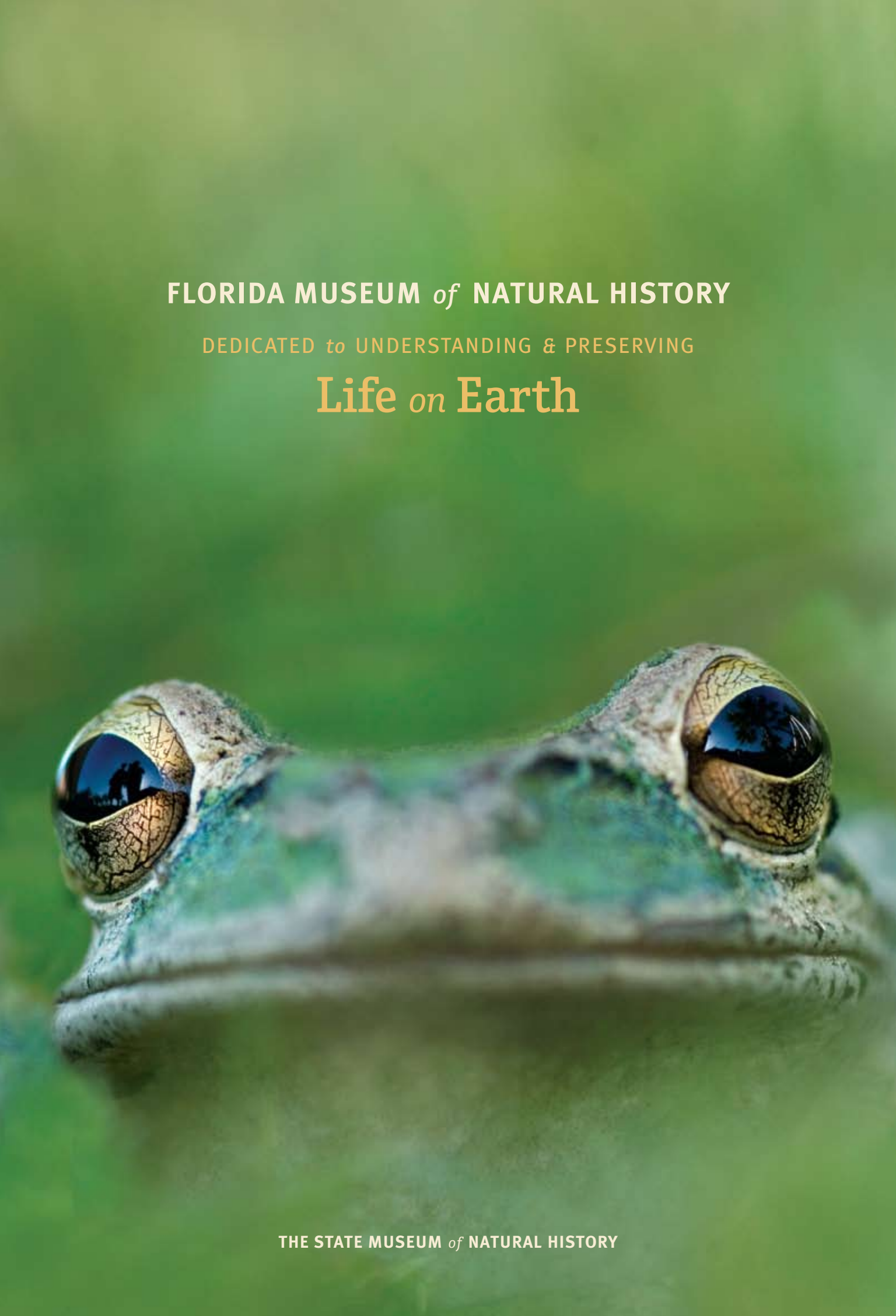
# FLORIDA MUSEUM *of* NATURAL HISTORY

DEDICATED *to* UNDERSTANDING & PRESERVING

# Life *on* Earth



THE STATE MUSEUM *of* NATURAL HISTORY


Delias sambawana
ssp. everetti

# It All Begins With Collections *and* Research

***Teaching visitors of all ages*** to appreciate the wonder and diversity of life on earth has long been the goal of the Florida Museum of Natural History's division of Education and Exhibits. What few realize is that the award-winning exhibits of Powell and McGuire halls are based on cutting-edge scientific research conducted by the Museum's own curators, collection managers and students.

***The Florida Museum's Division of Collections and Research*** is dedicated to understanding and preserving biological diversity and cultural heritage. Utilizing millions of specimens and artifacts housed within the Museum, its scientists are at the forefront of exploring some of today's most pressing and fascinating scientific and conservation issues. Although focused primarily on Florida, the Southeastern U.S., and the Caribbean, collections comprise specimens from all over the world. The Museum's renowned research programs span 20 scientific disciplines and attract international scholars and students. This brochure highlights some of the research initiatives and collections of the Florida Museum which together form the basis of its public education programs and contribute to the scholarship of the University of Florida.



