



Florida Museum of Natural History

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ANNUAL REPORT • 2009-2010

The Florida Museum of Natural History is Florida's state museum of natural history, dedicated to understanding, preserving and interpreting biological diversity and cultural heritage.



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## A MESSAGE from the DIRECTOR

As we join in the celebration of 2010 as the International Year of Biodiversity, I am reminded of the “breadth” and “depth” of this Museum’s commitment to understanding, preserving and interpreting our natural world.

In terms of “breadth,” I would point to the recent \$2.7 million grant received by Curator of Fishes, Larry Page, as part of the NSF Planetary Biodiversity Inventory program to survey the Cypriniformes (minnows, suckers, loaches) worldwide. His previous PBI catfish grant identified more than 500 species new to science with additional species being described each month. The current grant should have a similar impact.

The Moorea Biocode Project of Curator Gustav Paulay and his team of invertebrate zoologists illustrates what I mean by “depth.” Funded by the Gordon and Betty Moore Foundation, this project departs from the taxon-specific survey approach. Instead, Paulay’s project is an intensive, thorough investigation of one place – in this case the tiny South Pacific island of Moorea (Tahiti’s neighbor) – to produce the first comprehensive inventory of all non-microbial life in a tropical ecosystem. A genetic barcode is created for every animal and plant collected, some of which are literally vacuumed from the ocean floor, in this novel biodiversity investigation.

Several spectacular collection gifts also contributed to our biodiversity focus this year. Notable among these is another magnificent gift from Bill and Nadine McGuire of Minnesota, who donated a collection of 100,000 butterflies and moths as well as 42,000 scientific books, periodicals and archival materials. Closer to home, Dr. Harry Lee of Jacksonville made a deferred gift of his important collection of mollusks comprised of more than 1 million fully cataloged specimens. Both gifts significantly expand the breadth and depth of our scientific collections.

Educating visitors about biodiversity is also central to our mission. A real estate gift from Aase and Rick Thompson of Gainesville, valued at more than \$1 million, triggered a challenge gift of \$3 million from David & Mary Ann Cofrin for renovation and expansion of our education facilities at the UF Cultural Plaza. Consistent with the Museum’s desire to preserve biodiversity and create a sustainable energy future, the Museum took a major step with the installation of a 75 kilowatt photovoltaic array on the roof of Powell Hall. This system produces about 10 percent of the building’s energy usage.

I trust this sampling of Museum activities provides a sense of the vibrancy and commitment that characterize our institution, and that you appreciate the varied accomplishments summarized in this report.

Douglas S. Jones, Ph.D.  
Director, Florida Museum of Natural History



The United Nations declared 2010 to be the International Year of Biodiversity. It is a celebration of life on earth and of the value of biodiversity for our lives.

Opposite page:  
The Panther Chameleon,  
*Furcifer pardalis*, is native  
to Madagascar.



## HOW THE MUSEUM *saved my* LIFE By Colby Lowe, Exhibit Docent

Retired teacher Colby Lowe enjoys volunteering as a Museum docent where she learns about exhibits and shares her knowledge with visitors.

Retirement makes me think of the phrase ‘be careful what you wish for.’ I got the move to Florida right and bought a sweet little house. Now what? I don’t play bridge or golf. There are only so many hours one can spend at the pool. I investigated volunteering for a political party and found out more of what I don’t like to do than what I like.

Someone suggested the Florida Museum of Natural History. Perfect, I thought. As a retired teacher this would restore some contact with children that I missed and I might learn something. The traveling exhibit *Megalodon* was just about to open so I took the exhibit training. Then I had a “lucky break” in my hip that meant missing school tours training. I say “lucky break” because I have stayed with the traveling exhibits and I love it.

First, as an exhibit docent, there is something new every few months so there’s no chance to get bored. There are plenty of children. Whether it is “Nigel Nose a Lot” in *Grossology* with his snot balloon, or Regina the Burmese python in *ForEverglades*, it is fun to watch the children’s reactions. There is also the fellowship with fellow docents. Where else would I meet college students? And folks who have been at this 38 years, ready to share their experience?

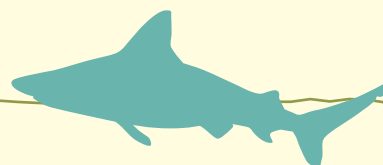
There are docent trips! I have been on a hay ride at Marjorie Kinnan Rawlings Historic State Park. We took a three-day

journey to the Everglades, an event-filled trip with boat and swamp buggy rides and even an airboat ride. These trips are good for laughter and learning.

Speaking of learning...I have accumulated quite an array of ‘new to me’ facts. I learned that the Tuareg are more than a Volkswagen model. They are a tribe renowned for being nomads who crisscrossed the Sahara Desert with camel caravans of salt. Salt is so valuable as the only food preservative they know that they can’t travel without it and even use it as currency. The word salary comes from salt.

In *Grossology* I learned that my nose is a miracle, not only breathing and smelling but connecting to tear ducts to channel overflow tears. On your own you breathe first out of one nostril, then the other. Not to mention the advantages and disadvantages of mucus production. I could do five minutes on “the nose.”

Recently I remarked to a ranger on Paynes Prairie Preserve State Park, “learn something new every day.” He responded, “I think you are supposed to.” If that sounds right to you, come on down and check out volunteering at the Florida Museum. You will love it. It saved my life!





## Collections and Research

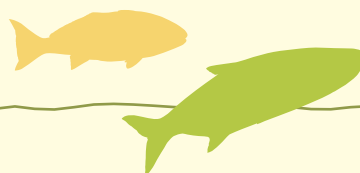
Ichthyology Curator Larry Page received a \$2.7 million NSF Planetary Biodiversity Inventory grant to survey Cypriniformes.

**The Florida Museum of Natural History** houses more than 30 million scientific specimens. The collections include field notes, photographs, databases and libraries that complement the irreplaceable scientific value of the specimens themselves. Most of the Museum's collections of plants, animals, fossil, and artifacts rank among the top 10 nationally and internationally.

During 2009-2010, the Museum's collections and research programs had an outstanding year. Though its primary focus is on Florida, the southeastern United States and the Caribbean, Florida Museum research spans the globe. Museum researchers brought in a record \$5.8 million in new and continuing multi-year grants to support field

and laboratory research, collections and education ranging from Pre-K to Ph.D.

Among many others, exciting new projects include research on the evolution of plants and animals of the Panamanian isthmus, the diversity and evolutionary relationships of cyprinid fishes (minnows) worldwide, and the genetic make-up of the world's most primitive flowering plant. These projects support and educate students from the University of Florida as well as others around the world who are training to become the next generation of scientists.



## ANTHROPOLOGY AND ARCHAEOLOGY

### Caribbean Archaeology

The Caribbean Archaeology Division continued its leadership role on regional and international levels. The Museum curates the world's second-largest systematic collection of Caribbean artifacts and hosted a number of international researchers to study the collection. The Museum program remains the only U.S. group working in all three of the Caribbean's archipelagoes, with research in St. Lucia, Puerto Rico and the Turks & Caicos Islands. These investigations contributed to a complete revision of the islands' cultural history and colonization. Participation in the international conference on Global Human Ecodynamics highlighted the importance of this region for long-term perspectives on global climate change. The program continues to focus on the historical role of humans in shaping landscapes, ecologies and behavior.

### Ceramic Technology Lab

Ann Cordell studied prehistoric pottery from the Kolomoki site, Ga., in collaboration with Thomas Pluckhahn (University of S. Florida) to answer questions about manufacturing origins of the "Weeden Island" style of pottery in Northern Florida and Southern Georgia.

### Environmental Archaeology

Kitty Emery, UF graduate student Erin Thornton and geochemists from McMaster University combined zooarchaeology with isotopic chemistry to trace climate change in the ancient Maya world. Their results suggest that several droughts affected the Maya, but had variable impacts on different sites across the region. The work finds that the droughts were insufficient to have caused widespread loss of animal biodiversity or of major water systems.

### Florida Archaeology

At the Randell Research Center, the Museum's archaeological facility on Pine Island in Southwest Florida, the historic Ruby Gill House was fully restored after severe damage sustained during Hurricane Charlie in 2004. The beautifully rehabilitated building accommodates offices and laboratories used by curator William Marquardt, associate scientist Karen Walker and colleagues as they study the ancient Calusa culture and conduct educational programs at the historically significant archaeological site.

### Latin American Archaeology

Through an agreement with the government of Belize, curator Susan Milbrath and courtesy assistant curator Debra Walker coordinated the transfer of a major archaeological collection from Southern Methodist University to the Florida Museum. The collection, excavated in Cerros, Belize, includes field catalogs, maps, photographs, whole pots, and vast amounts of ceramic sherds, ground and chipped stone, faunal bone, shell, macrobotanical samples, metals and other materials. Dating to the late pre-classic period (350 BC-AD 150), the Cerros site is key to understanding the development of Maya civilization. It is the only intact early Maya collection excavated by archaeologists housed in the U.S.

### Spanish Colonial Archaeology

The Historical Archaeology program continued its ongoing research on the initial settlement and colonization of St. Augustine, and completed a new summary report of excavations conducted at the Fountain of Youth Park Archaeological Site from the 1930s to present. Kathleen Deagan and Gifford Waters also directed excavations at the Nombre de Dios mission site in St. Augustine in an effort to better understand the area's 16th-century and mission-period occupations. Curation upgrades of the pre-1970s collections of historic period Caribbean sites continued in the laboratory.



