

# Lifemapper on SAGE2

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# Project Overview

- ❑ A collaboration between myself and researchers at the University of Kansas
- ❑ **The goal:** make Lifemapper accessible from SAGE2



Lifemapper

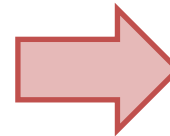
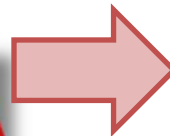
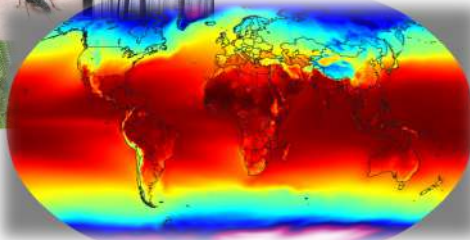
SAGE2<sup>TM</sup>

# What is Lifemapper?

- Biodiversity modeling software
- Inputs:
  - Species occurrence data
  - Environmental data
- Outputs:
  - Potential habitats for species
  - Correlations between species occurrences
  - And more!



Lifemapper



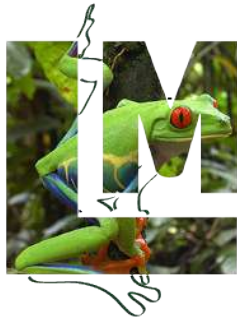
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1	0	0	1	0	0	0	0	0	0	0	0	0
0	0	1	0	0	1	0	0	0	0	0	0	0

# BiotaPhy

- The *BiotaPhy* project:

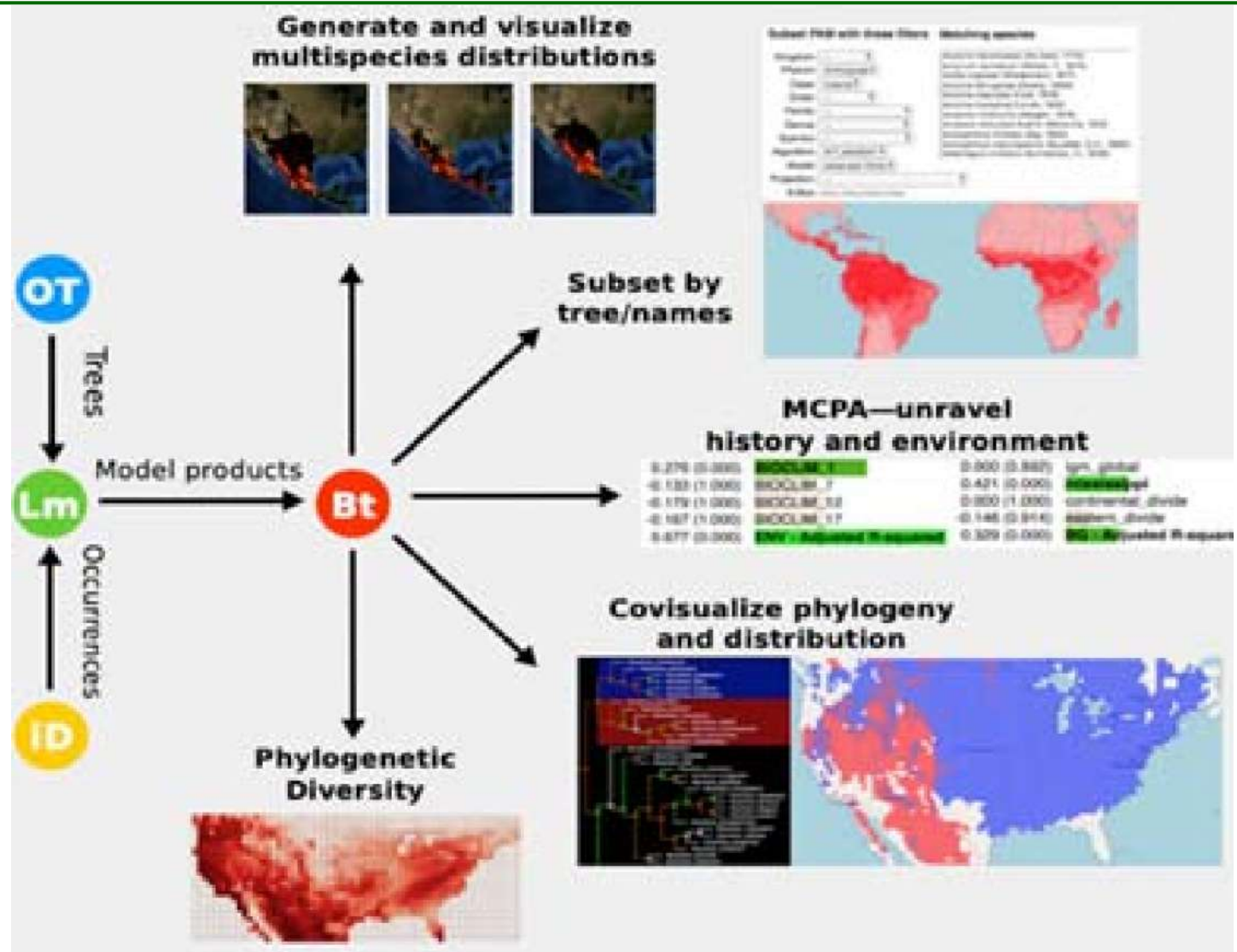
*Connect biodiversity projects  
through workflows with  
integrated data providers*



