



**FLORIDA MUSEUM
OF NATURAL HISTORY**
annual report 2012-2013

A message from the Director

I hope you visited the Florida Museum of Natural History within the past year. If so, you saw firsthand the dramatic improvements occurring in our Central Gallery, soon to be renamed the "Charles and Wanda Denny Central Gallery" in honor of our longtime supporters whose generous lead gift made possible the redesign of this prominent space.

You also may have learned about our exciting plan to create a permanent Discovery Room designed for our youngest Museum visitors. As of this writing we are heavily engaged in the design phase of this project while hoping to raise additional funds to begin construction after plans are finalized.

Among other noteworthy happenings at the Florida Museum this past year, I'd like to highlight one of special significance. In January the Museum presented its prestigious Archie F. Carr Medal to Dr. Nalini Nadkarni of the University of Utah. Dr. Nadkarni represents the ninth Carr Medalist recognized by the Museum.

Museum faculty and staff published more than 170 scientific and technical articles — a record for our institution. We also managed more than \$32 million in external grant support (including multi-year awards) for research and collection activities. Both of these observations speak to the exceptional productivity of our outstanding Museum staff.



University of Utah Biology Professor Nalini Nadkarni, pictured with Museum Director Doug Jones and UF President Bernie Machen, received the 2013 Archie F. Carr Medal Award. Photo by Jeff Gage.

Top: Museum Director Douglas S. Jones.
Photo by Kristen Grace.

Annual attendance reversed a five-year downward trend, rebounding sharply to pre-recession levels. We attribute this turnaround to blockbuster exhibits such as *Titanoboa: Monster Snake*, featuring a life-size model of the largest snake that ever lived, as well as increased visitation to the popular Butterfly Rainforest exhibit. Perhaps the most timely exhibition we hosted was the double-header collaboration with artists/authors John Moran, Lesley Gamble and Rick Kilby — *Springs Eternal: Florida's Fragile Fountains of Youth* and *Finding the Fountain of Youth: Discovering Florida's Magical Waters*. Both of these exhibits facilitated a statewide dialogue about the precarious nature of Florida's precious water systems. They helped push the Museum's role beyond traditional interpretation of nature and culture to one of advocacy for clean water and environmental responsibility.

If you didn't visit us last year, don't make that mistake again. Come experience the vibrant Florida Museum of Natural History!

Sincerely,

Douglas S. Jones, Director



FY 2012–2013 Impact by the numbers

The Florida Museum of Natural History inspires people to value the biological richness and cultural heritage of our diverse world and make a positive difference in its future.



MUSEUM FACULTY TEACHING

- 50+** Courses taught
- 100** Graduate committees chaired
- 124** Graduate committees served
- 90** Independent studies



COLLECTIONS AND RESEARCH

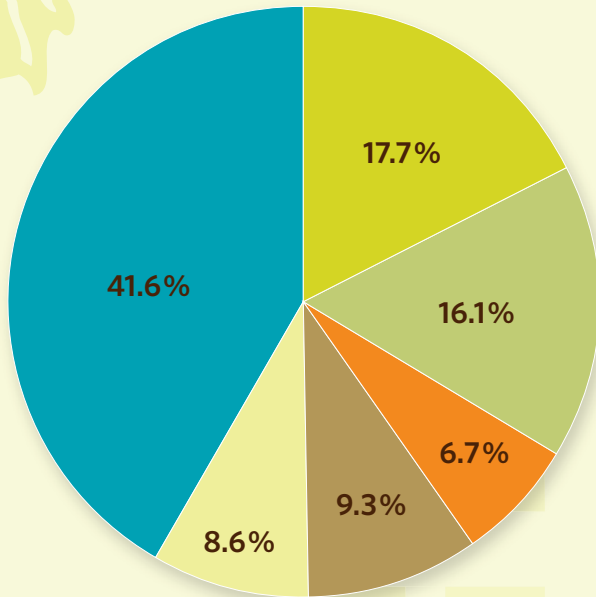
- 176** Peer-reviewed scientific publications
- 328** Collection loans of **15,899** specimens to other institutions
- 40+** Million total specimens
- 58** New and continuing grants and contracts worth more than **\$3.26** million



ATTENDANCE AND OUTREACH

- | | |
|--|--|
| 191,227 Annual visitation | 17.8 Million web page views |
| 14,190 School program participants | 3.3 Million web page visits |
| 2,713 K-6 camps & classes participants | 308,074 Database queries |
| 129 Teacher workshops attendees | 229,908  Pinterest followers |
| 17,711 Public programs attendees | 8,320  Facebook fans |
| 30,792 Hours donated by 524 volunteers | 3,115  Twitter followers |
| 3,693 News articles published,
potential viewership of 3.66 billion | 246  followers |

FY 2012–2013 Financials

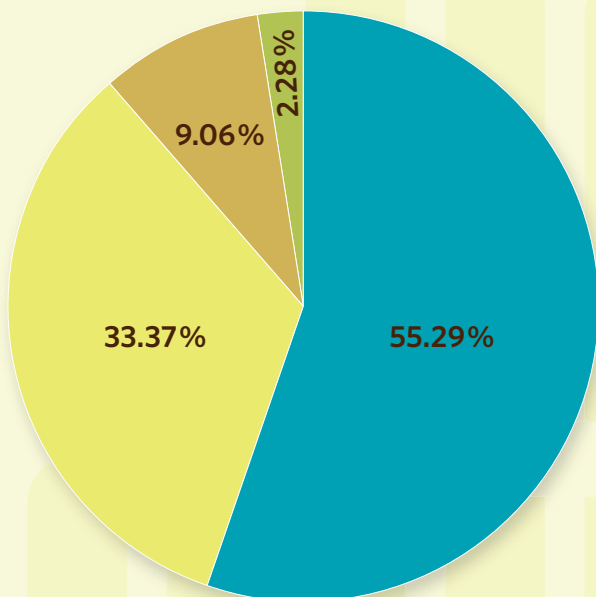


REVENUE

Gifts	\$ 3.57 million
Grants and contracts	\$ 3.26 million
Other UF income	\$ 1.35 million
Private program support	\$ 1.88 million
Earned income	\$ 1.74 million
UF/State allocation	\$ 8.40 million

TOTAL REVENUE

\$ 20.20 million



EXPENDITURES

Salaries and benefits	\$11.17 million
Operating	\$ 6.74 million
Overhead/other fees	\$ 1.83 million
Transfers for future programming	\$0.46 million

TOTAL EXPENDITURES

\$ 20.20 million

OTHER ASSETS

Endowments	\$ 18.29 million
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Collections and Research

Giant snakes — both ancient and modern — garnered extraordinary attention this year. With the opening of the *Titanoboa* exhibit, visitors were introduced to the Museum's ongoing paleontological research in Colombia, excavations that revealed not only the largest ancient snake but the biodiversity of the ecosystem it inhabited. These efforts recently yielded fossils of other species that are new to science including giant turtles, crocodilians and hippo-like mammals. Large snakes are part of our modern Florida environment as well, where the southern portion of the state is now home to invasive species that include the Burmese python. Museum scientists continue to study these apex predators to understand their impact on the state's indigenous species and habitats. This year, analysis of a record 17-foot-7-inch female python carrying 87 eggs underscored the fact that this species is long-lived and well-established in the state.

These two research projects illustrate the breadth and vitality of the Museum's scientific research programs. While managing and growing collections that number more than 40 million specimens and artifacts, Museum curators also chaired or served on 224 graduate committees, published more than 170 peer-reviewed journal articles, and taught 55 courses for UF students. Field work took scientists and students to every county in Florida, 14 other U.S. states and 30 countries worldwide. From studies of the ancient biodiversity of Panama to the discovery of new butterfly and moth species in Africa and Jamaica, Florida Museum research spans the globe and deepens our understanding of life on Earth.



Top: Florida Archaeology Assistant Curator Neil Wallis displays examples of stamped pottery from the collections. Photo by Kristen Grace. **Center:** Herpetology Division collection assistants Becky Reichart and Nicholas Coutu perform a necropsy on a 17-foot-7-inch Burmese python. Photo by Kristen Grace. **Bottom:** Vertebrate Paleontology Research Assistant Aldo Rincon examines the jaw of a new camel species discovered in Panama. Photo by Jeff Gage.



Top: Ornithology Curator David Steadman displays bird specimens in the collections at Dickinson Hall. Photo by Kristen Grace. **Center:** This Caribbean Saladoid pot from Guadeloupe was made in the early period of the Ceramic Age, circa 200 B.C. Photo courtesy of Bullen Research Library, Florida Museum archives. **Bottom:** Mammalogy doctoral candidate Bret Boyd removes ectoparasite DNA specimens from the department freezer. Photo by Kristen Grace.

Select research and collections highlights include:

- The discovery of 41 new moth species in Africa by Museum lepidopterists.
- Museum scientists co-authored the latest edition of the universal reference for fish names in North America.
- Publication of worldwide shark attack statistics through the Museum's International Shark Attack File, noting a marked increase in attacks in the U.S.
- Discovery of ancient placental mammals that revised understanding of diversification of mammals, including humans.
- Discovery of an ancient species of white shark, *Carcharodon hubbelli*, which reveals that the modern great white is descended from mako sharks rather than *Megalodon*.
- Museum archaeologists and exhibit designers collaborated in the development of a new exhibit, "First Colony: Our Spanish Origins," to mark the 500th anniversary of the arrival of the Spanish in La Florida. The exhibit will open in October 2013 in Government House, St. Augustine.
- Museum scientists co-authored a proposal to create a national, cooperative marine biodiversity observation network to monitor trends in ecosystem health and the distribution and abundance of oceanic life.

In the coming year the Natural History Department expects to hire at least two new faculty in association with UF's goal of preeminence. These curators will be eminent scholars in their field, allowing the department to continue the unprecedented success it achieved this year.

