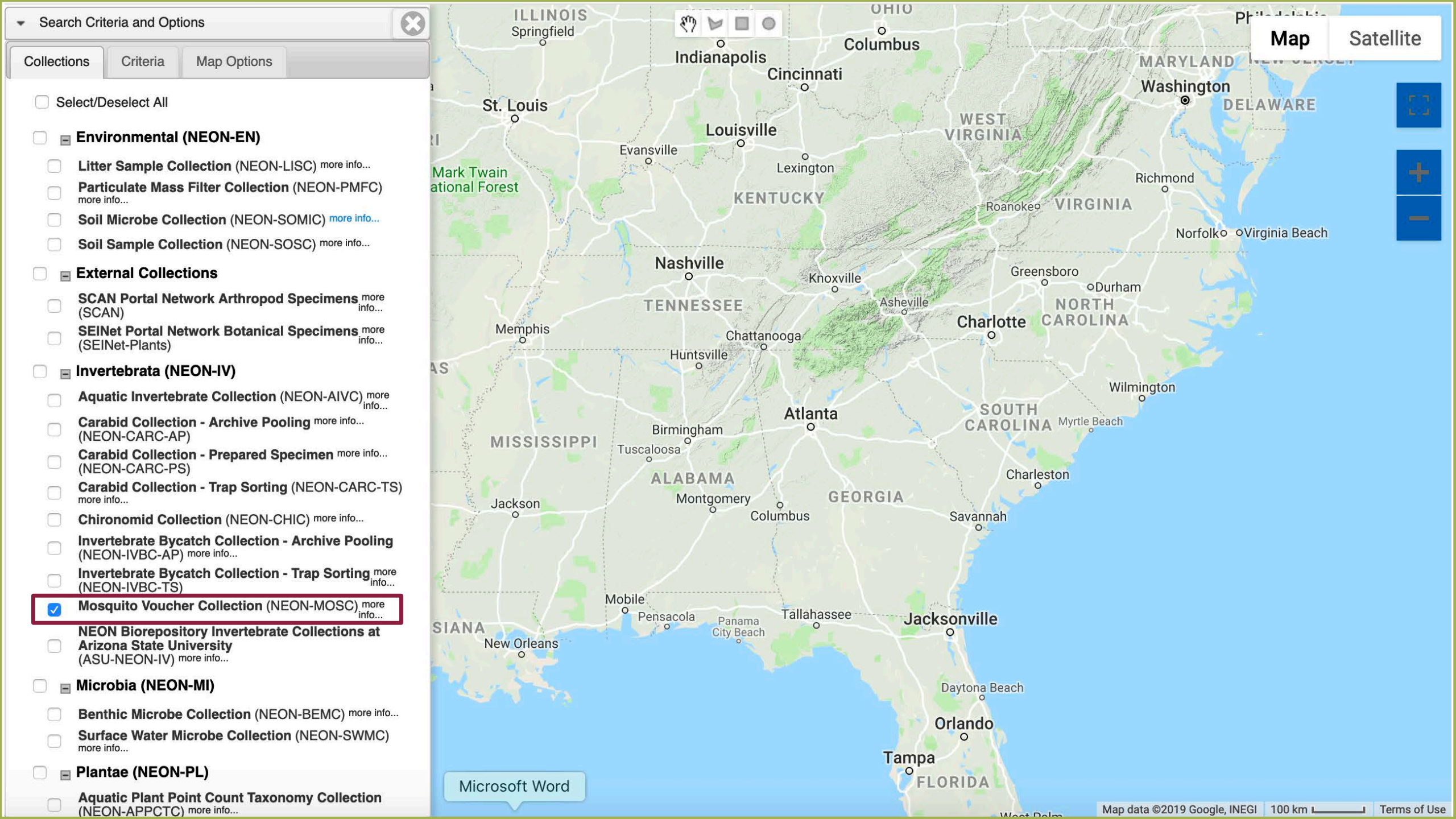
.csv file
Darwin Core record

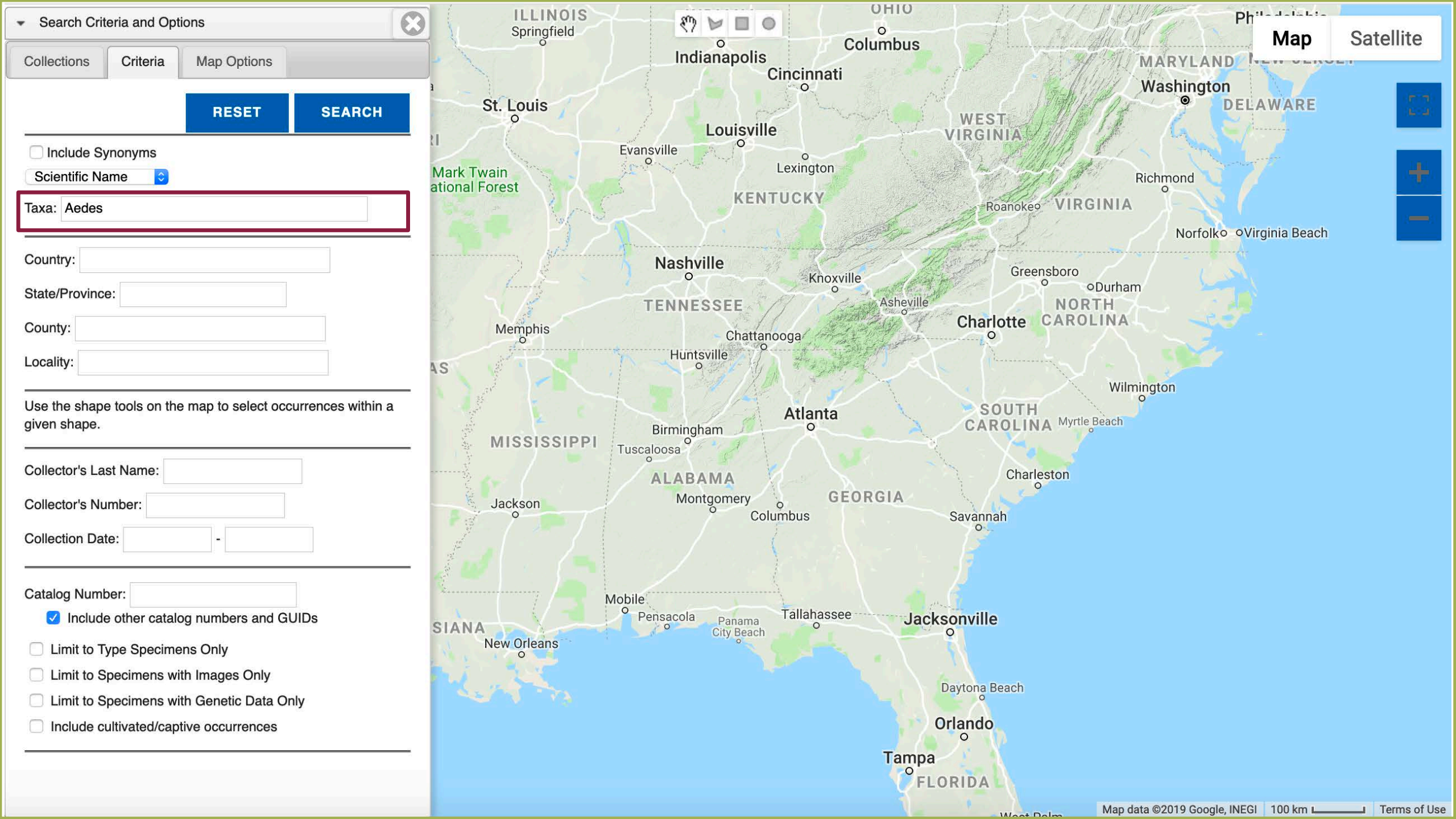
Map search

BIOREPOSITORY DATA PORTAL

Di d access sample-based data




Search Criteria and Options
Collections
Criteria
Map Options
Select/Deselect All
Environmental (NEON-EN)
Litter Sample Collection (NEON-LISC) more info...
Particulate Mass Filter Collection (NEON-PMFC) more info...
Soil Microbe Collection (NEON-SOMIC) more info...
Soil Sample Collection (NEON-SOSC) more info...
External Collections
SCAN Portal Network Arthropod Specimens (SCAN) more info...
SEINet Portal Network Botanical Specimens (SEINet-Plants) more info...
Invertebrata (NEON-IV)
Aquatic Invertebrate Collection (NEON-AIVC) more info...
Carabid Collection - Archive Pooling (NEON-CARC-AP) more info...
Carabid Collection - Prepared Specimen (NEON-CARC-PS) more info...
Carabid Collection - Trap Sorting (NEON-CARC-TS) more info...
Chironomid Collection (NEON-CHIC) more info...
Invertebrate Bycatch Collection - Archive Pooling (NEON-IVBC-AP) more info...
Invertebrate Bycatch Collection - Trap Sorting (NEON-IVBC-TS) more info...
Mosquito Voucher Collection (NEON-MOSC) more info...
NEON Biorepository Invertebrate Collections at Arizona State University (ASU-NEON-IV) more info...
Microbia (NEON-MI)
Benthic Microbe Collection (NEON-BEMC) more info...
Surface Water Microbe Collection (NEON-SWMC) more info...
Plantae (NEON-PL)
Aquatic Plant Point Count Taxonomy Collection (NEON-APPCTC) more info...
Map
Satellite
ILLINOIS
Springfield
Indianapolis
Columbus
Cincinnati
St. Louis
Louisville
Evansville
Lexington
KENTUCKY
WEST VIRGINIA
MARYLAND
