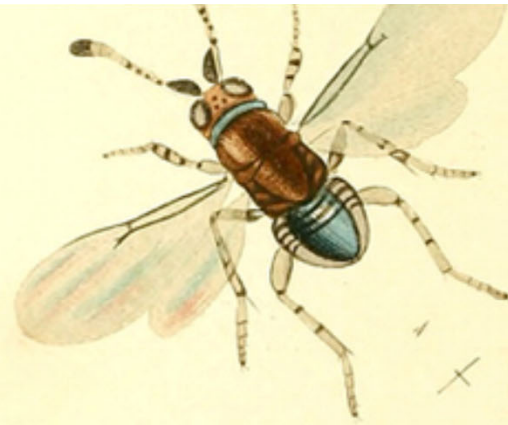# Plants, Herbivores, & Parasitoids:
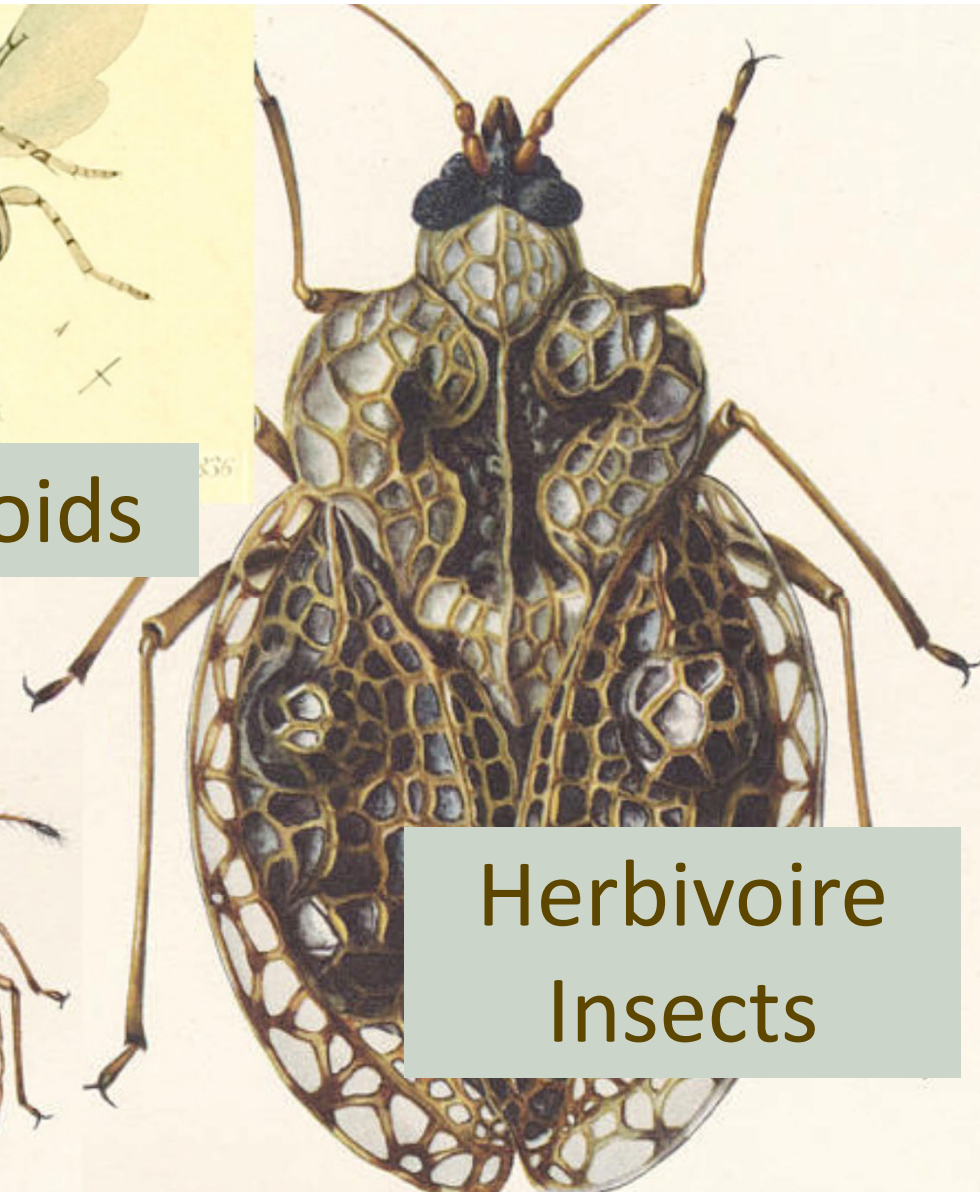**A Model System for the Study of Tri-Trophic Associations**
2011-2015