ANTHROPOLOGY AND ARCHAEOLOGY

Caribbean Archaeology

Curator Bill Keegan was on sabbatical completing a book that redefines Caribbean archaeology. He conducted fieldwork in Dominica, West Indies. With co-editors Corinne L. Hofman and Reniel Rodriguez Ramos, Keegan published the Oxford Handbook of Caribbean Archaeology, Oxford University Press.

Keegan held the following offices and editorships:

- Editor, Journal of Caribbean Archaeology.
- Editorial Board, Journal of Island and Coastal Archaeology.
- Editorial Board, Bullen Series, University Press of Florida.
- Scientific Advisory Committee, Bahamas National Trust.
- Advisor to the Antiquities, Monuments and Museums Corporation, Bahamas.

Environmental Archaeology

Associate Curator Kitty Emery continued work on several publications and osteological, isotopic and a DNA analysis of Mesoamerican turkeys in the Environmental Archaeology collections, as well as study of Preclassic animal politics and Postclassic Coastal Maya animal use. She also was awarded a new grant from the National Science Foundation on the classic Maya political dynamics at Motul de San Jose, Guatemala. Emery conducted fieldwork in Ontario, Canada.

Emery's field research collaborations included:

- Motul de San Jose Ancient Environmental Economics.
- Sierra Lacandon, Golden/Scherer Ceibal, Inomata/Triadan San Pedro/Marco Gonzalez, Simmons/Graham La Venta, Pohl San Bartolo/Xultun, Saturno Actuncan, LeCount Holmul, Estrada-Belli.

Emery held the following offices and editorships:

- Elected Member, Advisory Board Archaeoinformatics (now Digital Antiquity).
- Elected Board Member, Society for Ethnobiology (2009-2012).
- Editorial Board, Journal of Ethnobiology (since 2006).

Major curatorial activities included:

- Acquisition and inventory/curation of large Cuello collection, Belize.
- Scanning and digitization of comparative collection records and Wing archives.
- Completion of cataloging and preparation of Maya skeletal image database and addition of a Maya invertebrate digital collection (ongoing).
- Upgrade of the Environmental Archaeology website.
- Upgrade and cataloging of St. Catherines Island archaeobotanical collections, cataloging of St. Catherines Island zooarchaeological materials (ongoing).
- A total of 17 international and U.S. visitors used the collections.



This Seminole clothing artifact was photographed in the Museum's South Florida ethnographic collection. Photo by Kristen Grace.

Top: This Puebla Blue-on-White plate from the Museum's archaeology collections was loaned to The Cummer Museum of Art and Gardens in Jacksonville, Fla., for an exhibition. Photo by Jeff Gage.



Florida Archaeology

Curator Bill Marquardt and South Florida Archaeology and Ethnography Collections Manager Karen Walker published a new book "The Archeology of Pineland." Marquardt served as director of the Randell Research Center, published new excavations on Useppa Island and conducted laboratory analysis of Mound Key collections in preparation for May 2013 fieldwork on Mound Key, Lee County, Fla. He also conducted fieldwork on Useppa Island in Lee County. Working with Museum technology staff, Marquardt revised and updated the Florida Museum's South Florida Archaeology and Ethnography website: www.flmnh.ufl.edu/sflarch.

Marquardt presented several public lectures:

- Randell Research Center, Pineland, Fla., Parlor Chat, "Pineland in the Late Nineteenth and Early Twentieth Centuries."
- Randell Research Center, "Ancient Florida Architecture."
- Marco Island Historical Society, Marco Island, Fla., "Juan Ponce de León and the Calusa Indians: 500 Years Ago in Southwest Florida," for the symposium "New World, Lost World," sponsored by Viva-Florida 500.

The division received one major (Blueberry Site, Highlands County) and several smaller archaeological collections from South Florida, as well as the rare and unusual Padgett Figurine, an exquisitely carved aboriginal South Florida wooden sculpture. Other gifts included two major Seminole/Miccosukee collections including bandolier bags, baskets, beadwork, dolls, moccasins, rattles, silverwork, tools, woodcrafts and patchwork clothing. The Florida Museum now ranks fourth worldwide in the number of individual Seminole or Miccosukee object records. Marquardt consulted on image selection for the Museum's Central Gallery renovation and with Walker on the exhibit component "Florida's First Gardens," in the "Peanuts...Naturally" exhibit. With Randell Center staff, Marquardt coordinated Calusa Heritage Day.

Marquardt held the following offices and editorships:

- Member, Editorial Advisory Board, New Frontiers in Historical Ecology, Left Coast Books.
- Member, Editorial Advisory Board, Ripley P. Bullen Monographs in Archaeology, University Press of Florida.

Walker conducted excavations at Pineland's Citrus Ridge, including study of the ca. A.D. 300 hurricane; excavations at Useppa Island's Southern Ridge - Archaic Period; remote sensing at the Pineland Site Complex; excavations at Pineland's Brown's Complex Mound 5, A.D. 500-750 and additional fieldwork at the Crystal River Archaeological Site and Big Cypress Seminole Reservation. Walker continued to curate the backlog of South Florida archaeological collections and their associated records as well as newly generated collections (the most recent being from excavations on Useppa Island). She consulted on the Useppa's Historic Barron Collier Golf Course Institution, Useppa Island Historical Society exhibit.

Assistant Curator **Neill Wallis** continued work on the National Science Foundation- and Wenner-Gren Foundation-funded project, "Middle Woodland exchange and mobility patterns as revealed in pottery from sites across Florida and Georgia," as well as conducting isotope analyses of Woodland period bioarchaeology to aid in reconstructing diet, kinship and social organization. Publications in process include "The Archaeology of Ancient Florida," World Archaeology series, Cambridge University Press. He conducted fieldwork in Alachua, Columbia, Dixie and Levy counties, Florida.

Wallis presented the following lectures:

- "Ancient Regional Networks of North Florida. First Floridians, First Americans Conference," sponsored by Monticello Main Street Florida Inc. and Jefferson County Historical Association, Monticello, Fla.
- "The Archaeology of Travelers, Feasts and Coalescent Communities: Recent Research in North Florida." Archaeology Month Presentation at Powell Hall, Florida Museum of Natural History.

Other major curatorial initiatives included inventory and upgrading of the large bioarchaeological collection from Fort Center and completion of the digital image galleries for the Bullen Point Collection and Florida Pottery Type Collection.

In addition to publishing several papers and book chapters, Senior Biological Scientist **Ann Cordell** started or completed investigations of pottery and clay samples from archaeological sites in the following Florida counties: Brevard, Columbia, Dixie, Duval, Franklin, Gadsden, Gulf, Hamilton, Highlands, Hillsborough, Jackson, Jefferson, Leon, Levy, Liberty, Manatee, Marion, Okaloosa, Pinellas, St. Lucie, Suwannee, Wakulla; and Early County, Ga.

Latin American Archaeology

Curator **Susan Milbrath** published "Heaven and Earth in Ancient Mexico" early in 2013. She conducted research on seasonal cycles as "real-time" events in the Mesoamerican codices; astronomical imagery at early Maya sites; and Postclassic Maya effigy censers, including those from sites represented in Florida Museum collections (Cerros and Peten sites). With co-project director Debra Walker, Milbrath continued development of the first phase of the "Cerros

Online Catalogue" project. She conducted fieldwork and research in Quintana Roo, Mexico; Corozal, Belize and at the Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, Mass. Milbrath presented "The Maya Calendar in 2012: End of Time or Endless Time?" at Boston University Department of Archaeology, and was invited to participate in the 2013/2014 National Lecture Program of the Archaeological Institute of America. She also presented at a Florida Museum Science Café on "The Maya Calendar, Cosmology, and the End of the World."

Milbrath consulted on development of the following exhibits:

- The Mexican Gallery, Disney Epcot Center, Orlando.
- Maya: Hidden Worlds Revealed, Science Museum of Minnesota.
- An Early Maya City by the Sea: Daily Life and Ritual at Cerros, Belize, Florida Museum of Natural History.



Herbarium Research Scientist Mark Whitten displays a specimen of the *Stanhopea jenischiana* orchid. Photo by Kristen Grace.

NEONTOLOGY

Herbarium

The Herbarium provided plant identification and information services for Florida County Cooperative Extension personnel, academic researchers, state, federal and non-governmental organizations and the general public of Florida. Herbarium staff provided information including scientific names and authors for cultivated plants, weeds and native species, their common names, range, dates of flowering and possible human or animal toxicity.

Herbarium staff provided the following services:

- Plant identifications: 843.
- Phone and email requests for information: 229.
- Visitors (walk-in requests for information and use of the Herbarium and library facilities): 492.
- Total loan activity: 4,787
- Inter-Institutional Specimen Exchange and Gifts: 198 specimens sent and 732 received.



Herbarium Holdings Summary:

- Vascular Plants (including the seed collection): 264,103
- Bryophytes*: 66,870
- Lichens / Algae*: 12,071
- Wood Collection: 15,348

* Estimated additional bryophyte and lichen collections in an old catalog system 90,000

Estimated total holdings: 448,392

Herbarium curators and staff continued digitization of Latin American and other type specimens for the Global Plants Initiative and imaging all vascular plant and bryophyte type specimens in its collections for inclusion in the JStor Plant Science website: jstor.plants.org. This work is funded by a grant from the Andrew W. Mellon Foundation. The majority of the type specimens are from Florida, the southeastern United States and Latin America.

Herbarium staff are also digitizing North American bryophyte and lichen collections from UF and four other Florida Herbaria as part of the recent NSF grant, "Digitization PEN: Digitization of North American Bryophyte and Lichen Specimens from Five Florida Herbaria." (NSF EF 1206394)

Other active inventory projects include:

- Floristic Inventory of Dudley Farm Historic State Park, Alachua County, Fla.
- Floristic Inventory of the University of Florida Campus, Gainesville, Alachua County, Fla.
- Floristic Inventory of the Kampong of the National Tropical Botanical Garden, Miami-Dade County, Fla.

