



TREE FOUNDATION

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

TREE Foundation Annual Report

October 2004

**Compiled by Dr. Meg Lowman,
Executive Director**

FOREST CANOPIES – Local and Global Exploration

TREE Foundation of Sarasota FL

www.treefoundation.org



This has been a wonderful year for the TREE Foundation, as our programs in tree research, education and exploration expand and bear fruit. After our initial burst of activity in 1999-2001 to build the Myakka canopy walkway, initiate education programs in the canopy, and take 24 disadvantaged youth to the Amazon, our activities remained fairly static for three years.

Now, with a new President, new web site, and new logo, we are expanding in all three major areas of our programs. Never has the need for science outreach been so great among student and public audiences, and never has the mission to discover the secrets of our forest ecosystems been so urgent. We are grateful to our supporters who have made our undertakings so successful.

The following highlights are listed in chronological order:

1. The Jason Expedition, a distance learning program that brings science discovery to middle school students around the globe, featured TREE Foundation participants this year. Dr. Meg Lowman was a chief scientist exploring the Green Food Web, which is the leafy foliage of the canopy. Bryson Voirin, TREE research associate from New College, was working behind the scenes as a climbing expert and research assistant throughout the live broad casts. Meg was televised to over 3 million students and teachers, swinging from the trees of the lowland tropical rain forests of Panama. The broadcast was headquartered at Barro Colorado Island, the premier research station for the Smithsonian Institution. Meg introduced students to the links between the canopy and the forest floor, with such activities as measuring herbivory, leaf-fall, and frass-fall (frass is the technical term for insect poop!). See attachments of the press release from Associated Press on Meg's research (Figure 1); and color photos of the Jason Project students in action (Figure 2: 2-1, 2-2, 2-3, 2-4).
2. Our community lecture series, Tuesday in the Tropics, was re-initiated with a distinguished visit from Dr. Lynn Margulis, Professor at University of Massachusetts, who has pioneered many theories of evolution including the Gaia Hypothesis. She spoke to a full house at New College, and talked with students afterwards (3-1). Our Research Associate, Bruce Rinker, served as master of ceremonies.
3. Dr. Lowman was part of an international committee who bestowed the David Fairchild medal upon Dr. Francis Halle, botanist of France (3-2). The award ceremony took place at the Kampong Botanical Estate in Miami, in February, and included a panel discussion about the future of tropical forests (3-3).
4. H. Bruce Rinker became Dr. H. Bruce Rinker, and completed his dissertation defense in spring 2004. Dr. Lowman was part of his academic committee (3-4). Lowman and Rinker attended his thesis presentation at Antioch College in Keene,

New Hampshire, and Bruce officially received his PhD in a summer graduation ceremony. Bruce has since accepted a prestigious position as Division Administrator of Environmental Management for Pinellas County, just north of Sarasota. He will continue to work closely with TREE. Bruce is currently writing and publishing the results of his work on canopy and forest floor links in the tropical rain forests of Puerto Rico, part of a collaborative National Science Foundation grant awarded to Dr. Lowman, Dr. Mark Hunter of University of Georgia, and Dr. Tim Schowalter of Louisiana State University. (A CD of Bruce's final lecture will be available).

5. Dr. Lowman received a copy of the wall plaque erected in her honor at the Sciencenter of Ithaca, New York. Their Wall of Inspiration is full of scientists who have made achievements, with the underlying mission of inspiring the students who visit the Sciencenter (Figure 4).
6. TREE now has a website, under the professional design and maintenance of David Martin of Genesis Solutions, Sarasota. Please check out our site at www.treefoundation.org and enjoy all the elements of communication about TREE. There is even a donation opportunity available on-line! (Figure 5)
7. The first-ever Biodiversity Blitz in Sarasota County was hosted by TREE in May 2004, with participation by the science students of New College of Florida. Undertaking to identify every species within a several-acre plot of endangered pinelands along the Florida coastline, the students racked up an amazing 749 species in a six-hour blitz. This created great media attention about conservation and biodiversity in southwest Florida, which was the underlying purpose of the exercise. These Bio-blitzes were pioneered by the Explorers Club to bring attention to the importance of natural areas. It is hoped that a Bio-Blitz in southwest Florida will become an annual event, giving greater visibility to the conservation of our endangered terrestrial habitats and their canopy inhabitants (Figure 6-1, 6-2, 6-3, 6-4).
8. TREE associates gave numerous public lectures this year, including the Brandeis University Alumnae, Sarasota High School science program, Fish and Wildlife National Conservation lecture series, Florida Association for Women Lawyers, The Conservancy in Naples, Ecological Society of America in Portland Oregon, University of Michigan, and Founders Garden Club of Dallas. (Figure 7-1). The TREE website contains a copy of Dr. Lowman's illustrated lecture on forest herbivory given at the Ecological Society of America.
9. Dr. Lowman led a science teachers' workshop to Panama this summer, with teachers from eight different states in attendance. The workshop was a follow-up activity to Jason XV, and enabled teachers to see first-hand and learn about tropical ecosystems. (Figure 7-2).

