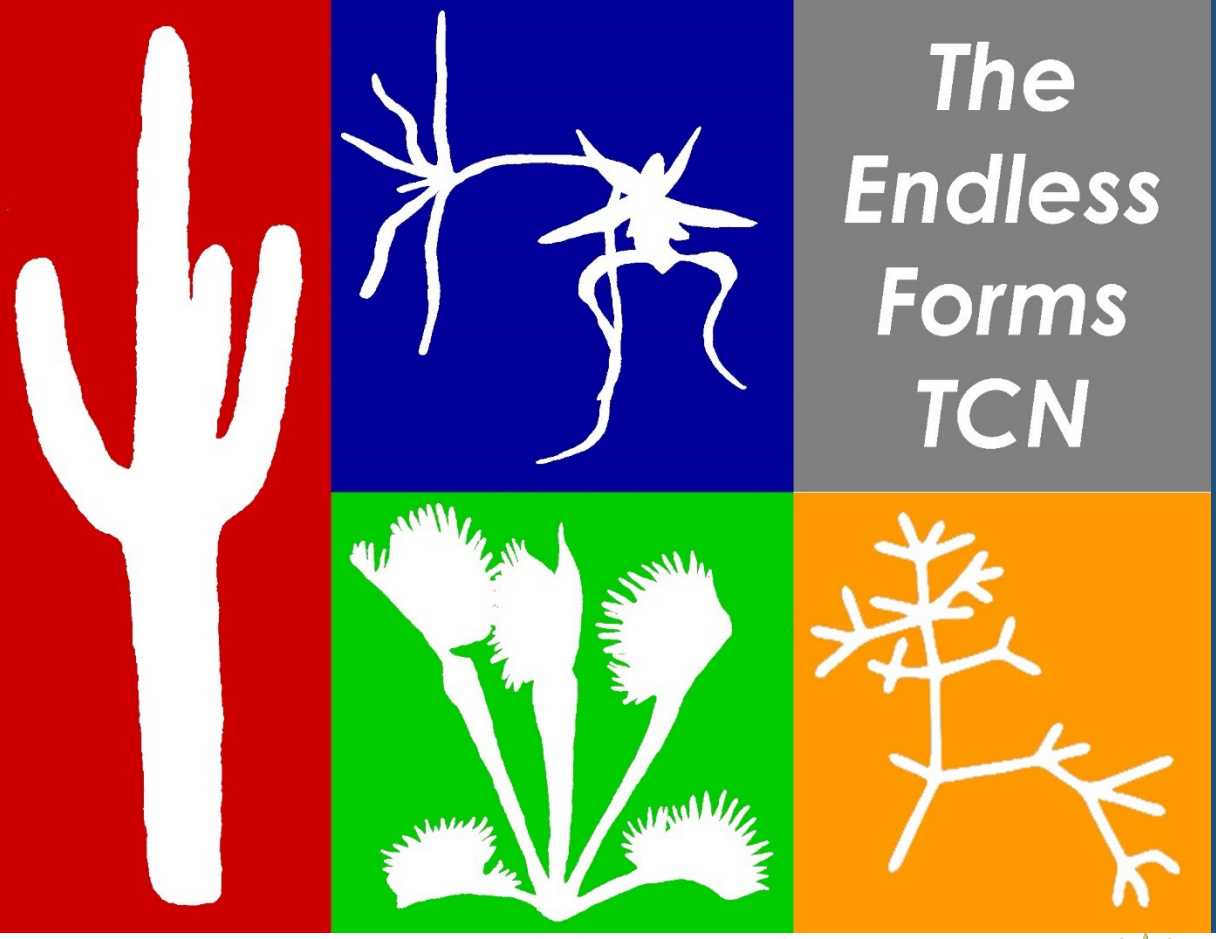

The Endless Forms TCN

Matthew Pace & Barbara Thiers

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NYBG

NSF

Missouri Botanical Garden

Harvard University

University of Wisconsin–Madison

California Academy of Sciences

BRIT Botanical Research Institute of Texas

Plant to planet.