Washington
DELAWARE
Richmond
VIRGINIA
Roanoke
Norfolk
Virginia Beach
Nashville
Knoxville
Greensboro
Durham
Asheville
TENNESSEE
NORTH CAROLINA
Charlotte
Memphis
Chattanooga
Huntsville
Wilmington
Atlanta
SOUTH CAROLINA
Myrtle Beach
Birmingham
MISSISSIPPI
Tuscaloosa
ALABAMA
Charleston
Montgomery
GEORGIA
Jackson
Columbus
Savannah
Mobile
Pensacola
Panama City Beach
Tallahassee
Jacksonville
New Orleans
Daytona Beach
Orlando
Tampa
FLORIDA
Microsoft Word
Map data ©2019 Google, INEGI
100 km
Terms of Use


Search Criteria and Options
Collections
Criteria
Map Options
RESET
SEARCH
Include Synonyms
Scientific Name
Taxa: Aedes
Country:
State/Province:
County:
Locality:
Use the shape tools on the map to select occurrences within a given shape.
Collector's Last Name:
Collector's Number:
Collection Date: -
Catalog Number:
Include other catalog numbers and GUIDs
Limit to Type Specimens Only
Limit to Specimens with Images Only
Limit to Specimens with Genetic Data Only
Include cultivated/captive occurrences
Map
Satellite
ILLINOIS
Springfield
Indianapolis
Columbus
Cincinnati
St. Louis
Louisville
Evansville
Lexington
KENTUCKY
WEST VIRGINIA
MARYLAND
Washington
DELAWARE
Richmond
VIRGINIA
Roanoke
Norfolk
Virginia Beach
Nashville
Knoxville
Greensboro
Durham
Asheville
NORTH CAROLINA
Charlotte
TENNESSEE
Memphis
Chattanooga
Huntsville
Wilmington
Atlanta
SOUTH CAROLINA
Myrtle Beach
Birmingham
Tuscaloosa
MISSISSIPPI
ALABAMA
Charleston
Jackson
Montgomery
Columbus
GEORGIA
Savannah
Mobile
Pensacola
Panama City Beach
Tallahassee
Jacksonville
New Orleans
Daytona Beach
Orlando
Tampa
FLORIDA
Map data ©2019 Google, INEGI
100 km
Terms of Use