10. Planning is underway for an ecotourism trip to the Peruvian Amazon during January 2005. Several TREE board members are participating. The expedition is led by Dr. Lowman, in conjunction with the New College Foundation.
11. Over eighteen college students have trained as outreach mentors, and have participated in our school science outreach programs (SOS, Student Outreach to Schools) during 2004. New College environmental studies students prepared hands-on lectures about climate change, rain forest canopies, sustainability, and other science topics to share with middle school students. To date, over 2,000 area students have been reached with a message about the excitement of science. (Figure 8), using our newly developed powerpoint lectures. This program will be continued and expanded during 2005.
12. The long-awaited textbook, Forest Canopies, was released in August 2004. This 604-page treatise represents the culmination of many years of cutting-edge research by over 25 scientists. The book was edited by Drs. Lowman and Rinker (Figure 9).
13. We currently have three student interns – Megan Dawson studying the ecology of the Myakka forest floor; Bryson Voirin studying the herbivory of the Florida hammocks; and James Burgess comparing tardigrades between the canopies of Florida and Antarctica (moss canopies, that is). Two international interns will arrive next spring to participate in our SOS program and also experience some canopy training with our New College students. Guillermo Sanchez, an ant study from Panama will visit in April; and Pamela Montero, a canopy student in Peru, will work with Dr. Lowman in March. All board members are encouraged to host the students for a day or for a local event.
14. Our flagship project, the canopy walkway at Myakka River State Park, continues to be very successful and continues to double the visitorship of the Park. In conjunction with a new partnership between New College and Sarasota County, Dr. Lowman and her students are leading a series of educational tours along the canopy walkway throughout the tourist season in Florida. The goal of these walks is to enhance public perceptions of the natural world and their local ecosystems. Even during the recent hurricane month of September, almost 75 people participated in a public canopy walk (see Figure 10-1). Research and education along the walkway are very popular with residents, students and visitors to Sarasota County. The canopy walkway, some four years after opening (figure 11), continues to inspire all those who experience it.

In 2005, we hope to continue and expand our SOS programs for middle school students, update the brochures and signage at the walkway, launch a new canopy book for a public audience (It's a Jungle Out There, Yale University Press), complete our expedition to Peru for ecotourism, participate in the Fifth International Canopy Conference next summer, and launch some new initiatives regarding a biological field station in Florida forests and a new tropical canopy research project. Stay tuned!

Subj: **ScienceDaily News Release: The Scoop On Poop: Insect Feces, Dead Leaves May Provide Clues To Health Of World**
Date: 2/6/2004 10:00:00 PM Eastern Standard Time
From: email@sciencedaily.com
To: canopymeg@aol.com

Dear Meg,

Michael (brownman47@aol.com) has sent you this page from ScienceDaily Magazine (<http://www.sciencedaily.com>).

Source: Smithsonian Institution
Date Posted: 2004-02-06
Web Address: <http://www.sciencedaily.com/releases/2004/02/040206075522.htm>

THE SCOOP ON POOP: INSECT FECES, DEAD LEAVES MAY PROVIDE CLUES TO HEALTH OF WORLD

Barro Colorado Island, Panama -- Insect feces and leaf litter in the rainforest may provide important clues to better understanding global climate change, according to a group of scientists conducting research in the Panamanian rainforest on a JASON Project expedition.

Clues to determining how these factors contribute to global climate change lie in scientists investigating how plant and animal activity in the rainforest treetops, known as the canopy, may potentially influence soil processes – decomposition, respiration and nutrient availability – on the rainforest floor.