This beaded bandolier bag is one of about 500 Seminole and Miccosukee artifacts in the Museum's Florida Ethnographic Collection. The Museum is working to digitize the collection and facilitate dialogue between curators and native peoples about the artifacts.

## GENETICS RESOURCES REPOSITORY

The Museum added more than 12,000 DNA samples of plants, birds, amphibians, reptiles, fishes, butterflies, marine invertebrates and various animal tissues to its Genetics Resources Repository. This rapidly growing collection is featured in the Frontiers of Science display in the *Collections are the Library of Life* exhibit at Powell Hall, which opened in November 2010. This exhibit highlights the wide range of biological materials stored long term in the liquid nitrogen freezer.

## INFORMATICS

The Informatics Division has been involved in a number of activities including development of the Museum's new database system. The system provides data management of currently eight million digitized objects and allows the public the ability to search, map and browse images of the specimens. In addition to the ongoing development of The Tree of Life Knowledge and Information Network ([www.tolkin.org](http://www.tolkin.org)), a web application that supports biodiversity research and allows distant collaboration among scientists, more progress was achieved with the name registration database known as RegNum, which stores and manages phylogenetic definitions, and the Digital Florida initiative that provides museum-based collections information through interactive web resources.



Herbarium and Informatics Assistant Curator Nico Cellinese received a prestigious National Science Foundation \$865,000 CAREER Award. The five-year grant will support her research on genetic diversity in the flowering plant group Campanulaceae in the Eastern Mediterranean Basin.



Florida Museum Director Doug Jones (left), former directors Peter Bennett and Wayne King and former senior associate director Graig Shaak helped executive secretary Sharon Thomas celebrate her retirement during a June reception at Dickinson Hall. Thomas worked at UF 35 years, including 30 in the Museum Director's office, where she still serves as a volunteer.

## NEONTOLOGY

### Herbarium

Graduate student Kurt Neubig and research associate Skip Blanchard are reconstructing the evolutionary history of the "marsh mallows," including the genus *Kosteletzkya*, based on DNA data. This genus is widely distributed in tropical Africa and the New World and closely related to *Hibiscus*. Their evolutionary trees indicate a group of African species were the parental stock for ancient hybrids that gave rise to several modern species. Remarkably, this evolutionary story is very similar to hybridization among species of cotton, a closely related group that has undergone a parallel evolutionary history.

### Herpetology

Herpetology's crowning achievement this year was its National Science Foundation collection grant, received together with the Museum's Ichthyology Division, to curate large scientific specimens in a safe, efficient manner and provide a better environment to conserve them for posterity. The specimens include crocodylians, large turtles, lizards and snakes. The Museum's Herpetology collection is unusual because of the number of large specimens from throughout the world.

### Ichthyology

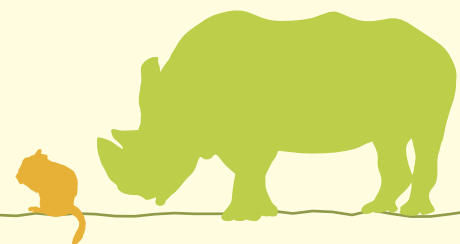
Larry Page is principal investigator on a new \$2.7 million award from the National Science Foundation to conduct a worldwide inventory of Cypriniformes, the largest order of freshwater fishes, including minnows, loaches and suckers. The four-year award is part of NSF's Planetary Biodiversity Inventory initiative, which aims to catalogue every species on Earth by 2025. Page directed another Planetary Biodiversity Inventory grant from 2003 to 2009 to inventory catfishes worldwide. That effort has led to the description of 500 new catfish species and is expected to result ultimately in the description of 1,000 new species. The Cypriniformes project is expected to have similar results.

### Invertebrate Zoology

From jagged volcanic peaks to a labyrinth of coral reefs, the Invertebrate Zoology team climbed, dove and hiked, and even vacuumed every habitat on Tahiti's beautiful neighbor Moorea. The Moorea Biocode Project, supported by a grant from the Gordon and Betty Moore Foundation, will create the first comprehensive inventory of all non-microbial life in a tropical ecosystem. In addition, a genetic barcode will be generated for every animal and plant collected, creating a DNA library that can be used to identify species from tiny tissue samples.

### The Katharine Ordway Chair in Ecosystem Conservation

Three students, Jill Jankowski, Wendy Schelsky and Christine Stracey, finished their doctoral theses on birds, one in Illinois, one in Gainesville, and the other in Peru. One of Jankowski's thesis chapters on Andean birds made the cover of the flagship journal *Ecology*, and she started a postdoctoral program at the University of British Columbia. Schelsky accepted a position at the Illinois Natural History Survey and Stracey started a faculty position at Westminster College in Utah.



## Mammalogy

Florida Museum scientists have been surveying bats throughout the Caribbean with a focus this year on the Bahamas. Surveys show the common species on Eleuthera, Abaco and Long islands are doing well, but two uncommon species may be in serious decline. One exciting discovery was a bat living on Long Island that was previously only known from the Bahamas as a fossil. Future plans include using DNA sequences from the bats to estimate population sizes and make recommendations about conservation management.

## Molecular Systematics and Evolutionary Genetics Laboratory

For the past decade, researchers in the Molecular Systematics and Evolutionary Genetics Laboratory have been studying the genetic basis for the origin of the flower. Recent discoveries show living relatives of the first flowering plants use the same genes to construct their flowers as more recently derived, and better studied, species. But the species express these genes differently, sometimes resulting in striking differences in structure of the flower. This research will assist in helping scientists better understand the source of the amazing variety in flowering plants.

## Orchid Research

In the recent book *Genera Orchidacearum* (Volume 5, Oxford University Press) Mark Whitten, Norris Williams and Kurt Neubig provided nearly all the molecular phylogenetic trees for thousands of species in the subtribes Maxillariinae, Oncidiinae, Zygopetalinae and Stanhopeinae. These trees resulted in a major reclassification of approximately 10 percent of all orchids, which are the largest family of flowering plants.

## Ornithology

Museum ornithologists expanded their research efforts in Peru, focusing on the deep, remote valleys in the country's northern region, where unique birdlife inhabits the thorny deserts and dry forests. Dave Steadman, Andy Kratter, Scott Robinson and students Jessica Oswald and Oona Takano are partnering with Peruvian scientists to learn how today's bird communities change with elevation, how much genetic isolation exists between the birds of adjacent valleys, and, by studying fossils, how birdlife has changed since the last ice age.



Ornithology Collection Manager Tom Weber is coordinating an NSF-funded \$446,000 project to digitize the Museum's analog bird-sound field recordings, one of the largest collections in the Western Hemisphere with 23,650 cataloged recordings representing about 3,000 species.



Craig Samuel has worked since 2006 as a volunteer for the Invertebrate Paleontology Division, where he collects, sorts and identifies fossils.

## PALEONTOLOGY

### Invertebrate Paleontology

Invertebrate paleontology scientists continue to provide information and images to researchers and the public about new state and regional fossil discoveries. Two new genera and three new species of Eocene starfish were collected in Alachua and Citrus counties, and a new species of giant snail (up to 1 meter long) was discovered in similar-aged deposits in Jamaica. Museum invertebrate paleontologists also served as officers and board members of the Florida Paleontological Society and produced fossil identification guides used by hundreds of collectors from Florida and elsewhere.

### Paleobotany and Palynology

Steve Manchester and colleagues discovered new paleobotanical sites near Bogota, Colombia, containing plant fossils informative about the early origin of the modern Neotropical Forest. As part of a new effort in South America, Manchester, with graduate student Fabiany Herrera, revisited and collected the famous Belen fossil fruit and seed flora of western Peru, last studied in 1939.

### Vertebrate Paleontology

Associate Curator Jonathan Bloch continued his work on early primates, including several new studies on cranial anatomy using CT imaging that provided insight into the evolution of the brain. New collections of Paleocene-Eocene fossils from Wyoming and northern Colombia are being used to document biological responses to global warming, and fossils from the early Miocene of Panama included the discovery of the oldest camels from Central America. Graduate student Dana Ehret finished his dissertation on fossils sharks, including new data on the origin of the great white shark. Public digs of early Miocene fossils at Thomas Farm in Gilchrist County resulted in the recovery of a skull of the rare wolverine-like carnivore *Zodiolestes freundi*.

## RESEARCH LOCATIONS

**Florida** – All counties, with special attention to Alachua, Broward, Calhoun, Charlotte, Citrus, Collier, Columbia, Dade, Duval, Franklin, Gadsden, Gilchrist, Glades, Hardee, Highlands, Hillsborough, Holmes, Jackson, Jefferson, Lee, Leon, Levy, Liberty, Marion, Nassau, Pasco, Pinellas, Polk, Putnam, St. Johns, Sarasota, Suwannee, Union, Volusia, Wakulla and Walton counties.

**Other States** – Alabama, Arizona, Georgia, Hawaii, Illinois, Kentucky, Louisiana, Montana, Nebraska, New York, South Carolina, Tennessee, Texas, Wyoming.