***(OPPOSITE AND ABOVE)*** Pictured is the butterfly species *Delias sambawana*.

# Collections *are the* Library *of* Life

***Much of what we know*** about biodiversity and its origins comes from the collection, preservation and ongoing study of natural specimens and cultural remains. Museum collections are libraries of the world's biological, cultural and environmental history and are vital to our ability to interpret the past and understand our place in its future. As such, museums are stewards of this history, preserving it for posterity while fostering an informed appreciation of our complex and ever-changing world.

***As of 2008,*** the Florida Museum houses more than 28 million specimens and objects, making it the Southeast's largest natural history museum and one of the top five nationally in terms of collections size. Many of our individual department collections rank among the top 10 in the U.S., and some rank among the top 10 globally. These vast holdings are available locally and internationally to scholars, scientists, students and the public through on-site study, public exhibitions, loans, publications, television and the Internet.

***Scientific research on the collections has direct applications for the following fields of study:***

- biodiversity
- biomedical research
- climate change
- cultural and environmental change
- cultural heritage and diversity, both today and in the past
- distributions of plant, animal, and human populations
- endangered species
- environmental contaminants
- evolution and extinction
- origins of life and disease
- use of natural resources

***(SPECIMEN PHOTOS, CLOCKWISE FROM ABOVE)***
Ancient shark teeth *Carcharocles megalodon*, *Carcharocles auriculatus*, *Otodus obliquus*, *Carcharocles angustidens*; flowering-maple, *Abutilon striatum*; waterlily, *Nymphaea* hybrid; 'Flare' hardy hibiscus, *Hibiscus 'Flare';* Red-headed Tanager, *Spermagra erythrocephala*; Blue-winged Mountain Tanager, *Anisognathus flavinucha*; Green Honeycreeper, *Chlorophanes spiza*

# Florida Museum Collections

***Visit our web site for more information: www.flmnh.ufl.edu/museum/collections.htm***

## FOSSIL COLLECTIONS

**Invertebrate Paleontology:** This collection of fossil invertebrates constitutes one of the finest Cenozoic collections in the U.S.

**Paleobotany:** Third-largest collection of angiosperms (flowering plants) in the U.S.; spans the past several hundred million years of plant evolution.

**Vertebrate Paleontology:** One of the top five university collections of its kind; very strong in the extinct tortoises, birds, ground sloths, horses and tapirs of North America.

## ARCHAEOLOGY/ ETHNOGRAPHIC COLLECTIONS

**Caribbean Archaeology:** North America's largest systematic collection of pre-Columbian cultural artifacts from West Indian islands.

**Ceramic Technology Lab:** Analyzes archaeological samples to answer questions about the raw materials and methods used to make pottery.

**Environmental Archaeology:** The nation's first program in this discipline, which analyzes animal and plant remains from archaeological sites; fifth-largest osteological fish comparative collection in North America.

**Florida Archaeology:** Houses artifacts that span 14,000 years of human history in Florida and the Southeast, including preserved organic artifacts from internationally famous archaeological "wet" sites.

**Historical Archaeology:** The world's largest collection of Spanish colonial artifacts representing European colonial settlement between the arrival of Columbus in 1492 and the end of Spanish dominion in 1821.

**Latin American Archaeology:** This focused collection of artifacts includes ceramics, metalwork, wood and textiles.

**Latin American Ethnography:** Houses a premier collection of Andean folk art and every-day objects that document artistic traditions in Bolivia, Peru, Ecuador and Colombia.

**North American Ethnography:** Includes the Pearsall Collection, representing all major geographic areas in North America; one of the world's largest collections of Native American carved argillite (a soft stone) and basketry.

**South Florida Archaeology:** Contains artifacts and associated materials from the most tropical parts of Florida, with a focus on the prehistoric Calusa peoples.

## BIOLOGICAL COLLECTIONS

**Genetics Resources:** Houses unique DNA samples from a broad range of plants and animals worldwide. Many specimens constitute rare and endangered species from ecosystems that are nearly lost to habitat disruption.

**Genetic Resources Repository:** The Genetic Resources Repository preserves samples from the Museum's research collections in a liquid nitrogen freezer.

**The Herbarium:** A major collection of preserved plant specimens, used extensively for identifications and for studying evolution and biogeography.

**Herpetology:** This collection of amphibians (frogs, toads, salamanders) and reptiles (turtles, crocodilians, lizards, snakes) is the ninth-largest in the U.S.; skeletal collection ranks fifth-largest in the U.S.