Curator Norris Williams served on the Research Committee, American Orchid Society and on the editorial board of *Lankesteriana*, the journal of the Lankester Botanical Garden, Costa Rica.

Herpetology

Curator Max Nickerson was voted a Distinguished Alumnus by the Arizona State University School of Life Sciences faculty and delivered the distinguished alumnus lecture, "Hellbenders, Habitats, and Health: Challenges of declining lotic habitats." Nickerson conducted fieldwork in Kerr and Pecos counties, Texas; Marshall and Lincoln counties, Tenn.; and Cochise and Maricopa counties, Ariz. Herpetology staff hosted the American Zoo Association Crocodilian group for study in the collections.

Nickerson continued research on:

- Microbes effecting *Cryptobranchus* regeneration.
- Changing environmental effects on *Cryptobranchus* populations.
- Changing environmental effects on turtle populations, especially *Graptemys geographica*.
- Fish and *Cryptobranchus* interactions.
- Population reptile and amphibian biomass in lotic populations, especially as it may relate to health and conservation.



Other public presentations included "Giant Salamanders, Lotic habitats, and Ecological Stressors," Arizona State University, ASU Polytechnic (Interdisciplinary) Campus, Mesa, Ariz., and the Arizona State University School of Life Sciences Annual Event, "The ASU School of Life Science in the 1960s," Arizona Historical Society Museum, Phoenix. Other education outreach activities included chairing the 35th and 36th annual Herpetology Conferences.

Ichthyology

Curator Larry Page continued work on the All Cypriniformes Species Inventory (NSF-funded Planetary Biodiversity Inventories), including revisions of several genera of Asian cypriniforms and the phylogenetic relationships among darters using molecular data in addition to leading the NSF-funded *iDigBio* project. Page is revising the "Handbook of Darters" and working on the "Atlas of Freshwater Fishes of Florida." Collections Manager Rob Robins and Ichthyology staff processed new collections from the U.S. and Asia and continued identification of incoming and backlogged specimens in addition to receiving an NSF award for georeferencing fish collection locality data. In addition, the fish collection is one of the first to undergo the transition to the Florida Museum's new biological specimen database, blazing a new trail for the Department of Natural History.



Top: Florida Museum researchers collect fish in Thailand in 2012. Photo by Zachary Randall.
Bottom: Florida Program for Shark Research Director George Burgess displays a shark jaw and other specimens from the Museum's ichthyology collection. Photo by Eric Zamora.

Page presented "iDigBio, a Collections Digitization Framework for the 21st Century" to the following:

- NSF-funded NIBA meeting, Arlington, Va.
- All Cypriniformes Conference, Brunei, presentation on *iDigBio* as it relates to studies on systematics of fishes.

Page held the following offices and editorships:

- American Society of Ichthyologists and Herpetologists, member, Board of Governors.
- American Society of Ichthyologists and Herpetologists, Chair, Names of Fishes Committee.
- Natural Science Collections Alliance, President.
- Zootaxa, Associate Editor for Fishes.

Florida Program for Shark Research

The Florida Program for Shark Research has had a busy and successful year maintaining and expanding the International Sawfish Encounter Database and the International Shark Attack File, as well as continuing its sawfish tagging and outreach and education programs. Technicians have expanded both databases by searching multi-media sources for current and historic sawfish and shark encounters, as well as integrating information supplied directly by reporters through emails, phone calls and online portals. Both databases are proven valuable resources, frequently queried for information by management and conservation groups, independent researchers and news outlets. Work to expand the sawfish database worldwide was initiated through collaborative relationships with a number of individuals and organizations; particularly in Australia, Brazil and West Africa.

Staff members have continued tagging adult and juvenile sawfish in the Florida Bay area throughout the winter and spring. Public education and awareness of shark conservation and the endangered sawfish plight remain a top priority. In addition to classroom appearances and educational booths at local and regional events, brochures and laminated fliers with relevant information are distributed throughout Florida. Conferences and meetings were attended by Florida Program for Shark Research Director George Burgess, who also discussed conservation issues in numerous media appearances. ISAF staff also contributed information and materials for the "Surfing Florida & Surf Science" exhibits at Powell Hall. The FPSR maintains a highly visited website that emphasizes sawfish and shark natural history and conservation, while also providing interactive learning portals, encounter statistics, abundance and distribution maps, current research conducted by staff and contact information. Materials on Lake Worth Lagoon's natural history and biodiversity are also now available on the website.

Informatics

Associate Curator Reed Beaman's research focused on several projects including Pacific Rim Assembly of Global Middleware and Applications, with a key focus on cyberinfrastructure for biodiversity science in Southeast Asia. Other projects include Biological Science Collections Tagging and Tracking (developing infrastructure that supports discovery of linked data between collections, media, tissues, molecular data, DNA sequences, and other data derived from specimens) and *iDigBio*.

Beaman organized or co-organized workshops related to these projects including:

- 2012 Bridging Big Data Infrastructure Workshop - Expedition on the Network Science Landscape at the National Center for High-Performance Computing's Taichung Branch and Huisun Forest of National Chung Hsing University, NCHC, under the National Applied Research Laboratories Documenting biodiversity: infrastructure-enabled research in unusual environments.
- Lead Organizer, Principal Investigator Meeting on

Cyberinfrastructure for NSF Biological Sciences-funded Centers and Center-like activities, National Socioeconomic Synthesis Center.

- Co-Organizer, Biodiversity and Ecosystem Services Workshop, PRAGMA 23, Seoul.

Beaman held the following offices and editorships:

- Taxonomic Database Working Group Executive Officer.
- *iDigBio* Steering Committee.
- *iDigBio* Informational Technology Committee.
- Working Group, *iDigBio* Minimum Information for Scientific Collections.
- Working Group, *iDigBio* Georeferencing Working Group.

Nico Cellinese was awarded tenure and promotion to associate curator. Her Informatics projects include ongoing development of The Tree of Life Knowledge and Information Network (www.tolkin.org) to include analytical workflow development; development of the web applications RegNum (<http://wiki.flmnh.ufl.edu/regnum>) and PhenoRegNum (management of phenotype ontology); semantic data integration and interoperability; management and implementation of the Biological Science Collections Tagging and Tracking project; and standard developments, including MIAPA (<http://wiki.tdwg.org/Phylogenetics/>). Cellinese continued active research on Campanulaceae, studying large-and small-scale patterns of evolution and diversity in the Mediterranean basin; Melastomataceae, exploring the systematics of the Old World Sonerileae, especially taxa endemic to Southeast Asia; and angiosperms, working on character reconstruction of secondary pollen presentation mechanisms being extended to the Asterales and angiosperms. Cellinese is also experimenting with the applications of modern methods of biogeography to datasets that include minimum information on taxon occurrences and have traditionally called for more conventional approaches.

She presented a Florida Museum tenure talk, "The Evolution of Campanulaceae (bellflowers) in the Mediterranean basin: implications of sea level changes, isolation, and the onset of drier climate." She also consulted on the "Evolution of Mediterranean Bellflowers" exhibit at the Florida Museum of Natural History.

Cellinese held the following offices and editorships:

- Past President, International Society for Phylogenetic Nomenclature (www.phylonames.org), 2012-2013.
- President, International Society for Phylogenetic Nomenclature (www.phylonames.org), 2011-2012.
- Chair, Name Registration Committee, International Society for Phylogenetic Nomenclature, 2007-present.
- Member, Consortium for the Barcode of Life (CBOL, <http://connect.barcodeoflife.net/>) Database Working Group (international), 2011-present.

- Member, International Committee on Bionomenclature (ICB, www.bionomenclature.net), 2012-present.
- Co-Convener, Phylogenetics Standards Interest Group (TDWG, www.tdwg.org/activities/phylogenetics), 2008-present.
- Chair, Program committee, iEvoBio Conference (Informatics for Phylogenetics, Evolution and Biodiversity, www.ievobio.org), 2013.
- Member, Program committee, iEvoBio Conference (Informatics for Phylogenetics, Evolution and Biodiversity, www.ievobio.org), 2012.



Marine Malacology Curator Gustav Paulay displays a slate pencil urchin, *Heterocentrotus mamillatus*, from the invertebrate collection. Photo by Kristen Grace.

Invertebrate Zoology

Curator Gustav Paulay's research programs focus on systematic revision of holothurians; biodiversity and genetic surveys of marine invertebrates on Moorea Island; biodiversity and genetic surveys of marine invertebrates of the Red Sea; and biodiversity of marine invertebrates in Florida. Paulay conducted fieldwork in Florida, Washington, Djibouti, St. Maarten and Saudi Arabia.

Paulay presented at King Abdullah University of Science & Technology, Saudi Arabia on "Diversification of reef fauna," and organized a BioBlitz at Seahorse Key Marine Laboratory, Fla.

An NSF collection improvement grant has allowed staff to complete nearly all of the research backlog in addition to curating several relinquished collections. Major biodiversity survey collections from Washington, Djibouti, Micronesia, Moorea, the Red Sea, the Forbush collection, the University of Guam's invertebrate collection, the National Cancer Institute

invertebrate collection and several others have also been curated. Paulay also contributed to the Museum's "Spineless" photo exhibit by Susan Middleton.

Paulay held the following offices and editorships:

- The Nautilus, Consulting Editor.
- Malacologia, Editorial Board.
- Bishop Museum, Honolulu, Hawaii Research Associate.
- Micronesica: Insects of Micronesia, Editorial Board.
- Friday Harbor Labs, Illg Fellowship Committee.



Associate Curator of Lepidoptera Jaret Daniels displays a Schaus' swallowtail Butterfly caterpillar, part of his rehabilitation project for the endangered species. Photo by Kristen Grace.