Berkeley University of California

The Academy of Natural Sciences of Drexel University

University of Minnesota

Field Museum

University of Michigan

California Botanic Garden

UMass Amherst

Texas The University of Texas at Austin

Illinois Natural History Survey Prairie Research Institute

Marie Selby Botanical Gardens

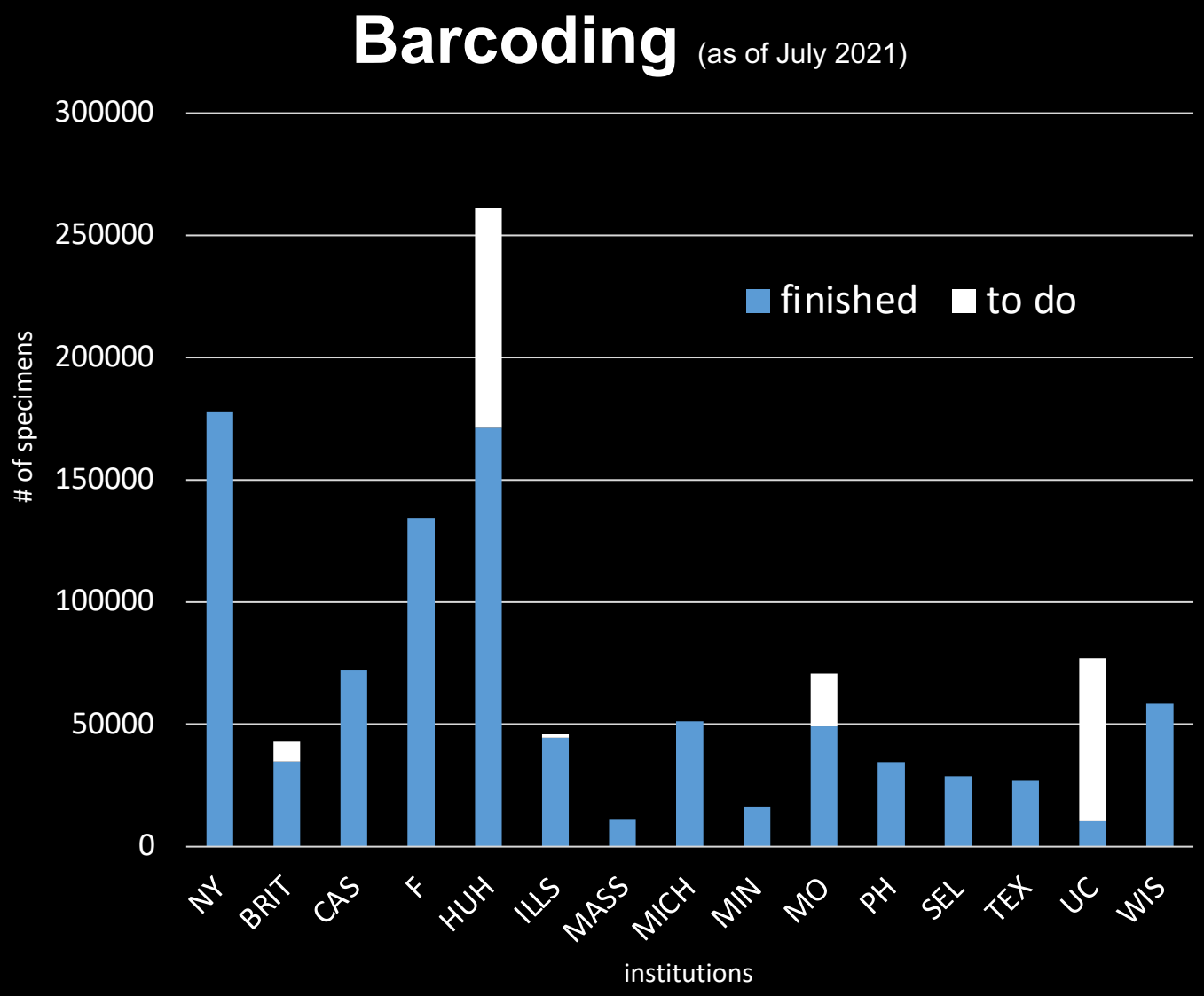
Project Introduction

- Collaborative grant between 15 herbaria, botanical gardens, museums, and universities
- The New York Botanical Garden is the lead institution
- Digitize 2,000,000 herbarium specimens of carnivorous, epiphytic, and succulent plants in 15 families from all global regions
- Focus appreciation on EF plants and the role of collections in conservation in a general audience, especially youth and underrepresented groups

Synopsis of Year Two

- 71% of the promised specimens were fully digitized within the first three years of this project across all institutions
- 8 institutions (53%) over-delivered on barcoded/imaged/digitized specimens, i.e., barcoded or imaged more specimen than promised
- 777 participants in Virtual Herbarium Expeditions, contributing 58,535 full-classifications and assigned an additional 15,911 specimens to country
- COVID-19 related shutdowns significantly disrupted progress; pivot to georeferencing and online transcription