**Lifemapper**



# BiotaPhy




# BiotaPhy's Online Interface

## BiotaPhy Platform

Username  
Password

[sign up](#)

 Search Species

 Anonymous

New project name

taffy ✓


quercus ✓

hexalectris ✓

Bestbutterflytest ✓

Chen\_Yanni ✓

 Show more

 Public

public\_boom-2019.04.12 ✓

heuchera\_global\_10min ✓

## BiotaPhy | New Project

SPECIES DATA

SDM ALGORITHMS

SDM LAYERS

TREE UPLOAD

HYPOTHESES

SUBMIT PROJECT

Data from iDigBio and Open Tree:

☐ List of species ☒ Taxonomic search ☐ Use GBIF data ☐ Upload CSV file of species points

Filter available species

Kingdom: ☒ Animalia  
Phylum: ☒ Mollusca  
Class: ☒ Cephalopoda  
Order: ☒ Octopoda  
Family: ☒ Octopodidae  
Genus: ☒ Octopus

Matching species  
(found 79)

Octopus alecto Berry, 1953  
Octopus araneoides Iw. Taki, 1964  
Octopus argus Krauss, 1848  
Octopus australis Hoyle, 1885  
Octopus balboai Voss, 1971  
Octopus berenice Gray, 1849  
Octopus berrima Stanks & Norman, 1992  
Octopus bimaculatus Verrill, 1883  
Octopus bimaculoides Pickford & McConnaughe  
Octopus bocki Adam, 1941  
Octopus boscii  
Octopus brachiotomus Keable, S J & Norman  
Octopus brevipes d'Orbigny, 1835  
Octopus briareus Robson, 1929  
Octopus californicus Berry, 1911  
Octopus campbelli Smith, 1902  
Octopus cephea Gray, 1849  
Octopus chierchiai Jatta, 1889  
Octopus conispadiceus Sasaki, 1917  
Octopus cyanea Gray, 1849  
Octopus diminutus Kaneko & Kubodera, 2008  
Octopus exannolatus Norman  
Octopus filiosus Howell, 1867  
Octopus fitchi Berry, 1953

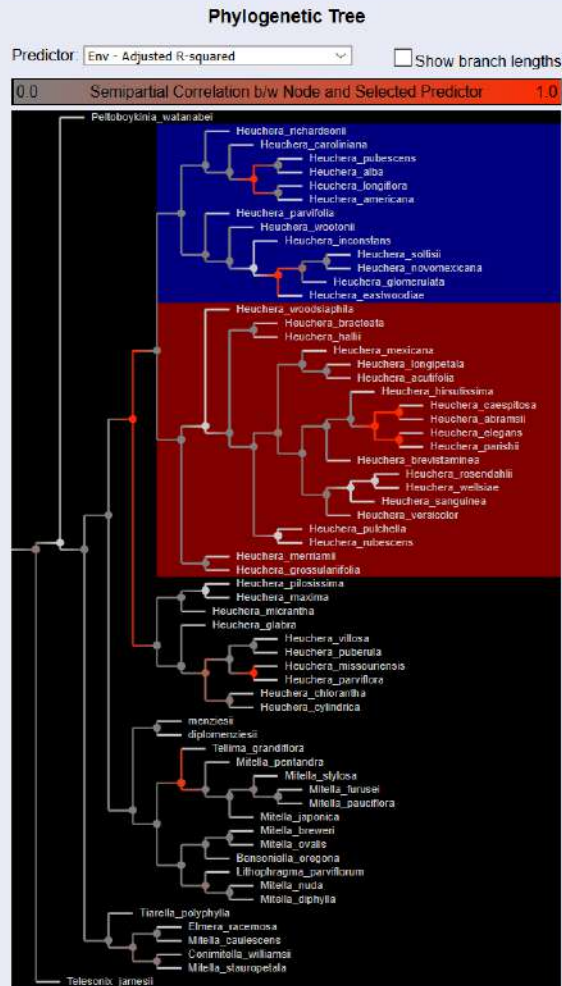
Selected species

(occurrence points from iDigBio)