Working at the Smithsonian Tropical Research Institute's facilities on Panama's Barro Colorado Island, scientists are linking the two rainforest layers in one overall tropical examination.

"The rainforest canopy is the hotspot for animals and plants. It's the hub of activity that keeps the world going," said Meg Lowman, an expedition researcher and professor of environmental studies at the New College of Florida in Sarasota. "No one measured the canopy until 20 years ago, and now that there are long-term sampling data of both the canopy and floor, we need to look at the bigger picture: how the rainforest ecosystem is connected as a whole."

Expedition scientists are connecting the two rainforest layers by examining the effects that canopy materials – such as insect feces (frass), green leaves, dead insects and rainwater – have on the rainforest floor, when they fall from the canopy.

"We're predicting that an increase in falling canopy materials, will raise the amount of carbon, nitrogen and phosphorus in the forest floor soil," said Lowman. "That will in turn, boost the rate of leaf litter decomposition, which escalates plant growth rates. This is a vital part of sustaining a healthy tropical environment."

"Portions of the half-eaten leaves and insect droppings eventually fall to the rainforest floor," Lowman said. "That is where a lot of the magic happens."

"On the forest floor, microbes decompose the dead leaves and insect frass and release their nutrients back into the soil and trees," said expedition scientist Mike Kaspari, an associate professor of zoology at the University of Oklahoma. "This cycle of nutrients occurs very rapidly in the rainforest. A leaf can completely decompose and its nutrients return to the soil in a matter of a couple of months. But, in Vermont for example, if a leaf falls in September, it will still be on the ground in April."

"Global climate change is driven by gases like carbon dioxide, when too much is emitted into the atmosphere from things like car exhaust and aerosol," said Kaspari. "Rainforests act as carbon dioxide scrubbers, taking it out of the air. Rainforest plants can't thrive, if the nutrients aren't being released back into the soil from decomposition."

"To keep global climate stable, the rainforests have to be healthy, " said Lowman.

This research program is part of the JASON Project, a middle school program designed to engage students in science and math. Using technology tools to link real scientists in the field with classrooms, students receive a first-hand look at the exciting work scientists are doing.

"It engages students in real science, not just textbook theory," said explorer Robert Ballard, founder of the JASON Foundation for Education and best known for his discovery of the Titanic.

Participating schools around the world play an active role in the research through experiments they will be conducting in their local communities. Students compare the rate of decomposition in their areas to that of the expedition site by placing bananas outside their classroom. Over the two-week period, students compare the amount of decay of their banana to one at the expedition site. They also interact with the JASON expedition team in real time through live interactive satellite broadcasts, Webcasts and chats on the Internet.

###

The research being conducted by Lowman during the expedition will contribute to a study funded by the National Science Foundation with support from her colleagues from the University of Georgia and Oregon State University.

To follow the JASON expedition's exciting research, visit www.jason.org for daily updates from expedition students, teachers and scientists.

Using multi-media tools and access to the nation's leading scientists, JASON combines genuine scientific expeditions around the world, standards-based classroom curriculum and accredited professional learning for teachers to deliver real adventures in learning and measurable gains in student achievement.

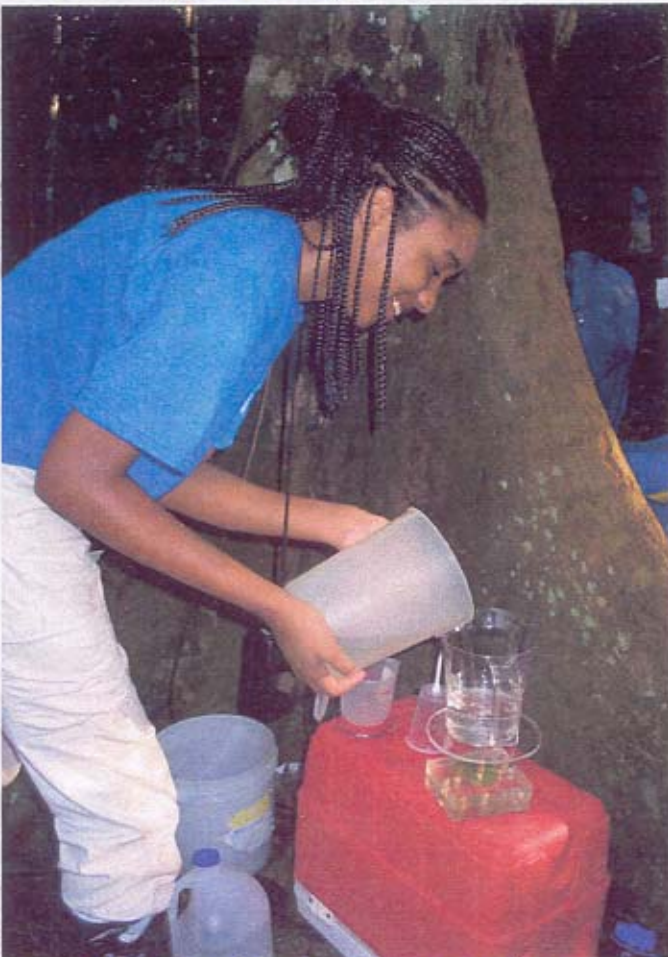
Figure 2. Meg Lowman and Jason students in Panama



