



# **TREE Foundation**

## **Annual Report**

### **November 2007**

**Compiled by Dr. Meg Lowman, Executive Director**  
**Annual Meeting, November 12, 2007**  
**New College Foundation Board Room, 5 -7 PM**  
**Sarasota, Florida**

**(cover photo: TREE interns Fabiana Silva and Charissa Jones enjoy the National Science Foundation traveling canopy exhibit which educates the public about the importance of forest canopies)**



# TREE FOUNDATION

President, Gerri Aaron • Executive Director, Margaret Lowman, Ph.D.

## Officers, Directors and Research Associates

Thomas Lovejoy, Ph.D., Honorary Chairman of the Board  
President, The H. John Heinz III Center for Science, Economics, and the Environment  
Washington DC

Gerri Aaron, President of the Board  
1255 North Gulfstream Avenue  
Sarasota FL 34236

Joel Fedder, Vice President of the Board  
3590 Mistletoe Lane  
Longboat Key FL

Michael Pender, CPA and Treasurer  
Cavanaugh & Company  
2381 Fruitville Rd  
Sarasota FL 34237

Laura Peters, Secretary  
409 Vanderkloot Dr  
Osprey FL 34229

Elizabeth Booth  
127 Bishop Ct  
Osprey FL 34229

Saul Lowitt, Ph.D.  
4390 Beauchamp Dr.  
Sarasota FL 34235

Stephanie Olson, Research Associate (non-voting)  
1911 Rain Forest Terrace  
Sarasota FL 34240

DC Randle, Research Associate (non-voting)  
2874 Riverbank Dr NW  
Isanti MN 55040

Fabiana Silva, Research Associate (non-voting)  
Environmental Education Specialist  
Long-term Ecological Research Sites  
Coweeta Research Station  
Coweeta NC

H. Bruce Rinker, Ph.D., Research Associate (non-voting)  
Env. Lands Division Administrator  
Brooker Creek Preserve  
Tarpon Springs FL 34688

Margaret Lowman, Ph.D. and Executive Director  
Director of Environmental Initiatives  
Professor of Biology and Environmental Studies  
New College of Florida  
5800 Bay Shore Road  
Sarasota FL 34243

Robert Richardson, Board Chair Emeritus  
President, Sarasota Downtown Association  
2055 Wood St.  
Sarasota FL 34237

Michael Brown, Legal Counsel  
888 Second Street  
Sarasota FL 24236

Student Interns (Center for Canopy Ecology)  
Charissa Jones  
Rachel Renne  
Bryson Voirin  
Ravi Bannerjee  
Jessica Wheeler  
Pamela Montero Alvarez  
Guillermo Sanchez  
David Mitre  
Marcos Oversluijs Vasquez

### **TREE Foundation Highlights for 2007:**

1. Over 50,000 families and citizens viewed our Rain Forest Canopy Exhibit called "Out on a Limb" which traveled to Arts Day, Reading Festival and now resides in GWIZ Science Museum. Materials were translated into Spanish on the web site and for presentations.
2. Six canopy research interns were partially funded to present their findings at Ecological Society of America and Association for Tropical Biology annual meetings
3. Two of our past TREE interns got Fulbright fellowships to continue their research in canopy ecology! And a third intern from Panama received a graduate scholarship to Cambridge University, UK! TREE's influence on these students is truly making a difference!
4. The canopy walkway project is currently being touted as a model by Department of Interior and the National Park system to attract visitorship to the outdoors. The state of Maryland is constructing a similar walkway as a means of increasing visitorship to the outdoors.
5. Our proclamation "No Child Left Indoors" went from local (city and county commissioners endorsed an official No-Child-Left-Indoors Week in Sarasota County) to national dissemination, wherein Ecological Society of America and ultimately Capital Hill embraced the mantra. Current legislation for environmental education funding at a national scale is pending.
6. Our 2007 interns from Peru both experienced life-changing opportunities to learn about canopy ecology and conservation in America.
7. TREE Foundation funded the creation of a curriculum for SOS (science outreach to schools), a local environmental education program that is extending to national outreach through sister campuses.
8. New brochures were printed for the Myakka canopy walkway, and new bookmarks and stickers were created for TREE Foundation.
9. Our new TREE treehouse project was launched, with Laura Peter chairing a committee. Initial in-kind donations (landscaping, construction of a proto-type, fund-raising, and graphics/logo) all in process with a dedication planned for spring 2009.
10. Canopy ecology research and conservation was initiated with new research partnerships in India and Africa, with exchange of visiting scholars between USA and India/Africa next year as well as sharing of best practices in conservation.
11. Canopy ecology books were distributed to developing countries, and our web site has expanded significantly to include canopy education outreach activities, articles, photo galleries, and videos.
12. TREE Foundation partnered with New College and Sarasota County to develop a business plan for Base Camp Sarasota, a field station and environmental education center aimed at studying environmental change in Florida.
13. **Nature's Secrets** continues a successful distribution in the Sarasota Herald Tribune to educate the Florida public and science and environmental issues.
14. TREE's executive director received the Mendel Medal for achievements in science.