**Ichthyology:** Second-largest collection of fishes in the U.S.; global in scope. A rich source of biodiversity information for important South Florida ecosystems. Ichthyology also hosts the All Catfish Species Inventory Project and the Florida Program for Shark Research, which includes the International Shark Attack File.

**Malacology:** Fifth-largest collection in North America; second largest in the world in online access. Renowned for land and freshwater snails and tropical reef mollusks.

**Mammalogy:** Houses one of the most extensive collections of marine mammal specimens, including manatees. Features the largest research collection of endangered Florida panthers in the country.

**McGuire Center for Lepidoptera and Biodiversity:** One of the world's largest Lepidoptera collections (butterflies and moths). One of the most comprehensive and far-reaching research programs in the evolution, biogeography, ecology and conservation of butterflies and moths.

**Ornithology:** The world's fifth-largest collection of modern bird skeletons, and third-largest collection of bird sounds. The egg collection represents 90 percent of North American bird species.

# Plant Origins *and the* World's First Flower

***The origin of flowers*** is one of botany's deepest mysteries. Flowering plants, also called angiosperms, are the foundation of all terrestrial ecosystems and are essential to human survival. Flowering plants provide food and medicine and drive national economies. Yet, until recently, the basic questions about how flowering plants evolved into the most important and prolific of all plant life have confounded scientists. Graduate Research Professor and National Academy of Sciences member David Dilcher has been looking for the world's first flower for most of his life and now he may have found it. *Archaefructus liaoningensis* is a 125-million-year-old fossil plant from China that has distinctive angiosperm traits. Dilcher's research is helping to answer such questions as why and how did flowers develop and subsequently diversify?

***Angiosperms are amazingly diverse,*** with tens of thousands of living species. They occupy every habitat on Earth except the highest mountaintops, the deepest oceans and some polar regions. To understand the evolutionary history and the tremendous biodiversity of angiosperms, Distinguished Research Professor of Molecular Systematics and Evolutionary Genetics Pamela Soltis, and Distinguished Research Professor Doug Soltis, are performing DNA sequencing on flowering plants with their global team of research associates and students. Their research is uncovering the molecular basis for evolution and conservation of plants that range from small, obscure species to ones of global importance for food, medicine, wood products and natural habitats.

***(LEFT)*** A lab tech in the Genetics Lab prepares samples for examination under a microscope. ***(RIGHT)*** Postdoctoral Research Associate Richard Buggs amplifies the DNA of plant specimens in order to analyze their DNA sequences. ***(TOP)*** Pictured is the Slipper orchid, *Phragmipedium besseae*.

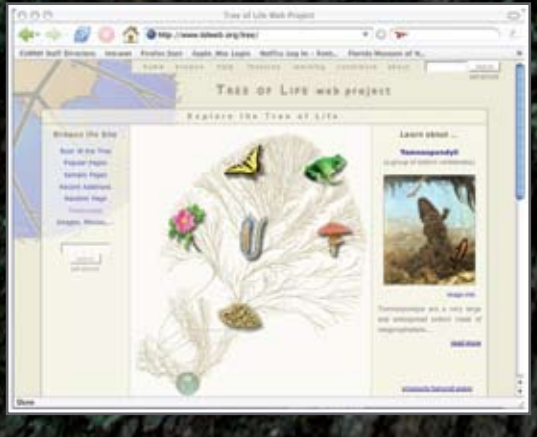
# Vertebrate Evolution

***Recent research at the Florida Museum*** sheds new light on the origins of primates. Assistant Curator of Vertebrate Paleontology Jonathan Bloch led a team of scientists in discovering two 56-million-year-old fossils in Wyoming, the most primitive primate skeletons ever described. After exhaustive study of the fossils, Bloch and his colleagues presented strong evidence that this archaic group of mammals called plesiadapiforms may be more closely related to modern primates than to any other mammal group, and the ancestors of modern primates. This research extends the primate family tree 10 million years back in time. By researching the earliest stages of primate evolution, Bloch and his colleagues can more effectively trace the multitude of anatomical changes that have taken place in the numerous lineages of primates.

Jonathan Bloch was part of the research team that discovered the new plesiadapiform species, *Ignacius clarkforkensis* ***(RIGHT)*** and *Dryomomys szalayi* ***(ABOVE)***, just outside Yellowstone National Park in Wyoming's Bighorn Basin.