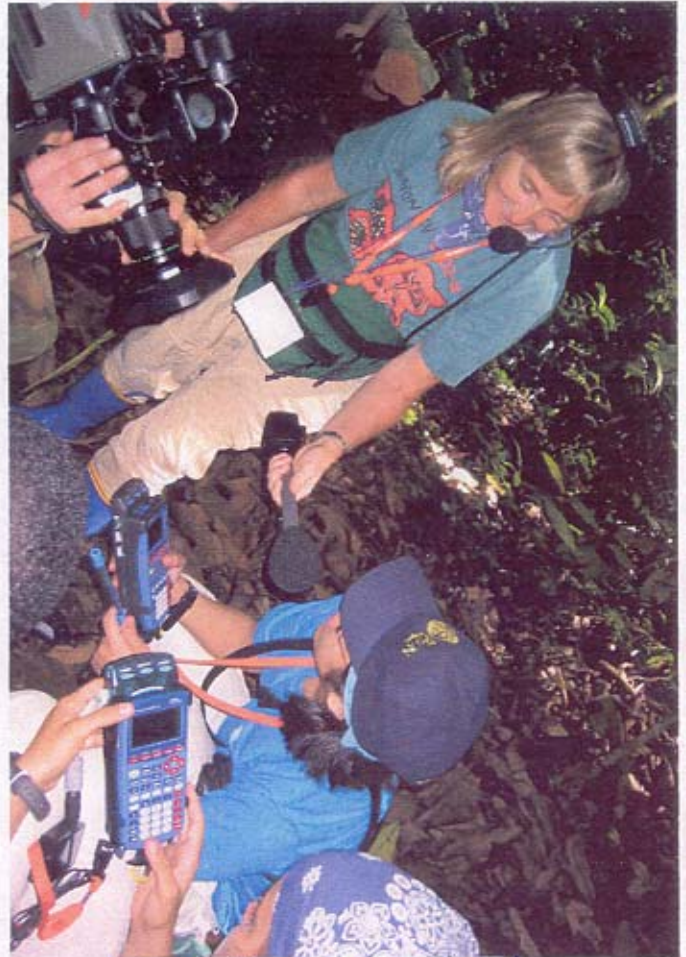
1-1 Discovery



1-2 Canopy Chair



1-3 Measuring Leaf Toughness

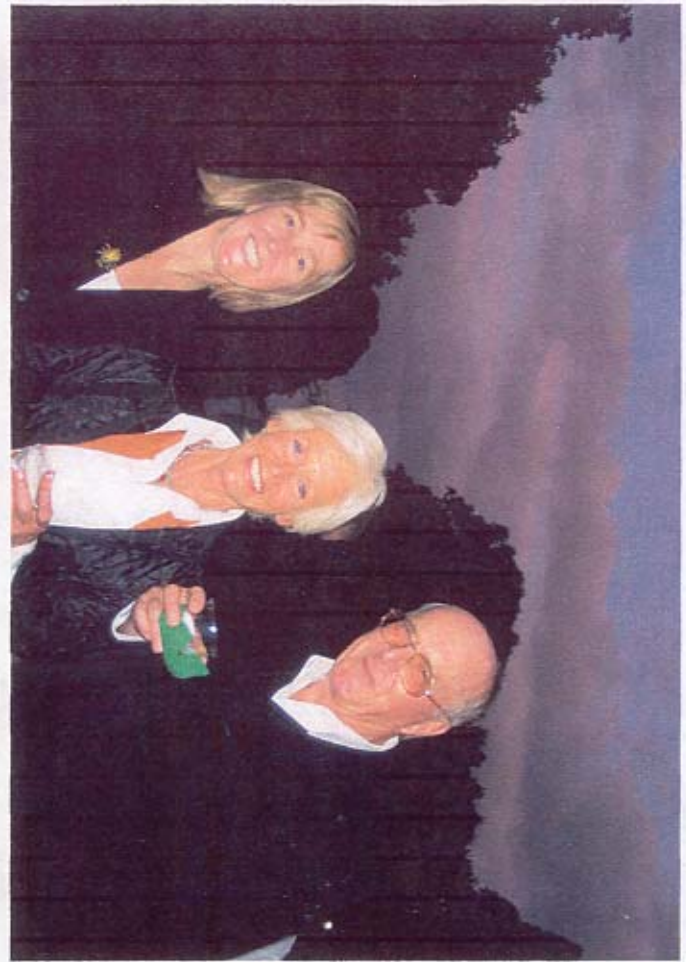


1-4 On The Air!

Figure 3 - Awards and Speakers



3-1 Dr. Lynn Margulis, community lecture.



3-2 Francis Halle, medalist



3-3 Panel discussion in Miami



3-4 Bruce's PhD committee

Figure 4. Outreach to children

Margaret Lowman

b. 1953

"The lives of plants are full of a mystery that rivals that of any mammal."



Ecologist who studies plant-insect relationships in the rainforests of Africa, Australia, Asia, and the Neotropics.

*For inspiring the Scientist in each of us
— Given by Dan, Beth, Ben, and Emily Farr*



Wall of Inspiration

*With appreciation from the Sciencenter
July 2002*

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Thursday, February 17, 2005

TREE CO-SPONSORS THE FLORIDA PREMIERE OF ECOLOGICAL OPERETTAS

The TREE Foundation is co-sponsoring a presentation by Phoebe Legere, internationally acclaimed singer, composer and performance artist. Legere will launch her Florida premiere of two recent ecological operettas, *The Common Root of All Organisms* (The evolution of eukaryotes) and *Dark Energy* (an astrophysics opera) at New College on Thursday, February 17 at 7:30 PM. The event, which is free and open to the public, will be held in the College Hall Music Room on New College of Florida campus, located at 5700 North Tamiami Trail.

[More Information](#)
posted Thursday, February 17, 2005 @ 10:56 AM EST