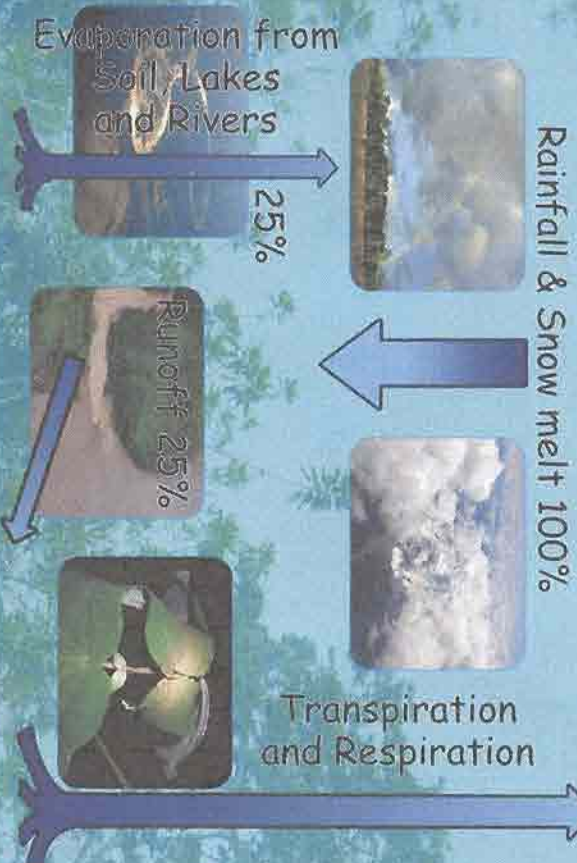
## 2007-8 Goals and Measures

GOAL	MEASURE	FUNDING
<b>1. Local Canopy Ecology Activities</b>		
Lead educational walks for the public on forest ecology, and train students as guides	Schedule and lead 3 hikes; train 10 student guides; produce 1 brochure	\$ 2000
Host website for Biological Field station in Southwest Florida, research green architecture.	Use Florida House Institute to create designs, Brighter Tech for web	\$20,000
Tree house for kids – initial design	Create logo, brochure, select site, fund-raisers	\$10,000
<b>2. International Canopy Ecology Activities</b>		
Host 2 interns from tropical country to train in canopy ecology	Select and schedule; sponsor public lectures for students	\$5000
Attend Ecological Society of America professional meetings (Lowman, plus 5 student interns)	Write papers and submit abstracts; attend and present research findings	\$5000
Field work in Peru, India	Work plan for canopy research site	\$5000
<b>3. Public Science Outreach about Forest Canopies</b>		
Host one community lecture on Conservation/ ecology	Attract 300 attendees and schedule speaker reception for students	\$3000
International Center for Canopy Ecology – maintenance and growth of research and education outreach programs	Add 50 publications to files; collaborate with 10 scientists or students on research; run office at New College campus; present 3 outreach lectures on canopy ecology; distribute copies of TREE canopy publications to 10 field stations or scientists in <u>developing countries; update website.</u>	\$25,000
	<b>TOTAL</b>	<b>\$75,000</b>