# Tree *of* Life

***The Tree of Life Web Project*** is an international collaborative effort of biologists from around the world. On more than 9,000 World Wide Web pages, the project provides information about the diversity of organisms on Earth and their evolutionary history and characteristics. The pages are linked hierarchically in the form of the evolutionary tree of life, thus illustrating the genetic connections between all living things. Several Florida Museum scientists are major participants in this worldwide collaborative effort, including Pamela and Doug Soltis' research team from the Molecular Systematics and Evolutionary Genetics Laboratory, David Dilcher from the Paleobotany Division, Norris Williams from the Herbarium, Larry Page from the Ichthyology Division, David Steadman from the Ornithology Division, Jonathan Bloch from the Vertebrate Paleontology Division, and Jacqueline Miller from the McGuire Center for Lepidoptera and Biodiversity.




To learn more about the Tree of Life Web Project, visit ***www.tolweb.org/tree***

# Andean Butterflies

***Almost 30 percent of the world's butterfly species*** live in the tropical Andes, although accurate numbers are hard to provide since many species are still undiscovered or poorly known. McGuire Center Assistant Curator Keith Willmott is working to fill this information void by studying Andean butterfly diversity. His collaborative, long-term studies of butterflies in Ecuador have resulted in the discovery and description of more than 100 new species during the past 15 years. Willmott and his colleagues are also amassing the first large-scale dataset of butterfly distributions for the tropical Andes – information necessary for assessing a species' conservation status. He is particularly interested in a diverse group of Andean butterflies known as clearwings, which offer an opportunity to study how specialization within forest microhabitats, and utilization of different forest resources, may have helped generate such high species richness. Because butterflies often serve as sentinels of environmental health, studying them contributes to our knowledge of tropical habitats and their preservation.

***(RIGHT)*** The transparency of this clearwing butterfly (*Godyris duillia*) renders it illusive over this Southern shield fern (*Thelypteris kunthii*).
***(ABOVE)*** Keith Willmott presents a collection of Andean butterflies.

# Fort Mose: The First Free Black Settlement *in* North America

***More than 250 years ago,*** African-born slaves risked their lives to escape English plantations in the Carolinas and find freedom among the Spanish living at St. Augustine, Florida. The Spanish freed the fugitives in return for their service to the king and their conversion to the Catholic faith. In 1738 the Spanish governor established the runaways in their own fortified town, Gracia Real de Santa Teresa de Mose, about two miles north of St. Augustine. Mose became the first legally sanctioned free black town in the present-day U.S. and it is a critically important site for Black American history. After its abandonment, the Mose settlement lay forgotten until a team of specialists headed by Distinguished Curator of Historical Archaeology Kathleen Deagan uncovered the settlement and carried out extensive archaeological and historical investigations of the site. Centuries-old documents recovered in the colonial archives of Spain, Florida, Cuba and South Carolina tell us who lived in Mose and something about what it was like to live there. The archaeological investigation of Fort Mose is helping to document the poorly understood role of African Americans on the colonial frontier.

***(TOP)*** This pottery fragment from Mexico was found in St. Augustine where many free and enslaved black hispanic colonists lived. ***(MIDDLE)*** Kathleen Deagan presents a variety of artifacts, some from the Fort Mose site, and others from home sites in St. Augustine connected with colonial African Americans. ***(BOTTOM)*** This hand-made silver medallion, found in the creek next to Fort Mose, shows St. Christopher, left – the patron saint of travelers – and a mariner's compass rose, right.

# Kingdom *of the* Calusa

***Research conducted over the past 20 years*** by Curator of Florida Archaeology William Marquardt and Assistant Scientist Karen Walker has uncovered a culture that rivaled that of the Mound Builders of the Mississippi River valley and the great Native American maritime cultures of the Northwest Coast. The Calusa were once the most powerful people in South Florida. For many centuries they built huge shell mounds, engineered canals and sustained tens of thousands of people from the fish and shellfish found in the rich estuaries near Fort Myers. Much of this research has focused on the Pineland site complex, a Calusa Indian village for more than 1,500 years where enormous shell mounds still overlook the waters of Pine Island Sound. Remnants of an ancient canal that reached across Pine Island sweep through the complex, while sand burial mounds stand in the woods. Pineland is particularly important to archaeology and ecology due to its water-logged deposits, which have preserved ancient botanical remains found nowhere else in North America. Pineland also provides a key to understanding even larger issues. Its accumulated deposits record sea-level fluctuations and even climate changes of interest to scientists who study the Earth's environmental history.

***(TOP)*** The Calusa are celebrated for their wood carvings and other artistic artifacts. The Calusa Ivory-billed Woodpecker plaque, A.D. 650-750, is made of cypress wood and was discovered in Key Marco in Collier County. The plaque can be seen in the Florida Museum exhibit, *South Florida People and Environments*. ***(BACKGROUND)*** Calusa Village illustration by Merald Clark.