Lepidoptera

Associate Curator **Jaret Daniels'** current research covers three main areas: organism conservation, suburban and agricultural habitat for wildlife, and road ecology. Organism conservation targets a variety of imperiled Florida butterfly taxa through surveys, population monitoring, captive breeding and biological information gaps. Suburban and agricultural habitat for wildlife projects investigates how suburban landscaping practices and agricultural enhancements impact abundance, diversity and productivity of managed and wild insect pollinators. Road ecology projects look at how vegetative management practices in road borders impact native insect pollinator abundance, diversity and mortality as well as floral resource availability. Daniels conducted fieldwork in Alachua, Marion and Miami-Dade counties, Fla. He contributed to the development of a new educational brochure: *Monarchs and Milkweeds*. The color brochure highlights the life history and migration of the Monarch, recommendations on native milkweeds appropriate for commercial and residential landscapes in the Southeast, and an identification guide to 26 common butterfly larvae and their host plants.

Daniels' current projects include *Imperiled Butterfly Conservation and Management*, an intensive cross-training program designed to strengthen the capacity of institutions and their staff to play a strategic role in the emerging and increasingly important field of insect conservation biology, with a targeted focus on imperiled butterfly recovery. The *Florida Butterfly Monitoring Network* is a statewide citizen scientist program that trains public volunteers and directly engages university scientists, zoological institution staff members and conservation land managers in field-based conservation and education targeting butterflies. The *Wings Over Florida* program is directed by the Florida Fish and Wildlife Conservation Commission's Office of Wildlife Viewing and is an award program open to resident and non-resident Florida birdwatchers. Its purpose is to encourage the public to identify as many native birds as they can within Florida in an effort to increase skill levels and explore natural areas.

Daniels presented the following lectures:

- "Towards More Effective Organization and Management of Imperiled Species Recovery Programs: Challenges and Lessons For Emerging Initiatives." Northern Tallgrass Prairie Lepidoptera Conservation Conference. Minneapolis.

Daniels' additional outreach activities included:

- "Enhancing Habitat for Native Insect Pollinators." The Florida Native Plant Society 32nd Annual Environmental Conference. Plant City, Fla.
- Space Coast Birding and Nature Festival. Titusville, Fla. Two talks (Butterfly Basics and Butterflies: From Conservation to Citizen Science) and field trip.
- UF Institute of Food and Agricultural Sciences Master Gardener Advanced Training, Butterfly Gardening. Straughn Center, Gainesville, Fla.
- 2012 Wings and Wildflowers Symposium. Attracting butterflies with native wildflowers. Tavares, Fla.

Daniels consulted on the following Florida Museum of Natural History exhibits: "Water: Discovering and Sharing Solutions," "Peanuts...Naturally," "Surfing Florida," "Cruising the Fossil Freeway," and "Titanoboa: Monster Snake." He also helped coordinate the Museum's annual ButterflyFest and Earth Day events.



Daniels held the following offices and editorships:

- Member, International Union for Conservation of Nature Butterfly Specialist Group.
- Steering Committee Member, Imperiled Butterflies of Florida Workgroup.
- Co-Chair, Steering Committee, Butterfly Conservation Initiative.
- Member, Imperiled Species Subcommittee, Florida Coordinating Council for Mosquito Control.

Assistant Curator **Akito Kawahara's** current research includes deep-level Lepidoptera phylogeny with transcriptomics, leaf-mining moth evolution, hawkmoth behavioral evolution and various smaller projects, in addition to collaborative projects established to study luna moth tail length evolution. Kawahara has been involved in seeking collections of Lepidoptera from Asia, especially Japan, and is working to strengthen the molecular collections of Lepidoptera for the McGuire Center and the Museum's Genetics Resources Repository, increasing the molecular collection to 3,500 specimens. He conducted fieldwork in Arizona, Hawaii, French Guiana, Japan, Malaysian Borneo and South Korea. Kawahara also received the International Congress of Entomology and Entomological Society of America Young Investigator Award.

Kawahara held the following offices and editorships:

- Organization Committee, Lepidoptera Phylogeny Symposium, International Congress of Entomology, Daegu, Korea.
- Organization Committee, Lepidopterists' Society 62nd Annual Meeting, McGuire Center.
- Entomological Society of Americas Thomas Say Awards Committee.
- Peer-reviewer 2012-2013: BMC Evolutionary Biology, Molecular Phylogenetics and Evolution, Lepidopterists' Society of America, Zookeys, Zootaxa.
- Member at Large, and Web and Technology Committees, Lepidopterists' Society of America.



McGuire Center for Lepidoptera and Biodiversity Collections Manager Andy Warren holds specimens of the Jamaican skipper butterfly, *Troyus turneri*, a new species described in a 2012 study co-authored by Warren. Photo by Jeff Gage.



A skipper butterfly, *Polites baracoa*, rests on a porterweed flower in the Bahamas. Photo by Jane M. Ruffin.

Curator **Jacqueline Miller** continued research on the butterflies of Saba, St. Eustatius and St. Maarten and worked on sorting unincorporated specimens from various accessions as well as processing and identifying specimens from two field trips: Honduras (1,592 specimens) and Bahamas (264) in addition to Liberia. Miller sorted and integrated some Satyrinae, foreign Apaturinae and Nymphalidae and provided identification on specimens from the Caribbean basin for Butterflies and Moths of North America (322). She also provided identifications for amateurs who contacted the Museum and the Entomological Society of America (77). She conducted fieldwork in Florida and Honduras.

Miller presented on the results of her lab's survey work in Honduras, "Lepidopteros de Honduras" at the Lodge at Pico Bonito, El Pino, near La Ceiba, to a group including representatives from three universities and a government permitting agency, a field team from National Geographic and area school teachers.

Miller held the following offices and editorships:

- Lepidopterists' Society, Chair, Karl Jordan Medal Award Committee, Member of the William Winter Service Award Committee, Co-Chair, local arrangements committee for 62nd Annual Meeting of the Society, McGuire Center and the Hilton Hotel Convention Center.
- Southern Lepidopterists' Society: Local arrangements and meetings co-chair for the combined meetings of the Association of Tropical Lepidoptera and Southern Lepidopterists' Society.
- Entomological Society of America, Member, Fellows Committee

Associate Curator **Keith Willmott** is studying systematics of Ecuadorian butterflies, in particular preparing manuscripts describing new Pieridae and Nymphalidae taxa, as well as taxonomy, molecular phylogeny and biogeography of Leptophobia (Pieridae) and Tegosa (Nymphalidae). Research projects include taxonomic revision of ithomiine genera



Illustrating the research of doctoral candidate Elena Ortíz on the evolution of colorful wing patterns in *Prepona* butterflies, this image shows the *Prepona amydon* butterfly with its dorsal surface, or upperside, on the left and ventral surface, or underside, on the right. Photos by Elena Ortíz.

Velamysta and Veladyris, with research ongoing on a possible new genus related to both. Willmott is editing and writing chapters for publication on conservation and research priorities in tropical Andean butterflies. He conducted fieldwork in France, Peru and the United Kingdom. Willmott also presented a lecture at the Florida Museum of Natural History, "Why do the eastern Andes have the world's richest butterfly fauna?"

Major curatorial activities include completion of curation of Ithomiini butterflies with assistants and volunteers and curation of Nymphalidae tribe Melitaeini, including Tegosa and Eresia. Willmott and staff completed sorting, tissue-sampling and preparation of Ecuadorian butterfly specimens collected during the last five years and continued databasing specimens in the McGuire Center collection, including mixed moths from several inventories: Charaxinae, Pieridae and Tegosa. He maintains two websites with information on Neotropical butterfly research, www.andeanbutterflies.org/ and www.mariposasandinas.org and www.butterfliesofecuador.com. Both provide information on research projects in the tropical Andes, access to distribution databases and PDF copies of key publications, among other resources. He also serves as scientific advisor to www.butterfliesofamerica.com, the largest online archive of images of Nearctic and Neotropical butterflies, verifying the identification of images in several groups. He is the associate editor for the journal *Tropical Lepidoptera Research*.

Collections Manager Andy Warren conducted field research in Alachua, Leon, Levy and Marion counties in Florida and in Colorado. He served as president of The Lepidopterists' Society from 2011-2013.

Mammalogy

Associate Curator David Reed's lab made progress on several fronts, including study of the effect of climate change on gene flow in Caribbean bats, which has resulted from fieldwork trips to Bahamas, Cuba, the Dominican Republic and Puerto Rico. Reed holds a current NSF CAREER award and is actively working on many manuscripts, including comparative genomics of lice and their endosymbiotic bacteria. Other pending publications deal with global louse population genetics, the Peopling of the Americas and a study of coalescent simulations to explain deep divergences in human lice.

Reed presented lectures at the following universities:

- "Of Lice and Men: New insights into human evolution from a lousy perspective." Darwin Day Celebration, Clemson University.
- "Of Lice and Men: New insights into human evolution from a lousy perspective." Section of Integrative Biology, University of Texas.

Reed consulted on development of the following Florida Museum exhibits:

- Hot off the Press section of the "Collections are the Library of Life," exhibit to highlight research on lice used to track human evolution.
- Central Gallery Image Collection, from NSF CAREER award.
- UF Bat House web page and new graphics for outdoor educational panels.
- "Surfing Florida" and "Surf Science."

Major curatorial activities included changing old labels to new computer-generated labels for all specimens in the collection, curating and archiving the W.W. Bowen Beach Mice Collection and reorganizing and relabeling the hanging skin/rug cases.



Gervais's funnel-eared bat, *Nyctiellus Lepidus*. Photo by Angelo Soto-Centeno.

Molecular Systematics and Evolutionary Genetics Laboratory

Doug and Pam Soltis' research during the past year has focused on questions of angiosperm phylogeny, polyploidy, patterns and processes of gene and genome evolution—especially of *Amborella*—patterns and genetics of floral evolution, phylogeography, and conservation genetics of rare Florida plant species. They conducted fieldwork in New Caledonia and China. Doug Soltis was named a University of Florida Research Professor, 2012-2013, and held a Chinese Academy of Sciences visiting Professorship for Senior International Scientists, 2012-2013.