# Cycles of the Rain Forest

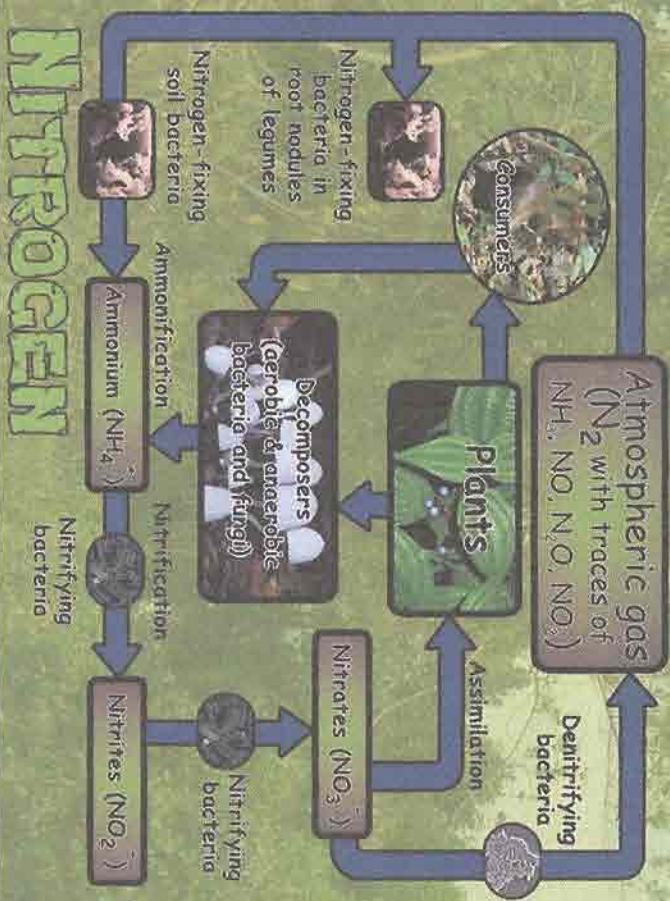
## WATER



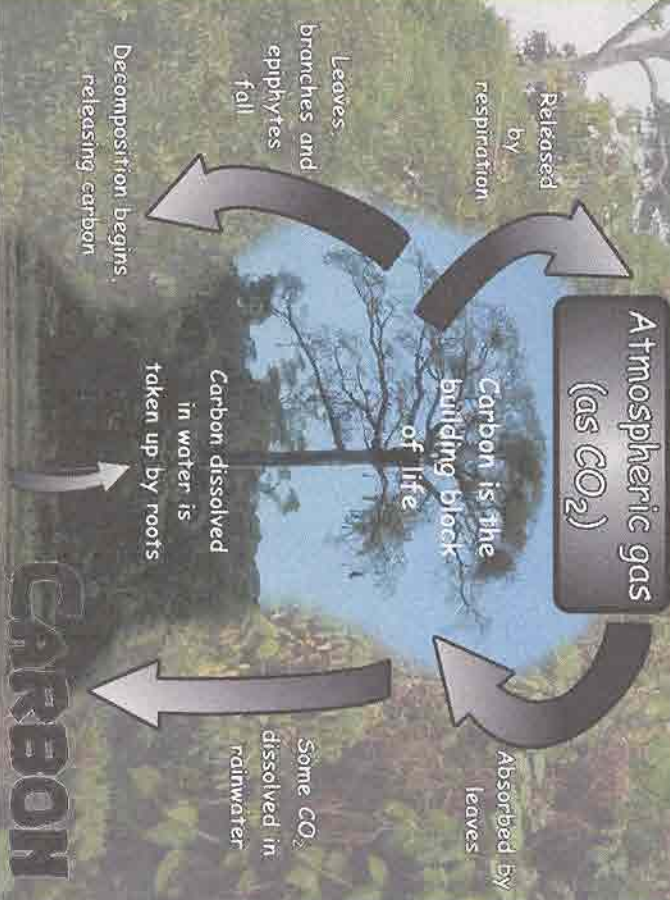
## ENERGY



## NITROGEN



## CARBON









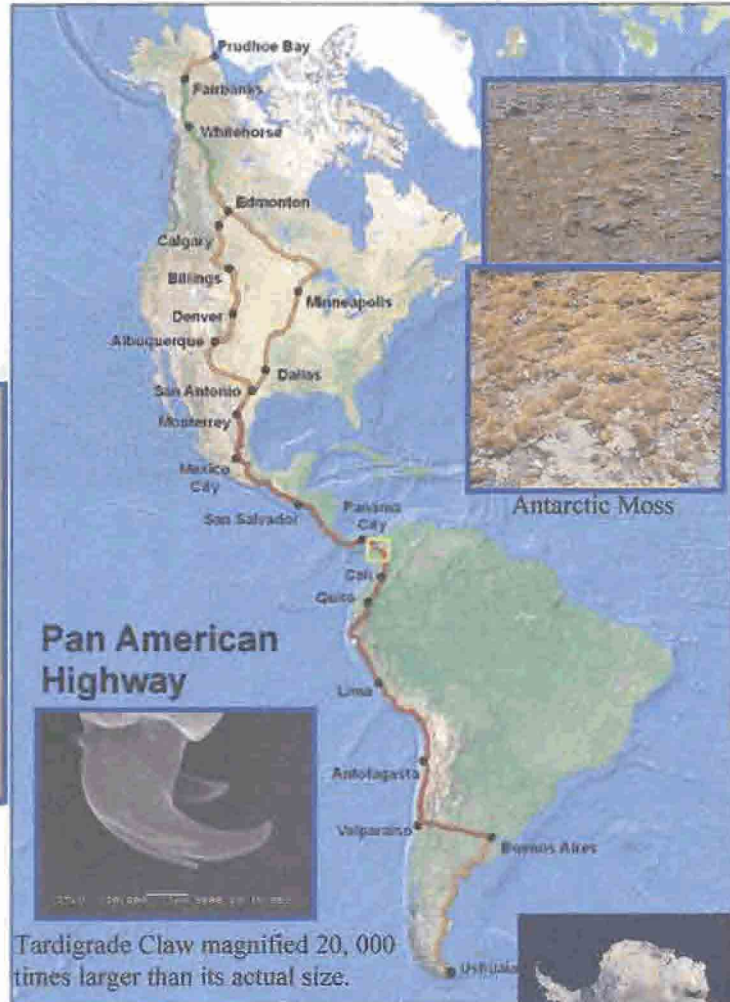
# From Pole to Pole - A Tardigrade Transect through the Americas

- James Burgess, Colleen Mitchell, Randy Miller, Meg Lowman & Hal Heatwole

Princeton University, TREE Foundation, Baker University, New College of Florida, North Carolina State University

[www.treefoundation.org](http://www.treefoundation.org); [www.canopymeg.com](http://www.canopymeg.com)

A sampling attempt of this magnitude has never been taken on by tardigrade specialists. The ability to compare the tardigrade fauna in similar ecosystems in the northern and southern hemisphere has never been accomplished before. Acquiring this kind of information will be the baseline data for all ecological tardigrade studies in the western hemisphere.



Sampling a semi-terrestrial tardigrade is relatively easy. This is done by looking at a sample of moss or lichen soaked in water.

Samples for this study have already been collected and processed from Antarctica, Peru, British Columbia, Alaska, Alabama, Florida, Pennsylvania, and Kansas.