Search Criteria and Options

Records and Taxa

Records | Collections | Taxa List

RESET SYMBOLOGY

AUTO COLOR

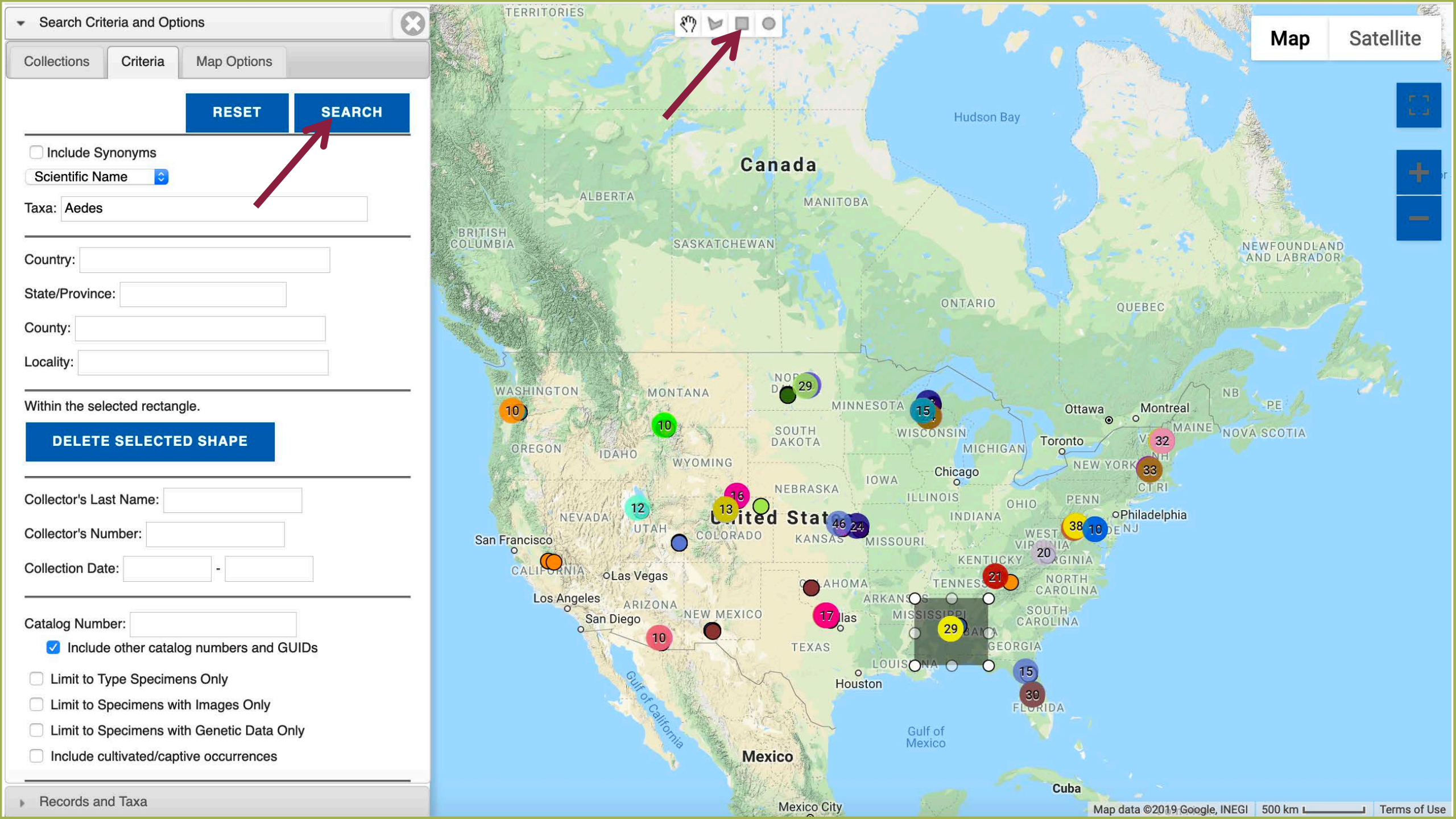
Taxa Count: 53

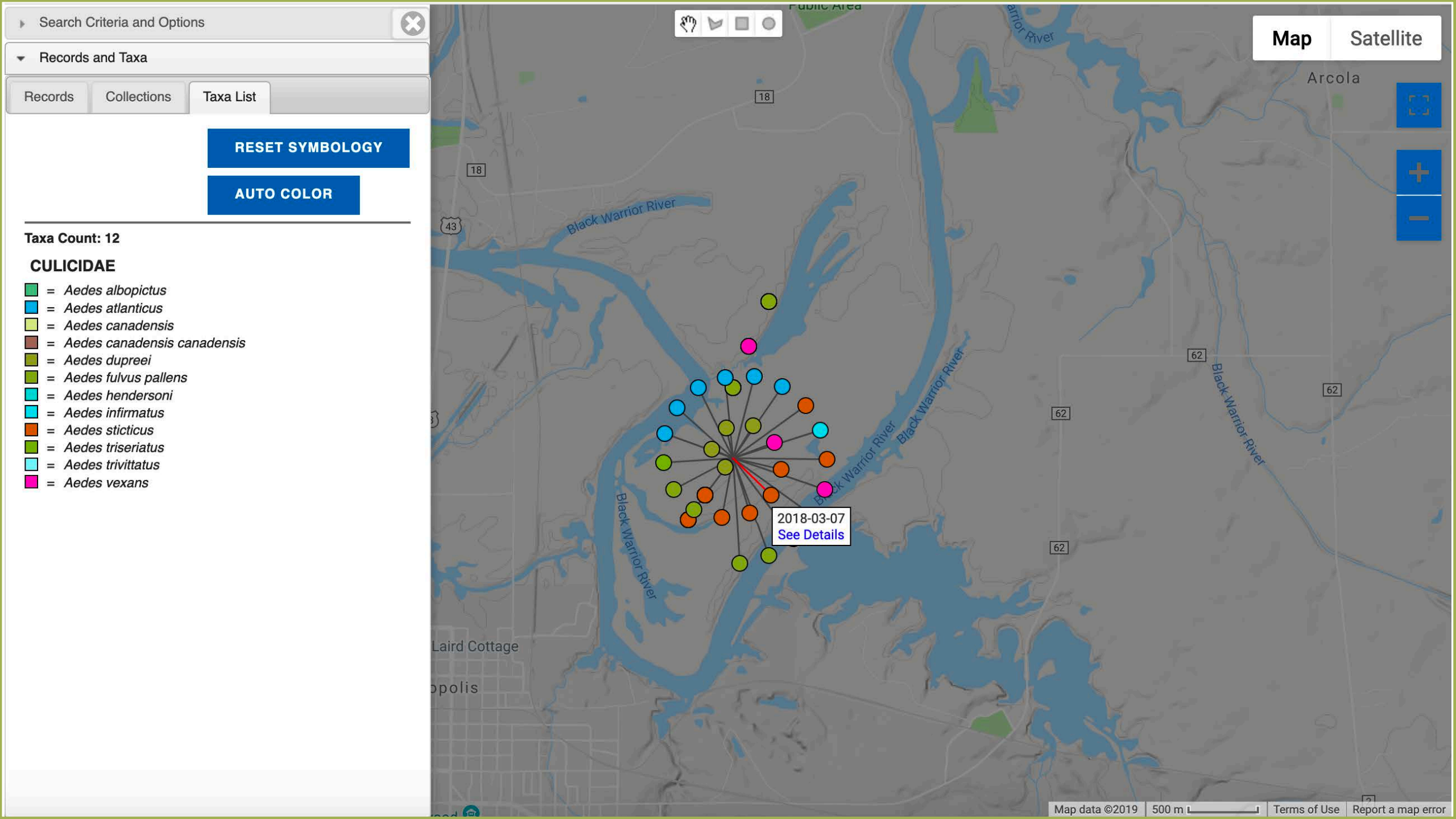
CULICIDAE

- = *Aedes aboriginis*
- = *Aedes aegypti*
- = *Aedes albopictus*
- = *Aedes atlanticus*
- = *Aedes aurifer*
- = *Aedes canadensis*
- = *Aedes canadensis canadensis*
- = *Aedes cantator*
- = *Aedes cataphylla*
- = *Aedes cinereus*
- = *Aedes communis*
- = *Aedes diantaeus*
- = *Aedes dorsalis*
- = *Aedes dupreei*
- = *Aedes excrucians*
- = *Aedes fitchii*
- = *Aedes flavescens*
- = *Aedes fulvus pallens*
- = *Aedes grossbecki*
- = *Aedes hendersoni*
- = *Aedes hexodontus*
- = *Aedes impiger*
- = *Aedes implicatus*
- = *Aedes increpitus*
- = *Aedes infirmatus*
- = *Aedes intrudens*
- = *Aedes mediovittatus*
- = *Aedes mitchellae*
- = *Aedes monticola*
- = *Aedes nigripes*
- = *Aedes nigromaculis*

Map | Satellite

Map data ©2019 Google, INEGI | 1000 km | Terms of Use


Search Criteria and Options
Collections
Criteria
Map Options
RESET
SEARCH
Include Synonyms
Scientific Name
Taxa: Aedes
Country:
State/Province:
County:
Locality:
Within the selected rectangle.
DELETE SELECTED SHAPE
Collector's Last Name:
Collector's Number:
Collection Date: -
Catalog Number:
Include other catalog numbers and GUIDs
Limit to Type Specimens Only
