Libraries of Life
more to specimens than meets the eye...

Earth-boring Scarab Beetle

Bolbocerastes regalis

augmented reality

bring this image to life: see reverse for details

iDigBio Integrated Digitized Biocollections

Libraries of Life
AR Collection Cards

SCAN Symbiota Collections of Arthropods Network

The Symbiota Collections of Arthropods Network (SCAN) brings together ten diverse arthropod collections at universities and museums throughout the Southwest to create digital data about ground-dwelling arthropods (beetles, grasshoppers, spiders, ants), which are notably sensitive to environmental change. These collections document much of the Southwest's biodiversity, but currently the data associated with millions of arthropod specimens are not easily accessible. To address this SCAN is developing methods for integrating existing databases and producing a virtual library of ground-dwelling arthropods. This comprehensive online library will assist scientists in determining potential impacts of environmental and climate change on arthropods.

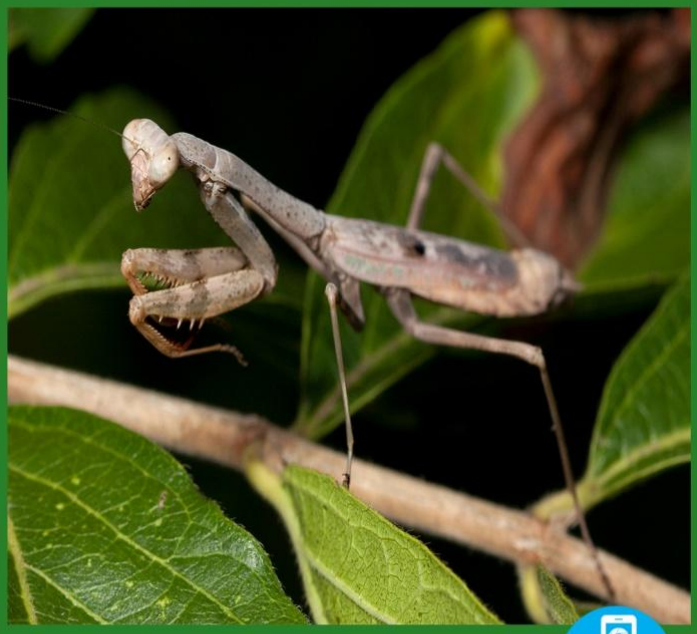
- *Download the Libraries of Life app from the iTunes store and install on your iOS device.*
- *Launch the app.*
- *Hold your mobile device camera about 6 inches away from card image.*
- *View specimen and click buttons to view content.*

bring it to life!

AR

Developed by the ExplorMor Labs at BioKIC (Biodiversity Knowledge Integration Center) Arizona State University in collaboration with the iDigBio ARPEO (Augmented Reality for Public Education/Outreach) Working Group.
Project Leads Anne Basham and Austin Mast with graphic design by Jeremy Spinks.
This material is based upon work supported by the National Science Foundation under Cooperative Agreement EF-111520. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

Libraries of Life
more to specimens than meets the eye...



Carolina Mantis

Stagmomantis carolina

augmented reality

bring this image to life: see reverse for details

iDigBio Integrated Digitized Biocollections

Libraries of Life
AR Collection Cards

Invert · E · Base

InvertEBase: Reaching Back to See the Future: Species-rich Invertebrate Faunas Document Causes and Consequences of Biodiversity Shifts

The rapid biodiversity change in North America has significant effects on essential ecosystems, from impact on soil health and nutrient cycling, to agriculture, forestry and water quality. Exploding populations of invasive species threaten freshwater and terrestrial habitats and potentially impact the natural resources of the nation. InvertEBase is involved in the rapid digitization of around two million specimens and their data from ten arthropod and mollusk collections housed at six major U.S. museums in six states (Il, OH, AL, MI, DE, PA). The digitized data from this project will help scientists understand the distribution of species and their habitats.

- *Download the Libraries of Life app from the iTunes store and install on your iOS device.*
- *Launch the app.*
- *Hold your mobile device camera about 6 inches away from card image.*
- *View specimen and click buttons to view content.*

bring it to life!

AR

Developed by the ExplorMor Labs at BioKIC (Biodiversity Knowledge Integration Center) Arizona State University in collaboration with the iDigBio ARPEO (Augmented Reality for Public Education/Outreach) Working Group.
Project Leads Anne Basham and Austin Mast with graphic design by Jeremy Spinks.
This material is based upon work supported by the National Science Foundation under Cooperative Agreement EF-111520. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

Libraries of Life
more to specimens than meets the eye...