New collections will be from LTER sites and field stations on both American continents.



*Echiniscus mauceii*

A tardigrade is a microscopic invertebrate that lives in aquatic ecosystems.

Semi-terrestrial tardigrades are considered to be the #1 Most Extreme Survivor because of their ability to die and come back to life.



Moss Piglet

Water Bear



[www.treefoundation.org](http://www.treefoundation.org)



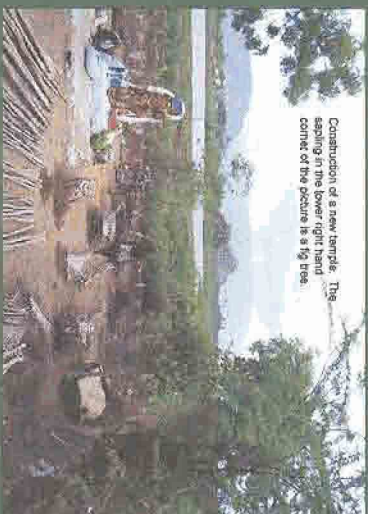
# Sacred fig trees and fruit bats in South India

T. Caughlin<sup>1</sup>, T. Ganesh<sup>2</sup>, M. Lowman<sup>1</sup>,  
1. New College of Florida, Sarasota, FL 34234, 2. Ashoka Trust for Research in Ecology and the Environment, Bangalore, India



A banyan tree we monitored for bat visitation

Across a wide variety of tropical human cultures, fig trees (genus *Ficus*) are considered sacred. In India, several species of fig trees are protected from fuelwood collection and actively planted at Hindu temples. We hypothesize that preservation of fig trees for religious reasons can also contribute to the conservation of fruit-eating animals, such as the Indian flying fox.