Specific work addressing these questions includes:

- Building the tree of life for all organisms.
- Building and using big trees in land plants for analysis of trait evolution on a broad scale, for example, the aquatic habitat.
- Building and using big trees in angiosperms for analysis diversification following polyploidy of woody vs. herbaceous habit, freezing tolerance.
- Building and using big trees in angiosperms for analysis of evolution of habit: woody vs. herbaceous habit, freezing tolerance.
- Phylogenetic analysis of angiosperm whole chloroplast genomes.
- Analysis of patterns of gene expression in recent polyploids in *Tragopogon*.
- Analysis of patterns of gene loss and chromosomal rearrangements in *Tragopogon* polyploids.
- Analysis of patterns of gene loss and gene expression following polyploidy at deep levels in *Compositae*.

- Analysis of patterns and mechanisms of floral development and identification of floral genes expressed in basal angiosperms.
- Genome sequencing of *Amborella*.
- Population genomics of *Amborella* in New Caledonia.
- Evolutionary analysis of gene families expressed in floral development analysis of floral genes important in floral development in basal angiosperms and development of a model for gene expression in the earliest angiosperms.
- Phylogeny of Florida plants and ecological niche modeling.
- Phylogeny of plants of China and subsequent analyses of phylogenetic diversity.
- Conservation genetics of *Ziziphus celata* and other Lake Wales Ridge endemics, including development of microsatellite loci.

Doug Soltis presented the following lectures:

- "Polyploidy and angiosperm evolution," University of British Columbia.
- "Polyploidy and angiosperm diversification," University of Texas.
- "Big Trees and Plant Evolution," Kunming Institute of Botany, Kunming, China.
- Botanical Society of America, Columbus, Ohio, symposium speaker, "The potential of genomics in plant systematics."
- "Angiosperm phylogeny and DNA banking," St. Louis. Invited talk as part of a workshop on DNA banking.

Pam Soltis presented the following seminars:

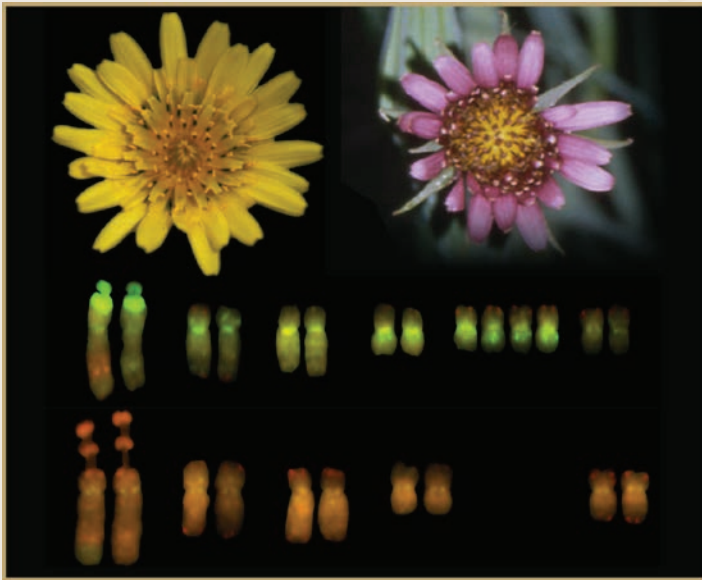
- Chinese Academy of Science, Institute of Botany, Beijing.
- Rancho Santa Ana Botanic Garden, Claremont, Calif.
- Chinese Academy of Science, Institute of Botany, Kunming
- ICBR 25th Anniversary Symposium, UF.
- DNA Bank Workshop, Missouri Botanical Garden, St. Louis.

Pam Soltis held the following offices and editorships:

- International Society for Phylogenetic Nomenclature, Council, 2012-15.
- Editorial Board, *Taxon*, 2000-present.
- Editorial Board, *BMC Plant Biology*, 2006-present.
- Editor, *American Journal of Botany Primer Notes and Protocols*, 2009-12.
- Editorial Board, *Applications in Plant Sciences* (replaced *AJB Primer Notes and Protocols*), 2012-present.
- Editor, *PLOS Currents Tree of Life*, 2010-present.
- Subject Editor, *PhytoKeys*, 2010-present.
- Associate Editor, *International Journal of Plant Sciences*, 2012-present.



Molecular Systematics and Evolutionary Genetics Curator and Distinguished Professor Pam Soltis works in her office on a project about evolutionary relationships in the mint family. Photo by Kristen Grace.



Two hybrid goatsbeard plants, *Tragopogon miscellus*, left, and *Tragopogon mirus*, are shown above magnified images of the yellow flower's chromosomes, painted with fluorescent dyes to show the contributions of each parental species. Flower photos by Jeff Gage and chromosome photos by Mike Chester.

Doug Soltis held the following offices and editorships:

- American Journal of Botany, Associate Editor, 2001-present.
- Webbia, A European Journal of Plant Taxonomy, Associate Editor, 2012-present.
- Editorial Board, Critical Reviews in Plant Science, 2009-present.
- Editor, PLOS Currents, 2010-present.
- Editorial Board, Frontiers in Plant Genetics and Genomics, 2010-present.
- Subject Editor, PhytoKeys, 2010-present.

Major curatorial activities included:

- Adding a number of additional DNA samples of Florida plants to the collection. The DNA collection is being databased, and staff worked to integrate samples into the frozen DNA and tissue collection. Began a study of the effects of different drying, storage and preservation techniques for plant tissues and DNAs.
- The Genetic Resources Repository now contains more than 40,000 DNA and tissue samples, with representation from all of the neontological ranges of the Florida Museum. The GRR has taken on the NIH's tissue and genetic samples for Florida panthers.
- Through *iDigBio*, Pam Soltis is in the process of developing a portal to DNA and tissue collections nationwide.

Pam Soltis consulted on development of the following exhibits:

- Explore Research materials on *Amborella*, polyploidy and *iDigBio*, with funding from NSF.
- "Botanical Chords" exhibit, Florida Museum of Natural History.

Ornithology

Katharine Ordway Chair in Ecosystem Conservation **Scott Robinson** conducted field research in Florida, Illinois, China, Colombia, India and Peru. He maintained current research projects focused on:

- The role of biotic and abiotic factors limiting bird distributions and community structure on elevation gradients in the Andes of southeastern Peru.
- Urban ecology of the northern mockingbird in Gainesville, Fla.
- Bird community structure of dry forests of northern Peru.
- Effects of habitat fragmentation on nesting success of birds, mainly in the Midwest U.S.
- Sexual selection in a tropical blackbird in Amazonian Peru.

Robinson gave presentations to the following:

- Wake Forest University, Department of Biology, "The role of environmental gradients in the maintenance of neotropical bird diversity."
- Zhejiang Normal University, Hangzhou, China, "Does habitat fragmentation generate sources, sinks and ecological traps for breeding songbirds?"
- University of Montana, "The role of environmental gradients in the maintenance of bird species diversity."



Ornithology Collection Manager Andy Kratter displays specimens of Corey's Shearwater, *Calonectris diomedea*, in Dickinson Hall. Photo by Kristen Grace.

Robinson held the following offices and editorships:

- Editor-in-chief, Florida Field Naturalist.
- Councilor (elected), American Ornithologists' Union.

Curator **David Steadman** continued his research on late Quaternary paleoecology of the West Indies, with a focus on changing vertebrate faunas across the radiocarbon time scale (past ca. 40,000 years), as well as Neogene evolution of birds in subtropical and tropical North America (Mexico and southern U.S.). Steadman conducted fieldwork in Florida, Bahamas, Honduras, Kenya, Mexico and Trinidad and Tobago. He also served as treasurer of the Society of Avian Paleontology and Evolution until August 2012.

Steadman presented the following lectures:

- “A Long Term Perspective of Plant and Animal Life in the Bahamas,” Bahamas National Trust, Nassau, Bahamas.
- “Fossils from Blue Holes on Abaco, Bahamas,” Friends of the Environment & Bahamas National Trust, Hopetown, Bahamas.
- “Who or What is Woodstock?” for the Florida Museum Members Reception for the “Peanuts...Naturally” exhibit.

Major curatorial activities included the importation, after long delays, of two major collections of birds (skins, skeletons and tissues) from Peru. Collections Manager Tom Webber completed the goals of the NSF-supported Sound Collection digitization project. All of the cataloged UF recordings now are digitized. With collection managers Webber and Andy Kratter and students, Steadman continued to prepare specimens of species that are poorly represented in the world’s bird collections and to salvage hundreds of specimens from Florida wildlife rehabilitation clinics.



Paleontology

Invertebrate Paleontology

Curator Michal Kowalewski had multiple projects in progress, including several new collaborations with UF and non-UF researchers. Most of his current research focuses on Quaternary marine benthic invertebrates, including projects in North Carolina (Eocene and recent), Bahamas (recent), Brazil (recent), Chile (recent), Italy (Quaternary), Spain (Miocene and Pliocene) and global macroevolutionary trends (multiple literature-driven Phanerozoic-scale databases).

Kowalewski presented the following lectures:

- Department of Biology, University of Florida, “Silence of the Clams: Conservation Paleobiology of Marine Benthic Ecosystems.”
- Department of Geosciences, Virginia Tech, Blacksburg, “Shells and Grains in Time and Space: Time-averaging and Temporal Resolution of Sedimentary Records.”

Kowalewski was appointed as a scientific expert for the New Eurasia Foundation of the Russian Federation and to the Scientific Committee of the 3rd International Paleontological Congress, Mendoza, Argentina.

