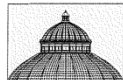


# The Macrofungi Collections Consortium



Barbara M. Thiers & Roy E. Halling,  
Lead P.I.s



THE NEW YORK BOTANICAL GARDEN

# The Macrofungi Collections Consortium

- Consists of 35 institutions in 24 states:
  - Thirty one large and small universities
  - Two botanical gardens
  - Two natural history museums
- Data incorporated from one federal agency





# The Macrofungi Collections Consortium

## Locations of participating institutions



# What are macrofungi?

- Fungi with a macroscopic sporocarp (i.e. conspicuous spore-bearing structures)
- Polyphyletic assemblage
- Examples include mushrooms, boletes, morels, truffles, puffballs, club fungi, stinkhorns, and bracket fungi





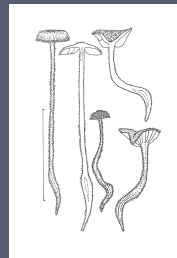
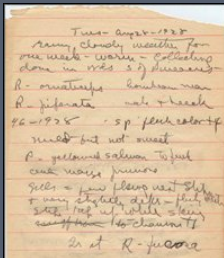
# Why macrofungi?

- Basic taxonomy remains poorly known
- No mycota (i.e. mycoflora) for any region of the U.S., or for the country as a whole
- **Fungal diversity is key to understanding community migration and biogeography**
- **Very little is understood about macrofungal phenology and how climatic changes may affect reproduction**