Construction of a new temple. The sapling at the lower right hand corner of the picture is a fig tree.

**Materials and Methods**  
We surveyed all fig trees within a 4 km radius of our field station and recorded associations with temples. We also recorded Indian flying Foxes, *Pteropus giganteus*, important pollinators and seed dispersers, feeding on 20 fruiting banyan trees.

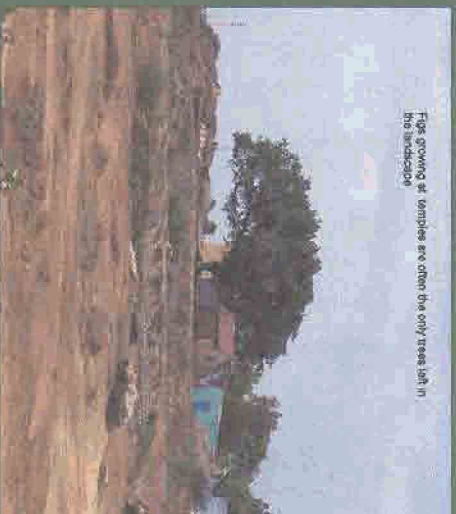


The majority of fig trees (74%) were associated with temples or shrines, implying that religion greatly contributes to the presence of these trees in South India.

While fruit bats are not considered sacred at our study site, sacred fig trees are an important food resource for the bats, demonstrating a positive indirect effect of religious conservation.



The Indian flying fox at a roosting site. Photo by T. Ganesh.



Figs growing at samples are often the only trees left in the landscape!



This research would not have been possible without an Explorer's Club Youth Grant. For more information, contact [timothy.caughlin@ncf.edu](mailto:timothy.caughlin@ncf.edu)



TREE interns at the Ecological Society of America scientific meetings



TREE intern and Fulbright scholar, Trevor Caughlin, teaching bat ecology in India





# NSF Exhibit





Over 15,000 students and families enjoyed the TREE/ NSF rainforest exhibit at the Arts Festival in downtown Sarasota, Florida January 2007





# Out on a Limb

## Forest Canopies

### Informal Science Education Exhibit

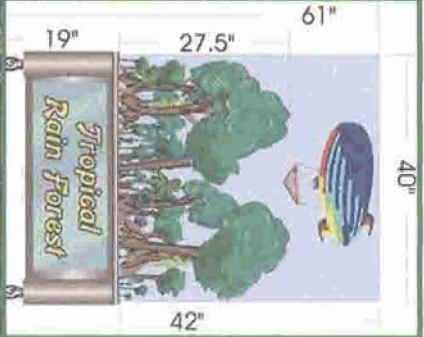
#### Abstract

"Out on a Limb – Forest Canopies" is an informal science education exhibit developed to educate people about forest canopies and illustrate the challenges of canopy access by scientists. A traveling rain forest diorama – with scaled models of scientists exploring the canopy and accompanying graphic panels and interactive activities – will circulate to community venues in southwest Florida, increasing public awareness of how forest canopies are important to life on earth. Canopy research provides a highly visual, exploratory approach to scientific inquiry that can be effectively communicated to school groups and the general public. The intellectual merit of our exhibit is to provide public education about forest biodiversity, how the tree tops provide energy for all life, links between tree tops and tree floor, and why citizens should conserve forests. In this poster, we map out the action plan for creating a community exhibit and planning out diverse venues for its display to maximize public science education.