Limit to Specimens with Images Only
Limit to Specimens with Genetic Data Only
Include cultivated/captive occurrences
Records and Taxa
Map
Satellite
Canada
Hudson Bay
ALBERTA
MANITOBA
SASKATCHEWAN
BRITISH COLUMBIA
ONTARIO
QUEBEC
NEWFOUNDLAND AND LABRADOR
WASHINGTON
MONTANA
OREGON
IDAHO
WYOMING
SOUTH DAKOTA
MINNESOTA
WISCONSIN
MICHIGAN
NEBRASKA
IOWA
ILLINOIS
INDIANA
OHIO
PENN
NEVADA
UTAH
COLORADO
KANSAS
MISSOURI
KENTUCKY
TENNESSEE
ARKANSAS
MISSISSIPPI
ALABAMA
GEORGIA
SOUTH CAROLINA
NORTH CAROLINA
VIRGINIA
WEST VIRGINIA
NEW YORK
MAINE
NOVA SCOTIA
NB
PE
CT RI
NJ
DE
CALIFORNIA
ARIZONA
NEW MEXICO
TEXAS
OKLAHOMA
LOUISIANA
FLORIDA
San Francisco
Las Vegas
Los Angeles
San Diego
Houston
Chicago
Toronto
Ottawa
Montreal
Philadelphia
Mexico
Mexico City
Cuba
Gulf of California
Gulf of Mexico
Map data ©2019 Google, INEGI
500 km
Terms of Use


Search Criteria and Options
Records and Taxa
Records
Collections
Taxa List
RESET SYMBOLOGY
AUTO COLOR
Taxa Count: 12
CULICIDAE
= Aedes albopictus
= Aedes atlanticus
= Aedes canadensis
= Aedes canadensis canadensis
= Aedes dupreei
= Aedes fulvus pallens
= Aedes hendersoni
= Aedes infirmatus
= Aedes sticticus
= Aedes triseriatus
= Aedes trivittatus
= Aedes vexans
Map
Satellite
Arcola
Black Warrior River
Laird Cottage
2018-03-07
See Details
Map data ©2019
500 m
Terms of Use
Report a map error