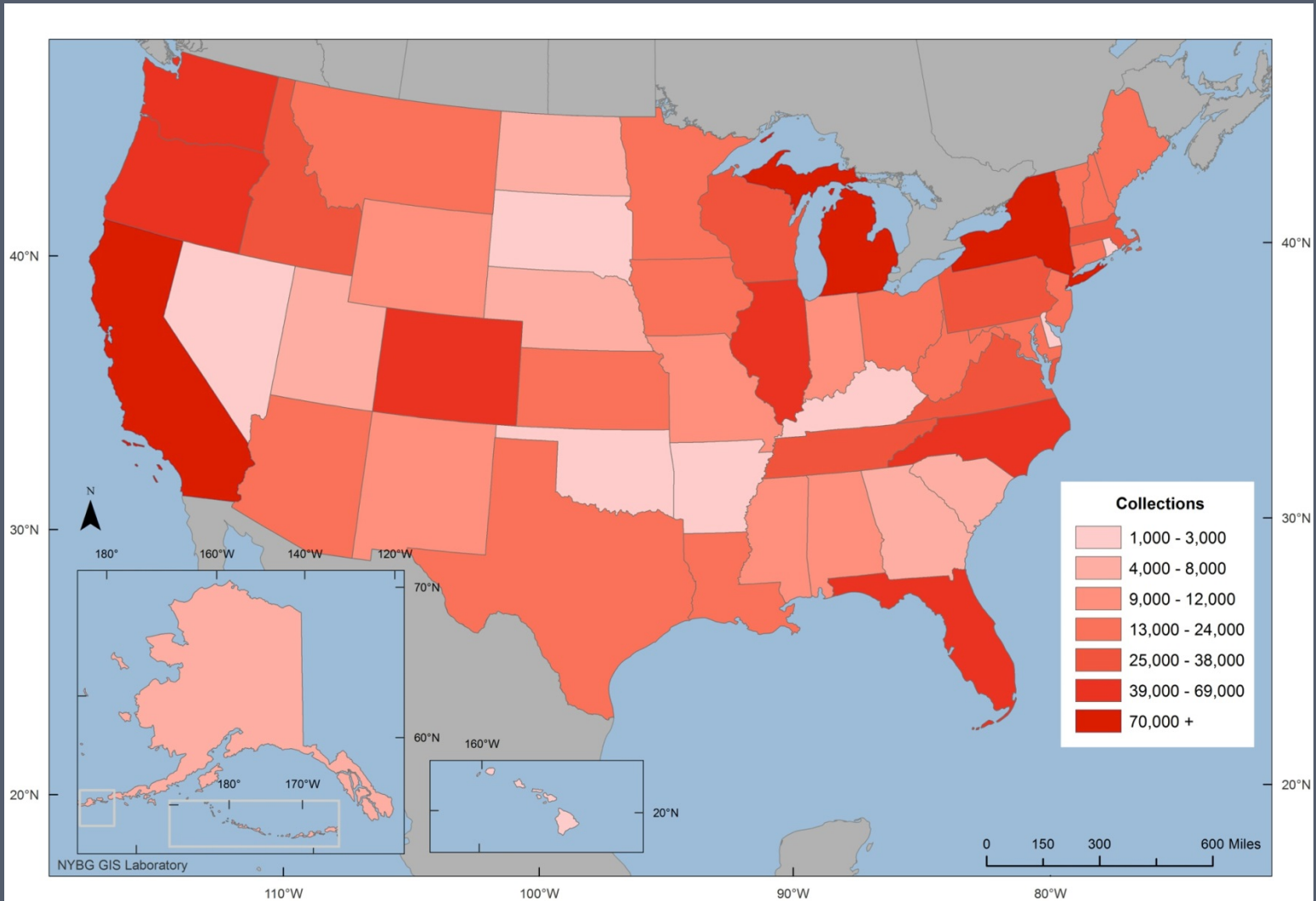
# Accomplishments 2011-2015

## Work Completed:

- Ca. 650K specimen records newly digitized
- Ca. 550K images newly captured
- 1.9 million records in the MycoPortal
- Ca. 300K specimens newly georeferenced