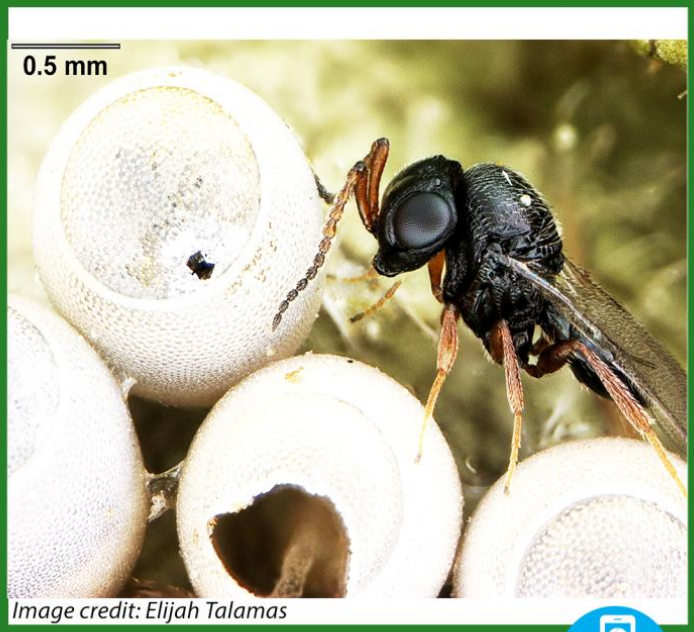


Image credit: Elijah Talamas

Stink Bug Parasitoid

Trissolcus euschisti

augmented reality

bring this image to life: see reverse for details

iDigBio
Integrated Digitized Biocollections

Libraries of Life
AR Collection Cards

Tri-Trophic Thematic Collection Network Collaborative Research: Plants, Herbivores, and Parasitoids: A Model System for the study of Tri-Trophic Associations

This databasing and imaging project focuses on a major herbivorous insect group called the Hemiptera (aphids, scales, hoppers, cicadas, and true bugs), their host plants, and their parasitoids. Hemiptera is represented in North America north of Mexico by more than 11,000 species. Many are agricultural pests with specialized sap-sucking habits, making them effective vectors of plant disease and of economic importance. The project is building a cross-cutting network to integrate information from 15 botanical and 19 entomological collections that will promote studies of climate change and a greater understanding of the relationships among the three trophic levels—plant, herbivore, and parasitoid.

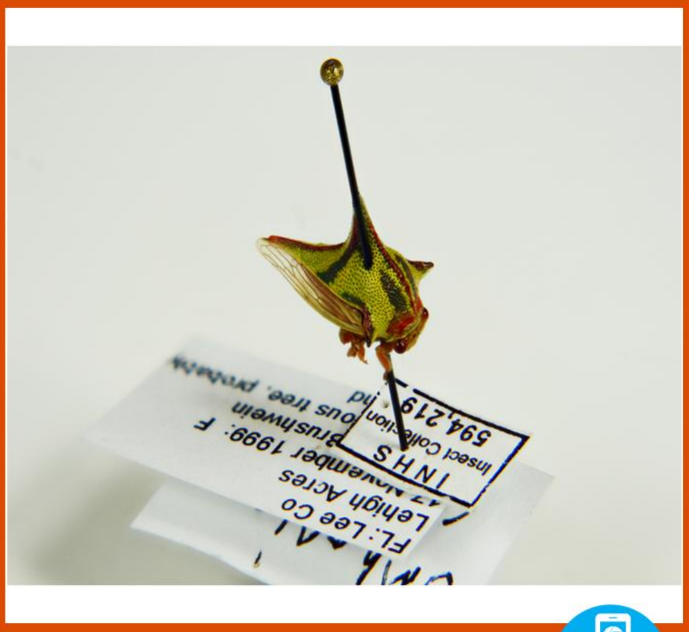
- *Download the Libraries of Life app from the iTunes store and install on your iOS device.*
- *Launch the app.*
- *Hold your mobile device camera about 6 inches away from card image.*
- *View specimen and click buttons to view content.*

bring it to life!