Search Criteria and Options

Records and Taxa

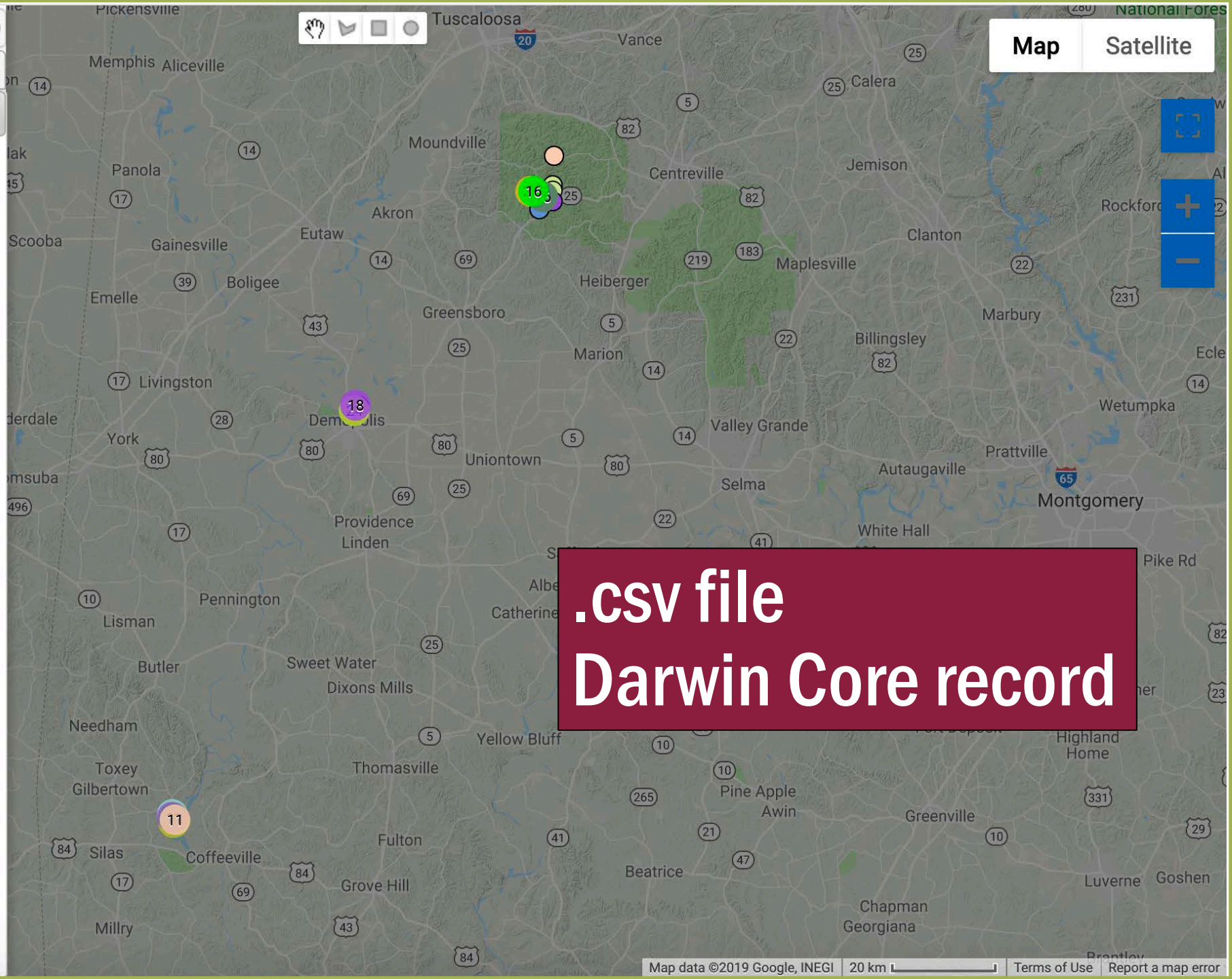
Records | Collections | Taxa List

KML

1 2 3 4

Page 1, records 1-100 of 302

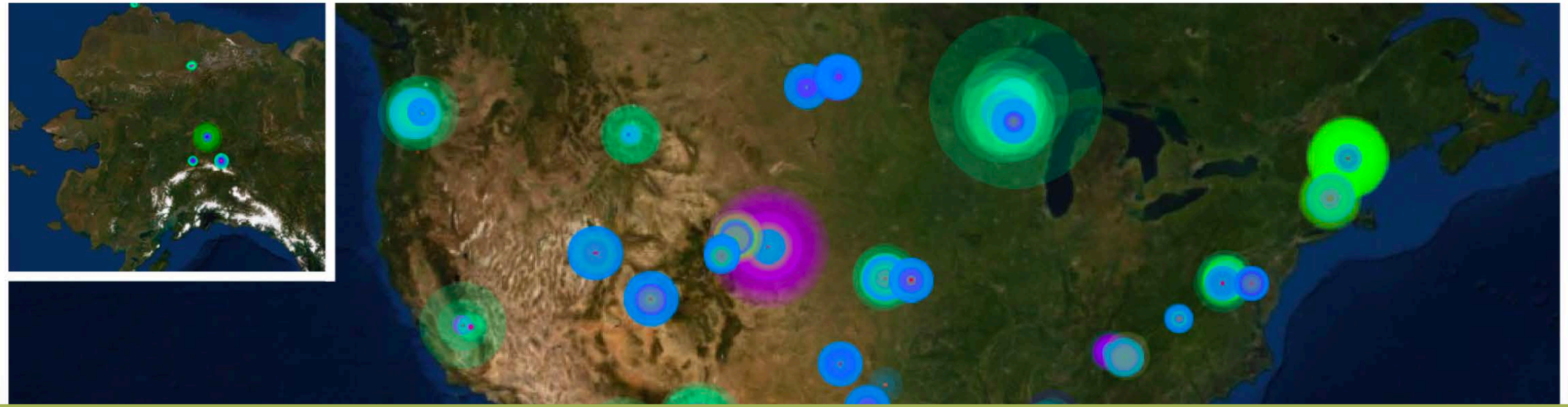
Catalog #	Collector	Date	Scientific Name
	Not available	2016-07-08	Aedes albopictus
	Not available	2016-07-28	Aedes albopictus
	Not available	2016-08-04	Aedes albopictus
	Not available	2016-08-04	Aedes albopictus
	Not available	2016-08-17	Aedes albopictus
	Not available	2016-08-17	Aedes albopictus
	Not available	2016-08-18	Aedes albopictus
	Not available	2016-08-18	Aedes albopictus
	Not available	2016-08-18	Aedes albopictus
	Not available	2016-08-24	Aedes albopictus
	Not available	2016-08-30	Aedes albopictus
	Not available	2017-06-13	Aedes albopictus
	Not available	2017-06-13	Aedes albopictus
	Not available	2017-06-14	Aedes albopictus
	Not available	2017-06-20	Aedes albopictus



Request samples

BIOREPOSITORY DATA PORTAL

Discover and access sample-based data



Sample Use Policy

NEON, the National Ecological Observatory Network, aims to provide "open data to understand how our aquatic and terrestrial ecosystems are changing". Therefore, the NEON Sample Use Policy reflects the need to provide researchers with access to NEON samples for a wide-variety of purposes while preserving the future research potential of those samples.

- Contact us well in advance of any grant proposal deadlines in order to optimally integrate sample uses into project narratives, data management plans, and budgets.
- The NEON Biorepository data portal is capable of hosting or linking to many forms of sample-associated data. Researchers using samples are strongly encouraged to become portal managers in order to disseminate their data to the public.
- The NEON Biorepository Advisory Committee, consisting of Biorepository and NEON staff as well as the external Biorepository Technical Working Group, may be consulted prior to approval of any sample use request.
- Sample uses can be non-invasive, invasive, consumptive, or destructive. Uses that reduce the future research potential of a sample will likely require stronger justification and a plan to disseminate all sample-associated data.
- Researchers are responsible for proper handling of all samples, adhering to all aspects of the sample use agreement, and following all NEON and National Science Foundation data reporting and citation policies.

Please read the full policy for more details and contact us for more information.