Kowalewski held the following offices and editorships:

- Editor – Paleobiology.
- Chair of the Organizing Committee - The 10th North American Paleontological Convention, Gainesville, Fla.
- Scientific Committee Member - The 3rd International Paleontological Congress, Mendoza, Argentina.
- Associate Editor - Palaios, U.S.
- Associate Editor - Revista Española de Paleontología, Spain.
- Associate Editor - Journal of Taphonomy, Spain.
- Associate Editor - Open Paleontology Journal.
- Associate Editor - Open Geology Journal.
- External Panel Reviewer - National Science Foundation of Georgia.



Top: Vertebrate Paleontology biologist Art Poyer displays a fossil from the Haile 7G quarry in Newberry, Fla. Photo by Kristen Grace. **Bottom:** Invertebrate Paleontology Collection Manager Roger Portell, pictured with Museum Director Doug Jones, received the 2012 Thompson Van Hyning Award. The service award, the highest given to Museum employees who are not faculty members or students, is named for Van Hyning, the Museum’s first director who was appointed in 1914. Photo by Jeff Gage.

Giant eastern murex snail, *Hexaplex fulvescens*. Photo by Kristen Grace.

Kowalewski, Collections Manager Roger Portell and staff conducted fieldwork in Florida (Alachua, Collier, Franklin, Hendry, Liberty, Miami-Dade, Palm Beach, Putnam, St. Johns and Sarasota counties), Nebraska, South Carolina, South Dakota, Antigua, Bahamas, Carriacou, Cuba, Curacao, Jamaica, Poland and Puerto Rico. Portell received the 2012 Thompson Van Hyning Award for meritorious career service to the Florida Museum of Natural History. With technician Alex Kittle, Portell completed the permanent fossil exhibit for the SMR Aggregates Mines main office. Portell also assisted with the 2013 Orlando Science Fossil Fest. Staff members also presented multiple lectures to the Florida Paleontological Society and fossil clubs around the state.



Paleobotany Biological Scientist Terry Lott displays a fossil *Sabalites apalachicolensis* leaf, similar to the modern *Sabal palmetto*. Photo by Kristen Grace.

Paleobotany and Palynology

Curator Steve Manchester is investigating systematic affinities and biogeographic implications of anatomically preserved fossil flowers and fruits from the Cretaceous-Tertiary transition in India and the paleoclimatic and biogeographic significance of Oligocene Belén fruit and seed flora of western Peru. Manchester is collaborating on investigations of paleobotanical discoveries from the Tertiary of Panama. He conducted fieldwork in Wyoming, India and Japan. Manchester presented at J.M. Patel College, Bhandara, India: "Biogeographic affinities of the Late Cretaceous flora of the Deccan intertrappean beds, India" and received a citation plaque from the organizers of the International Symposium and XXII Annual Conference of Indian Association for Angiosperm Taxonomy.

Major curatorial activities included archiving 3,600 images of fossil plant specimens, bringing the total number of images to about 7,000. A project of digitizing the Type and Figured Collection is in progress. Manchester and his students staffed the fossil prep lab in the Museum's "Cruisin' the Fossil Freeway" exhibit.

Manchester held the following offices and editorships:

- Acting Treasurer, International Organisation of Palaeobotany.
- Journal of Systematics and Evolution Beijing, editorial board.
- Acta Palaeobotanica Krakow, editorial board.
- Acta Musei Nationalis Pragae ser. B Prague, editorial board.

Vertebrate Paleontology

Curator Jon Bloch's research in progress includes the study of mammalian faunas across the Paleocene-Eocene boundary in the central Bighorn Basin, Wyoming; phylogeny and functional morphology of Paleocene-Eocene euarchontans and implications for the origin and early evolution of primates; the first vertebrates and plants from a neotropical rainforest in northern Colombia; and collaborative research on Miocene land mammals of Panama. Bloch conducted fieldwork in Florida, Montana and Wyoming. He presented to the Yale Institute for Biospheric Studies Seminar Series, "New High-Resolution Continental Sections and Fossils from Southern Bighorn Basin, Wyoming Document Faunal Response to the Paleocene-Eocene Thermal Maximum." Bloch also consulted on the development of the exhibit "Titanoboa: Monster Snake" with the Smithsonian Institution and Florida Museum.



Top: Museum researchers Zachary Randall, left, and Jonathan Bloch compare anatomical traits of *Notharctus tenebrosus*, an extinct primate from the Eocene, with characteristics of a *Homo sapiens* skull. Photo by Jeff Gage. **Bottom:** Vertebrate Paleontology fossil preparator Jason Bourque works on a giant armadillo skull (*Holmesina floridanus*) from the Haile Quarry at Dickinson Hall. Photo by Kristen Grace.

Bloch was named Edward P. Bass Distinguished Visiting Environmental Scholar, Yale Institute for Biospheric Studies, Department of Anthropology, Spring 2013, and also received a UF Research Foundation Professorship, awarded to recognize faculty who have established a distinguished record of research and scholarship, 2011-2013.

Bloch held the following offices and editorships:

- Co-Editor, *Paleobiology*, 2011-present.
- Editorial Board, *Journal of Mammalian Evolution*, 2009-present.
- Advisory Board, Department of Geology & Geological Engineering, South Dakota School of Mines & Technology, 2011-2014.
- Co-Chair, Program Committee, Society of Vertebrate Paleontology, 2009-present.
- Member, Media Liaisons Committee, Society of Vertebrate Paleontology, 2006-present.
- Member, Media Response Team, Society of Vertebrate Paleontology, 2011-present.

Bloch, Collections Manager Richard Hulbert and Curator Bruce MacFadden were awarded a three-year NSF collections improvement grant in the amount of \$455,330 to curate and digitize the Panama, Haile 7G and donated Waldrop collections.

Major curatorial activities focused on preparation of specimens in the collection including acid-preparation of Paleocene/Eocene fossils from freshwater limestones from Wyoming; preparation of vertebrate fossils from the Miocene of the Panama Canal and the Paleocene of Colombia; preparation of plaster jackets from both Thomas Farm and Haile 7G (Miocene and Pliocene, respectively, of Florida); and screen-washing sediments from Thomas Farm, Millennium Park, Panama and Wyoming. Fifty-four research scientists visited the collections.

Hulbert conducted fieldwork in Florida (Dixie, Gadsden, Gilchrist, Hardee, Manatee, Marion, Pinellas and Polk counties), Colorado and Nebraska. He coordinated the purchase and installation of 51 new Lane specimen cabinets and the reorganization of the collection holdings in Oligocene, Miocene and Pliocene.

MacFadden coordinated fossil collecting in Panama, maintained oversight of the "Fossils in the Cloud" project to promote digitization of fossil specimens and started a teacher-outreach program for Panama funded by NSF supplements to PCP PIRE project. In July 2012 he took seven teachers from Santa Cruz, Calif., to Panama for two weeks. MacFadden consulted on the Suzie Mastodon exhibit at the West Palm Beach Museum of Science.



Top: Florida Museum graduate student Aldo Rincon holds a tooth of a 20-million-year-old hippo-like species of anthracothere, *Arretotherium meridionale*, described in a 2013 study in the *Journal of Vertebrate Paleontology*. Photo by Jeff Gage. **Bottom:** "Titanoboa: Monster Snake" exhibition preparation lab manager Arianna Harrington works on *Titanoboa* fossils in the lab. Photo by Kate Martin.

MacFadden made numerous presentations including:

- "Prehistoric Panama--20 million years ago," Bambi talk presented at Barro Colorado Island, Panama.
- Brown bag lunch seminar on Broader Impacts, University of Texas, Department of Geological Sciences.
- Langston Lecture on Miocene Mammals from Panama, University of Texas, Department of Geological Sciences.
- "Fossil horses: Icons of Evolution," McGurn seminar series, Florida Museum of Natural History.
- "Miocene mammals from Panama: The Neotropics as a cradle for ancient biodiversity," Geosciences Department, Universidad de los Andes, Colombia.
- "The Great American Biotic Interchange," talks given to combined biology/earth sciences audience.
- "NSF's Broader Impacts: What they are and how to do them," UF Department of Geological Sciences seminar series.

MacFadden continued from last year as a 2012 Medalist, Florida Academy of Sciences and served as external reviewer of the MfN, Museum für Naturkunde. He served as senior editor of *Paleobiology* and was a council member of The Paleontological Society.



McGuire Center for Lepidoptera and Biodiversity

- The center hosted more than 200 participants for the international 62nd Annual Meeting of the Lepidopterists' Society, along with the Southern Lepidopterists' Society and the Association for Tropical Lepidoptera in June 2013.
- McGuire Center staff directed research and photographic expeditions to Ecuador, the Galapagos Islands, Jamaica, Kenya, Madagascar, Mexico, Trinidad and Tobago.
- The McGuire Center collections, research labs and Butterfly Rainforest facilities continued to expand their frequent campus use as teaching resources for University of Florida students and class visits from the departments of Zoology, including Animal Physiology, Ecology, Animal Behavior, Molecular Genetics and Developmental Biology; Entomology, including Biology of Lepidoptera, General Entomology, Insect Ecology, Insect Physiology, Insect Molecular Biology and Insect Systematics; and Wildlife Ecology during 2012-13.
- Dr. William and Nadine McGuire were honored on Florida Field and at the McGuire Center by the Florida Museum and University of Florida for their extraordinary philanthropy during the Florida Tomorrow capital campaign finale weekend in October 2012.

Top: McGuire Center for Lepidoptera and Biodiversity Collections Coordinator Andrei Sourakov works in the lab. Photo by Kristen Grace. **Center:** Associate Curator of Lepidoptera and Head of Exhibits and Public Programs Jaret Daniels conducts field research. Photo by Kristen Grace. **Bottom:** Lepidoptera Assistant Curator Akito Kawahara displays leaf mining moths in the McGuire Center. Photo by Jeff Gage.

Top-right: Schaus' swallowtail Butterfly caterpillar, *Heraclides aristodemus ponceanus*. Photo by Kristen Grace.

