

Celebrating 15 years of SERNEC: Where we've been,
where we are, and where we are going



Zack Murrell, Michael Denslow and Herrick Brown
October 2, 2019

The Key to the Cabinets: Building and Sustaining a Research Database for a Global Biodiversity Hotspot

August 2014

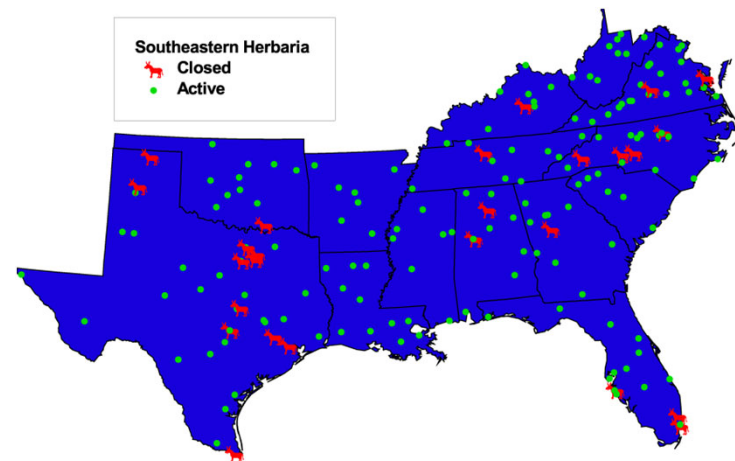
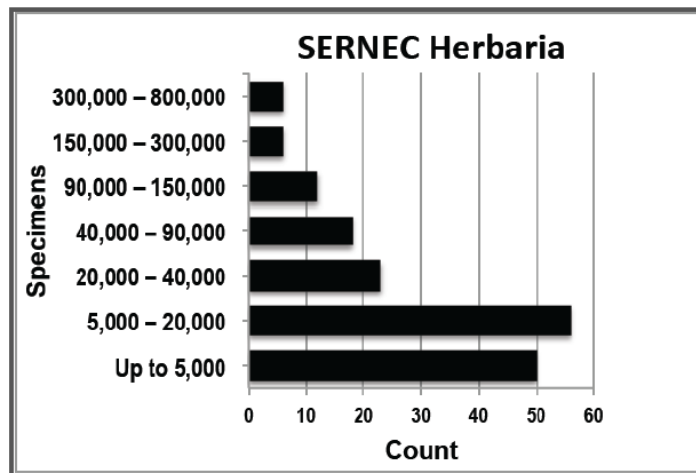
NSF-Advancing Digitization in Biological Collections (ADBC) collaborative project in the southeast

NSF ADBC #1410069 (plus collaborative awards (1410077
1410081 1410086 1410087 1410092 1410094 1410098
1410143 1410200 1410288 1410439 1410445))



State of Herbaria in the Southeast USA

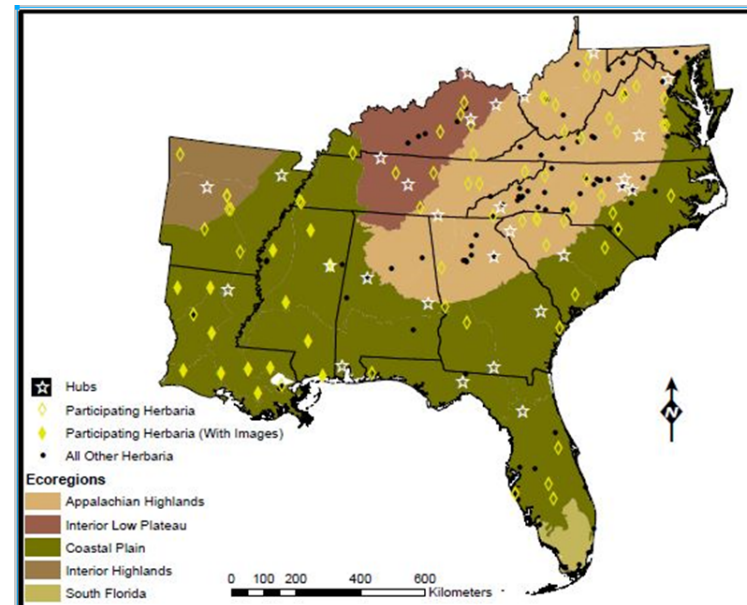
- 233 collections vary in size from 3,000 to 750,000 specimens.
- Curators are taxonomists, ecologists, paleobotanists, population biologists.
- Some institutions with significant budgets, IT support and curatorial staff.
- Some institutions are single person operations without budgets or IT support.
- ESTIMATED 15 MILLION SPECIMENS FROM THE SOUTHEAST.