# All Catfish Species Inventory

***The Planetary Biodiversity Inventory*** is a multi-million dollar program funded by the National Science Foundation. The goal of the program is to accelerate the discovery and study of the world's biodiversity by supporting teams of investigators who conduct worldwide, species-level inventories of diverse groups of organisms. Ultimately, the program will facilitate the recognition of areas with high species diversity and endemism– information critical to understanding and protecting species and the ecosystems that sustain them. The Florida Museum and Curator of Ichthyology Larry Page are leading one of the projects, the All Catfish Species Inventory, the goal of which is to complete a global record of catfish. The program is expected to result in the discovery and description of as many as 1,750 new species of catfishes and, ultimately, in the description of between 2,300 and 4,600 new species of freshwater fishes.

***(BACKGROUND)*** Larry Page, left, and Andrés Lopez, right, net fish in Hogtown Creek in Gainesville.

# Coral Reefs

***We live at a critical time*** for biodiversity as the Earth undergoes profound alterations related to human activities, resulting in a mass extinction that is erasing much of our biological heritage before it is even documented. The research program of Curator of Malacology Gustav Paulay focuses on the biodiversity of coral reefs, ecosystems that are rapidly becoming endangered by rising sea temperatures and ocean acidity. He and his team participated in several recent large-scale reef surveys, including the international BioCode, CReefs (Census of Coral Reefs), Scripps Line Islands and BIOTAS research initiatives, and are currently co-initiating a Florida marine invertebrate survey. Every survey has netted at least 1,000 species, with associated digital images, and tissue samples that are having their genetic barcodes sequenced. These imaging and molecular efforts are giving scientists the ability to distinguish cryptic species that previously were lumped together as one.

***The Florida Museum's invertebrate zoology online database*** now contains more records than any other collection in the world except the Smithsonian Institution. The collection is one of three across the world selected to join an international effort organized by the Consortium for the Barcode of Life and the Census of Marine Life to provide specimens for the first major push to genetically characterize all marine species. This program will help scientists better document and understand biodiversity in tropical oceans, so that future generations have the best information available for managing and restoring the world's coral reefs.

***(LEFT)*** Gustav Paulay photographed this seaslug, *Phestilla melanobranchia*, feeding on a coral, *Tubastrea coccinea*, near Guam.

# Miami Blue Butterfly

***Thought to be extinct,*** a remnant population of less than 100 Miami Blue butterflies was discovered in 1999 at Bahia Honda State Park in the Florida Keys. Once prolific in South Florida, the Miami Blue's population began to decline in the 1980s from a number of factors including development and heavy pesticide spraying. After considerable research and evaluation, McGuire Center Assistant Director Jaret Daniels and his research team designed a plan to breed the rare Miami Blue butterfly in captivity and then reintroduce them to portions of their native range. In 2004, they released about 7,500 Miami Blue caterpillars in Everglades and Biscayne Bay national parks. The project is one of the largest captive breeding programs in the country, with 30,000 individuals released during the past four years to attempt to restore this native butterfly to part of its historic range.

***(BACKGROUND AND LEFT)*** Scientists now monitor the progress of the Miami Blue, *Cyclargus thomasi bethunbakeri*, and will continue efforts to support its recovery with the goal of establishing stable populations in south Florida.

# Florida Panther

***Museum specimens*** provide a valuable opportunity to learn about the biology of animals long after their deaths. The Florida Museum is home to a large collection of preserved Florida panther skins and skeletons acquired through a cooperative salvage program with the Florida Fish and Wildlife Conservation Commission; most of these animals were killed on Florida highways. These specimens provide a permanent record of physical, genetic and demographic changes in the Florida panther population over the past 50 years. This unique collection is available to researchers throughout the U.S. and has been the subject of many studies by Assistant Curator of Mammology David Reed and his colleagues involving genetics, osteopathology (bone abnormalities, breakage, or pathogens), and environmental toxins. Small bone samples reveal dietary preferences through stable isotope analysis.

***(ABOVE)*** Florida Panther pelts contain a variety of information that tell researchers about the animal's health, nutrition, diseases and even what sorts of environmental contaminants it might have come in contact with during its life. ***(BACKGROUND)*** Tampa's Lowry Park Zoo is home to a one-year-old Florida panther, *Puma concolor coryi,* found injured and abandoned as a newborn cub in July 2007 in the Big Cypress National Preserve.

# Florida Program *for* Shark Research

***The Florida Program for Shark Research*** is a leader in both domestic and international research and conservation of sharks, skates and rays, known as elasmobranchs. The program focuses on obtaining critical biological information needed to enhance international fishery management and conservation of elasmobranchs. Systematic studies of shark biology – including life history, ecology and behavior – document biodiversity and are crucial in determining the conservation status of individual species, many of which are in rapid decline. The program actively promotes shark conservation through educational outreach programs such as *Project Shark Awareness* and *Sawfish In Peril*, as well as through the Museum's Ichthyology web site, www.flmnh.ufl.edu/fish. The program's web site serves as the host site for the National Shark Research Consortium, International Shark Attack File, Smalltooth Sawfish Recovery Team and National Sawfish Encounter Database.