Our Impact

Research Locations

Florida — All counties with special attention to Alachua, Brevard, Citrus, Clay, Collier, Columbia, Dixie, Duval, Franklin, Gadsden, Gilchrist, Gulf, Hamilton, Hardee, Hendry, Highlands, Hillsborough, Jackson, Jefferson, Lee, Leon, Levy, Liberty, Manatee, Marion, Miami-Dade, Okaloosa, Palm Beach, Pinellas, Polk, Putnam, Sarasota, St. Johns, St. Lucie, Sarasota, Seminole, Suwannee, Wakulla.

Other States — Arizona, Colorado, Georgia, Hawaii, Illinois, Massachusetts, Montana, Nebraska, South Carolina, South Dakota, Tennessee, Texas, Washington, Wyoming.

International — Antigua, Bahamas, Belize, Canada, Carriacou, China, Colombia, Cuba, Curacao, Djibouti, Dominica, France, French Guyana, Honduras, India, Jamaica, Japan, Kenya, Malaysian Borneo, Mexico, New Caledonia, Panama, Peru, Poland, Puerto Rico, St. Martin, Saudi Arabia, South Korea, Trinidad and Tobago, United Kingdom.

Teaching

ALS 6046	Grant Writing, 4 credits
ANG 4905	Individual Studies in Anthropology, 12 credits
ANG 5162	Maya Archaeoastronomy and Ethnoastronomy, 3 credits
ANG 6186	Florida Archaeology, 3 credits
ANG 6905	Individual Studies in Anthropology, 8 credits
ANG 6915	Research Projects in Social, Cultural, and Applied Anthropology, 9 credits
ANG 6930	Ancient Maya Animals, 3 credits
ANG 6940	Independent Study, 2 credits
ANG 6944	Independent Study, 2 credits
ANG 6971	Research for Master's Thesis, 27 credits
ANG 7979	Advanced Research, 30 credits
ANG 7980	Advanced Research, 29 credits
ANT 4180L	Lab Training in Archaeology, 3 credits
ANT 4824	Field Session in Archaeology, 6 credits
ANT 4905	Individual Studies in Anthropology, 20 credits
ANT 4907	Research Project, 5 credits
ANT 4914	Department Honors in Anthropology, 3 credits
ANT 4930	Florida Archaeology, 3 credits
ANT 6945	Advanced Research, 2 credits
ARH 6973	Museum Practicum, 15 credits
BOT 2710	Practical Plant Taxonomy, 4 credits
BOT 4935	Paleobotany, 3 credits
BOT 4935/6935	Practical Computational Biology, 3 credits
BOT 4621	Plant Geography, 3 credits
BOT 5305	Paleobotany, 3 credits
BOT 6726	Principles of Systematics, 4 credits
BOT 6935	Biological Nomenclature, 8 credits
BOT 6935	Phylogenetic Systematics Seminar, 3 credits
BOT 6935	Systematic Angiosperm Leaf Morphology, 2 credits
BOT 7979	Advanced Research, 8 credits
BOT 7980	Advanced Research, 50 credits
EDU 6910	Independent Research, 3 credits



Malacology Collection Manager John Slapinsky, left, works with Museum employee Valeria Segui and Marine Malacology Curator Gustav Paulay to sort and label new specimens. Photo by Kristen Grace.



Our Impact

Teaching *continued*

- ENY 3163/5164
Invertebrate Field Biology, 3 credits
- ENY 4905 Individual Studies in Entomology, 1 credit
- ENY 6905 Individual Studies in Entomology, 5 credits
- ENY 6934 Biology of Lepidoptera, 1 credit
- ENY 6934 Insect Biogeography, 1 credit
- GLY 3083C Introduction to Marine Science, 3 credits
- GLY 4905 Individual Studies in Geological Sciences, 6 credits
- GLY 6932 Paleobotany, 3 credits
- GLY 7979 Advanced Research, 10 credits
- GLY 7980 Advanced Research, 18 credits
- JOU 6910 Independent Research, 9 credits
- WIS 4934/6934
Biology of Snakes, 4 credits
- WIS 4934/6934
Vertebrates in Lotic Habitats, 2 credits
- ZOO 4305C Invertebrate Biodiversity, 4 credits
- ZOO 4472 Avian Biology, 4 credits
- ZOO 4905 Individual Studies in Zoology, 3 credits
- ZOO 6910 Independent Research, 4 credits
- ZOO 6927 Avian Anatomy and Specimen Preparation, 4 credits
- ZOO 6927 Practical Computational Biology, 3 credits
- ZOO 6927/GLY 5786/GLY 4930
Special Topic in Biology and Geology, 2 credits
- ZOO 6927/GEO 6932/GLY 6932
Broader Impacts of Science on Society, 4 credits
- ZOO 7979 Advanced Research, 52 credits

The cushion sea star, *Oreaster reticulatus*. Photo by Kristen Grace.

Florida Museum Special Achievements, Faculty and Staff

Reed Beaman was appointed to the National Science Foundation Biological Sciences Division of Biological Infrastructure.

Jonathan Bloch was awarded the Edward P. Bass Distinguished Visiting Environmental Scholar, Yale Institute for Biospheric Studies, Department of Anthropology.

Akito Kawahara received the International Congress of Entomology and Entomological Society of America Young Investigator Award.

Michal Kowalewski was appointed Scientific Expert for the New Eurasia Foundation of the Russian Federation (managed by European and International Cooperation Project Management Agency c/o German Aerospace Center).

Steve Manchester was recognized as distinguished Angiosperm Taxonomist by the Indian Association for Angiosperm Taxonomy.

Max Nickerson was voted Distinguished Alumnus by the Arizona State University School of Life Sciences.

Roger Portell received the Florida Museum of Natural History Thompson Van Hyning Award for meritorious career service.

Doug Soltis was appointed University of Florida Research Professor and was awarded a Chinese Academy of Sciences visiting Professorship for Senior International Scientists.

Andrew Warren served as President of the Lepidopterists' Society.



Top: David Harlos and Darcie MacMahon, Florida Museum assistant director for exhibits, display their costumes during the "Back to the Future 2012 Passport Gala." Photo by Kristen Grace. **Center:** Museum gift shop employee Max Steier reads to Mia Crandall in the Collectors Shop. Photo by Jeff Gage. **Bottom:** Guests view a python skin at the "Tastes, Tunes & Treasures" event highlighting the Museum's herpetology collections. Photo by Kristen Grace.

Top-right: White bat flower, *Tacca integrifolia*. Photo by Kristen Grace.



Development and Membership

The Florida Museum of Natural History's mission to understand, preserve and interpret biological diversity and cultural heritage to ensure their survival for future generations remains a guiding force in our work. Our donors are inspired by the breadth and depth of the Museum's ongoing research and show their support in a tangible way. Giving to the Museum takes many forms, from transformational major gifts that allow us to grow in the physical sense, to establishing professorships that support research and endowments, which help students attain their professional aspirations. We are passionate about our work and our reward is realized when we share that passion with you.

This year Museum membership saw unprecedented growth, with an 18 percent increase in the average number of yearly members to 1,113, a new record. Membership continues to grow thanks to the hard work of our Visitor Services staff. The Museum held two receptions for new exhibitions, *Peanuts Naturally* and *Titanoboa: Monster Snake*, and two VIP Receptions for members at the Supporting Level and above. *Taste, Tunes and Treasures* featured the herpetology collection and the *Springs Eternal* reception featured photography by John Moran and Rick Kilby. All events were well-attended and provided stimulating presentations.

The Florida Museum Associates Board completed year two of a three-year campaign to raise funds to renovate the popular Discovery Room, a permanent exhibit designed for families with children 8 and under. More than half of the \$1 million goal has been reached. Opening in 2015, the new Discovery Room will include an area for infants and toddlers and opportunities to explore, observe, study, play and pretend for the whole family. A vast array of awe-inspiring objects combined with engaging interactive activities and media resources are sure to foster a sense of wonder about our world's biological diversity and cultural heritage.

The Museum family wishes to thank you for your unwavering support through the years, which not only sustains us but helps to make dreams a reality. For more information about opportunities to support the Florida Museum, please contact the Museum Development Office, 352-273-2086.

Exhibits and Public Programs

Monster snake exhibit highlights Museum research

Working with the Smithsonian Institution as part of a multi-year project, the Museum hosted *Titanoboa: Monster Snake*, showcasing the Museum's discovery of this extinct 50-foot-long reptile from Colombia, South America. The project includes a documentary film, and the exhibit opened in Gainesville after its debut on the National Mall in Washington, DC. The Museum enhanced the exhibition with actual fossils, a working paleontology prep lab allowing visitors to observe and interact with researchers and a coal mine display modeled after the discovery site.

Springs exhibit focuses on vital state resource

A collaboration with artists John Moran, Lesley Gamble and Rick Kilby led to the Springs Eternal project, including the opening of the companion exhibits *Springs Eternal: Florida's Fragile Fountains of Youth* and *Finding the Fountain of Youth: Discovering Florida's Magical Waters*. The exhibitions encouraged statewide discussions on the importance of protecting Florida's water systems.

Other temporary exhibits

The Museum also hosted a number of other exhibits, including *Cruisin' the Fossil Freeway*, featuring Museum fossils and dinosaur casts, *Peanuts... Naturally: Charlie Brown and Friends Explore Nature*, and a University of Florida collaborative exhibition *Water: Discovering & Sharing Solutions*. Other exhibits displayed throughout the museum included *An Early Maya City by the Sea*, *Spineless: Portraits of Marine Invertebrates—The Backbone of Life in the Sea*, *Botanical Chords: The Art and Science of Plants and Cells*, *Extreme Minnows* and *Evolution of Mediterranean Bellflowers*.

Museum on the road!