Data derived from Index Herbariorum
(<http://www.nybg.org/bsci/ih/ih.html>) .

Involvement/Management

- 93 herbaria (plus 15) – cascading network
- Data pipeline: Symbiota/SEINet
- Data storage: iPLANT-TACC)
- Citizen scientists
 - Notes From Nature
 - GEOLocate
 - Adler Museum-Zooniverse
- Education experts
- Herbarium Affiliates
- Natural Heritage Programs
- iDigBio and Specify
- Southeast Chapter of Society of Herbarium Curators



SERNEC data / accomplishments

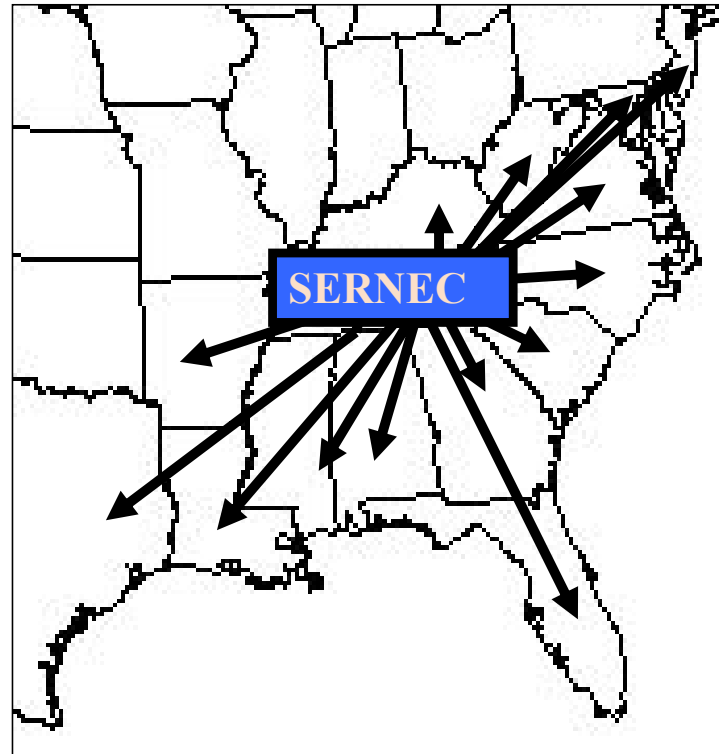
- ❖ 4,739,787 specimen records (goal = 4,565,213)
- ❖ 4,247,592 (90%) imaged
- ❖ 3,510,974 (74%) identified to species
- ❖ 422,916 (9%) georeferenced
- ❖ 62 collections are publishing to iDigBio as of today

- ❖ Averaged 200 students trained per year
- ❖ All workflows, documents, etc. at:
<http://sernec.appstate.edu/>

SERNEC

Southeast Regional Network of Expertise and Collections

- Used existing infrastructure of the Association of Southeastern Biologists
- 2005 NSF Research Coordination Network (RCN) awarded to build the 'human infrastructure' to begin the '2020 Vision effort'
- 5-year project
- 150 herbaria participated