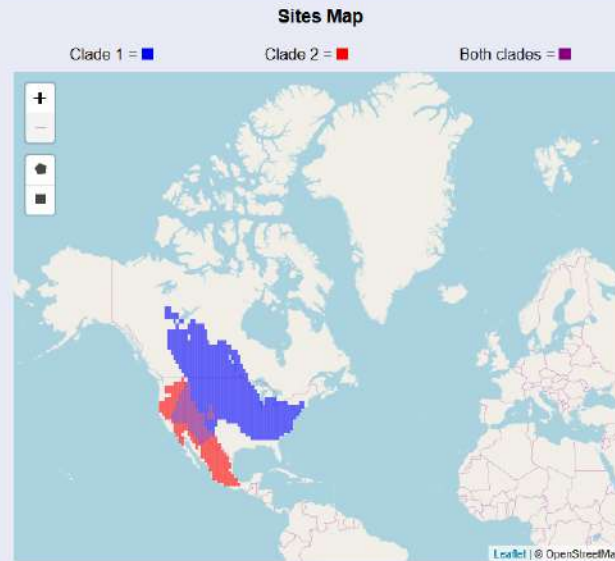
Octopus alecto Berry, 1953  
Octopus araneoides Iw. Taki, 1964  
Octopus argus Krauss, 1848  
Octopus australis Hoyle, 1885  
Octopus balboai Voss, 1971  
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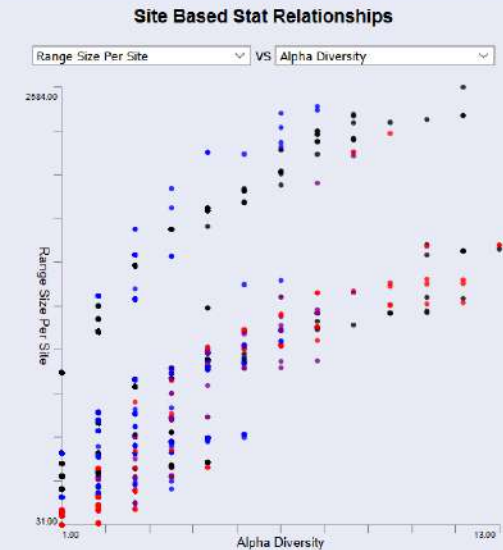
# BiotaPhy's Offline Interface



Node color indicates correlation between sister clades and the selected predictor. Selecting a node highlights aggregated presence of species of one clade in blue and the other in red. Sites where species of both sides are present are purple.



The map shows sites where the selected species are present. Use the select by bounding box or by polygon tools to highlight in the tree which species are present at those selected sites.