**International** – Bahamas, Bhutan, Bolivia, Colombia, Costa Rica, Cuba, Ecuador, French Polynesia, Guyana, Honduras, Italy, Jamaica, Guatemala, Mexico, Pakistan, Panama, Peru, Puerto Rico, St. Lucia, Thailand, United Kingdom.

## SPECIAL ACHIEVEMENTS, FACULTY *and* STAFF

**Kurt Auffenberg** awarded Florida Museum Thompson Van Hyning Award for meritorious service.

**Reed Beaman** appointed to serve as a Program Director at the National Science Foundation, Division of Biological Infrastructure for 2010-11.

**Nico Cellinese** received an NSF CAREER award.

**Kathleen Deagan** received Sen. Bob Edwards Award from the Florida Department of State. Awarded “In recognition of public service that has forever changed the course of Historic Preservation in Florida.”

**Bruce MacFadden** received Joseph T. Gregory Award for outstanding service to the Society of Vertebrate Paleontology. He also served as Program Officer at the National Science Foundation Division of Research on Learning, Lifelong Learning Cluster.

## NEW GRANTS *and* CONTRACTS

During the 2009-10 fiscal year, the Florida Museum received \$3.9 million in new grants and contracts from the following organizations:

- Florida Department of Agriculture and Consumer Services
- Florida Wildflower Foundation
- National Science Foundation
- The Ohio State University Research Foundation
- Smithsonian Tropical Research Institute
- University of Arizona
- U.S. Dept. of Commerce

## TEACHING

ANG 4905 Individual Research in Anthropology, 23 credits  
ANG 5172 Seminar in Historical Archaeology, 3 credits  
ANG 6120C/ANT 4147C Environmental Archaeology, 3 credits  
ANG 6150 Individual Research in Anthropology, 3 credits  
ANG 6186 Economic Archaeology, 3 credits  
ANG 6224 Painted Books of Ancient Mexico, 3 credits  
ANG 6905 Individual Studies, 10 credits  
ANG 6905/6945 Individual Studies in Anthropology, 4 credits  
ANG 6910 Supervised Research, 3 credits  
ANG 6915 Research Projects in Social, Cultural, and Applied Anthropology, 5 credits  
ANG 6940 Supervised Teaching, 6 credits  
ANG 6971 Research for Master's Thesis, 13 credits  
ANG 7979 Advanced Research, 6 credits  
ANG 7980 Advanced Research, 20 credits

ANT 4907 Honors Scholar Research, 2 credit hours

ARH 6430 Museum Communities, 3 credits  
ARH 6930 Museum Ethics, 3 credits

BOT/ZOO 5115 Paleobotany, 3 credits  
BOT 6905 Individual Studies in Botany, 4 credits  
BOT 6935 Herbarium Management, 1 credit  
BOT/ZOO 6935 Topics in Biodiversity Informatics and Molecular Systematics, 2 credits  
BOT 6971 Research for Master's Thesis, 3 credits  
BOT 7979 Advanced Research, 36 credits  
BOT 7980 Research for Doctoral Dissertation, 32 credits

ENY 4396 Individual Research, 2 credits  
ENY 6934 Seminar in Insect Biogeography, 2 credits

GLY 6971 Advanced Research, 6 credits  
GLY 7979 Advanced Research, 4 credits  
GLY 7980 Advanced Research, 8 credits

HIS 3931 Science in the Mall, 3 credits  
HIS 4905 Individual Study, 6 credits

IDH 4905 Individual Work, 3 credits

PCB 6791 Research for Master's Thesis, 13 credits

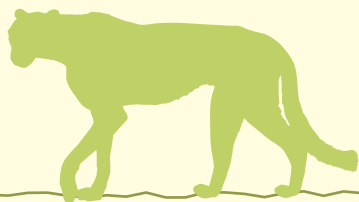
WIS 4934 Invasion Ecology of Amphibians and Reptiles, 4 credits  
WIS 4934/WIS 6934 Topics in Wildlife Ecology and Conservation, 3 credits  
WIS 6940 Supervised Teaching, 3 credits  
WIS 6971 Research for Master's Thesis, 10 credits  
WIS 7979 Advanced Research, 10 credits

ZOO 432 Marine Invertebrate Zoology, 6 credits (U. Washington)  
ZOO 4905 Individual Studies in Zoology, 35 credits  
ZOO 6905 Individual Studies in Zoology, 3 credits  
ZOO 6910 Supervised Research, 3 credits  
ZOO 6927 Avian Anatomy and Specimen Preparation, 3 credits  
ZOO 6927 Methods of Phylogenetic Inference, 4 credits  
ZOO 6927 Vertebrate Macroevolution and Development, 3 credits  
ZOO 6927/GLY 6932 Island Biogeography and Paleontology, 3 credits  
ZOO 6927/GLY 6932 Seminar in Vertebrate Paleontology, 1 credit  
ZOO 6927/GLY 6932 Systematics and the Fossil Record, 3 credits  
ZOO 7979 Advanced Research, 40 credits  
ZOO 7980 Research for Doctoral Dissertation, 35 credits

**Graduate Committees Served: 102**

**Graduate Committees Chaired: 76**

**Independent Studies Directed: 74**





“The Fly Wheel” display in the *CSI: Crime Scene Insects* temporary exhibition uses a strobe light to illustrate the bug’s life cycle progression.

## Exhibits

### Traveling Exhibits Program – Museum on the Road!

Traveling exhibits give the Museum the opportunity to share its research and education efforts with a broad national audience, while also garnering income to support production of new exhibitions. This year, the Florida Museum traveled two exhibits. The 5,000-square-foot *Megalodon: Largest Shark that Ever Lived* showed at the Miami Science Museum, the Virginia Living Museum and the North Carolina State Museum of Natural Science. The 3,000-square-foot *TUSKS! Ice Age Mammoths and Mastodons* traveled to the Las Vegas Natural History Museum, the University of Texas and the State Museum of Pennsylvania.



The Museum’s *Megalodon: Largest Shark that Ever Lived* and *TUSKS! Ice Age Mammoths and Mastodons* exhibits traveled to various venues across the country last year.

### Butterfly Science

The Museum opened a new permanent exhibition in the McGuire Center for Lepidoptera and Biodiversity with an expansion of the butterfly gallery showcasing behind-the-scenes research and collections areas. The Museum, well-known for its amazing live *Butterfly Rainforest* exhibit, is also home to one of the world’s largest scientific collections of butterflies and moths. The new exhibits introduce visitors to ongoing science visible in the laboratories and collections areas. The Rearing Lab also was updated with a two-way audio system allowing visitors to talk to scientists, and new casework showcasing the lab’s emerging butterflies.

### Changing Exhibits

Rotating temporary exhibits provide the Museum’s repeat visitors with new and diverse information. The changing exhibits also allow the Museum to stretch beyond its expertise, partner with community groups and collaborate with other institutions. This year the highly interactive *Amazing Butterflies* provided a great experience for families, *Amazon Voyage: Vicious Fishes and Other Riches* offered an exciting exploration of Amazon science, and *Quilting Natural Florida II* allowed the Museum to partner with a local quilting guild to produce a juried exhibit of international quilts featuring Florida natural history themes. In May the Museum opened *CSI: Crime Scene Insects*, which focused on the fascinating field of forensic entomology, including its history and use in crime solving.



## Development and Membership

Museum Assistant Director for Exhibits,  
Darcie MacMahon, and husband David Harlos  
enjoy Passport to Key West.

**The Museum made significant gains** during the past year thanks to generous support from donors who believe in the importance of understanding and preserving biodiversity and cultural heritage. Private support makes a tremendous difference in the Museum's success. Dr. William and Nadine McGuire's gift of rare Lepidoptera specimens and books valued at more than \$15 million helped the Museum maintain its ranking as the world's leading butterfly and moth research center.

The Museum also received significant support from two Gainesville families. A real estate gift from Aase and Rick Thompson valued at more than \$1 million triggered the completion of a \$3 million challenge gift from Dr. David and Mary Ann Cofrin. Both gifts will support a Powell Hall expansion and renovation project, for which the Museum has received more than 25 percent of the needed funding.

A deferred gift of more than 1 million mollusk specimens to the Malacology collection from Dr. Harry and Sarah Lee documents the fauna's changes over several decades. It also includes the world's largest and most diverse private or museum collection of abnormally sinistral species, meaning they coil to the left. This significant gift also adds Dr. Lee to the Museum's Legacy Society, which recognizes donors who make provisions in their estate to benefit the Museum.

Woodward "Woody" Hanson's donation of the Hanson Family Archives presents a unique research opportunity for the Ethnography faculty and staff. The collection of

more than 1,000 documents, images and artifacts from 1884 to the mid-1900s provides invaluable information about the historic places, people and institutions of Southwest Florida, including unrivaled insight into the community's relationship with the neighboring Seminole and Miccosukee Indians.

Additional notable gifts include another significant ethnographic collection from I.S.K. and Sara Reeves, substantial Lepidoptera specimen donations from Drs. J. D. and Nancy Turner, Kent H. Wilson and Dr. Lowell Harris, as well as cash gifts to support the Florida Program for Shark Research, graduate student and faculty research, and the Discovery Room, among others.