***(ABOVE)*** A researcher captures and tags a bull shark (*Carcharhinus leucas*) as part of a tracking study. ***(RIGHT)*** George Burgess, director of the Florida Program for Shark Research, is pictured with preserved specimens and jaws of the scalloped hammerhead (*Sphyrna lewini*).

# Invasive Species

***Collections Manager of Herpetology Kenneth Krysko*** is working in South Florida to document invasive and exotic amphibians and reptiles. His findings are critical to state and federal wildlife managers as well as private land owners who are seeking to curb the environmental impact of non-native species. Krysko worked with state agency biologists to produce the first detailed natural history account of invasive green and spiny-tailed iguanas in South Florida. He and his research team also study patterns and occurrences of invasive boa constrictors and pythons as well as the potential pollination effects of non-native Madagascar giant day geckos on non-native coconut palms. As more exotic species invade Florida and threaten the state's indigenous inhabitants, research and documentation by Krysko and his colleagues will help to manage invasive exotics and enhance the future of Florida's native flora and fauna.

***(ABOVE)*** This Brown Anole, *Anolis sagrei*, is a common invasive species in Florida that thrives in backyards and other habitats. ***(RIGHT, TOP AND BOTTOM)*** The Burmese python, *Python molurus bivittatus*, and Spiny-tailed iguana, *Ctenosaura similis*, are invasive species which are common in south Florida.

# Climate Change

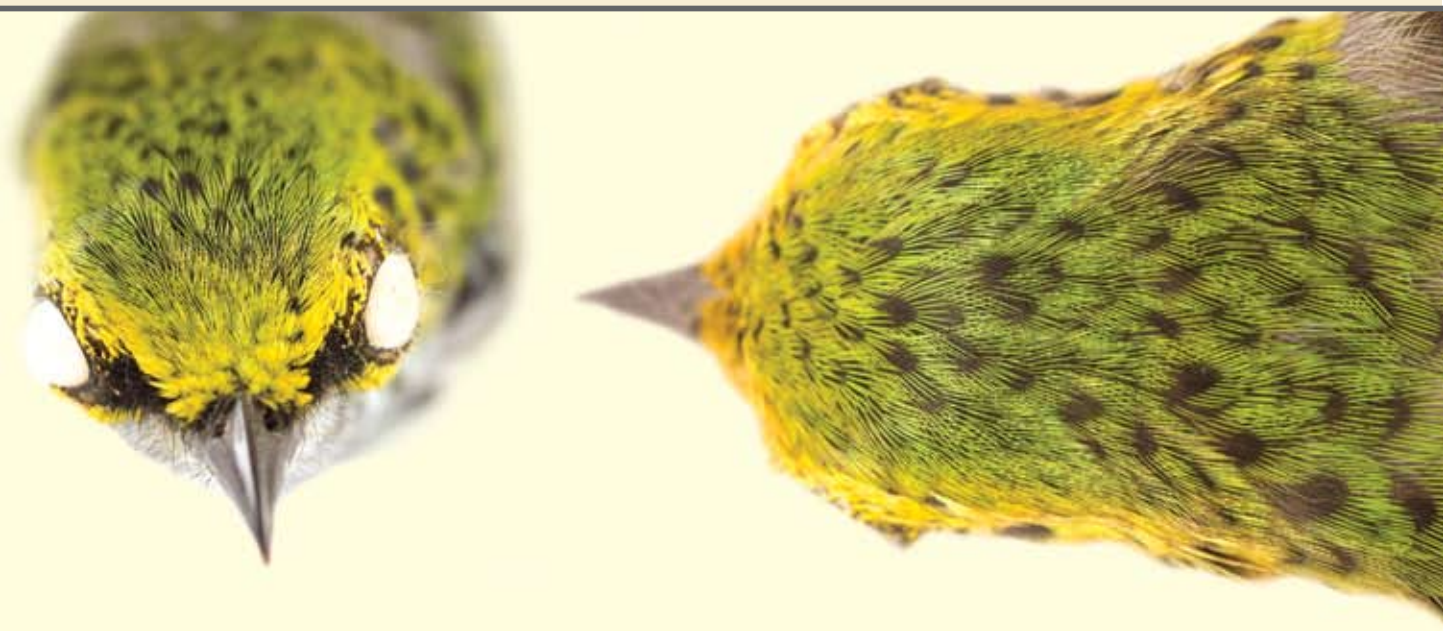
***Florida Museum Director Douglas Jones*** is at the forefront of an emerging new discipline with profound implications for using natural history specimens to track ancient climate trends. Sclerochronology analyzes chemical variations, such as oxygen isotopes, found in the growth patterns of organisms with hard tissues such as sea shells, fish otoliths (ear bones) and mammal teeth. Unique oxygen isotope signatures correlate to specific variations in ocean salinity and air and sea water temperature. In essence, the incremental growth rings in these organisms are a permanent historical record, just like a tree's rings, of the environment where the organism lived.