Lead Institution: **American Museum of Natural History**

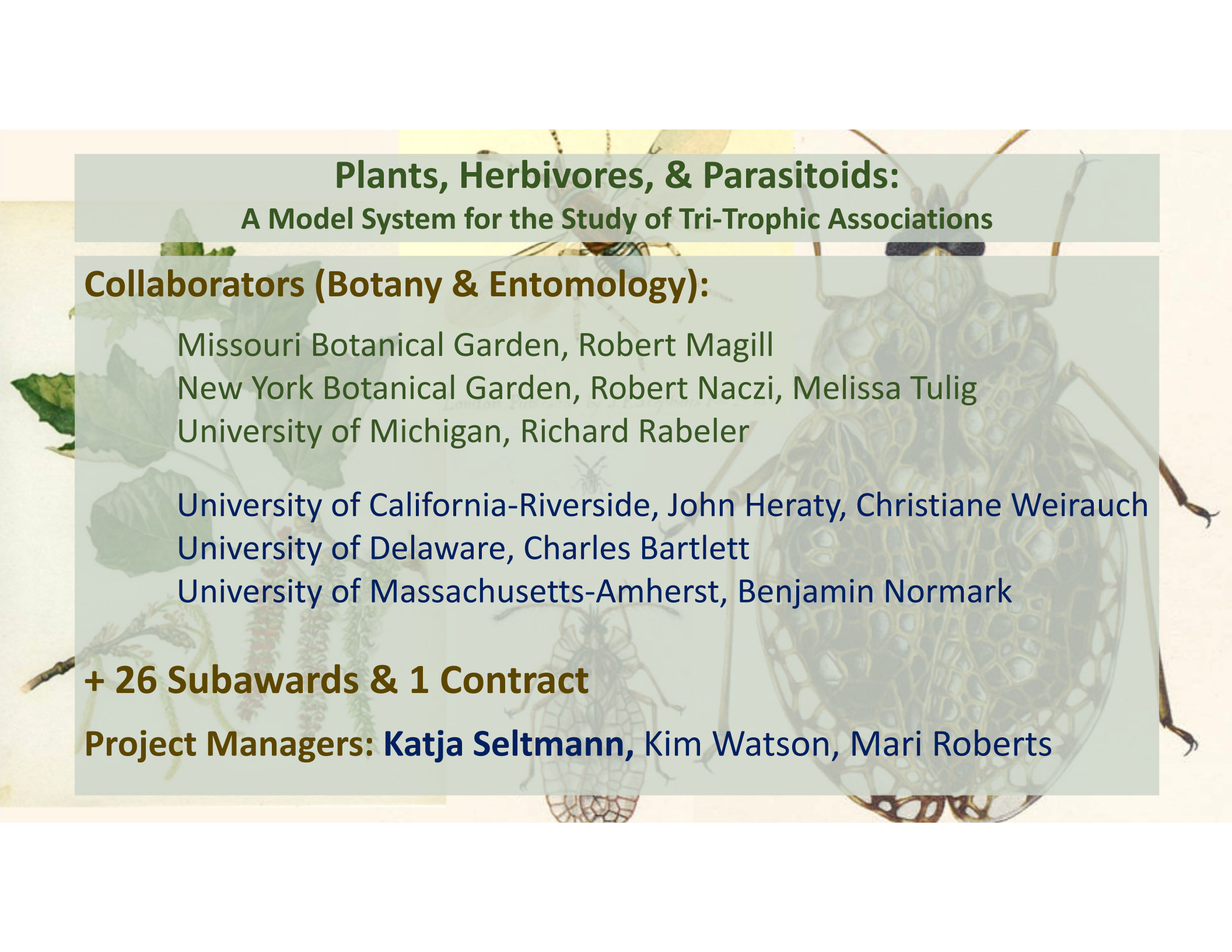Randall T. Schuh (PI) & **Christine Johnson (co-PI)**

Plants

Parasitoids

Herbivoire Insects

Plants, Herbivores, & Parasitoids:
A Model System for the Study of Tri-Trophic Associations

Collaborators (Botany & Entomology):