Museum membership held steady during difficult financial times. The MembershipPlus program remained popular with 60 percent of new and renewing member selecting this option. The Museum Associates Board hosted another highly successful Passport fundraiser, generating more than \$60,000 to support Museum research, education and programs. This year's event – Passport to Key West – included the largest silent auction in the Museum's history.

The Museum is extremely thankful for the support of friends, donors and volunteers who believe in the Museum and its mission. For more information about the new Legacy Society or other ways to support the Florida Museum of Natural History, please contact Josh McCoy in the Museum Development Office, 352-273-2086.





## Educational Programming

Dr. Scott and Buddy the *T. rex* entertain children on Pre-K Day.

### Starry Night

In partnership with the UF Astronomy Department, Alachua Astronomy Club, NASA Space Grant consortium and GE Foundation, the Museum celebrated the International Year of Astronomy with a fun-filled night of astronomical proportions for the whole family. Activities for the Sept. 25 event included driving Lego moon rovers, seeing a portable planetarium show, viewing a moonscape in 3-D and joining astronaut, Capt. Winston Scott, for an inside look at what it takes to visit space. The event was extremely successful with more than 3,000 visitors.



Visitors enjoy the fourth annual Starry Night public program.

### Dinosaur Train Pre-K Day

Dr. Scott the paleontologist and Buddy the *T. rex* from the popular PBS TV show *Dinosaur Train* visited the Museum March 26 for a free public program. Presented in partnership with WUFT-TV/DT and the Early Learning Coalition of Alachua County, the event featured educational, dinosaur-themed activities and an opportunity for children to meet Buddy, star of the newest PBS KIDS show. Activities included dinosaur games, songs, coloring stations and a meet-and-greet session with Dr. Scott. Dr. Scott is Scott Sampson, a paleontologist, evolutionary biologist, educator, and research curator at the Utah Museum of Natural History. Scott also presented a free public lecture to discuss his latest research and new book, *Dinosaur Odyssey: Fossil Threads in the Web of Life*.



Pre-K Day included many fun activities for students.



## Center for Informal Science Education

Two youth survey butterflies as part of the WINGS program, which was selected as a recommended National 4-H curriculum.

### MESS guides distributed nationwide

*Marvelous Explorations through Science and Stories* teacher's guides were made available on the websites of the Museum and national Office of Head Start. This early childhood science curriculum fosters children's language and literacy development, problem solving, curiosity, and general knowledge. The guides include background information for the teacher, hands-on experiences that address science ideas covered by state and national standards, recommended children's books and suggestions for reinforcing science learning across the curriculum.

### WINGS selected as recommended National 4-H curriculum

*Project Butterfly WINGS: Winning Investigative Network for Great Science* was selected as a reviewed and recommended National 4-H curriculum. The WINGS Youth Guide, Leader Guide and interactive website encourage adolescent interest, understanding, and long-term involvement in science. The project also received a National Science Foundation grant of \$86,757 for nationwide program dissemination and website additions and revisions.

### Call the Wild apps developed with help of NSF grant

The Museum received nearly \$500,000 from the National Science Foundation for the project *Call the Wild: Fostering Understanding of the Nature of Science*. Developed by scientists and educators at UF's Florida Museum and IFAS Extension, Jacksonville Zoo and Gardens and Association of Zoos and Aquariums in collaboration with Odysseus Mobile Computing, Guide by Cell and Institute for Learning Innovation, the project examined the effectiveness of mobile phones for increasing visitor interest, engagement and understanding of the nature of science.



Prototypes incorporating different interpretive strategies and technology features were developed for exhibits on the bonobo, or pygmy chimpanzee, Magellanic Penguin and alligator. The *Call the Wild-Alligators* and *Call the Wild-Penguins* applications created for the Jacksonville Zoo and Gardens are available free through iTunes.





## McGuire Center

These *Colias aurorina* butterflies were collected in the Republic of Dagestan, Russia, and donated to the Museum by William and Nadine McGuire.

The McGuire Center for Lepidoptera and Biodiversity had a highly successful year, receiving significant contributions to its collections, participating in a number of biodiversity projects and conservation surveys, and hiring two new assistant curators.

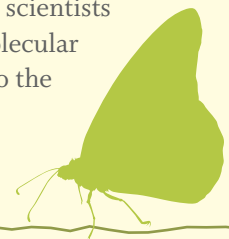
Dr. William and Nadine McGuire of Minnesota donated more than 100,000 Lepidoptera specimens to the Museum, including many rare species from around the world. The donation also included cabinets, drawers and an exceptional scientific library of more than 42,000 books, journals and papers. Collectively the gift was valued at more than \$15 million.

The new McGuire specimens include material from areas difficult to access, including Afghanistan, Iraq, Iran, Kurdistan, Mongolia, Pakistan, Saudi Arabia, Turkey, Turkistan and the smaller Central Asian Republics of the former Soviet Union. The donation also included more than 40,000 specimens of worldwide Papilionidae (swallowtail butterflies), many of which were not previously included in the McGuire Center collections.

Kent H. and Gene Wilson of Oklahoma donated a collection of more than 30,000 butterflies, considered the finest private or public museum holding in the U.S. for the swallowtail family. The collection includes specimens from extinct populations that are little known and poorly represented in the world's museums.

New butterfly conservation projects and biodiversity surveys were started in collaboration with the Africa Butterfly Research Institute in Kenya, the Irvine Conservancy in California, Central University in Ecuador, Silliman University and University of San Carlos in the Philippines and the University of the West Indies in Jamaica.

After highly competitive searches, the Museum hired two assistant curators of Lepidoptera: Akito Kawahara of the University of Maryland and Jodranka Rota of the Smithsonian Institution. The new scientists provide expanded strengths in molecular biology, systematics and ecology to the McGuire Center curatorial staff.



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Guests enjoy the annual Director's Dinner in the Central Gallery.

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### Memorial Gifts Received in Honor of

Adele Anderson  
George Austin  
Pope Cheney  
Norman Roberts

Key: (d) = deceased



Custodian Melinda Augustus, featured in *The Philosopher Kings*, was recognized with a reception and screening of the documentary.

## PEER-REVIEWED PUBLICATIONS

Anjos, L. dos, R.D. Holt and **S.K. Robinson**. 2010. Distributional range and sensitivity to forest fragmentation in birds: A case history from Atlantic rainforest woodlots of northern Parana, Brazil. *Bird Conservation International* 20:1-8.

APG III (Angiosperm Phylogeny Group, including **P.S. Soltis**). 2009. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APGIII. *Botanical Journal of the Linnean Society* 161:105-121.

**Arakaki, M.**, D.E. Soltis, **P.S. Soltis** and P.R. Speranza. 2010. Characterization of polymorphic microsatellite loci in *Haageocereus* (Trichocereaceae, Cactaceae). *American Journal of Botany Primer Notes and Protocols* 97:e17-e19.



Ichthyology Curator Larry Page displays an Orange Loach.

**Austin, G.T.** and **A.D. Warren**. 2009. New looks at and for *Onespa*, *Buzyges*, and *Librita* (Lepidoptera: Hesperidae: Hesperinae), with new combinations and descriptions of a new genus and six new species. *Insecta Mundi* 0089:1-55.

Avery, M.L., E.A. Tillman and **K.L. Krysko**. 2009. *Gopherus polyphemus* (Gopher Tortoise), *Ctenosaura similis* (Gray's Spiny-tailed Iguana) Predation. *Herpetological Review* 40:435.

Banks, R.C., R.T. Chesser, C. Cicero, J.L. Dunn, **A.W. Kratter**, I.J. Lovette, P.C. Rasmussen, J.V. Remsen, Jr., J.A. Rising, D.F. Stotz and K. Winker. 2009. Fiftieth supplement to the American Ornithologists' Union check-list of North American birds. *Auk* 126:705-714.

Bershaw, J., C.N. Garziona, P. Higgins, **B.J. MacFadden**, F. Anaya and H.M.F. Alvarenga. 2010. Spatial-temporal changes in Andean plateau climate and elevation from stable isotopes of mammal teeth. *Earth and Planetary Sciences Letters* 289:530-538.

Blake, D.B. and **R.W. Portell**. 2009. Implications for the study of fossil Asteroidea (Echinodermata) of new genera and species from the Eocene of Florida. *Journal of Paleontology* 83:562-574.



Junior Volunteer Fanchao "Leo" Zhu talks with a Museum visitor.

Briscoe, A.D., S.M. Bybee, G.D. Bernard, F. Yuan, M.P. Sison-Mangus, R.D. Reed, **A.D. Warren**, J. Llorente-Bousquets and C.-C. Chiao. 2010. Positive selection of a duplicated UV-sensitive visual pigment coincides with wing pigment evolution in *Heliconius* butterflies. *Proceedings of the National Academy of Sciences* 107:3628-3633.

Briscoe, A.D., S.M. Bybee, G.D. Bernard, F. Yuan, M.P. Sison-Mangus, R.D. Reed, **A.D. Warren**, J. Llorente-Bousquets and C.-C. Chiao. 2010. Reply to Nozawa et al. Complementary statistical methods support positive selection of a duplicated UV opsin gene in *Heliconius*. *Proceedings of the National Academy of Sciences* 107:E97.