TREE CO-SPONSORS COMMUNITY ECOLOGY LECTURE

The TREE Foundation recently co-sponsored a lecture by Mark Moffett, renowned photographer and researcher. The lecture was titled "The High Frontier: Canopy Ecosystems". The illustrated talk covered Dr. Moffett's explorations and misadventures into some of the biodiversity hotspots of the world. Moffett has published his work in *National Geographic*, *International Wildlife* and *Smithsonian Magazine*.

[More Information](#)
posted Thursday, February 17, 2005 @ 10:48 AM EST

Friday, October 29, 2004

MEG LOWMAN ATTENDS DISNEY LEADERSHIP CONFERENCE

Dr. Meg Lowman, Professor of Biology and Environmental Science at New College of Florida, was one of 38 education leaders from around the world who joined forces earlier this month to explore ways to lead, engage, and inspire others to protect biodiversity, the variety and complexity of life on Earth. World Wildlife Fund and Disney's Animal Kingdom sponsored the International Leadership Institute for Biodiversity Education on October 11-16 at the Walt Disney World Resort near Orlando, Fla.

[Full Article](#)
posted Friday, October 29, 2004 @ 11:07 AM EST

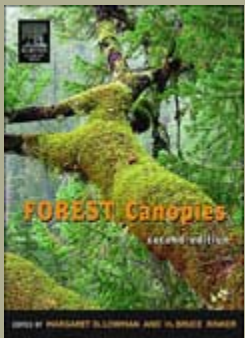
Tuesday, October 19, 2004

"If nothing is done, the rain forests of the world will no longer exist in 25 years."
- Dr. Margaret Lowman, Canopy Biologist

Days	Hours	Mins	Secs
7248	16	35	02



Recommended Reading



[Forest Canopies](#)
by Margaret D. Lowman, Ph.D.
and H. Bruce Rinker, Ph.D.