Sample Use Policy

Acceptable sample uses, sample use approval process

the National Ecological Observatory Network, aims to provide "open data to
w our aquatic and terrestrial ecosystems are changing". Therefore, the NEON
olicy reflects the need to provide researchers with access to NEON samples
ety of purposes while preserving the future research potential of those

act us well in advance of any grant proposal deadlines in order to optimally
e sample uses into project narratives, data management plans, and budgets.
NEON Biorepository data portal is capable of hosting or linking to many forms
ple-associated data. Researchers using samples are strongly encouraged to
e portal managers in order to disseminate their data to the public.
NEON Biorepository Advisory Committee, consisting of Biorepository and
staff as well as the external Biorepository Technical Working Group, may be
consulted prior to approval of any sample use request.

- Sample uses can be non-invasive, invasive, consumptive, or destructive. Uses that reduce the future research potential of a sample will likely require stronger justification and a plan to disseminate all sample-associated data.
- Researchers are responsible for proper handling of all samples, adhering to all aspects of the sample use agreement, and following all NEON and National Science Foundation data reporting and citation policies.

Please read the full policy for more details and contact us for more information.

BIOREPOSITORY DATA PORTAL

Sample Use Policy

NEON, the National Ecological Observatory Network, aims to provide "open data to understand how our aquatic and terrestrial ecosystems are changing". Therefore, the NEON Sample Use Policy reflects the need to provide researchers with access to NEON samples for a wide-variety of purposes while preserving the future research potential of those samples.

- Contact us well in advance of any grant proposal deadlines in order to optimally integrate sample uses into project narratives, data management plans, and budgets.
- The NEON Biorepository data portal is capable of hosting or linking to many forms of sample-associated data. Researchers using samples are strongly encouraged to become portal managers in order to disseminate their data to the public.
- The NEON Biorepository Advisory Committee, consisting of Biorepository and

Sample Use Request

NEON Biorepository at Arizona State University - Sample Use Request Form

Version 01.2 - August 8, 2019

NEON, the National Ecological Observatory Network, aims to provide "open data to understand how our aquatic and terrestrial ecosystems are changing". NEON samples are meant to be used very frequently; however, immediate usage must be balanced against the potential future research value of those same samples. Additionally, data associated with these samples should be openly available. In keeping with these needs, the NEON Biorepository at Arizona State University (ASU) requires information in order to process sample use requests.

Visit the NEON Biorepository Data Portal (https://biorepo.neonscience.org) to explore sample availability. Samples are being added to the portal as they arrive at ASU. Some sample classes and legacy samples may be located at other facilities. Contact us (BioRepo@asu.edu) if you are interested in samples not listed on the portal.

Please consult the latest version of the NEON Sample Use Policy for guidelines. Send an e-mail request to BioRepo@asu.edu for more information.

* Required

Email address *

Your email

NEXT

Page 1 of 4

Submit this form for Letters of Support or to receive samples for research

Contact us at biorepo@asu.edu with inquiries

Sample Use Request

In development: Full integration of sample requests into portal

NEON Biorepository at Arizona State University - Sample Use Request Form

Version 01.2 - August 8, 2019

NEON, the National Ecological Observatory Network, aims to provide "open data to understand how our aquatic and terrestrial ecosystems are changing". NEON samples are meant to be used very frequently; however, immediate usage must be balanced against the potential future research value of those same samples. Additionally, data associated with these samples should be openly available. In keeping with these needs, the NEON Biorepository at Arizona State University (ASU) requires information in order to process sample use requests.

Visit the NEON Biorepository Data Portal (https://biorepo.neonscience.org) to explore sample availability. Samples are being added to the portal as they arrive at ASU. Some sample classes and legacy samples may be located at other facilities. Contact us (BioRepo@asu.edu) if you are interested in samples not listed on the portal.

Please consult the latest version of the NEON Sample Use Policy for guidelines. Send an e-mail request to BioRepo@asu.edu for more information.