**Brockington, S.F.**, **R. Alexandre**, J. Ramdial, M.J. Moore, **M.A. Gitzendanner**, A. Dhingra, D.E. Soltis and **P.S. Soltis**. 2009. Phylogeny of Caryophyllales and patterns of floral evolution. *International Journal of Plant Sciences* 170:627-643.

**Buggs, R.J.A.**, S. Chamala, W. Wu, L. Gao, G.D. May, P.S. Schnable, D.E. Soltis, **P.S. Soltis** and W.B. Barbazuk. 2010. Characterization of duplicate gene evolution in the recent natural allopolyploid *Tragopogon miscellus* by next-generation sequencing and Sequenom iPLEX MassARRAY genotyping. *Molecular Ecology* 19:132-146.

**Buggs, R.J.A.**, A.N. Doust, J.A. Tate, A.H. Paterson, **K.A. Soltis**, A. Bigger, **P.S. Soltis** and D.E. Soltis. 2009. Rapid loss and silencing of homeologs in the recent allotetraploid *Tragopogon miscellus* (Asteraceae): Analysis of synthetic polyploids and natural populations. *Heredity* 103:73-81.



Education Assistant Tiffany Ireland leads a Pollinator Parade at ButterflyFest.

**Buggs, R.J.A.**, N.M. Elliott, L. Zhang, J. Koh, L.F. Viccini, D.E. Soltis and **P.S. Soltis**. 2010. Tissue-specific silencing of homeologs in natural populations of the recent allopolyploid *Tragopogon mirus*. *New Phytologist* 186:175-183.

**Buggs, R.J.A.**, **P.S. Soltis** and D.E. Soltis. 2009. Does hybridization between divergent progenitors drive whole-genome duplication? *Molecular Ecology* 18:3334-3339.

Burdette, K.E., W.J. Rink, G.H. Means and **R.W. Portell**. 2009. Optical dating of the Anastasia Formation, northeastern Florida, USA. *Southeastern Geology* 46:173-185.

**Burgess, G.H.**, **R. Buch**, **F. Carvalho**, **B. Garner** and **C. Walker**. 2010. Factors contributing to shark attacks on humans: A Volusia County, Florida case study. pp. 541-567 in J. Carrier, J. Musick and M. Heithaus, eds. *Sharks and Their Relatives II: Biodiversity, Adaptive Physiology, and Conservation*, CRC Press, Ft. Lauderdale, FL.

Burr, B.M. and **L.M. Page**. 2009. Illinois fish communities: more than a century of change. pp. 147-162 in C.A. Taylor, J.B. Taft and C.E. Warwick, eds. *Canaries in the Catbird Seat: The Past, Present, and Future of Biological Resources in a Changing Environment*. Illinois Natural History Survey Special Publication 30.

**Cadena, E.**, **J.I. Bloch** and C. Jaramillo. 2010. New podocnemid turtle (Testudines: Pleurodira) from the Middle-Upper Paleocene of South America. *Journal of Vertebrate Paleontology* 30:367-382.

**Composano, B.J.**, M.D. Halvorsen and **K.L. Krysko**. 2009. Geographic distribution: *Anolis chlorocyanus* (Hispaniolan Green Anole). *Herpetological Review* 40:363-364.



Vertebrate Paleontology Collection Manager Richard Hulbert works in the lab.

Carlson, J.K., M.M. Ribera, **C.L. Conrath**, M.R. Heupel and **G.H. Burgess**. 2010. Habitat use and movement patterns of bull sharks *Carcharhinus leucas* determined using pop-up satellite archival tags. *Journal of Fish Biology* 77:661-675.

Carlson, L.A. and **D.W. Steadman**. 2009. Faunal exploitation at two prehistoric inland villages from different time periods in Puerto Rico. *Journal of Island and Coastal Archaeology* 4:207-222.

**Cellinese, N.**, S.A. Smith, E.J. Edwards, S.-T. Kim, R.C. Haberle, M. Avramakis, and M.J. Donoghue. 2009. Historical biogeography of the endemic Campanulaceae of Crete. *Journal of Biogeography* 36:1253-1269.

**Chanderbali, A.S.**, V.A. Albert, J. Leebens-Mack, N.S. Altman, D.E. Soltis and **P.S. Soltis**. 2009. Transcriptional signatures of ancient floral developmental genetics in avocado (*Persea americana*; Lauraceae). *Proceedings of the National Academy of Sciences, USA* 106:8929-8934.

Chase, M.W., **N.H. Williams**, A.D. de Faria, **K.M. Neubig**, M. do C.E. Amaral and **W.M. Whitten**. 2009. Floral convergence in Oncidiinae (Cymbididae; Orchidaceae): an expanded concept of *Gomesa* and a new genus *Nohawilliamsia*. *Annals of Botany* 104:387-402.

Clayton, J.W., **P.S. Soltis** and D.E. Soltis. 2009. Recent long-distance dispersal overshadows ancient biogeographical patterns in a pantropical angiosperm family (Simaroubaceae, Sapindales). *Systematic Biology* 58:395-410.

**Coelho, R.** 2010. Review of *Biology and Management of Dogfish Sharks*, edited by V.F. Gallucci, G.A. McFarlane and G.G. Bargmann. *Marine Biology Research* 6:415-416.

## PEER-REVIEWED PUBLICATIONS *continued*



Vertebrate Paleontology graduate student Dana Ehret compares juvenile and adult megalodon teeth.

**Coelho, R.** and K. Erzini. 2010. Depth distribution of the velvet belly, *Etmopterus spinax*, in relation to growth and reproductive cycle: The case study of a deep water lantern shark with a wide ranging critical habitat. *Marine Biology Research* 6:381-389.

**Coelho, R.**, J. Rey, L. Gil de Sola, J. Fernandez-Carvalho and K. Erzini. 2010. Comparing Atlantic and Mediterranean populations of the velvet belly lanternshark, *Etmopterus spinax*, with comments on the efficiency of density-dependant compensatory mechanisms. *Marine Biology Research* 6:373-380.

Collinson, M.E., **S.R. Manchester**, V. Wilde and P. Hayes. 2010. Fruit and seed floras from exceptionally preserved biotas in the European Paleogene. *Bulletin of Geosciences* 85:155-162.

Correa, E., C. Jaramillo, **S.R. Manchester** and M. Gutierrez. 2010. A fruit and leaves of Rhamnaceae affinities from the Late Cretaceous (Maastrichtian) of Colombia. *American Journal of Botany* 97:71-79.

**Covell, C.V. Jr.**, J.M. Marcus and B.D. Marcus. 2009. Kentucky Butterfly Net: An interactive web database to facilitate Lepidoptera research and education in Kentucky. *Journal of the Lepidopterists' Society* 63:209-213.



A young Museum visitor explores science during a Discovery Hour program.

Croft, D., F. Anaya, D. Auerbach, C. Garziona and **B. J. MacFadden**. 2009. New data on Miocene Neotropical provinciality from Cerdas, Bolivia. *Journal of Mammalian Evolution* 16:175-198.

Crook, M.R., S. Hale, **D.M. Jarzen**, L. Kistler, L. Newsom, F. Rich, D. Russell, E. Sheldon and J. Wieczkowski. 2009. Bilbo (9CH4) and Delta (38JA23): Late Archaic and Early Woodland shell mounds at the mouth of the Savannah River. Georgia Department of Transportation, *Occasional Papers in Cultural Resource Management* Number 17:1-96.

**Daniels, J.C.** 2010. *Wildflowers of Florida: Field Guide*. Adventure Publications, Cambridge, MN. 428 pp.

**Deagan, K.A.** 2009. Native American Ceramics at the Fountain of Youth Park Site, St. Augustine (8-SJ-31). pp. 141-164 In K.A. Deagan and D.H. Thomas, eds. *From Santa Elena to St. Augustine: Indigenous ceramic variability (A.D. 1400-1700)*. Anthropological papers of the American Museum of Natural History, no. 90. New York, NY.



Mammalogy Collection Manager Candace McCaffery displays a Florida panther skull.

**Deagan, K.A.** and D.H. Thomas. 2009. Preface. In K.A. Deagan and D.H. Thomas, eds. *From Santa Elena to St. Augustine: Indigenous ceramic variability (A.D. 1400-1700)*. Anthropological papers of the American Museum of Natural History, no. 90. New York, NY.

de-Silva, D.L., J.J. Day, M. Elias, **K.R. Willmott**, A. Whinnett and J. Mallet. 2010. Molecular phylogenetics of the neotropical butterfly subtribe Oleriina (Nymphalidae: Danainae: Ithomiini). *Molecular Phylogenetics and Evolution* 55:1032-1041.

**Dilcher, D.L.** 2010. Major innovations in angiosperm evolution. pp. 97-116 in C.T. Gee, ed. *Plants in Mesozoic Time, Morphological Innovations, Phylogeny, Ecosystems*. Indiana University Press, Bloomington.

Donovan, S.K. and **R.W. Portell**. 2009. Reply to discussion of *Campanile trevorjacksoni* sp. nov.† (Mollusca: Gastropoda) from the Eocene of Jamaica: at last, a name for the first fossil used in intercontinental biostratigraphic correlation (de la Beche 1827). *Geological Journal* 44:497-499.