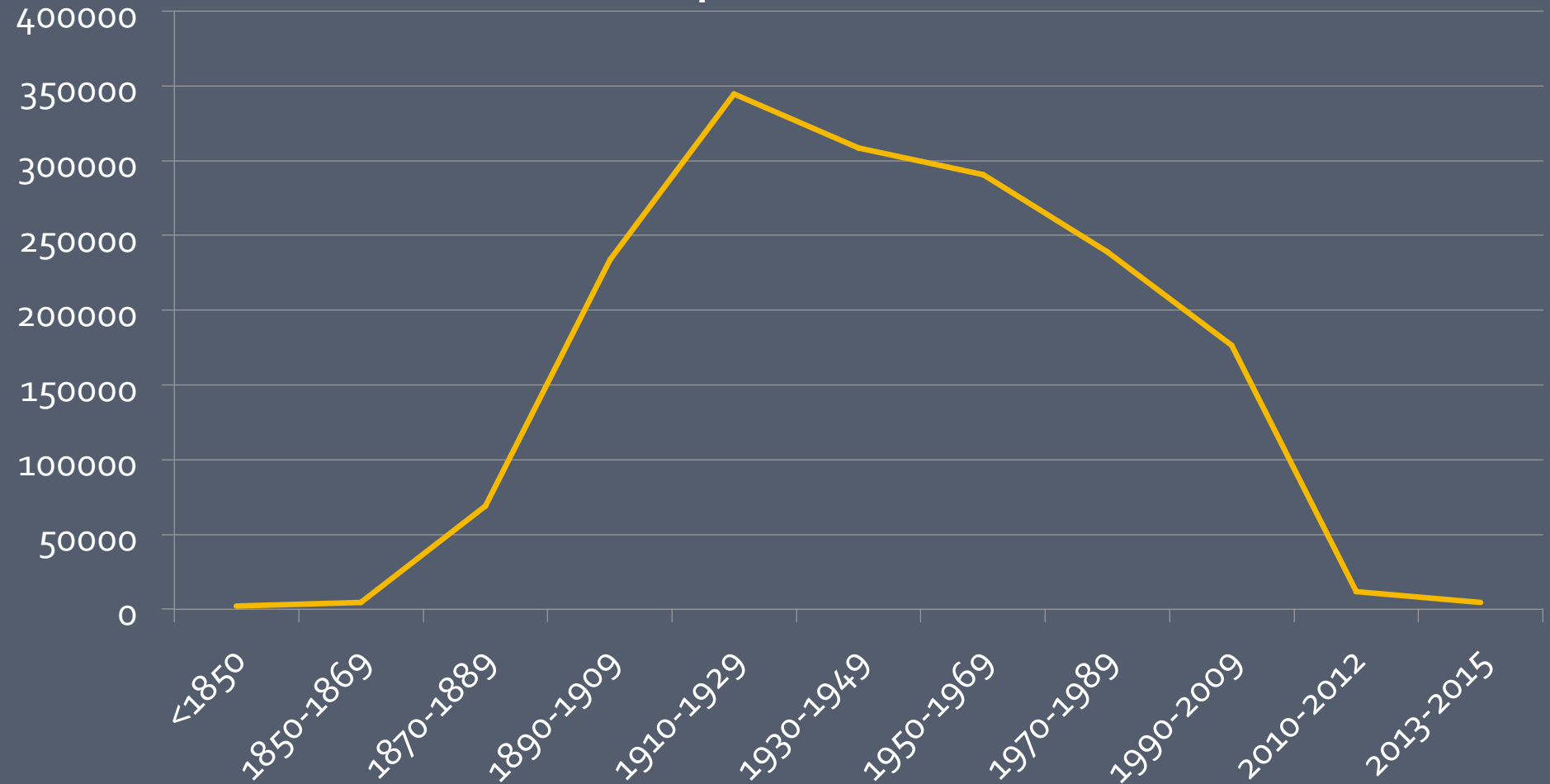
# Gap Analysis: Geographic Coverage





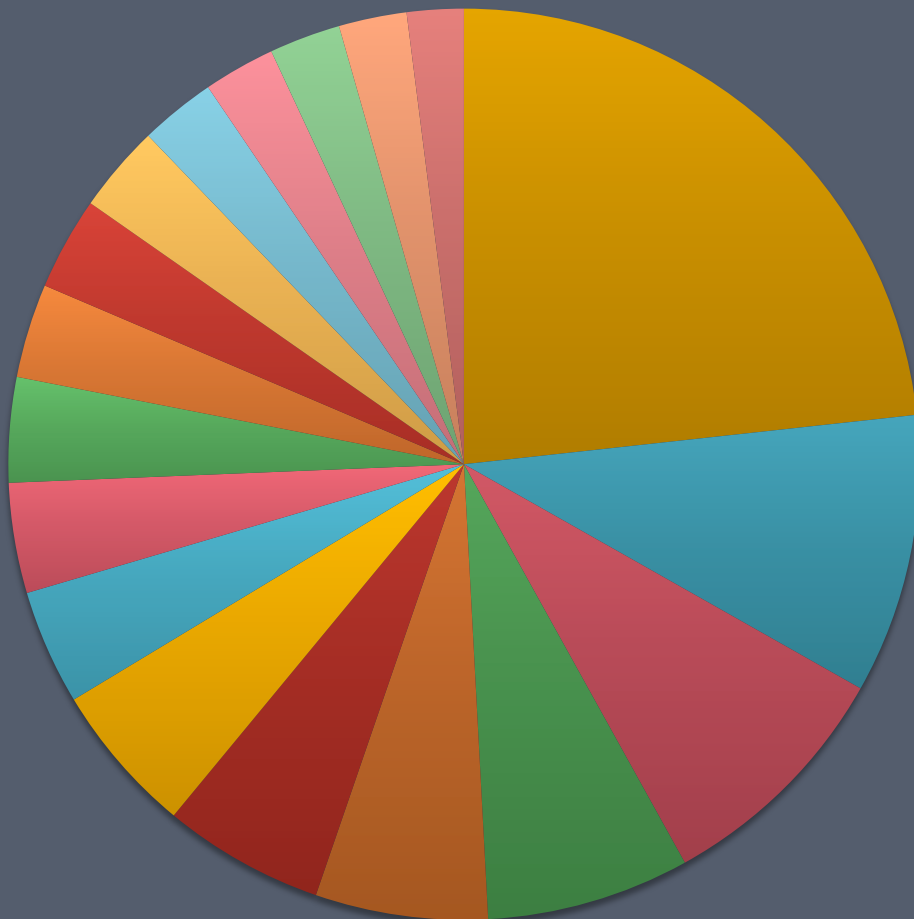
# Gap Analysis: Temporal Coverage

Number of Specimens



# Gap Analysis: Taxonomic coverage

Number of Specimens



- Polyporaceae
- Agaricaceae
- Russulaceae
- Tricholomataceae
- Strophariaceae
- Boletaceae
- Cortinariaceae
- Stereaceae
- Meruliaceae
- Inocybaceae
- Mycenaceae
- Hymenochaetaceae
- Amanitaceae
- Hygrophoraceae
- Entolomataceae
- Corticiaceae
- Fomitopsidaceae



# Enable innovative research on macrofungi

## Hypotheses that can be tested:

- The more we know about macrofungal biodiversity, the more we will understand interrelationships of organisms past and current ecosystems
- Fruiting times of macrofungi will be altered by climate change, and this alteration will have consequences for fungi and associated organisms
- Fungal species of interest or concern for ecosystem and human welfare can be identified and tracked with the aid of herbarium records





# Research Facilitated

- Mycota of North America project (in development)
- aDIV Project: Analyzing the rates of diversification of Agaricales
- Field Guide to Northeastern North American Fungi
- MycoPortal has been cited in at least six articles describing new species or revising existing ones
- Biogeographica/phylogenetic study of the genus *Amanita* in Australia and Southern South America
- Study of potential temporal shifts in basidome production times across North America in the genus *Gyroporus*

# Other Ideas for Research

- Multi-taxa phenological studies
- Ecological niche modelling of both partners in a mycorrhizal relationship
- Invasive species prediction
- Looking for evidence of host shifts as mycorrhizal partner's distribution changes

# Challenges

- Taxonomic impediment
- Organism lifestyle
- Appropriate skill set of investigators