***Jones and Senior Biological Scientist Irvy Quitmyer*** found that between 5,500 and 3,600 years ago, Florida's northeast coast was 3.5 degrees Celcius warmer than today. Their study is based on isotopic analysis of coquina clams (*Donax variabilis*) from coastal archaeological sites. Similarly, isotopic analysis of archaeological quahog clam (*Mercenaria campechiensis*) shells and sea catfish (*Ariopsis felis*) otoliths, representing a 2,000-year-period at a Calusa Indian site in southwest Florida, provides long-term evidence of climate and sea-level changes – including unusually cold periods.

***Graduate Research Professor of Paleobotany David Dilcher,*** and Curator of Paleobotany Steve Manchester study ancient climate change by analyzing fossil leaves and their stoma–minute leaf pores that exchange a plant's gasses–to determine the past relationships of carbon dioxide to temperature and precipitation fluctuations in the Earth's history. Unlike animals, plants take in carbon dioxide and release oxygen.

***A study by Curator of Vertebrate Paleontology Bruce MacFadden*** and other Florida Museum colleagues revealed the largest climate change in North America since the Age of Dinosaurs 65 million years ago, a temperature drop of nearly 15 degrees Fahrenheit that took place about 35 million years ago. MacFadden documented this change by analyzing oxygen isotopes in the fossilized teeth of primitive horses and other plant-eating mammals.

***(ABOVE LEFT)*** David Dilcher compares a modern-day greenbrier vine with a fossilized specimen. ***(ABOVE RIGHT)*** Bruce MacFadden sampled oreodont teeth to detect the largest climate change in North America since the Age of Dinosaurs. ***(BACKGROUND)*** Doug Jones and Irvy Quitmyer collect Southern Quahog clams (*Mercenaria campechiensis*) in the Gulf of Mexico.



# Evolution *and* Extinction *of* Tropical Birds

***Curator of Ornithology David Steadman*** studies fossils of tropical birds that are hundreds to millions of years old. Along with Ordway Chair of Ecosystem Conservation Scott Robinson, he also surveys modern bird communities to understand the habitat preferences of tropical birds and their vulnerability or resilience to human impacts. By combining information from both prehistoric and living birds, Steadman and Robinson can gauge the long-term effects of natural and human-induced habitat changes upon tropical bird communities, and figure out why some species are common while others are rare or even have become extinct. Such information is crucial for effective long-term management of tropical habitats.

***A very high priority*** for the Florida Museum's Ornithology program is to make expeditions to some of the world's most remote tropical localities in order to survey the poorly studied or unstudied bird life. Recent expeditions have included Pacific Islands (New Guinea, Solomon Islands and Vanuatu) and the New World Tropics (Mexico, Panama, Venezuela, Ecuador, Peru, Trinidad and Tobago). In tropical Ornithology, the age of discovery is far from over.

***(LEFT)*** David Steadman carefully holds a male Blue-chinned Sapphire (*Chlorestes notata*) captured in a mist-net in Trinidad, an island teeming with hummingbirds. ***(ABOVE)*** Pictured is the Speckled Tanager, *Tangara gutata*.

# Florida Museum Research Extends Beyond *the* Sunshine State...

***Although the Florida Museum's collections and research focus primarily on Florida, the Southeastern U.S. and the Caribbean,*** research endeavors frequently span the globe. Below is a geographic overview of the research programs covered in this brochure, representing only a portion of the Museum's overall research initiatives.


1 Plant Origins *and the* World's First Flower *(page 6)*

2 Vertebrate Evolution *(page 7)*

3 **GLOBAL RESEARCH INITIATIVE:** Tree *of* Life Web Project *(page 8)*

4 Andean Butterflies *(page 9)*

5 Fort Mose – The First Free Black Settlement in America *(page 10)*

6 Kingdom *of the* Calusa *(page 11)*

7 **GLOBAL RESEARCH INITIATIVE:** All Catfish Species Inventory *(page 12)*

8 Marine Coral Reefs *(page 13)*

9 Miami Blue Butterfly *(page 14)*

10 Florida Panther *(page 15)*

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12 Invasive Species *(page 17)*

13 Climate Change *(page 18)*

14 Evolution *and* Extinction *of* Tropical Birds *(page 20)*

# The Florida Museum *and the* Future

***During the Age of Discovery,*** when Europeans first visited Florida, explorers circumnavigated the globe, opening doors to new worlds and revealing the organisms and cultures that inhabited them. The Florida Museum continues that voyage of discovery each day through its collections and research initiatives. The Museum provides a rare window into Florida's ancient past, illustrating the rich abundance of life and unique habitats pre-dating the arrival of humans by millions of years. Archaeological collections record the presence of the first Floridians who hunted the great mammoths and mastodons, to the Calusa, Timucua, and the people who greeted Ponce de Leon and his contemporaries thousands of years later. This record of life and culture is irreplaceable, the foundation upon which our understanding of modern Florida is based, and the starting point we use to assess changes to its ecosystems and inhabitants.