Eagle, R.A., E.A. Schauble, A.K. Tripathi, T. Tütken, **R.C. Hulbert** and J.M. Eiler. 2010. Body temperatures of modern and extinct vertebrates from <sup>13</sup>C-<sup>18</sup>O bond abundances in bioapatite. *Proceedings of the National Academy of Sciences* 107:10377-10382.

Elsik, W.C. and **D.M. Jarzen**. 2009. New species of the late Cenozoic fungal form-genus *Mediaverrucites* Jarzen and Elsik 1986 ex Nandi and Sinha 2007. *Palynology* 33:99-104.

Emberton, K.C., **J. Slapcinsky**, C. Campbell, J.A. Rakotondrzafy, T.N. Andriamiarison and J. Emberton. 2010. Terrestrial mollusks of Andriantantely Massif, Eastern Madagascar, with descriptions of 36 new species. *Archiv für Molluskenkunde* 139:71-141.

**Emery, K.F.** 2010. *Dietary, Environmental, and Societal Implications of Ancient Maya Animal Use in the Petexbatun: A Zooarchaeological Perspective on the Collapse*. Vanderbilt Institute of Mesoamerican Archaeology Vol. 5. Vanderbilt University Press, Nashville, TN.

**Emery, K.F.** 2009. Maya bone crafting: Defining the nature of a Late/Terminal Classic Maya bone tool manufacturing locus. *Journal of Anthropological Archaeology* 28:458-470.

**Emery, K.F.**, L. Brown, **E. Anderson**, **E. Thornton** and **M. LeFebvre**. 2009. Etnozoología de Depósitos Rituales de los Mayas Modernos de Guatemala. Conference Proceedings of the Simposio de Arqueología Guatemalteca, 2008. Instituto de Antropología e Historia de Guatemala, Guatemala City.

**Endara, L.**, D.A. Grimaldi and B.A. Roy. 2010. Lord of the flies: Pollination of Dracula orchids. *Lankesteriana* 10:1-11.

**Endara, L.**, **N.H. Williams** and S. León-Yáñez. 2009. Patrones de endemismo de orquídeas endémicas ecuatorianas: perspectivas y prioridades para la conservación. pp. 63-70 in A.M. Pridgeon and J.P. Suárez, eds. *Proceedings of the Second Scientific Conference on Andean Orchids*. Universidad Técnica Particular de Loja, Loja, Ecuador.

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Graduate student Edwin Cadena reconstructs a fossil tortoise shell from Colombia.

Greeney, H.F. and **A.D. Warren**. 2009. The immature stages and shelter building behavior of *Falga jeconia ombra* Evans, 1955 in eastern Ecuador (Lepidoptera, Hesperidae, Hesperinae). *Journal of Insect Science* 9:33-43; insectscience.org/9.33.

Haas, S.C., **K.D. Perkins** and M. Bond. 2010. The role of digital specimen images in historical research. pp. 213-220 *In Fields of Vision: Essays on the Travels of William Bartram*, K.E. Holland Braund and **C.M. Porter**, eds. The University of Alabama Press, Tuscaloosa, AL.

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Havird, J.C. and **L.M. Page**. 2010. A revision of *Lepidocephalichthys* (Teleostei: Cobitidae), with descriptions of two new species from Thailand and Myanmar. *Copeia* 2010:137-159.

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**Herrera, F., S.R. Manchester**, C. Jaramillo, **B. MacFadden** and S.A. da Silva-Caminha. 2010. Phylogeographic history and phylogeny of the Humiriaceae. *International Journal of Plant Sciences* 171:392-408.

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**Jankowski, J.E., S.K. Robinson**, and D. Levey. 2010. Squeezed at the top: Interspecific aggression constrains elevational ranges in tropical birds. *Ecology* 91:1877-1884.

**Jarzen, D.M. and D.L. Dilcher**. 2010. Co-evolution between flowering plants and insect pollinators. pp. 69-71 in *McGraw-Hill Yearbook of Science and Technology*. McGraw-Hill, New York, NY.

**Keegan, W.F.** 2009. Central plaza burials in Saladoid Puerto Rico: An alternative perspective. *Latin American Antiquity* 20:375-385.

**Keegan, W.F.** 2009. The synergism of biology and culture. *Journal of Island and Coastal Archaeology* 4:240-248.

Kirkness, E.F., ...**D.L. Reed**,... and B. Pittendrigh (71 total authors). 2010. Genome sequences of the human body louse and its primary endosymbiont provide insights into the permanent parasitic lifestyle. *Proceedings of the National Academy of Sciences USA* 107:12168-12173.

**Kittle, B.A. and R.W. Portell**. 2010. Mollusca – Fort Thompson Formation (Late Pleistocene). *Florida Fossil Invertebrates* 12:1-32.

Koh, J., **P.S. Soltis** and D.E. Soltis. 2010. Homeolog loss and expression changes in natural populations of the recently formed allotetraploid *Tragopogon mirus* (Asteraceae). *BMC Genomics* 11:97.



Graduate student Alex Hastings displays a crocodile vertebrae discovered in Colombia.

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Lea, R.N., H. Espinosa-Pérez, L.T. Findley, **C.R. Gilbert**, N.E. Mandrak, R.L. Mayden, J.E. Nelson and **L.M. Page**. 2010. Comments on Raja say Le Sueur, 1817 (currently *Dasyatis say*; Chondrichthyes, Myliobatiformes, DASYATIDAE): proposed change of spelling to *Raja sayi* Le Sueur, 1817 1 (Case 3410). *Bulletin of Zoological Nomenclature* 67:66-67.



Vertebrate Paleontology Associate Curator Jonathan Bloch compares the 54-million-year-old skull of *Mimoperadectes houdei*, a sister species of all living opossums, with a skull of the modern North American opossum.

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**MacFadden, B.J.** 2009. Training the next generation of scientists about broader impacts. *Social Epistemology* 23:239-248.

**MacFadden B.J.** 2009. Did Bison occur in the late Pliocene (late Blancan) of Florida? Evidence from rare earth element analysis. pp. 371-581 in L.B. Albright III, ed. Papers on Geology, Vertebrate Paleontology, and Biostratigraphy in Honor of Michael O. Woodburne. Flagstaff, *Museum of Northern Arizona Bulletin* 65.

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## PEER-REVIEWED PUBLICATIONS *continued*



Program Assistant Shuronna Wilson celebrates with colleague Mary Windham during a July 2009 reception marking Windham's retirement after 39 years at UF, including 25 with the Museum.

**Manchester, S.R.** and M. Hottenrott. 2009. Large-fruited Salicaceae s.l. from the Miocene tuff of the Eichelskopf, northern Hessen, Germany. *Feddes Repertorium* 120:373-378 DOI: 10.1002/fedr.200911116.

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McMurrin, D.M. and **S.R. Manchester**. 2010. *Lagokarpos lacustris*, a new winged fruit from the Paleogene of western North America. *International Journal of Plant Sciences* 171:227-234.

**Marquardt, W.H.** 2010. Mounds, middens, and rapid climate change during the Archaic-Woodland transition in the southeastern United States. pp. 253-271 in D.H. Thomas and M.C. Sanger, eds. *Trend, Tradition, and Turmoil: What Happened to the Southeastern Archaic?* Anthropological Papers of the American Museum of Natural History, vol. 93, New York.

Martin, J.B. and **R.W. Portell**. 2009. Field trip guide: A brief introduction to the geology, hydrology and natural history of north central Florida, pp. 43-49 in A.S. Engle and S.A. Engle, eds. *Select field guides to cave and karst lands of the United States*. Karst Waters Institute Special Publication 15.

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**Miller, J.Y.** 2010. Lee Denmar Miller (1935-2008): His life and a brief history of the Allyn Museum of Entomology. *Journal of the Lepidopterists' Society* 64:38-49.

**Miller, J.Y.** and **A. Sourakov**. 2009. Some observations on *Amauta cacica procera* (Boisdouval) (Castniidae: Castniinae) in Costa Rica. *Tropical Lepidoptera Research* 19(2):113-114.

Moore, M.J., **P.S. Soltis**, C.D. Bell, J.G. Burleigh and D.E. Soltis. 2010. Phylogenetic analysis of 83 plastid genes further resolves the early diversification of eudicots. *Proceedings of the National Academy of Sciences, USA* 107:4623-4628.



This Adonis blue butterfly, *Polyommatus bellargus*, is from South Tyrol in Austria.

Moore, M.J., **P.S. Soltis**, C.D. Bell, J.G. Burleigh and D.E. Soltis. 2010. Phylogenetic analysis of 83 plastid genes further resolves the early diversification of eudicots. *Proceedings of the National Academy of Sciences, USA* 107:4623-4628.

**Neubig, K.M.**, **N.H. Williams**, **W.M. Whitten** and F. Pupulin. 2009. Molecular phylogenetics and the evolution of fruit and leaf morphology of *Dichaea* (Orchidaceae: Zygopetalinae). *Annals of Botany* 104:457-467.

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Parker, D.J. and **K.L. Krysko**. 2009. Geographic distribution: *Anolis equestris* (Knight Anole). *Herpetological Review* 40:112.

**Pimiento, C.**, **D.J. Ehret**, **B.J. MacFadden** and G. Hubbell. 2010. Ancient nursery area for the extinct giant shark Megalodon from the Miocene of Peru. *PLoS ONE* 5:e10552.