Missouri Botanical Garden, Robert Magill
New York Botanical Garden, Robert Naczi, Melissa Tulig
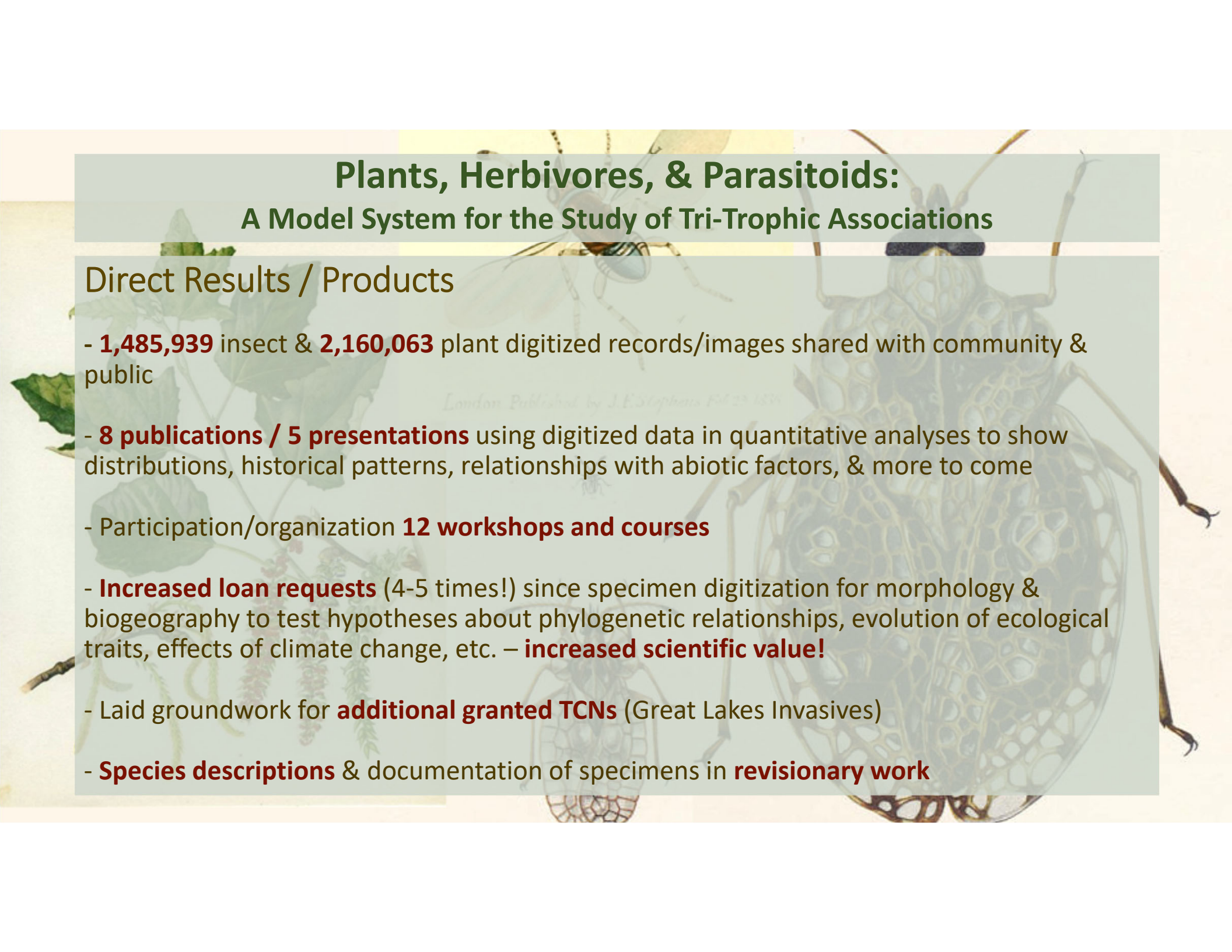University of Michigan, Richard Rabeler

University of California-Riverside, John Heraty, Christiane Weirauch
University of Delaware, Charles Bartlett
University of Massachusetts-Amherst, Benjamin Normark