Now in its sixth year of travel, *Megalodon: Largest Shark that Ever Lived* continued its successful tour, showing at the Adventure Aquarium in Camden, NJ, the Virginia Aquarium in Virginia Beach and the Cleveland Museum of Natural History. *Dugout Canoes: Paddling through the Americas* begins its nationwide tour in 2014 with a stop at the Elliot Museum in Stuart, Fla.

Future exhibits

More exciting exhibitions are in development, including *First Colony: Our Spanish Origins*, which highlights the Museum's decades-long archaeological research of Spanish colonial sites. The exhibit opens in St. Augustine in October 2013 and moves to Gainesville in 2016 before beginning its nationwide tour.



Top: Museum members enjoy the sneak preview of the "Titanoboa: Monster Snake" exhibit. Photo by Jeff Gage. **Second from top:** Guests enjoy the opening of the "Springs Eternal: Florida's Fragile Fountains of Youth" and "Finding the Fountain of Youth: Discovering Florida's Magical Waters" exhibits. Photo by Kristen Grace. **Second from bottom:** Addison Mathews, 4, left, and Gabby Kutz, 5, explore a water table during opening day activities for the "Water: Discovering and Sharing Solutions" exhibition. Photo by Kristen Grace. **Bottom:** Museum visitors explore the "Dugout Canoes: Paddling through the Americas" exhibition. Photo by Kristen Grace.



Top: Visitors learn about owls while participating in "Preschool Day." Photo by Kate Martin. **Second from top:** Maribeth Latvis, who later received her Ph.D. in Botany at UF, demonstrates the tools researchers use in the Soltis Lab to Museum summer campers while working toward her degree. Photo by Kristen Grace. **Second from bottom:** Children interact with an augmented reality sandbox during the "Can You Dig It?" public program. Photo by Kristen Grace. **Bottom:** Museum education assistant Erin Sattler, left, teaches a group of Girl Scouts about water displacement in the Museum's "Water: Discovering and Sharing Solutions" exhibition. Photo by Jeff Gage.

Exhibits and Public Programs highlights continued

Center for Science Learning

The Center for Informal Science Education has been combined with the Education Department and renamed the Center for Science Learning to better reflect its scope of activities, including coordinating the Museum's volunteers, offering a variety of public programs for diverse audiences, creating programs for students and teachers, and developing an array of grant-funded, special initiatives.

Volunteers

Over 500 volunteers contributed more than 30,000 hours during 2012-13. Interest in the Junior Volunteer program continues to grow with a record number of applications, and 104 youths were selected for summer positions. Adult volunteers serve in nearly every area of daily operations, and Charlie Hall (Exhibits and Public Programs) and Teena Jain (Research and Collections) were named the James Pope Cheney Volunteers of the Year.

Monarchs and Milkweeds

The Museum produced this new brochure describing the life cycle of the monarch butterfly and its milkweed host plants in cooperation with the Xerces Society for Invertebrate Conservation and Butterfly Conservation Initiative. Funding was provided by the F.A.O. Schwarz Family Foundation, Florida Biodiversity Foundation and McGuire Center for Lepidoptera and Biodiversity.

New community partners

A new partnership with the Alachua County Public Schools afterschool program brought Museum educators and interns to Archer, Duval and Hidden Oak elementary schools to provide paleontology enrichment experiences. The Museum worked with UF's Office of Sustainability to present *The Clean Bin Project* film.

Peer-reviewed publications

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Hollywood sculptor Tim Lawrence displays a *Tyrannosaurus rex* head he created during a student summer camp. Photo by Kristen Grace.

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Top: Museum Docent Charles Hall, pictured with Florida Museum Director Doug Jones, from left, Volunteer Coordinator Amy Hester and Museum Educator Diane Milner, received the 2013 James Pope Cheney Volunteer of the Year Award for the Exhibits and Public Programs Division. Photo by Kristen Grace. **Bottom:** Teena Jain, pictured with Florida Museum Director Doug Jones and Volunteer Coordinator Amy Hester, received the 2013 James Pope Cheney Volunteer of the Year Award for the Research and Collections Division. Photo by Kristen Grace.

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Workers install a large photo of manatees by John Moran on the Museum's Central Gallery windows as part of the "Springs Eternal" exhibit. Photo by Kate Martin.

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McGuire Center biological scientist Deborah Lott shows children a caterpillar at a table showcasing the Center's collections during "ButterflyFest." Photo by Kate Martin.

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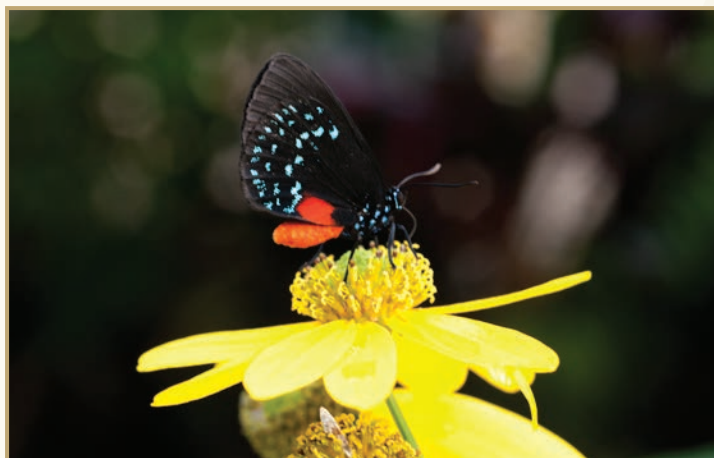
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Top: An Atala butterfly, *Eumaeus atala*, rests on a cut-leaf coneflower in the "Butterfly Rainforest." Photo by Jeff Gage. **Bottom:** A Delphinium plant blooms in the "Butterfly Rainforest." Photo by Kristen Grace.

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Layla Clifton, 5, left, and Bradley Hitchcock, 4, look at rocks and minerals during the opening of the "Titanoaboa: Monster Snake" exhibit. Photo by Kristen Grace.

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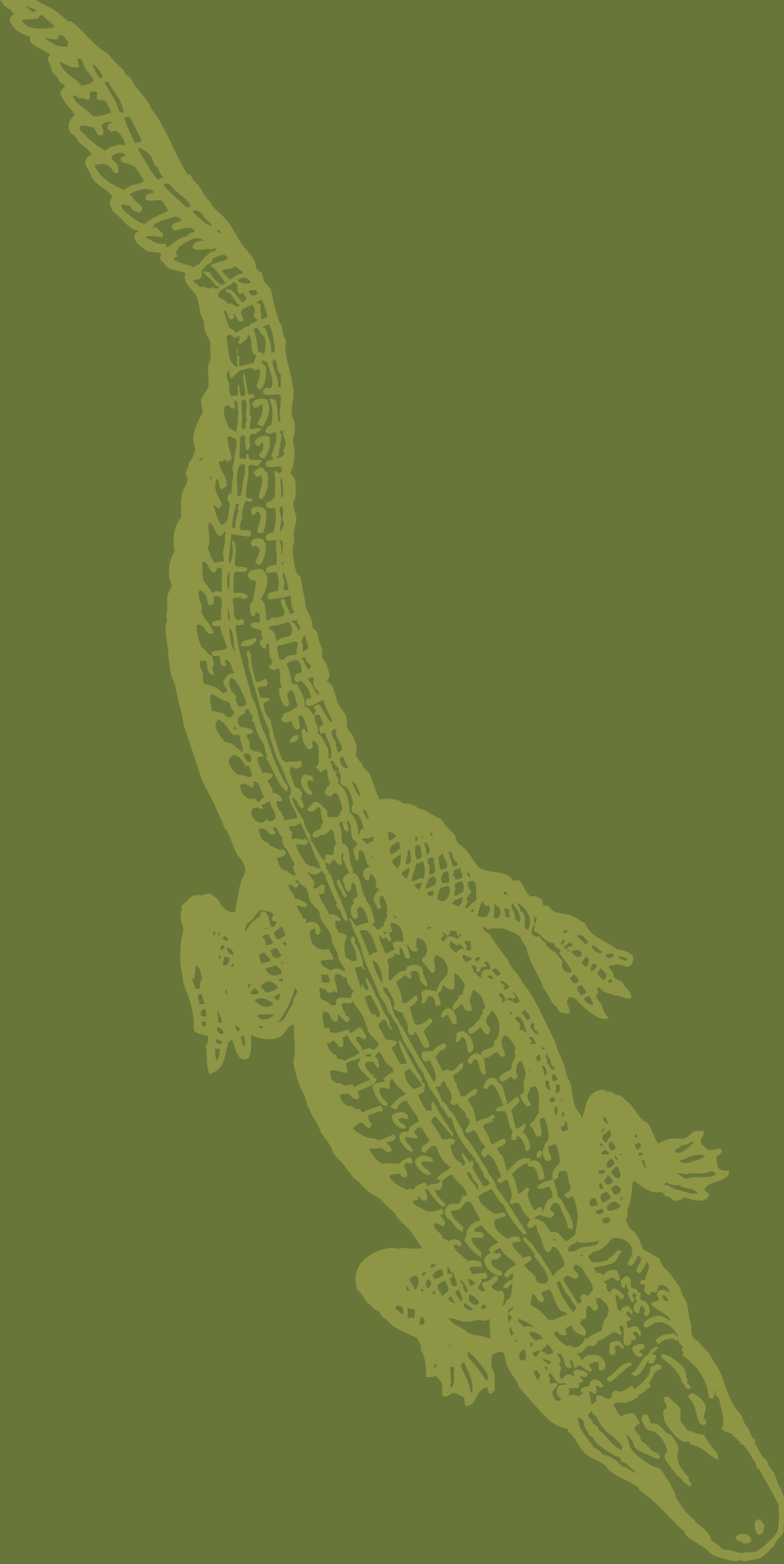
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South Florida Archaeology Curator Bill Marquardt speaks with visitors during the Archaeology Month open house at Dickinson Hall. Photo by Jeff Gage.



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