**Collection Growth 2004-2013**

*donated individual collections or libraries*

**Total number of accessions by year since opening**

- 10,000
- 20,000
- 30,000
- 40,000
- 50,000
- 60,000

**FY 2004-2013 Financials**

- **UF/State support**: $13,132,184
- **Grants and contracts**: $3,020,000
- **Private gifts**: $9,986,594
- **Earned income**: $577,852

**Attendance and Outreach**

- **Butterfly Fest visitors**: 54,000
- **Butterfly Rainforest attendance**: 10,987
- **Junior Volunteers**: 303

**Images of species on website**: 8,300

**Website images**

- **Lepidoptera pages added to the UF-IFAS website**: 160,000
- **Featured Creatures**: 109
- **Website images**: 5,342

**ButterflyFest visitors**

- **Scientific visitors to the collection**: 1,320
- **Expeditions led by staff**: 23
- **Conference presentations and seminars**: 20

**Collections and Research**

- **Bulletin of Allyn Museum**: 200
- **Scientific conferences hosted**: 23
- **Scientific publications by staff and students**: 1,9
- **New and continuing grants and contracts**: $3 million

**Courses taught**

- **Master's graduates**: 37
- **Ph.D. graduates**: 49
- **Graduate committees served**: 13
- **Graduate committees chaired**: 20

**Gifts may be made in several ways including**

- One-time cash gifts, pledges over several years, gifts of stock,
- Insurance or property and bequests.

**To ensure the continuation of our long-term mission.**

Please join us in supporting this important endowment.

**New endowment honors founding director Thomas C. Emmel**

**The McGuire Center for Lepidoptera and Biodiversity**

*Celebrating 10 years 2004-2014*

**THE McGUIRE CENTER**

*for Lepidoptera and Biodiversity*
FY 2004-2013 Impact by numbers

Staff and Faculty Teaching

49  Courses taught
37  Graduate committees chaired
50  Graduate committees served
  7  Ph.D. graduates
  17 Master’s graduates

Collections and Research

576  Scientific publications by staff and students
1,320 Scientific visitors to the collection
348  Collections and libraries donated
  39 New and Continuing grants and contracts worth more than $3 million.
200  Conference presentations and seminars
100  Expeditions led by staff
  3  Scientific journals produced: Tropical Lepidoptera Research, Bulletin of Allyn Museum and Lepidoptera Novae
  20 Books authored or edited
  23 Book chapters
  13 Scientific conferences hosted

Attendance and Outreach

25,707  Hours donated by 109 volunteers
  6,000  Hours donated by 303 Junior Volunteers
  967,121 Butterfly Rainforest attendance
  2,378 Butterfly Rainforest school group visits totaling 10,987 children
  558,610 Educational brochures distributed
  40,000 ButterflyFest visitors
   1.9 Million website visits
   218  Web pages
   5,342 Website images
  109  Lepidoptera pages added to the UF-IFAS Featured Creatures website
 160,000 Images of 8,300 species on Butterflies of America website
FY 2004-2013 Financials

- Grants and contracts: $3,020,000
- UF/State support: $13,132,184
- Earned income: $577,852
- Private gifts: $9,986,594

Total number of accessions by year since opening
(donated individual collections or libraries)

<table>
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Collection Growth 2004 -2013
(approximate number of drawers-cumulative)

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A message from the Founding Director

Since the McGuire Center opened to the public in August 2004, the ensuing decade has been one of exciting advancement, astonishing growth and constant strides to keep up with cutting-edge improvements in technology and research methods for the study of Lepidoptera and biodiversity.

The Center collection started with about 4 million specimens from the Lepidoptera holdings of the Alflyn Museum of Entomology and the Florida State Collection of Arthropods, along with collections from faculty in the University of Florida departments of Zoology and Entomology. These were assembled under the umbrella of the state’s McGuire Center at the Florida Museum of Natural History on the University of Florida campus. Today, the holdings of adult and immature Lepidoptera number more than 10 million, as a result of nearly 40 private and public collection donations per year, and from a program of carefully targeted worldwide collecting expeditions by staff, students and more than 100 active research associates.