+ 26 Subawards & 1 Contract

Project Managers: Katja Seltmann, Kim Watson, Mari Roberts

Plants, Herbivores, & Parasitoids:
A Model System for the Study of Tri-Trophic Associations
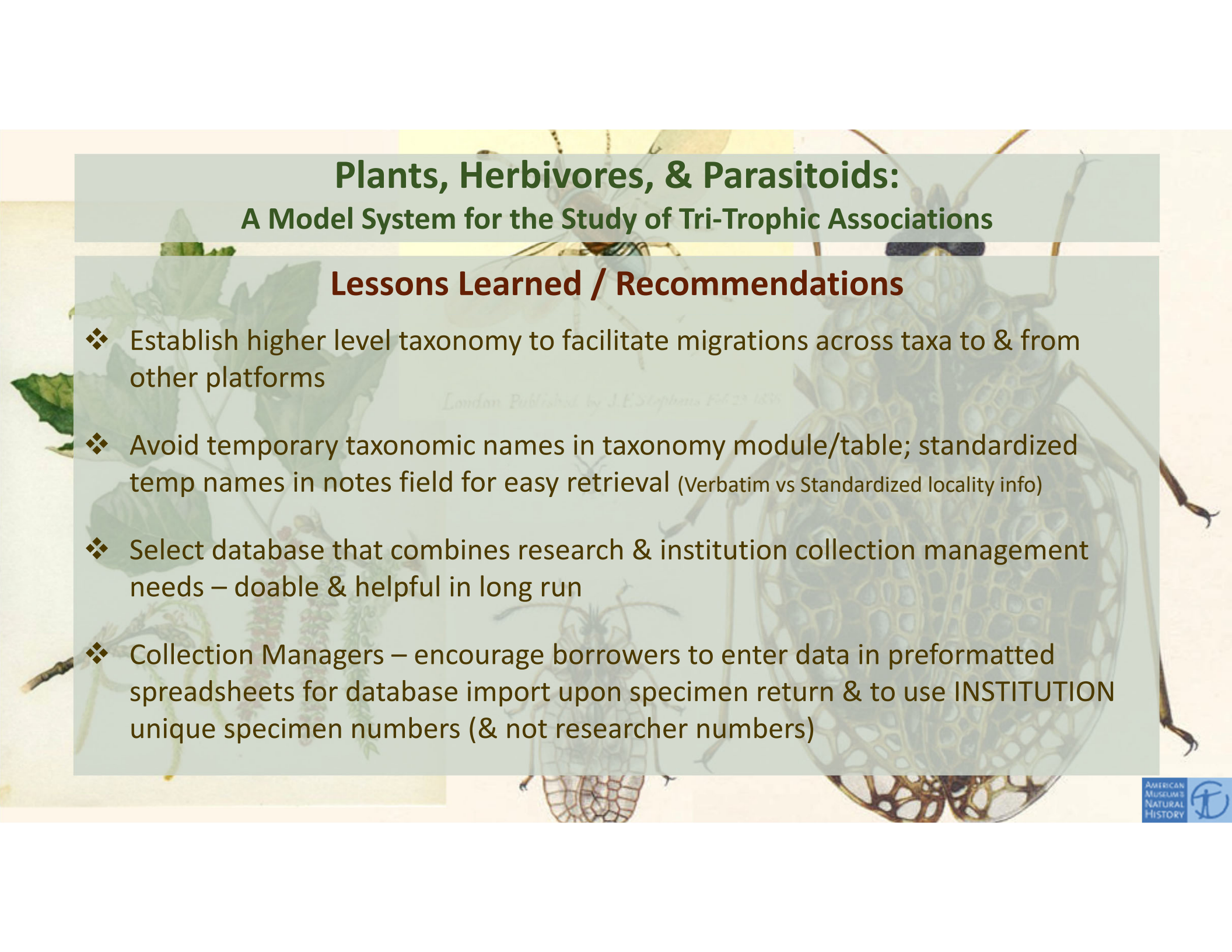
Direct Results / Products

- **1,485,939** insect & **2,160,063** plant digitized records/images shared with community & public

- **8 publications / 5 presentations** using digitized data in quantitative analyses to show distributions, historical patterns, relationships with abiotic factors, & more to come

- Participation/organization **12 workshops and courses**

- **Increased loan requests** (4-5 times!) since specimen digitization for morphology & biogeography to test hypotheses about phylogenetic relationships, evolution of ecological traits, effects of climate change, etc. – **increased scientific value!**

- Laid groundwork for **additional granted TCNs** (Great Lakes Invasives)

- **Species descriptions** & documentation of specimens in **revisionary work**

Plants, Herbivores, & Parasitoids:
A Model System for the Study of Tri-Trophic Associations

Lessons Learned / Recommendations

❖ Work continues after project/funding ends

❖ Balance quantity vs quality data capture & data/specimen curation

❖ Taxonomy cleaning & authority files prior to digitization

❖ Community-wide online annotation tool to distribute expert determinations to collection managers and curators

❖ Insect databasing is still incomplete as a whole (missing data)

Plants, Herbivores, & Parasitoids:
A Model System for the Study of Tri-Trophic Associations

Lessons Learned / Recommendations

❖ Establish higher level taxonomy to facilitate migrations across taxa to & from other platforms

❖ Avoid temporary taxonomic names in taxonomy module/table; standardized temp names in notes field for easy retrieval (Verbatim vs Standardized locality info)

❖ Select database that combines research & institution collection management needs – doable & helpful in long run

❖ Collection Managers – encourage borrowers to enter data in preformatted spreadsheets for database import upon specimen return & to use INSTITUTION unique specimen numbers (& not researcher numbers)

AMERICAN MUSEUM NATURAL HISTORY

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Amalgamation of information via digitized data preserves a snapshot in time of what once was.