* Required

Email address *

Your email

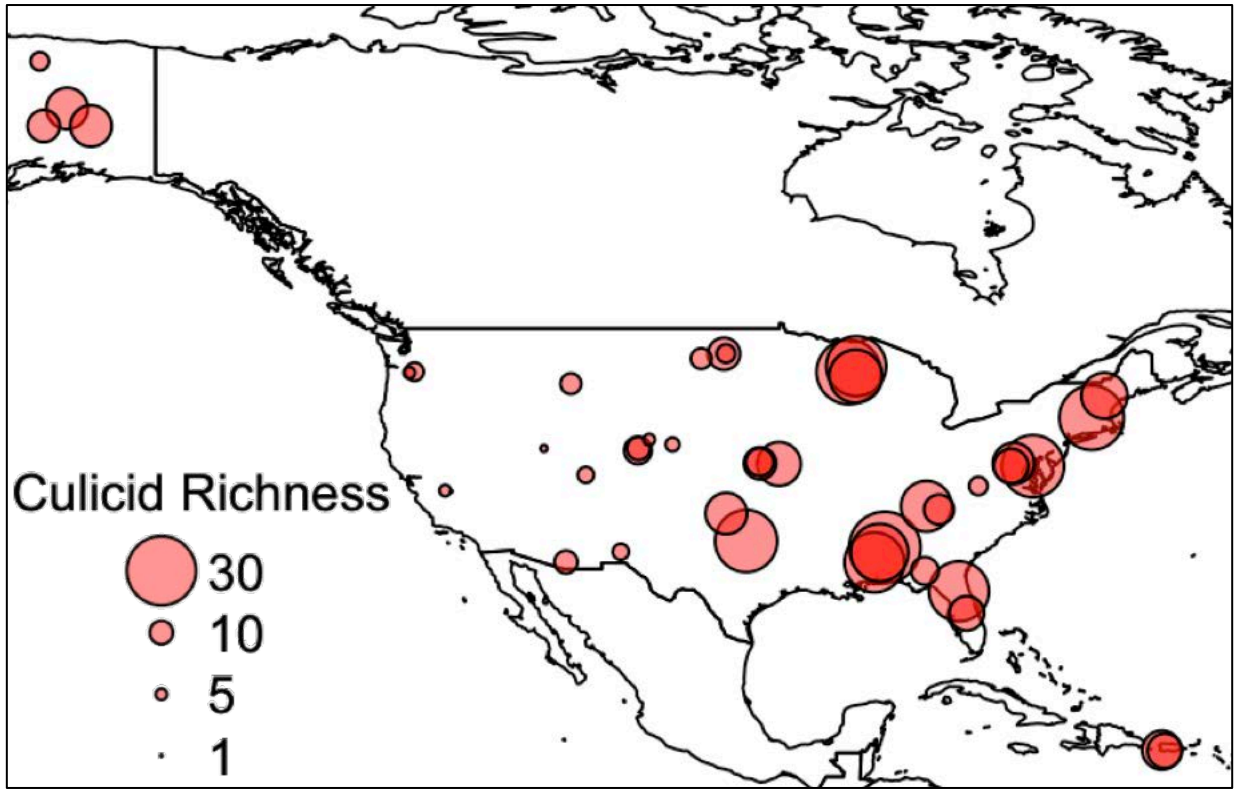
NEXT

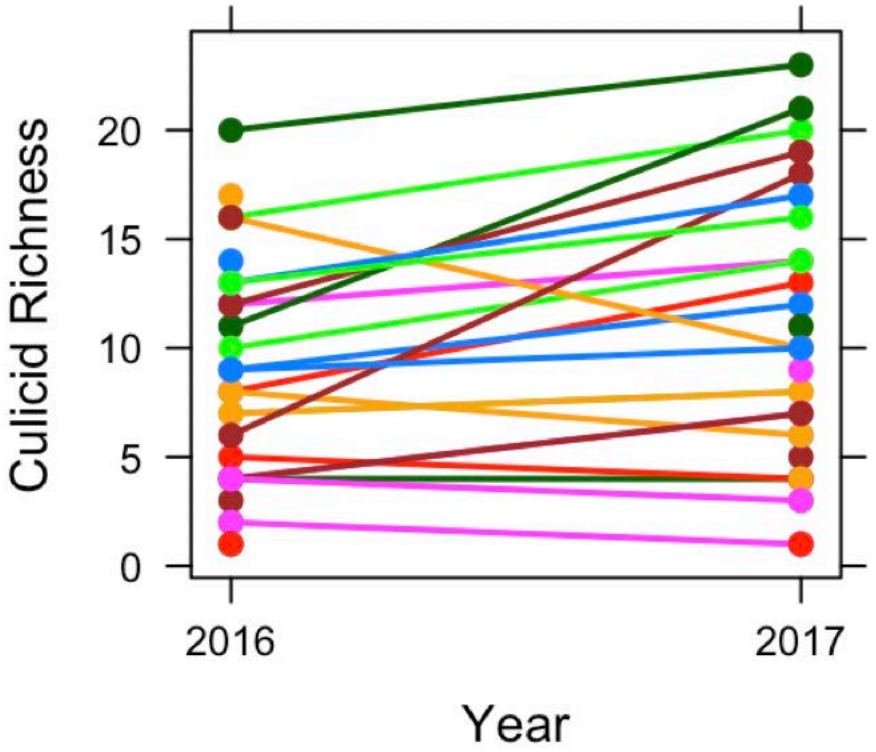
Page 1 of 4

Load sample records into R

```
################## Set Your Working Directory ################

setwd("~/MyFilePath/")

################## Read in Your Data #################

my.data<-read.csv("MyBiorepositoryData.csv")
```

Explore records in R





Relevant R packages for analyses of Biorepository occurrence record data

vegan (BiodiversityR) – descriptive community ecology

maxent – species distribution modeling

picante – phylogenetic community ecology

phenology – describe species' phenologies

bdvis –visualize biodiversity data coverage, gaps, biases

spocc – download occurrence records from other biodiversity portals

neonUtilities – download and format NEON data

Main NEON data portal

https://data.neonscience.org/

Welcome to the NEON Data Portal

The National Ecological Observatory Network provides ***open data*** to understand changing ecosystems. NEON data are currently construction-grade and provisional - learn more at our Data Quality Program webpage. To learn more about NEON, check out the Resources tab above or visit our main portal by clicking the NEON icon in the upper left corner of this page. Visit the Data Product Catalog for more specific information about individual data products, the Data Availability webpage to learn more about when data will become available after collection, or Data Portal News for occasional updates.

GET STARTED Search for data products, locations, states, domains, years, themes, or keywords

Getting Started

Data Quality

Data Portal News

Filters

Clear all filters

Keywords

× Culicidae

Data Status

- Available (150)
- Coming soon (30)

Themes

- Atmosphere (55)
- Biogeochemistry (84)
- Ecohydrology (48)
- Land Use, Land Cover, and Land Processes (48)
- Organisms, Populations, and Communities (50)