Digitization

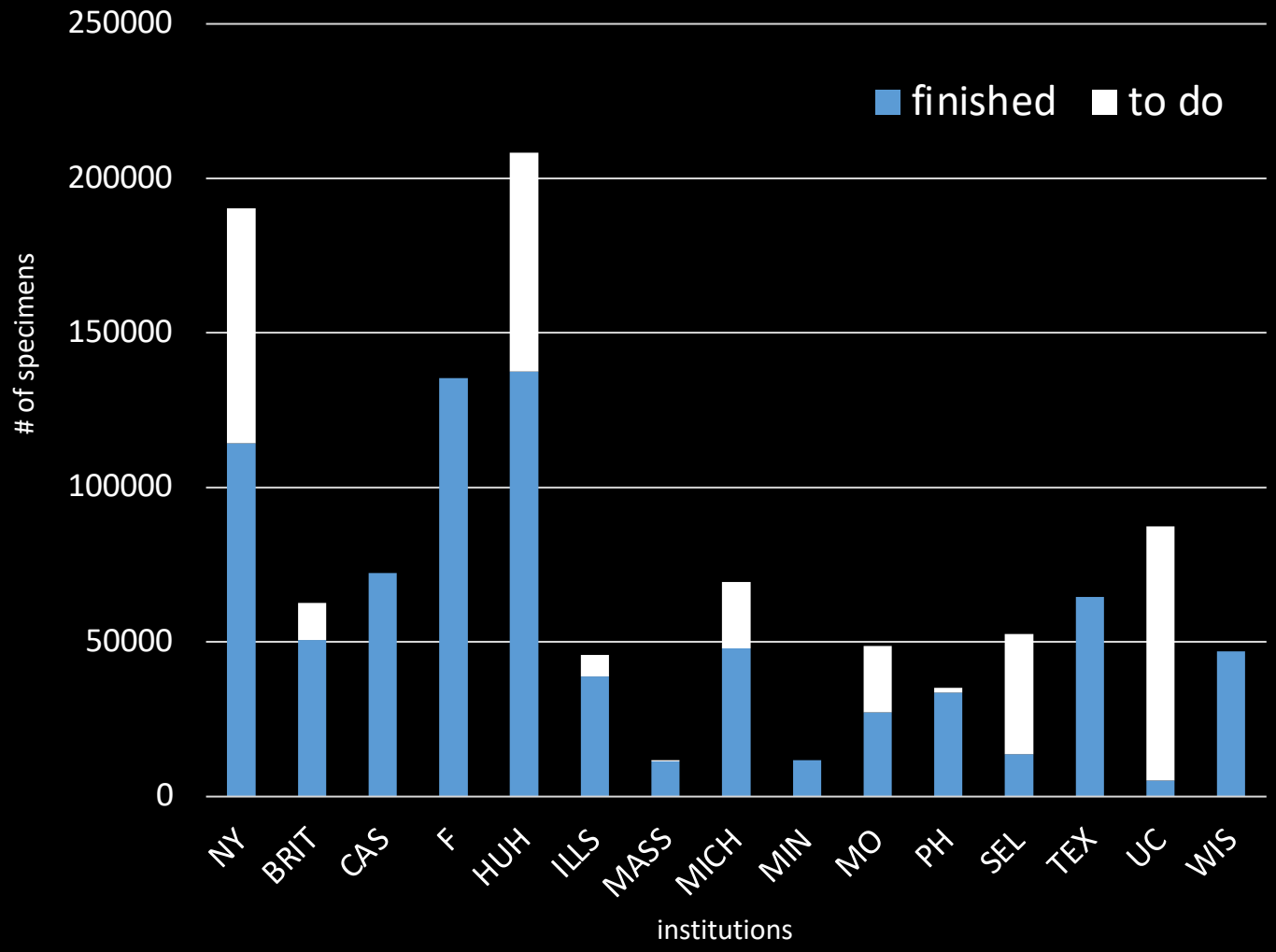


922,273 specimens barcoded (90% of total)

By year 3, ten institutions (47%) have met or surpassed their committed specimen totals

Digitization

Transcription (as of July 2021)



836,735 specimens imaged (71% of total)

Significantly leveraged volunteer & community science partners

Lessons Learned

Workflows matter

-barcoding and imaging should occur in tandem: e.g., as you finish barcoding Family A and start barcoding Family B, start imaging Family A