Goals: SERNEC Project

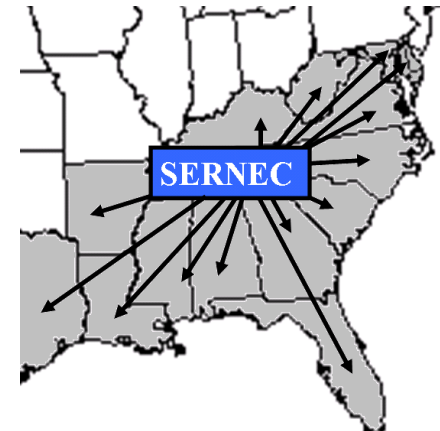
- Mobilize community of amateur and professional botanists
- Transform available data into more useable form (low cost?)
- Use this data to enhance the use of collections for teaching, research, planning and outreach
- Develop model system transferable to other efforts (collections, consortia)

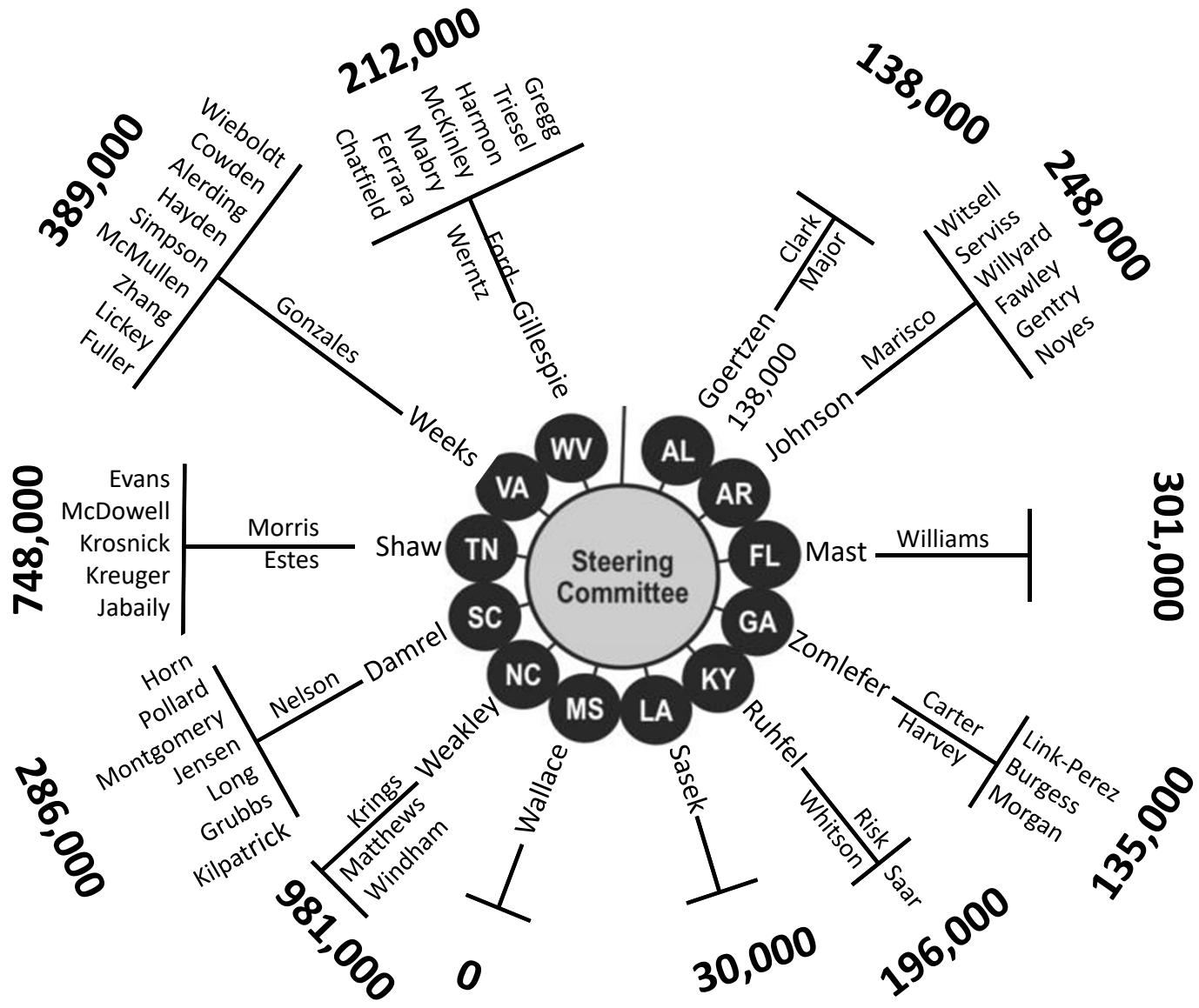
MOBILIZATION AND COMMUNICATION

WORKING GROUPS:

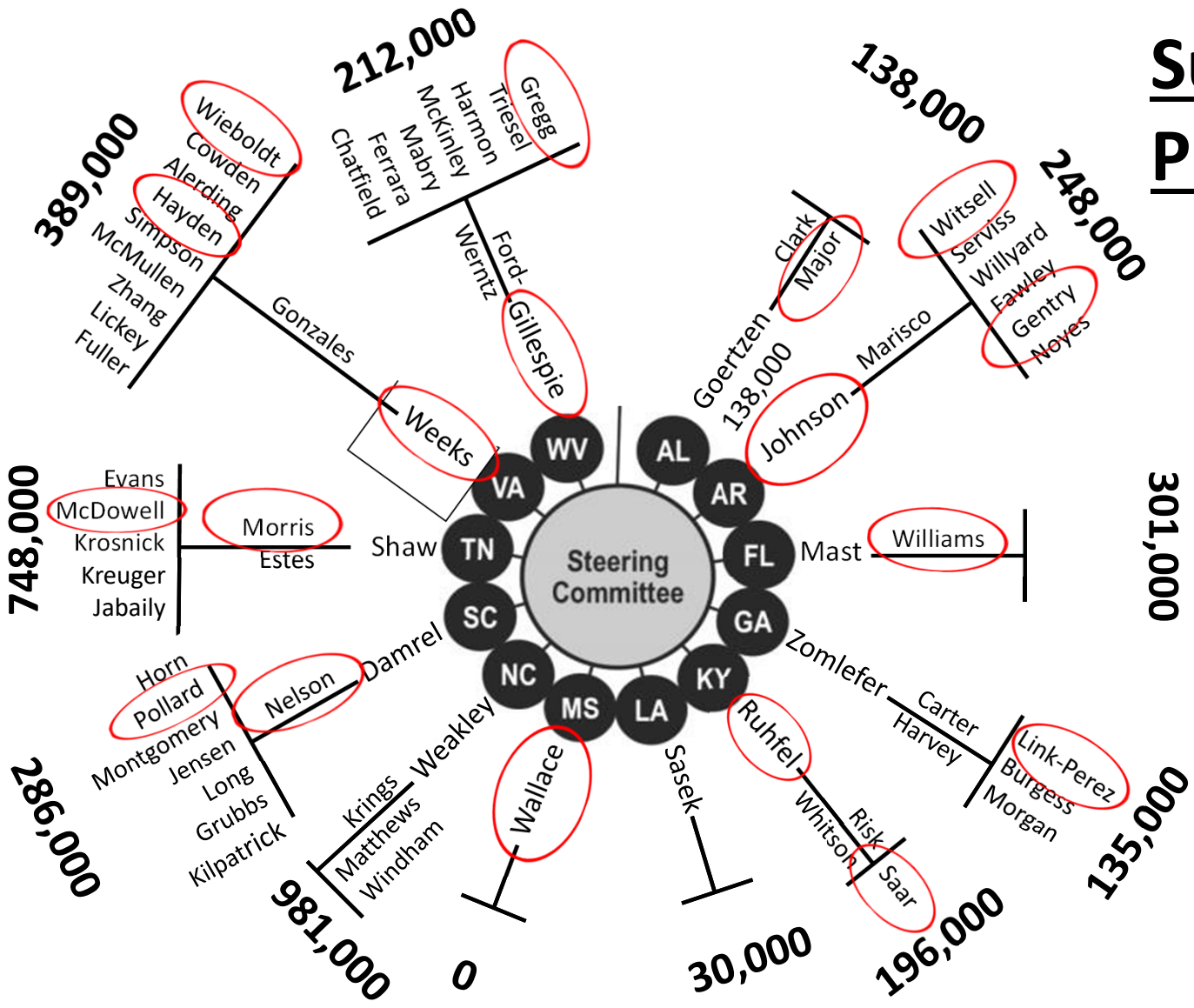
1. IT and infrastructure
2. Libraries and literature
3. Images (specimen and live)
4. Education and outreach
5. Taxonomic concept mapping
6. State working groups