***The enormous scientific collections at the Florida Museum,*** and the aggressive research initiatives of faculty, staff and students, play a crucial role in documenting and understanding biotic and cultural change. By creating new knowledge through research, and translating these findings into effective public education programs and exhibits, the Museum touches thousands of lives and raises awareness of the natural world. It inspires people to appreciate and preserve our surroundings for generations to come. The Museum will continue its long tradition of active collecting, research and student training to prepare the next generation of conservationists, ecologists, anthropologists and evolutionary biologists for the challenges ahead, protecting the diverse and astounding complexity of life on Earth.

***(BACKGROUND)*** Pictured is a Yellow-crowned night heron, *Nyctanassa violacea*, on the Santa Fe River in north Florida.

# Impact *on* Science *and* Teaching

## FACULTY

**National Academy of Sciences Members:**

**David Dilcher**, Graduate Research Professor, Paleobotany
**Elizabeth Wing**, Curator Emerita, Environmental Archaeology

**Distinguished Professors, Chairs:**

**Kathleen Deagan**, Distinguished Research Curator of Archaeology
**David Dilcher**, Graduate Research Professor of Paleobotany
**Scott Robinson**, Ordway Eminent Scholar
**Pamela Soltis**, Distinguished Research Professor of Molecular Systematics and Evolutionary Genetics

**TEACHING: Florida Museum faculty teach an average* of 46 courses per year** to University of Florida undergraduate and graduate students. Courses are taught through related departments in the colleges of Agriculture and Life Sciences, Fine Arts and Liberal Arts & Sciences, including Anthropology, Botany, Entomology & Nematology, Environmental Science, Geography, Geological Sciences, Honors, Latin American Studies, Museum Studies, Wildlife Ecology and Conservation and Zoology.

**Average* annual service on UF undergraduate and graduate student committees:**

143 Graduate Committees Served
66 Graduate Committees Chaired
74 Independent Studies Supervised

**FLORIDA RESEARCH LOCATIONS: Museum faculty, staff and students conduct research in more than half of Florida's counties and 17 states each year.* Florida counties served include:**

| | | | | | |
|---|---|---|---|---|---|
| Alachua | Clay | Gilchrist | Lafayette | Okaloosa | Sarasota |
| Baker | Collier | Hamilton | Lee | Orange | Seminole |
| Bay | Columbia | Hardee | Leon | Palm Beach | Sumter |
| Bradford | Dade | Hendry | Levy | Pinellas | Suwannee |
| Brevard | De Soto | Highlands | Liberty | Polk | Taylor |
| Broward | Dixie | Hillsborough | Manatee | Putnam | Union |
| Calhoun | Duval | Indian River | Marion | St. Johns | Volusia |
| Charlotte | Escambia | Jackson | Monroe | St. Lucie | Wakulla |
| Citrus | Franklin | Jefferson | Nassau | Santa Rosa | Walton |

**GRANTS: Florida Museum faculty and staff secure millions of dollars in external grants and contracts each year from state, federal and private sources. Select funding agencies include:**

American Museum of Natural History
American Orchid Society Fund
Florida Department of Agriculture and Consumer Services
Florida Department of State
Florida Fish and Wildlife Foundation
Florida Wildflower Advisory Council
Institute of Museum and Library Services
National Endowment for the Humanities
National Fish and Wildlife Foundation
National Foundation on Arts and Humanities
National Geographic Society
National Science Foundation
United States Department of Agriculture
United States Department of Commerce
United States Department of Interior
Various Florida Water Management Districts

## INSTITUTIONAL AFFILIATIONS

American Association of Museums
American Institute of Biological Sciences
Consortium for the Barcode of Life
Florida Association of Museums
Natural Science Collections Alliance
Southeastern Museums Conference

* Figures represent a three-year average.

***(LEFT AND COVER)*** This Cuban Tree frog, *Osteopilus septentrionalis*, is an invasive species and was spotted on the front lawn of the Florida Museum in Gainesville. The issue of invasive species continues to be an important one to the Museum, since resulting ecological and environmental impacts can be significant.

FLORIDA MUSEUM OF NATURAL HISTORY
UF UNIVERSITY of FLORIDA

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