States

- Alabama

Data Products

Showing 3 of 180 data products at 47 of 81 sites, Jul 2012 - Jun 2019

Mosquito sequences DNA barcode

Available Time Range: 2012-07 - 2018-10 **Product ID:** DP1.10038.001

Download Data

View Product Details

Summary | Sites | States | Domains

Mosquito-borne pathogen status

Available Time Range: 2014-04 - 2017-12 **Product ID:** DP1.10041.001

Download Data

View Product Details

Summary | Sites | States | Domains

Mosquitoes sampled from CO2 traps

Available Time Range: 2014-03 - 2019-06 **Product ID:** DP1.10043.001

Download Data

View Product Details

Summary | Sites | States | Domains

Configure Data Package for Download

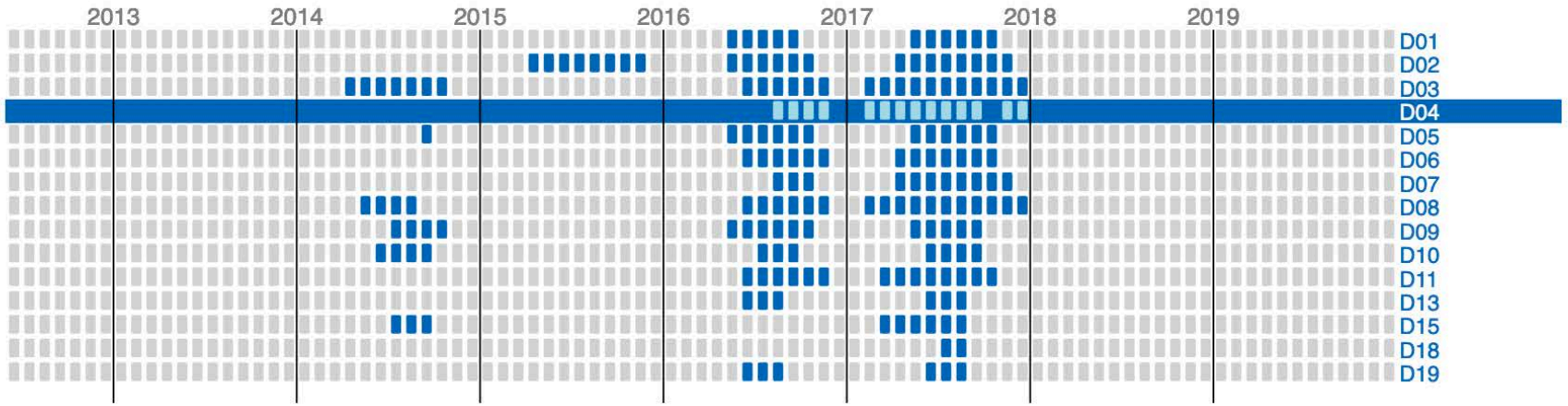
Mosquito-borne pathogen status

Product ID: DP1.10041.001

1. Select sites (by site code, state, or domain) and date range:

Summary | Sites | States | Domains | Clear 4 sites selected

Start Date Jan 2015 End Date Aug 2019



2. Do you want to include documentation about this data product?

☐ Yes, include relevant documents for this Data Product

EML files for this Data Product are included in all downloads (More about EML at NEON and KNB.)

3. Select data type:

◉ Basic: Includes the data product, summary statistics, expanded uncertainty, and final quality flag

File type to be downloaded: **ZIP (Compressed Text)**
Estimated size: **0.425 MB**

Download Data

neon Operated by Battelle

Filters

States

Alabama
Alaska
Arizona
California

Configure Data Package for Download

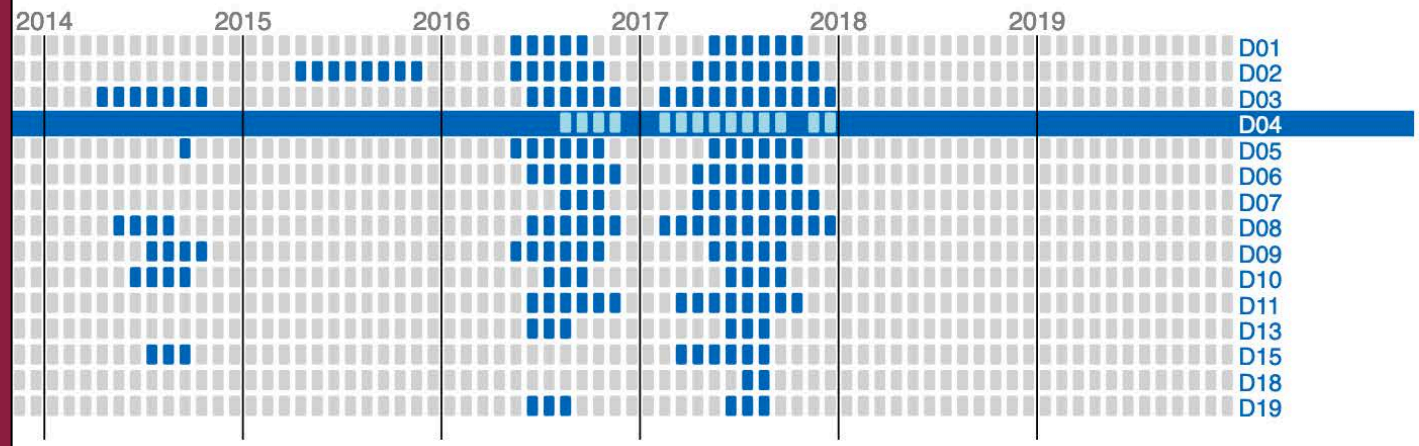
Mosquito-borne pathogen status

Product ID: DP1.10041.001

1. Select sites (by site code, state, or domain) and date range:

States | Domains | Clear 4 sites selected

Start Date Jan 2015 End Date Aug 2019



2. Do you want to include documentation about this data product?

☐ Yes, include relevant documents for this Data Product

EML files for this Data Product are included in all downloads (More about EML at NEON and KNB.)

3. Select data type:

◉ Basic: Includes the data product, summary statistics, expanded uncertainty, and final quality flag

File type to be downloaded: **ZIP (Compressed Text)**
Estimated size: **0.425 MB**

Download Data

.csv files packaged by month and site into zip files within a parent zip file

Download Data
Product Details
All locations
Download Data
Product Details
D01 D02 D03 D04 D05 D06 D07 D08 D09 D10 D11 D13 D15 D18 D19

Use the neonUtilities Package to Access NEON Data

AUTHORS: Claire K. Lunch, Megan A. Jones

This tutorial goes over how to use the neonUtilities R package (formerly the neonDataStackR package).

The package contains several functions:

- `stackByTable()`: Takes zip files downloaded from the Data Portal or downloaded by `zipsByProduct()`, unzips them, and joins the monthly files by data table to create a single file per table.
- `zipsByProduct()`: A wrapper for the NEON API; downloads data based on data product and site criteria. Stores downloaded data in a format that can then be joined by `stackByTable()`.
- `loadByProduct()`: Combines the functionality of `zipsByProduct()` and `stackByTable()`: Downloads the specified data, stacks the files, and loads the files to the R environment.
- `getPackage()`: A wrapper for the NEON API; downloads one site-by-month zip file at a time.

This tutorial is part of other materials

View Upcoming Events

FULL LIST OF EVENTS

FIND MORE TUTORIALS >

TABLE OF CONTENTS

neonUtilities package

Join data files: stackByTable()

Download files to be stacked: zipsByProduct()

Download files and load directly to R:

Use the neonUtilities Package to Access NEON

neonUtilities

- download NEON data products
- merge data tables by type
- convert formats for analysis

AUTHORS: Claire K. Lunch, Megan A. Jones

This tutorial goes over how to use the neonUtilities R package (formerly the neonDataStackR package).

The package contains several functions:

- `stackByTable()`: Takes zip files downloaded from the Data Portal or downloaded by `zipsByProduct()`, unzips them, and joins the monthly files by data table to create a single per table.
- `zipsByProduct()`: A wrapper for the NEON API; downloads data based on data product and site criteria. Stores downloaded data in a format that can then be joined by `stackByTable()`.
- `loadByProduct()`: Combines the functionality of `zipsByProduct()` and `stackByTable()`: Downloads the specified data, stacks the files, and loads the files to the R environment.
- `getPackage()`: A wrapper for the NEON API; downloads one site-by-month zip file at a time.

NEON Biorepository data tutorials:

What would be most useful?

Contact us...

biorepo@asu.edu

Biodiversity Knowledge Integration Center
Arizona State University

NSF | neon Operated by Battelle