Transcription

-transcription should happen after imaging

-always transcribe from an image, not the physical specimen

The limits of student interns

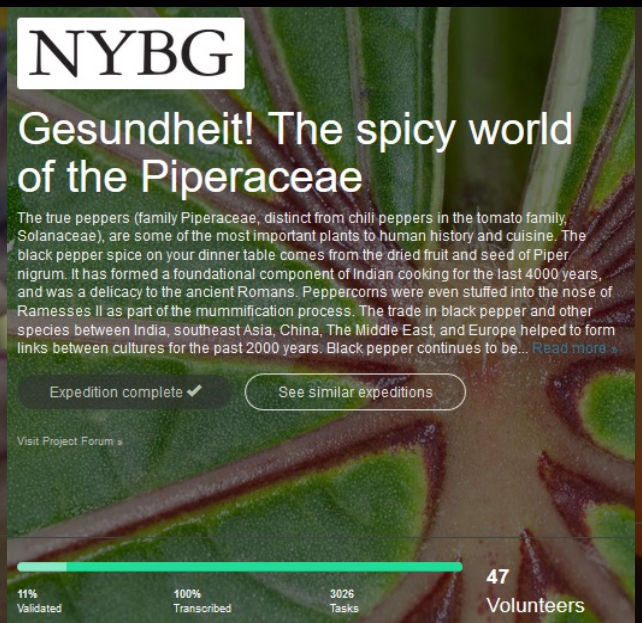
-including student interns is a critical component of TCNs, however they have limits compared to FTEs (such as lead digitizers): e.g., many universities lost months of digitization time, as collections/campuses closed to students earlier than FTEs, due to COVID-19