Plaisance, L., N. Knowlton, **G. Paulay** and C. Meyer. 2009. Reef-associated crustacean fauna: biodiversity estimates using semi-quantitative sampling and DNA barcoding. *Coral Reefs* 28:977-986.



The American green tree frog, *Hyla cinerea*, above, is being threatened by the invasive Cuban tree frog.

Pocknall, D.T. and **D.M. Jarzen**. 2009. Pollen with viscin threads from the late Cretaceous and Paleocene, Mérida Andes, Western Venezuela. *Palynology* 33:55-61.

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Pregill, G.K. and **D.W. Steadman**. 2009. Prehistoric vertebrates from Guam (Mariana Islands) and the timing of the prehistoric arrival of *Rattus*. *Diversity and Distributions* 15:983-996.

Reed, R.N., **K.L. Krysko**, R.W. Snow and G.H. Rodda. 2010. Is the Northern African Python (*Python sebae*) established in southern Florida? *IRCF Reptiles and Amphibians* 17:52-54.

Reid, M. and **A.D. Warren**. 2009. A new grass skipper for Texas and the United States: *Mnasilus allubita* (Hesperiidae: Hesperinae: Moncini). *News of the Lepidopterists' Society* 51:115-117.

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This bumblebee shrimp, *Gnathophyllum americanum*, was collected during a Museum research expedition to Guam.

Silcox, M.T., A.E. Benham and **J.I. Bloch**. 2010. Endocasts of *Microsyops* (Microsyopidae, Primates) and the evolution of the brain in primitive primates. *Journal of Human Evolution* 58:505-521.

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**Sourakov, A.** 2009. Extraordinarily quick visual startle reflexes of skipper butterflies (Lepidoptera: Hesperidae) are among the fastest in the animal kingdom. *Florida Entomologist* 92:653-655.

**Sourakov, A.** 2009. Notes on the biology of the Gulf Fritillary *Agraulis vanillae* (Lepidoptera: Nymphalidae) in north-central Florida. *Journal of the Lepidopterists' Society* 63:127.

**Sourakov, A.** 2009. On the immature stages of citrus-feeding butterflies of Hispaniola. *Tropical Lepidoptera Research* 19:115-117.

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**Steadman, D.W.** 2009. Preface. in P.E. Bradley and R.L. Norton, eds. *An Inventory of Breeding Seabirds of the Caribbean*. University Press of Florida, Gainesville.

**Steadman, D.W.** 2009. Vertebrate diversity: the long view. pp. 46-52 in T. de Roy, ed. *Galápagos: Preserving Darwin's Legacy*. David Bateman, New Zealand.

**Steadman, D.W.** 2010. Review of *Birds and Bats of Palau*, by H.D. Pratt and M.T. Etpison. *Wilson Journal of Ornithology* 122:411-412.

**Steadman, D.W.** and R. Bollt. 2010. Prehistoric birds from Rurutu, Austral Islands. *Pacific Science* 64:315-325.

**Steadman, D.W.** and J.I. Mead. 2010. A late Pleistocene bird community from the northern edge of the tropics in Sonora, Mexico. *American Midland Naturalist* 163:423-441.

Tarter, D.C., D.L. Chaffee, **C.V. Covell, Jr.** and S.T. O'Keefe. 2010. New distribution records of *Corydalus cornutus* (Linnaeus) (Megaloptera: Corydalidae) in Kentucky, U.S.A. *Entomological News* 120(4):375-379.



Paleobotany Curator Steve Manchester works in the lab.

Tennent, W.J., **J.Y. Miller** and A. Rawlins. 2010. Distribution of *Acroptalmia chione* Felder and Felder, 1867, with descriptions of two new subspecies from eastern Indonesia (Lepidoptera: Nymphalidae: Satyrinae). *Bulletin of the Allyn Museum* 162:1-7.

**Thompson, F.G.** 2010. Four species of land snails from Costa Rica and Panama (Pulmonata, Spiraxidae, Spiraxinae). *Revista de Biología Tropical*, 58:195-202.

Trager, M.D. and **J.C. Daniels**. 2009. Ant tending of Miami Blue Butterfly larvae (Lepidoptera: Lycaenidae): Partner diversity and effects on larval performance. *Florida Entomologist* 92:474-482.

van den Berg, C., Higgins, W.E., Dressler, R.L., **Whitten, W.M.**, Soto-Arenas, M.A. & Chase, M.W. 2009. A phylogenetic study of Laeliinae (Orchidaceae) based on combined nuclear and plastid DNA sequences. *Annals of Botany* 104:417-430.

Wahlberg, N., E. Weingartner, **A.D. Warren** and S. Nylin. 2009. Timing major conflict between mitochondrial and nuclear genes in species relationships of *Polygona* butterflies (Nymphalidae: Nymphalini). *BMC Evolutionary Biology* 2009, 9:92 doi:10.1186/1471-2148-9-92.

Wall, P., J. Leebens-Mack, **A. Chanderbali**, A. Barakat, H. Liang, L. Landherr, L.P. Tomsho, Y.-H., J.E. Carlson, H. Ma, S. Schuster, D.E. Soltis, **P.S. Soltis**, N. Altman and C.W. dePamphilis. 2009. Comparison of next generation sequencing technologies for transcriptome characterization. *BMC Genomics* 10:347.

Wang Q., **S.R. Manchester**, C. Li, and B.Y. Geng. 2010. Fruits and leaves of *Ulmus* from the Paleogene of Fushun, northeastern China. *International Journal of Plant Sciences* 171:221-226.

**Warren, A.D.** and **G.T. Austin**. 2009. Variation of *Stinga* Evans, 1955, with description of a new species from Mexico (Lepidoptera: Hesperidae: Hesperinae: Hesperini). *Zootaxa* 2197:1-19.

**Warren, A.D.**, A.V.Z. Brower and J.R. Ogawa. 2009. Revised classification of the family Hesperidae (Lepidoptera: Hesperioidea) based on combined molecular and morphological data. *Systematic Entomology* 34:467-523.

**Warren, A.D.**, **J.C. Whelan** and **T.C. Emmel**. 2010. Notes on mate-locating behavior by the skipper *Phocides polybius lilea* (Reakirt, [1867]) (Lepidoptera: Hesperidae: Eudaminae). *Tropical Lepidoptera Research* 20:38-40.

**Waters, G.J.** 2009. Aboriginal ceramics at three 18<sup>th</sup> century mission sites in St. Augustine, Florida. pp. 165-176 in K.A. Deagan and D.H. Thomas, eds. *From Santa Elena to St. Augustine: Indigenous ceramic variability (A.D. 1400-1700)*. Anthropological papers of the American Museum of Natural History, no. 90. New York, NY.

Weatherhead, P.J., G.L.F. Carfagno, J.H. Sperry, J.D. Brawn and **S.K. Robinson**. 2009. Linking snake behavior to nest predation in Midwestern bird communities. *Ecological Applications* 20:234-241.

**Whitten, W.M.** and M.A. Blanco. 2009. Generic treatments for Tribe Maxillarieae in A.M. Pridgeon, P.J. Cribb, M.W. Chase, and F.N. Rasmussen, eds. *Genera Orchidacearum* Vol. 5 (Part Two). ca. 50 pp. Oxford University Press 585 pp.



In July 2009, Florida Speaker of the House Larry Cretul, right, observed the necropsy of a 12-foot-long Burmese python with Museum herpetologist Kenneth Krysko. The snake was preparing to lay 23 eggs when she was captured in the Everglades.

## PROFESSIONAL STAFF July 1, 2009 – June 30, 2010

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Life History Coordinator - Andrew N. Piercy  
Post-Doctoral Research Associate -  
Jason G. Romine, Ph.D.

### Herbarium

Curator and Keeper - Norris H. Williams, Ph.D.  
Assistant Curator - Nicoletta Cellinese, Ph.D.  
Collection Manager - Kent D. Perkins  
Sr. Biologist - W. Mark Whitten, Ph.D.  
Program Assistant - Gertrude R. Lindler

### Herpetology

Curator - Max A. Nickerson, Ph.D.  
Collection Manager - Kenneth L. Krysko, Ph.D.

### Ichthyology

Interim Curator - Lawrence M. Page, Ph.D.  
Collection Manager - Robert H. Robins

### Informatics

Associate Curator - Reed Beaman, Ph.D.  
Assistant Curator - Nicoletta Cellinese, Ph.D.  
IT Experts - Christopher M. Goddard,  
Katarzyna Rachwal  
Post-Doctoral Research Associate -  
Haijun Zhu, Ph.D.

### Invertebrate Paleontology

Curator - Douglas S. Jones, Ph.D.  
Collection Manager - Roger W. Portell  
Laboratory Technician - Brian A. Kittle  
Museum Operations Specialist -  
Sean W. Roberts

### Katharine Ordway Chair of Ecosystem Conservation

Eminent Scholar - Scott K. Robinson, Ph.D.  
Biological Scientist - Steve G. Daniels

### Latin American Art and Archaeology

Curator - Susan Milbrath, Ph.D.

### Invertebrate Zoology

Curators - Gustav Paulay, Ph.D.,  
Fred G. Thompson, Ph.D.  
Collection Manager - John D. Slapcinsky  
Collection Assistant - Amanda M. Bemis  
Post-Doctoral Research Associate -  
Arthur Anker, Ph.D.