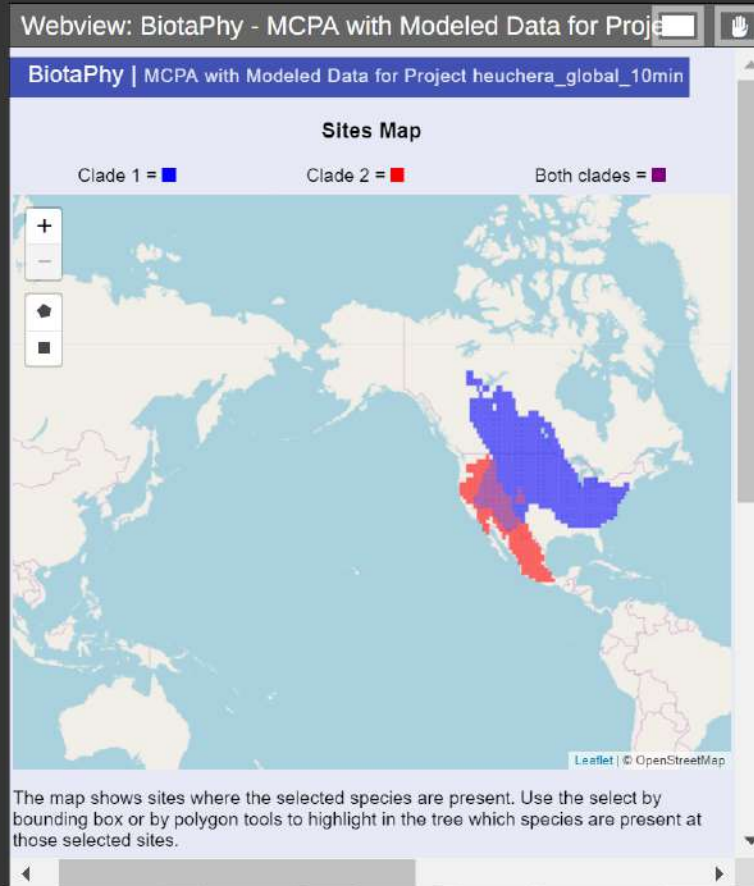
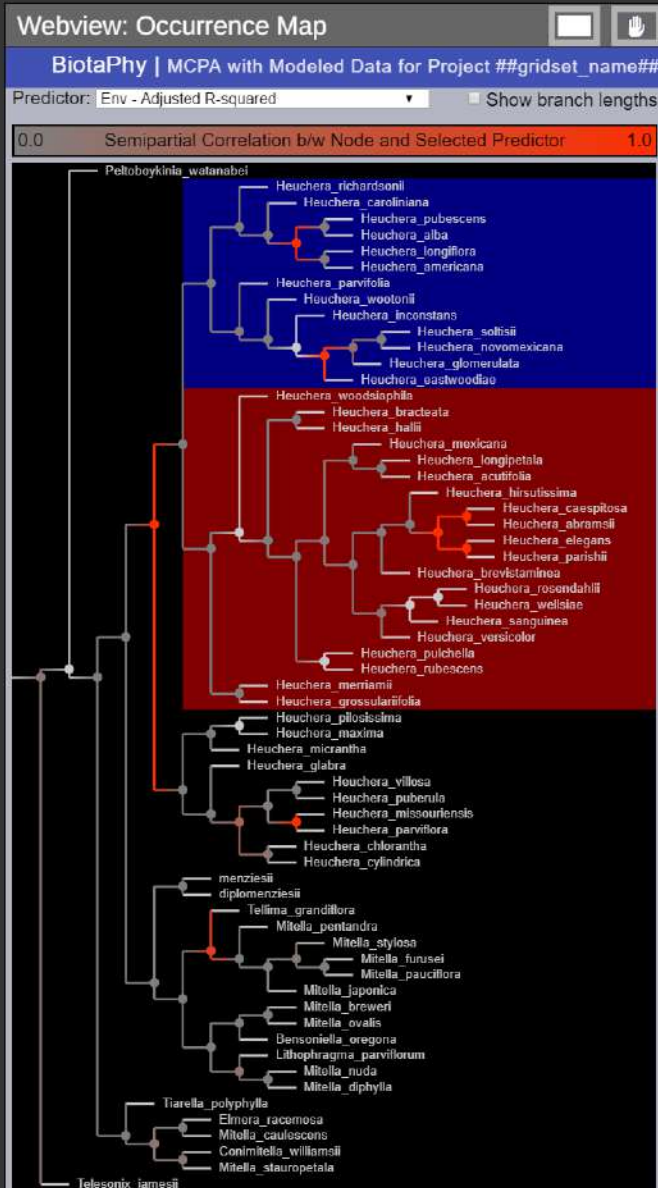


The scatter plot shows relationships between site based statistics; each dot represents a single site. If sites in the map are highlighted, the corresponding sites are highlighted in the same color in the scatter plot. You can brush sites in the plot by clicking and dragging to create a selection box. Doing so will highlight the selected points as well as those sites on the map and the species present at those sites in the tree. Use the two drop down boxes to select the metrics to use for the X and Y axes.

# Lifemapper on SAGE2

10:35 am

localhost:9292





# Lifemapper on SAGE2

## □ The vision for this app:

- Allow users to easily share visualized Lifemapper results with each other
- Facilitate side-by-side visual comparison between different packages
- Make Lifemapper more accessible



# Future Work

- ❑ Port the BiotaPhy online interface into SAGE2
  - Requires communication with Lifemapper
- ❑ Cross-package features
  - Visualize data from multiple packages on one map
  - Allow users to submit multiple packages back to Lifemapper for correlation analyses
  - Then provide visualizations for these new results

Thank you!

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