AR

Developed by the Biota Learning Labs at BioKIC (Biodiversity Knowledge Integration Center) Arizona State University in collaboration with the iDigBio ARPO (Augmented Reality for Public Outreach) Working Group.
Project Leads Anne Basham and Austin Mast with graphic design by Jeremy Spinks.
This material is based upon work supported by the National Science Foundation under Cooperative Agreement EF-111520. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

Libraries of Life
more to specimens than meets the eye...



augmented reality

Thorn Bug

Umbonia crassicornis

bring this image to life: see reverse for details

iDigBio Integrated Digitized Biocollections

Libraries of Life
AR Collection Cards

InvertNet

Advancing Digitization of Biological Collections

Arthropods (insects, spiders, crabs) are the most diverse and abundant group of macro-organisms in biological collections, but are underrepresented in databases accessible online or elsewhere. InvertNET is involved in compiling information from 160 years of North American arthropod collections and implementing the use of innovative technology like optical 3-D imaging and reconstruction. These efforts will support scientific inquiry on the effects of land use change on biodiversity and research on species discovery and identification.

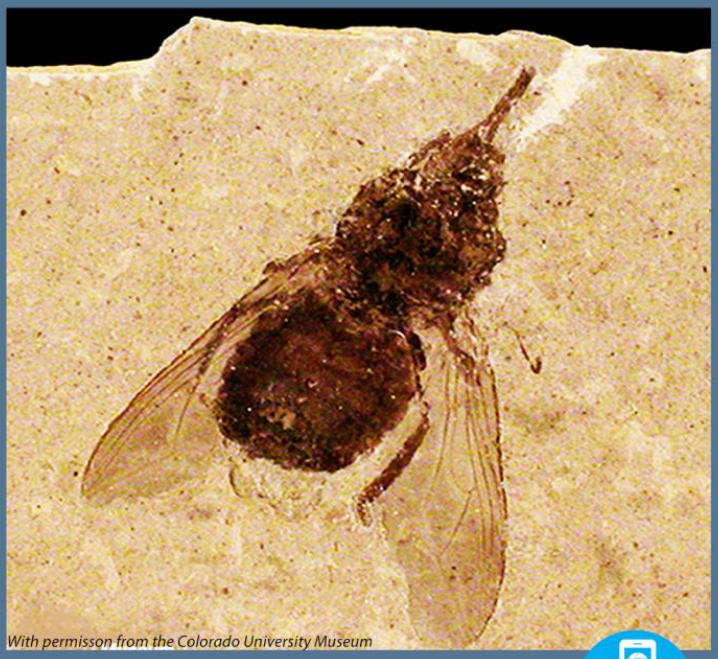
bring it to life!

AR

- *Download the Libraries of Life app from the iTunes store and install on your iOS device.*
- *Launch the app.*
- *Hold your mobile device camera about 6 inches away from card image.*
- *View specimen and click buttons to view content.*

Developed by the Biota Learning Labs at BioKIC (Biodiversity Knowledge Integration Center) Arizona State University in collaboration with the iDigBio ARPO (Augmented Reality for Public Outreach) Working Group.
Project Leads Anne Basham and Austin Mast with graphic design by Jeremy Spinks.
This material is based upon work supported by the National Science Foundation under Cooperative Agreement EF-111520. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

Libraries of Life
more to specimens than meets the eye...



With permisson from the Colorado University Museum

Tsetse Fly

Glossinidae

augmented reality

bring this image to life: see reverse for details

iDigBio Integrated Digitized Biocollections

Libraries of Life
AR Collection Cards

Fossil insect COLLABORATIVE

Fossil insects provide a unique record of ecological and evolutionary response to past environmental changes and are invaluable for understanding the impacts of climate change on the current biodiversity crisis. Given current models of future climate change and the important role that insects play in human society (biodiversity, pests, pollination, vectors of disease), the ability to access these data and make predictions about future insect populations has become even more urgent. The Fossil Insect Collaborative will make available all the major collections of fossil insect specimens in the United States by creating electronic specimen records consisting of digital images and associated collection data.

bring it to life!

AR

- *Download the Libraries of Life app from the iTunes store and install on your iOS device.*
- *Launch the app.*
- *Hold your mobile device camera about 6 inches away from card image.*
- *View specimen and click buttons to view content.*

Developed by the ExplorMor Labs at BioKIC (Biodiversity Knowledge Integration Center) Arizona State University in collaboration with the iDigBio ARPEO (Augmented Reality for Public Education/Outreach) Working Group.
Project Leads Anne Basham and Austin Mast with graphic design by Jeremy Spinks.
This material is based upon work supported by the National Science Foundation under Cooperative Agreement EF-111520. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.