New techniques in molecular biology, physiology and genetics, as well as developments in GIS or other electronic applications, have enabled our scientists to make advances in many research areas. The methods are allowing researchers to address long-perplexing evolutionary and taxonomic questions, provide insights into the geographic origins of migrating monarchs, and reveal mechanisms of symbioses between ants and butterflies. New instruments have allowed our researchers to photograph pollination of long-throated orchids by nocturnal sphinx moths, study defensive sound production in moths being pursued by bats, and assess the presence and impact of toxic environmental poisons in butterflies during larval growth that enable us to pinpoint the presence of poisons in our cities and natural areas.

Every year brings new advances and approaches to explore the incredible diversity of ways more than 20,000 butterfly species and an estimated 245,000 species of moths have evolved as such a successful group of animals and, at the same time, serve as prominent indicator species for the health of the environment. Even though we have achieved the status of having the largest research training center and most extensive educational programs in the world for advanced Lepidoptera study in just 10 years, the McGuire Center is not resting on its academic laurels. We look forward to new challenges and opportunities, together with new growth in expanded facilities, during the decades ahead. Please come visit the McGuire Center regularly and help us achieve these goals with your interest, involvement and support!

Sincerely,

Thomas C. Emmel, Founding Director
The McGuire Center for Lepidoptera and Biodiversity serves research and public education functions. The center includes the living Butterfly Rainforest, an adjacent exhibit gallery featuring information about the biology of butterflies and moths worldwide, as well as research laboratories and a major scientific collection.

Collections and Research

The McGuire Center collections include specimens from around the world and are a result of the effort of thousands of people over the last two centuries. Thanks to many donations by amateur and professional entomologists worth many millions of dollars, the Center’s holdings have more than doubled over the past 10 years, making this is the world’s fastest-growing collection. The collection is comprehensive taxonomically, containing the majority of the world’s described butterfly species and many of the estimated 245,000 moth species. Widely used by an increasingly global community of scientists, the collection documents past and present patterns of biological diversity and forms the basis for research on topics from climate change and emerging agricultural pests to evolution and organism conservation.

Diverse research by McGuire Center faculty, staff and students includes:

**Faunal Surveys:** Efforts to document the diversity, biology and distribution patterns of Lepidoptera include local surveys and wide-scale projects of various regions. An ongoing project on butterflies of Ecuador has resulted in more than 100 new described species and many insights into the ecology, distribution and evolutionary relationships of the country’s butterflies. Assessment of butterflies of Rondônia, Brazil, resulted in nearly 2,000 documented species in a few square kilometers of Amazonian forest including dozens of newly described species. Other efforts to describe the world’s vanishing biodiversity include Lepidoptera projects in Argentina, the Caribbean, Florida, Hawaii, Mesoamerica, Mexico, Nevada, Panama, the Philippines, Taiwan and Vietnam.

**Taxonomy:** With one of the world’s largest and most comprehensive collections, the Center’s fundamental research focuses on taxonomy to improve classification. This work has produced descriptions of many new species and larger taxonomic revisions.

**Predator-prey Interactions:** Predator-prey relationships offer an opportunity to explore the ecological and evolutionary dynamics...
Research and Collections highlights continued

of species, including how moths evade bats, how Lepidoptera defend against spiders and how some butterflies exploit ants for their benefit.

Conservation: The Center is one of the leading institutions researching the conservation of insect pollinators—organisms critical to our environmental and economic well-being. Projects include at-risk butterfly recovery in South Florida and assessments of the conservation status of flagship species like Jamaica’s Homerus Swallowtail. Researchers frequently target practical applications including developing best land management practices, improving recovery techniques and evaluating the negative effects of invasive exotic organisms on native butterflies.

Evolutionary Biology: Several Center research projects focus on understanding general Lepidoptera evolution, as well as specific traits including moth blood-feeding and fruit-piercing activities, roosting behavior in longwing butterflies, sound production in hawkmoths, rarity vs. abundance in clearwing butterflies and chemical co-evolution with plants. Other studies seek to answer questions relating to biogeography, such as evolution of endemic fauna of the Hawaiian Islands or the diversification of butterflies in the Andes of South America. Projects frequently involve sophisticated modern molecular techniques and computer algorithms.