### Mammalogy

Associate Curator - David L. Reed, Ph.D.  
Collection Manager - Candace L. McCaffery

### McGuire Center for Lepidoptera and Biodiversity

Program Director - Thomas C. Emmel, Ph.D.  
Curator - Jacqueline Y. Miller, Ph.D.  
Assistant Curator - Keith R. Willmott, Ph.D.  
Assistant Professor - Jaret C. Daniels, Ph.D.  
Curatorial Scientist - Charles V. Covell, Jr., Ph.D.  
Collection Manager - Andrew D. Warren, Ph.D.  
Collections Coordinator - Andrei Sourakov, Ph.D.  
Construction Coordinator - James B. Schlachta  
Program Assistant - Christine M. Eliazar

### Molecular Systematics and Evolutionary Genetics

Distinguished Professor -  
Pamela S. Soltis, Ph.D.  
Associate Scientist -  
Matthew A. Gitzendanner, Ph.D.

### Museum Studies

Curator - Charlotte M. Porter, Ph.D.

### North Florida Archaeology

Collection Manager - Donna L. Ruhl

### Ornithology

Curator - David W. Steadman, Ph.D.  
Collection Managers - Andrew W. Kratter, Ph.D.,  
Thomas A. Webber, Ph.D.

### Paleobotany and Palynology

Graduate Research Professor -  
David L. Dilcher, Ph.D., NAS  
Curator - Steven R. Manchester, Ph.D.  
Collection Manager - Hongshan Wang, Ph.D.  
Biological Scientist - Terry A. Lott  
Courtesy Research Scientist -  
David M. Jarzen, Ph.D.

### Spanish Colonial Archaeology

Distinguished Research Curator -  
Kathleen A. Deagan, Ph.D.  
Collection Manager - Gifford J. Waters, Ph.D.

### South Florida Archaeology and Ethnography

Curator - William H. Marquardt, Ph.D.  
Assistant Scientist & Collection Manager -  
Karen J. Walker, Ph.D.

### Vertebrate Paleontology

Curator - Bruce J. MacFadden, Ph.D.  
Associate Curator - Jonathan I. Bloch, Ph.D.  
Collection Manager - Richard C. Hulbert, Ph.D.  
Sr. Biologist - Jason R. Bourque  
Biological Scientist - Arthur R. Poyer

### Exhibits and Public Programs

Assistant Director - Douglas R. Noble, Ph.D.

### Business Office

Office Manager - Charlene O. Smith  
Program Assistant - Katherine K. Gerard  
Fiscal Assistant - G. Colin Martin  
Special Events Coordinator - Karen A. Judd  
Store Manager - Stacey D. Crandall

### Butterfly Rainforest

Vivarium Assistant Manager - Jeffrey L. Hansen  
Living Exhibits Specialist - Michael R. Boulware

### Education and Visitor Services

Assistant Director - Jamie C. Creola  
Public Programs Coordinator -  
Kendra Lanza-Kaduce  
School Tours - Jeannette E. Carlisle  
Volunteer Program - Julie V. Crosby  
Post-Doctoral Research Associate -  
Marina Ascunce, Ph.D.

### Exhibits

Assistant Director - Darcie A. MacMahon  
Designer - Ian M. Breheny  
Traveling Exhibits - Thomas L. Kyne

### Security and Fabrication

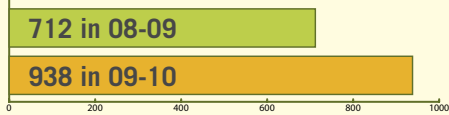
Operations Coordinator - Kurt Auffenberg  
Artisan - Ronald A. Chesser  
Carpenters/Cabinetmakers - J. Patrick Bennett,  
Nathan R. Bruce  
Facilities - Jay C. Weber  
Security Guard Supervisor - Sean B. Geiger  
Security Guards -  
Jason A. DeBottis, John H. McIntosh,  
Harvey E. Yawn

### Emeritus Faculty

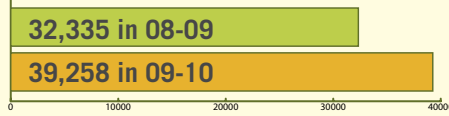
Associate Director Emeritus -  
Graig D. Shaak, Ph.D.  
Associate Scientist Emeritus -  
L. Richard Franz, Jr.  
Curator Emerita -  
Elizabeth S. Wing, Ph.D., NAS  
Curators Emeriti -  
Carter R. Gilbert, Ph.D.  
F. Wayne King, Ph.D.  
Jerald T. Milanich, Ph.D.  
Charles A. Woods, Ph.D.  
Distinguished Research Curator Emeritus -  
S. David Webb, Ph.D.

## VOLUNTEERS

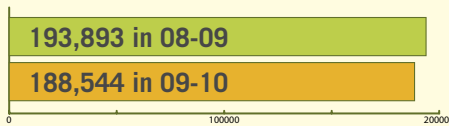
### Total Volunteers



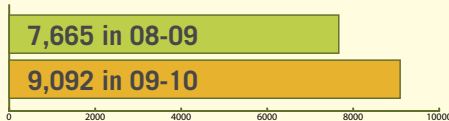
### Hours Served



## MUSEUM VISITOR ATTENDANCE

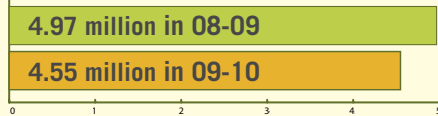


## PUBLIC PROGRAMS ATTENDANCE

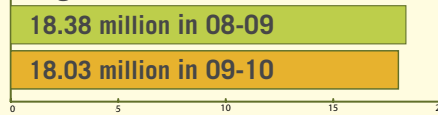


## MUSEUM WEBSITE\*

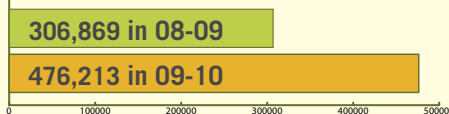
### Visits 7 million in 2008-09



### Pages Viewed 7 million in



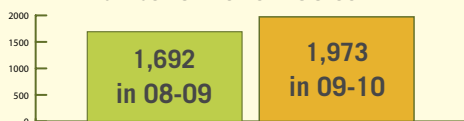
### Database Queries 2008-09



\*Beginning with this report, the “visit” and “page view” numbers have been recalculated to exclude traffic generated by search engine robots indexing the site. They now more accurately reflect visitation to the site initiated by human visitors only. Database query figures have always excluded search engine robot traffic.

## MEDIA COVERAGE

### Number of News Articles



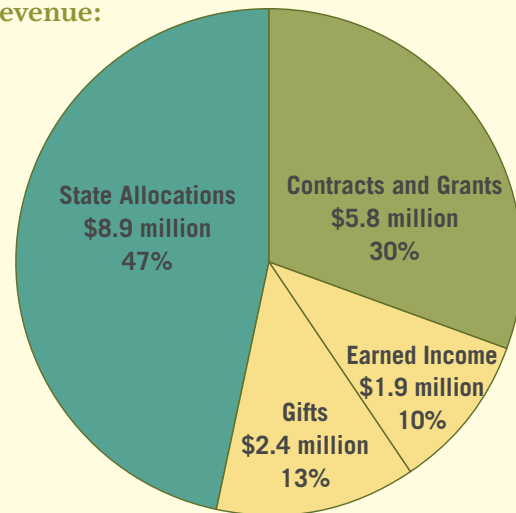
### Potential Known Viewership



(As reported by Meltwater News Online Media Monitoring)

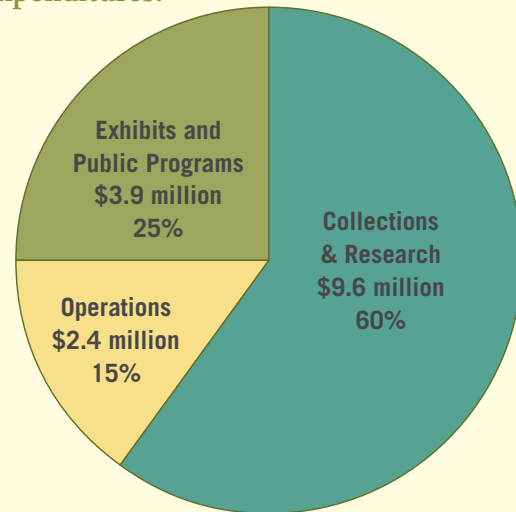
## FY 2009-10 FINANCIALS

### Revenue:



TOTAL: \$19 million\*

### Expenditures:



TOTAL: \$15.9 million

\* Includes \$3.1 million in multi-year grant funds and gifts to endowments.

## SOCIAL MEDIA

The Museum expanded its Social Media communications initiatives as a way to connect with new audiences and provide news and information about the Museum's large number of ongoing activities.



2,600 fans & growing  
[www.facebook.com/FloridaMuseum](http://www.facebook.com/FloridaMuseum)



675 followers & growing  
[www.twitter.com/floridamuseum](http://www.twitter.com/floridamuseum)

[www.youtube.com/FloridaMuseum](http://www.youtube.com/FloridaMuseum)

[www.flickr.com/groups/floridamuseumofnaturalhistory/](http://www.flickr.com/groups/floridamuseumofnaturalhistory/)



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