“IT TAKES A VILLAGE”





Succession Planning ?

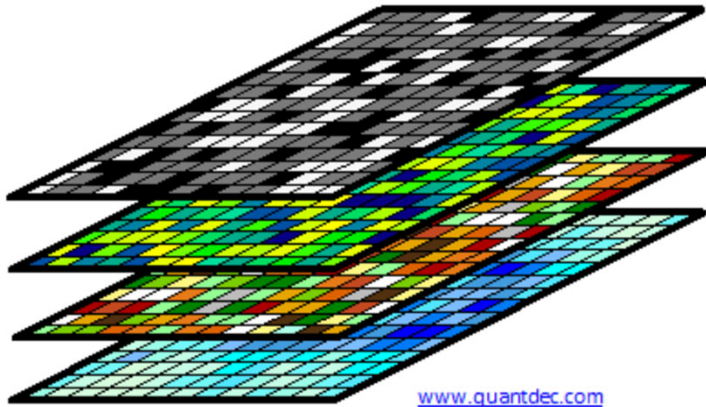




Michael Denslow and Herrick Brown

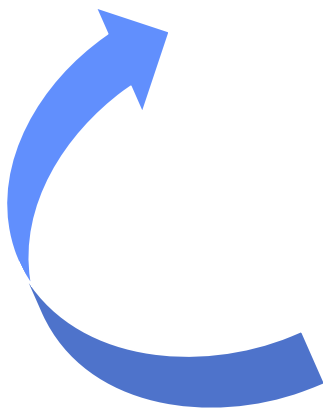
Long term challenges (and what have we learned)

- 15M specimens available
- Long term data storage: local or regional
- Data attribution: credit for work
- Data protection: what to mask?
- Expansion into new research projects
(concept mapping, phylogeography)
- Maintain system as “best practice” for the community
- Governance: Society of Herbarium Curators
- Community = sustainability and resiliency

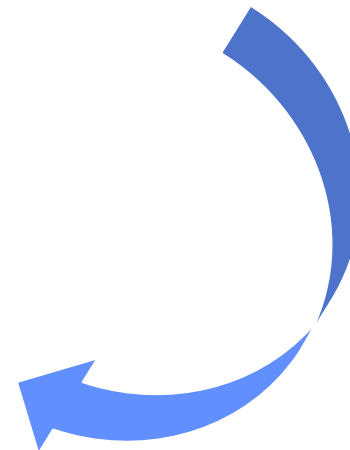


+ **Museum informatics**
+ **Floristics**
+ **Phylogenetics/phylogeography**
= **REGIONAL
RESEARCH ENGINE**

www.quantdec.com



Data capture
and analysis



Broader impacts

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SERNEC

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