#### Impact

- Audience**
- Residents and visitors to southwest Florida
  - School children
  - Senior citizens
  - Universally students
  - Families and adult groups
  - Amateur and professional naturalists
- The diorama will be housed at many public venues, where a diverse range of people will have the opportunity to view it, including:**
- Banks
  - Libraries
  - Malls
  - Events, (eg. art and reading festivals, Duke Talent Identification Programs)
  - Wakka River State Park
  - Public Schools

**Touring time:** 12- 18 months  
**Impact:** >250,000 people



#### Project Goals

- Take home messages for viewers:**
- Biodiversity in forest canopies
  - Knowledge about linkages from the tree tops to the forest floor
  - The challenges scientists face while conducting research in the canopy
  - The role that the public can play in conservation
  - The importance of forests to all life on earth

#### Focus of National Science Foundation-funded research:

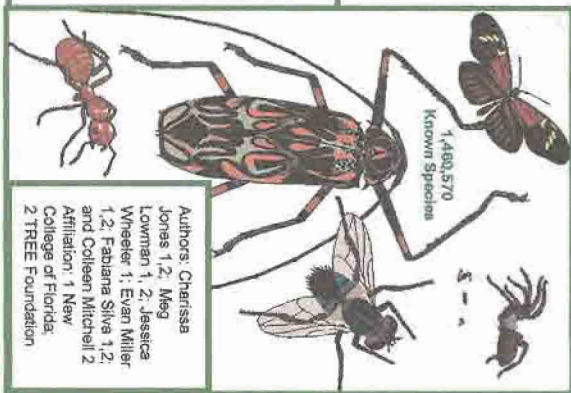
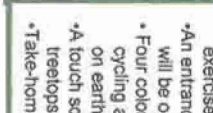
- Scientific inquiry to ask questions about ecosystems
- How scientists use technology to answer important questions that relate to our daily lives
- Classification of biodiversity in the canopy and on the forest floor
- How the canopy is linked to the forest floor via herbivore-related activities

#### Other goals:

- To dispel the notion of scientists as stereotypical men in white lab coats and research as narrow and dry
- To inspire under-served and minority students to become interested in science, possibly seeking it as a career
- Show the exciting field work Margaret Lowman has done as a role-model for young women

#### Project Design

- Overall, the 700-square foot mobile exhibit will include:**
- A 5x3x5 to-scale mini-diorama of an Amazonian tropical rainforest which will include scientists engaged in canopy research using a hot air balloon and raft, canopy platform and bridges, and climbing ropes. The featured forest will be a Peruvian lowland rainforest at a scale of 1:100. It will have a key of the diorama and viewers will partake in a "Where's Waldo" exercise to increase their powers of observation.
  - An entrance walkway designed to imitate the canopy suspension walkways, though this one will be only 14 inches off the ground.
  - Four colorful graphic panels (3.5'x2') will educate visitors about forest biodiversity, nutrient cycling and other links from tree tops to forest floor, the importance of forest canopies to life on earth, and a panel on citizens' roles in conservation.
  - A touch screen kiosk will show video images of scientists using technology to study the tree tops and will interpret the diorama in greater detail
  - Take-home activities for schools and teachers



**Authors:** Cherissa Jones 1,2, Meg Lowman 1, 2, Jessica Wheeler 1, Evan Miller 1,2, Fabiana Silva 1,2, and Colleen Mitchell 2  
**Affiliation:** 1 New College of Florida, 2 TREE Foundation



# Meg Lowman Treetops Camp in upstate NY. (TREE donations funded one disadvantaged girl to attend camp.)







**TREE Scholars – interns,  
campers**

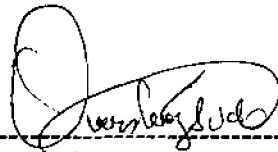
FROM: MARCOS ROLAND OVERSLUIJS VASQUEZ

TO: TREE FOUNDATION

I am working in 69 villages at 2006 helping over 4000 children's, 200 teacher and his family parents with adopt a school program, environmental education and sustainable development project to. What it's my responsibility in CONAPAC

My visit in USA (Philadelphia, Washington, Florida and Chicago), was great, I visited people than work in sustainability activities, botanicals gardens, natural history museum. I know lots persons with big heart. It was wonderful dream.

Thank you Tree Foundation

A handwritten signature in black ink, appearing to read 'Marcos Roland Oversluijs Vasquez', written over a horizontal dashed line.