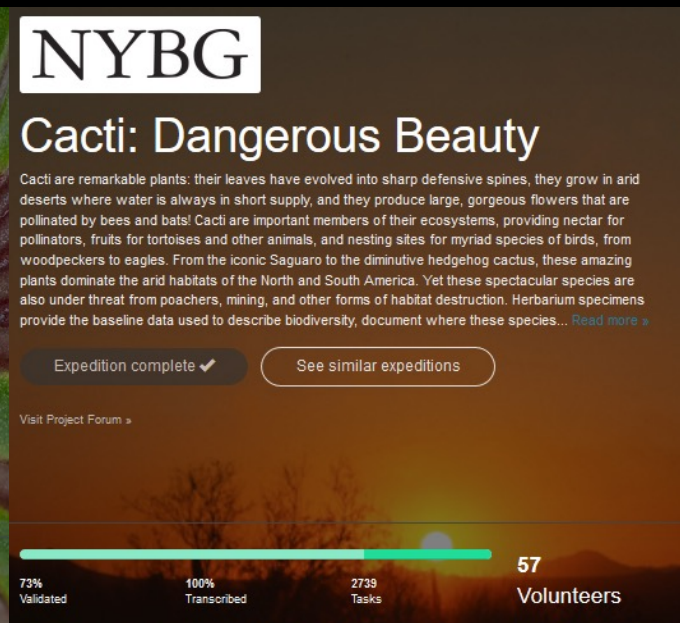
Outreach

Realizing the full potential of DIGIVOL & Notes from Nature

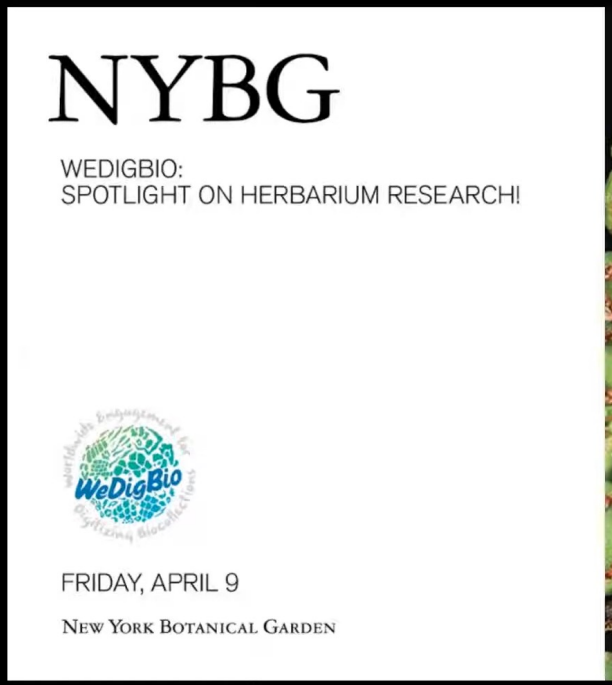
-777 online volunteers / citizen scientists helped transcribe specimen records in FY 2020.

-New volunteer opportunities for institutions to engage previously on-site, in person volunteers, during shutdowns.





Outreach



Joint 2021 NYBG WeDigBio Seminar: Endless Forms and Pteridological Collections Consortium focusing on epiphytes

Bruce Baldwin (UC) taught a virtual Jepson workshop to 100 students, focusing in part on the importance of herbaria