Education, Outreach and Community Impact

Youth and Undergraduate Mentoring
Over 300 Junior Volunteers [ages 12-17] contributed more than 6,000 hours working in the Lepidoptera collections, public gallery and Butterfly Rainforest. McGuire Center curators and collection managers also provided mentored research experiences to dozens of high school students and University of Florida undergraduates. Such meaningful hands-on learning opportunities help inspire and cultivate the next generation of scientists.

The World’s Largest Butterfly Website
Created and maintained by McGuire Center staff and research associates, the Butterflies of America website is a comprehensive online resource for scientists and the general public that includes information on butterfly taxonomy, identification, distribution, habitat and life history. By browsing more than 160,500 images of over 8,300 species, subspecies and undescribed geographic variants, virtually any butterfly in the New World may be identified.
National 4-H Curriculum
In collaboration with the Museum’s Center for Science Learning, UF Institute of Food and Agricultural Sciences and 4-H, the Center assisted in the development of Project Butterfly WINGS: Winning Investigative Network for Great Science. Designed to engage youth in grades 4-8 in studies of butterflies, the program was approved by 4-H as one of the first National Science, Engineering and Technology curricula to help address the increased demand for science and technology professionals.

Citizen Science
Collaboration with Disney’s Animal Programs, the Association of Zoos and Aquariums, Florida Natural Areas Inventory and the Florida Fish and Wildlife Conservation Commission led to the creation of the Florida Butterfly Monitoring Network, which brings together volunteers and scientists to collect information on distribution and population trends of Florida butterflies.

Community Events
Showcasing butterflies as fun, fascinating ambassadors to the natural world, ButterflyFest has become a signature annual, family-friendly festival that promotes science inquiry and backyard wildlife conservation. Now in its ninth year, ButterflyFest has attracted nearly 40,000 visitors and generated over $230,000 in revenue for the Florida Museum.

Educational Brochures
Aimed to increase public awareness about the connection between native plants and butterflies, the Center produced the Florida Wildflowers & Butterflies, Monarchs & Milkweeds: Southeast and Monarchs & Milkweeds: East Region brochures. In partnership with the U.S. Forest Service, nearly 600,000 copies have been distributed free to individuals, schools and other organizations nationwide. The interest and reach of these brochures makes them the Museum’s most successful print-based educational products.

Professional Training
To help strengthen other institutions’ butterfly conservation efforts, the Center launched the Imperiled Butterfly Conservation and Management training program. Over three years, participants from 33 institutions learned about the latest techniques and resources during a series of six national workshops.

Ecotourism
Each year through the Museum travel program, Center staff and students lead ecotourism expeditions to various locations around the globe. Visits to the overwintering colonies of monarch butterflies in Mexico have become a signature component of the program, resulting in 17 trips and nearly 350 participants. The Center also works with the UF Department of Entomology and Nematology to offer undergraduate and graduate ecotourism degree tracts.
New endowment honors founding director Thomas C. Emmel

In thankful recognition of the leadership and vision provided by Thomas Emmel during the planning, development and first 10 years of growth of the McGuire Center for Lepidoptera and Biodiversity, the Florida Museum has created the Thomas C. Emmel Founding Director’s Endowment.

The McGuire Center for Lepidoptera and Biodiversity has grown to include one of the world’s largest and most comprehensive Lepidoptera collections. The Thomas C. Emmel Founding Director’s Endowment will equally support collections improvement and collection-based research (in the form of graduate research fellowships and project grants) at the McGuire Center. Fund administrator Andrew Warren, along with the McGuire Center staff and director, will be responsible for annual decisions regarding disbursement from the endowment earnings.

Please join us in supporting this important endowment to ensure the continuation of our long-term mission. Gifts may be made in several ways including one-time cash gifts, pledges over several years, gifts of stock, insurance or property and bequests.

If you would like to make a credit card gift, please visit the Florida Museum website at www.flmnh.ufl.edu/mcguire019211 and designate your gift to the Thomas C. Emmel Founding Director’s Endowment.

Please make checks payable to the UF Foundation and indicate the Thomas C. Emmel Founding Director’s Endowment on the check and mail to:

Marie Emmerson
Director of Development
Florida Museum of Natural History
PO Box 112710
Gainesville, FL 32611-2710