Marcos Roland Oversluijs Vasquez  
Biology and conservative  
CONAPAC





Final drafts of logos for the TREE treehouse project, to educate children about environmental education and inspire the joy of trees

# THE CITY OF SARASOTA

## Proclamation

WHEREAS, the TREE Foundation, Inc., a Sarasota, Florida based nonprofit organization, is promoting "No Child Left Indoors" week as part of Earth Week, 2007, to encourage adults to connect a child with nature; and

WHEREAS, national statistics show that visits to national and state parks have fallen off by as much as 25% in the last decade, because kids remain indoors playing computer games and watching TV; and

WHEREAS, biological, health, and economic data indicate that children who connect with nature perform better in school, have higher SAT scores, and exhibit fewer behavioral challenges; and

WHEREAS, teaching children about their "home", Planet Earth, fosters better stewardship and science literacy; and

WHEREAS, the City of Sarasota offers a wide array of parks and recreation areas wherein our children can connect with their amazingly diverse natural environment, from the gulf shore waters to coastal dunes to wetlands to oak hammocks to our abundant green-spaces throughout the city; and

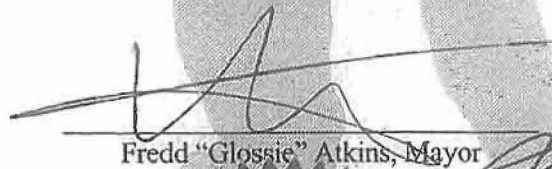
WHEREAS, the TREE Foundation endorses activities locally and nationally to foster experiences for youth to appreciate and learn about nature and local ecology; and

WHEREAS, the locally begun "No Child Left Indoors" concept has grown into a national movement that encourages students, families, and adults to experience nature.

NOW, THEREFORE, the City Commission of the City of Sarasota, Florida, and on behalf of the citizens of our community, takes great pride in recognizing the week of April 15-22, 2007 as

### *"No Child Left Indoors"*

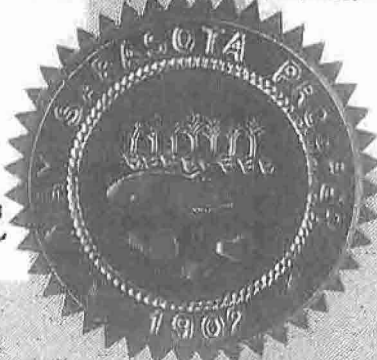
and challenge all citizens young and old to take a child into the natural world for a shared educational experience.



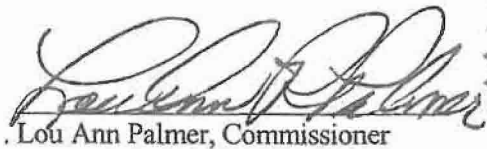
Fredd "Glossie" Atkins, Mayor



Dany Bilyeu, Vice Mayor



Mary Anne Servian, Commissioner



Lou Ann Palmer, Commissioner



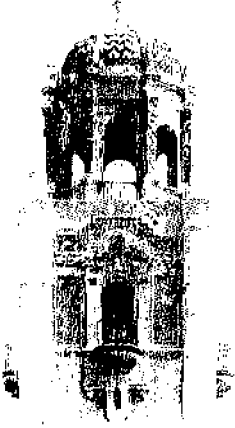
Ken Shelin, Commissioner

ATTEST:



Billy E. Robinson, City Auditor and Clerk





SARASOTA COUNTY GOVERNMENT  
SARASOTA, FLORIDA

Proclamation:

*WHEREAS, the TREE Foundation, a Sarasota, Florida based nonprofit organization, is promoting "No Child Left Indoors" week as part of Earth Week, 2007, to encourage adults to connect a child with nature; and*

*WHEREAS, national statistics show that visits to national and state parks have fallen off by as much as 25% in the last decade, because kids remain indoor watching television and playing computer games and Sarasota County offers a wide array of parks and natural areas wherein our children can connect with their amazingly diverse natural environment, from the gulf shore waters to coastal dunes to wetlands to oak hammocks to dry prairies to treetop canopies; and*

*WHEREAS, science education in America is falling behind that of other countries, especially knowledge of ecology and earth-based sciences, but data indicate that children who connect with nature perform better in school, have higher SAT scores, exhibit fewer behavioral challenges, and experience fewer attention deficit disorders and the locally "No Child Left Indoors" concept has grown into a national movement that encourages students, families and adults to experience nature.*

**NOW, THEREFORE, WE THE BOARD OF COUNTY COMMISSIONERS OF SARASOTA COUNTY, FLORIDA** hereby recognize the week of April 15-22, 2007, also known as Earth Week, to celebrate "No Child Left Indoors" and challenge all citizens young and old to take a child (or a child at heart) into the natural world for a shared educational experience.