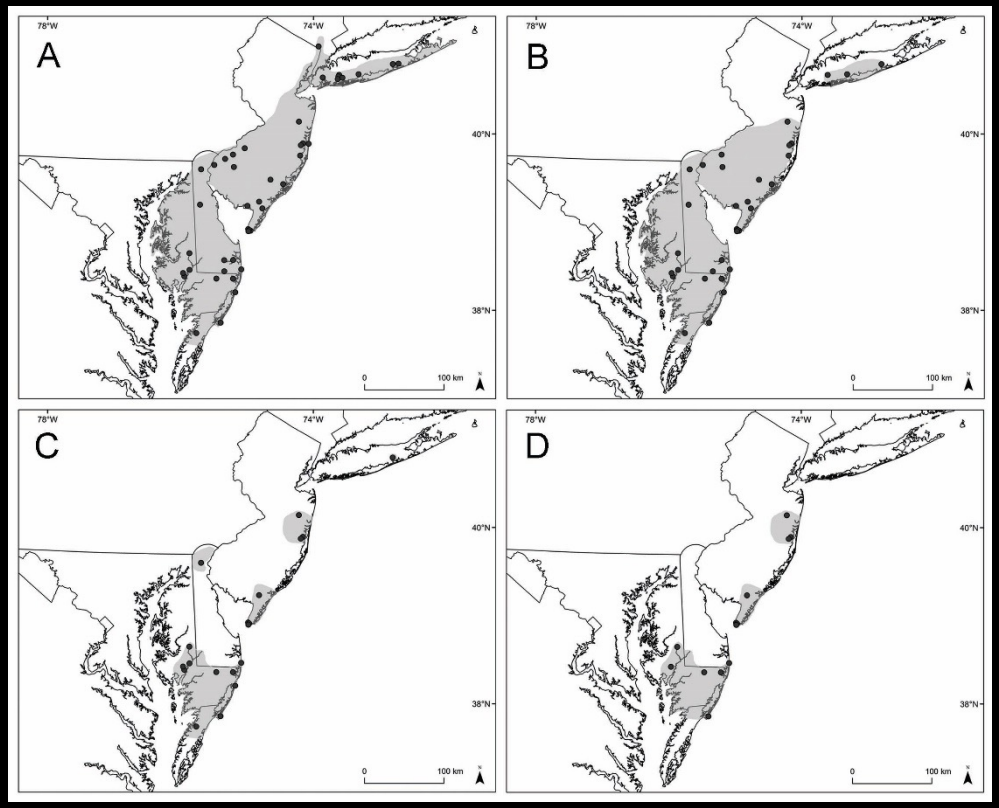
Charlie Zimmerman

Matthew Pace

Alejandra Vasco

Julián Aguirre-Santoro

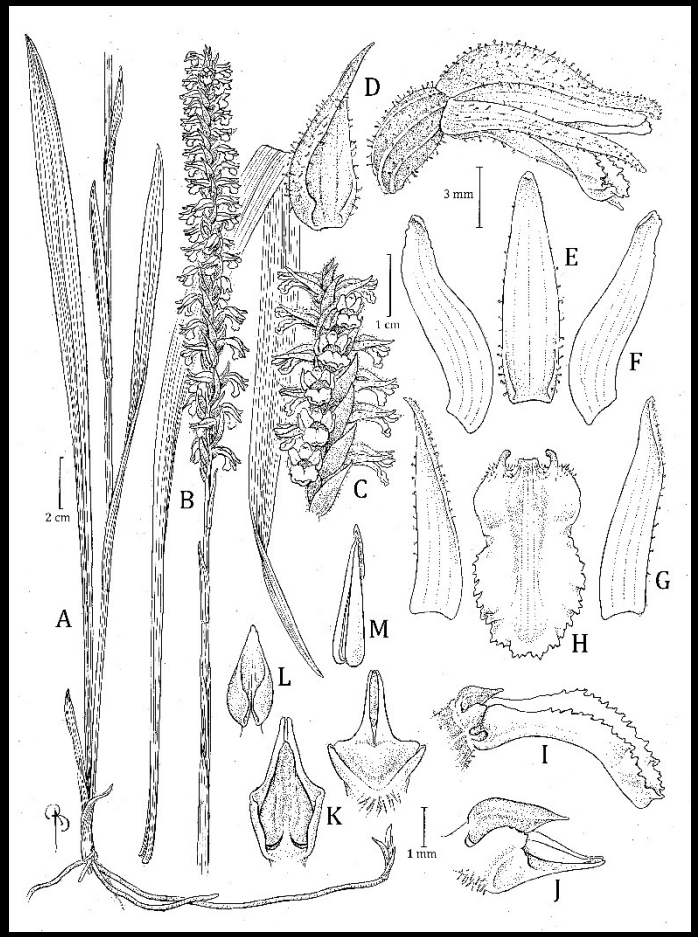
Scientific Output



Spiranthes bightensis was newly described based on specimens digitized in this award.

Herbarium specimens show a population collapse over time.

New species described and science outreach



Thank You!

Thank you & congratulations to Barbara Thiers, Endless Forms co-PI, on her retirement!

The Endless Forms TCN

Thank you!

Kim Watson
Charlie Zimmerman
Lin Li
Elizabeth Rivas

Award #1802034