**PRESENTED, this tenth day of April 2007.**

*[Signature]*  
CHAIRMAN

*[Signature]*  
COMMISSIONER

*[Signature]*  
VICE-CHAIRMAN

*[Signature]*  
COMMISSIONER

*[Signature]*  
CLERK OF CIRCUIT COURT

*[Signature]*  
COMMISSIONER

## No child left indoors

Coming home late one Halloween eve after a long laboratory class, I stopped at the mailbox and found a hand-written note in my then 6-year-old son James's nearly illegible script. It read "Caution – black widow inside". At first, I thought it was a prank, but squinting hard, I was flabbergasted to see the characteristic tiny red hourglass of this venomous spider in the beam of my flashlight. James was delighted. I never knew that black widow spiders habitually seek out mailboxes in Florida until we looked it up in the encyclopedia that night. My son proudly told me that he had learned to identify spiders from our family walks in the woods, peering at insects and studying their colorful markings. This bit of nature knowledge proved to be a potentially life-saving skill.

Kids need to know about nature. It nurtures and educates them, as well as instilling a sense of stewardship for the environment. A survey (Balmford *et al.* 2002; *Science* 295: 2367) found that more children knew the characters in the electronic game Pokémon than could identify an otter, a beetle, or an oak tree. Nationwide, the science literacy of citizens – both young and old – has been eroded. Federal funding for science education has not kept pace with other science-dependent portfolios such as homeland security or petroleum exploration. The implications of this oversight represent a critical global challenge which our country cannot afford to overlook.

Richard Louv's recent book, *Last child in the woods – saving our children from nature-deficit disorder* (Algonquin Books 2005) analyzes the societal problems that have arisen in the latest generations of children, who have essentially lost contact with nature. Louv quotes a fifth grader, who stated, "I like to play indoors better 'cause that's where all the electrical outlets are". The author cites recent studies where environmental education programs provided important therapeutic value to troubled youth, substantial reduction in symptoms of attention-deficit disorder, and statistical gains in academic grades, problem solving, and SAT scores. Nature-deficit disorder not only damages children, but also affects adults, families, even whole communities, and inevitably shapes the future of nature itself. In the ESA report, *Profiles of ecologists – results of a survey of the membership of the ESA* (<http://esa.org/education/diversity/>), 58% of the respondents developed a passion for ecology before college, and 38% were hooked by the sixth grade. Almost 70% cited experiences not connected with a classroom or teacher that led to their love for science. In summary, early experiences outside of school influenced many ecologists to seek a nature-based career. In my recent book, *It's a jungle up there* (Yale University Press [2006], co-authored with my two sons) we expand Louv's platform by advocating nature-based immersion for entire families, not just children, to encourage a family conservation ethic.

When baby boomers think back to their childhood, they can probably recall a tree house, a scout camping trip, or neighborhood picnics. In today's world, many parents are rightfully reluctant to give their children unsupervised time outdoors, due to dangers ranging from global threats to distrust of strangers. But knowledge of nature is their best weapon if young people are to ultimately make good decisions about personal health, climate change, and land-use management. They need to touch flowers and know why some plants cannot survive without insect pollinators, walk in a forest and understand how many millions of years were required to create petroleum from dead plants – and it doesn't hurt to know how to identify a venomous spider!

As ecologists, we must lead by example in order to prioritize linking young people with their environment. This can be achieved by dedicating a portion of our research time to ecology education and outreach to youth. Science outreach activities can be planned in conjunction with ongoing research, and range from leading hikes for families, creating a nature trail at a local park, championing ecotourism, or bringing an insect collection to your child's science class. Over the next 2 years, the ESA annual meetings will feature informal science education sessions, where innovative case studies will illustrate how ecologists can promote K–12 and citizen science education as part of their work ethic. Our goal is to have "no child left indoors" by 2015. Please join the ESA Education and Human Resource Committee in working together as responsible ecologists to meet this target. Not only will the next generation benefit, but the future of the planet depends on it.



Meg Lowman  
Professor of Biology  
and Environmental  
Studies,  
New College of  
Florida,  
Vice President for  
Education, ESA