LYNNE CHERRY TO VISIT NEW COLLEGE OF FLORIDA

Lynne Cherry, acclaimed author and illustrator of numerous environmental books, will give a public lecture at New College on Tuesday, November 9th at 4:30 PM. The lecture will be held in Chae Auditorium in the Heiser Natural Science complex, and is sponsored by TREE Foundation. Lynne will on campus to provide advice and inspiration to the student group, Science Outreach for Schools (SOS), in Sarasota County. Under the guidance of Dr. Meg Lowman, Professor of Biology and Environmental Studies, approximately eighteen New College environmental studies students are training to provide science programs to Sarasota middle school science students. Focusing in particular on Booker and Pine View Schools, the community service group has also visited many other schools during the past year.

Lynne's lecture is open to families, teachers, and other students. She will speak about her continued environmental books and the importance of providing outreach to children. Her publications include *The Great Kapok Tree*, which has been translated into many languages, as well as *Flute's Journey*, *The Shaman's Apprentice*, and others. Her latest book, *How Groundhog's Garden Grew*, advocates for children to get dirty and learn about how plants grow.

posted Tuesday, October 19, 2004 @ 11:05 AM EST

Wednesday, September 29, 2004

DR. BRUCE RINKER TAKES OVER AS THE DIVISION ADMINISTRATOR FOR PINELLAS COUNTY'S ENVIRONMENTAL LANDS DIVISION

H. Bruce Rinker, Ph.D., began his new position on 23 August 2004 as the division administrator for Pinellas County's Environmental Lands Division. Previously at the Marie Selby Botanical Gardens in Sarasota, FL from 2000 to 2004 as its director of canopy ecology, research and conservation, and education, Dr. Rinker now heads a county-wide, multi-million-dollar program outside Tampa that is focused on the conservation of sensitive lands and critical habitat: upland pine forests, cypress domes, swamps, and other vanishing natural resources for the West Coast of Florida. Founded in 1998, the environmental lands program includes research, education, land management, and conservation. For more information, Dr.

Rinker may be reached at brinker@pinellascounty.org

posted Wednesday, September 29, 2004 @ 12:32 PM EST

Thursday, September 23, 2004

CENTER FOR CANOPY ECOLOGY RELOCATES TO NEW COLLEGE OF FLORIDA

Center for Canopy Ecology is happy to announce re-location to the campus of New College of Florida. Watch for details -- office will be housed in the Keating Center for the New College Foundation.

posted Thursday, September 23, 2004 @ 12:17 PM EST

Monday, September 20, 2004

DR. MEG LOWMAN AND STUDENT BRYSON VOIRIN ATTEND

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Access Tower

Departure Tower

Legend:
■ Access/Departure Towers
● Platforms
— Span between platforms

Welcome to the world's largest tropical rainforest! The Amazon basin reaches into seven countries, but JASON X specifically studied the ecosystem in Peru. The map above represents the canopy walkway, designed to enable visitors and researchers to experience this previously unexplored area of the rainforest. Since you're probably not planning a trip to the Amazon anytime soon, EDS has produced an online tour of the walkway, complete with photos of the flora, descriptions of how the indigenous people use the plants, and dizzying views from 118 feet above the ground. The map above provides a birds-eye-view of the walkway and an index to help you get your bearings. You can start by clicking on any platform or tower, or at the very beginning (a very good place to start). You'll need [Quicktime VR](#) to view all of the tour. If you're ready, start exploring!

EDS
EDS: JASON PROJECT
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JASON PROJECT

The Virtual Canopy Walkway was developed by EDS for JASON X.

"If nothing is done, the rain forests of the world will no longer exist in 25 years."
- Dr. Margaret Lowman, Canopy Biologist

Days	Hours	Mins	Secs
7248	16	16	29

Recommended Reading

[Forest Canopies](#)
by Margaret D. Lowman, Ph.D.
and H. Bruce Rinker, Ph.D.

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Figure 6- Biodiversity Blitz in Florida



6-1 Students capture canopy insects.



6-2 Identifying and counting



6-3. The site



6-4 Canopy counters

Figure 7 Outreach



7-1 Public Lectures



7-2 Science Teachers Workshop
in Panama

Figure 8- Science Outreach to Schools

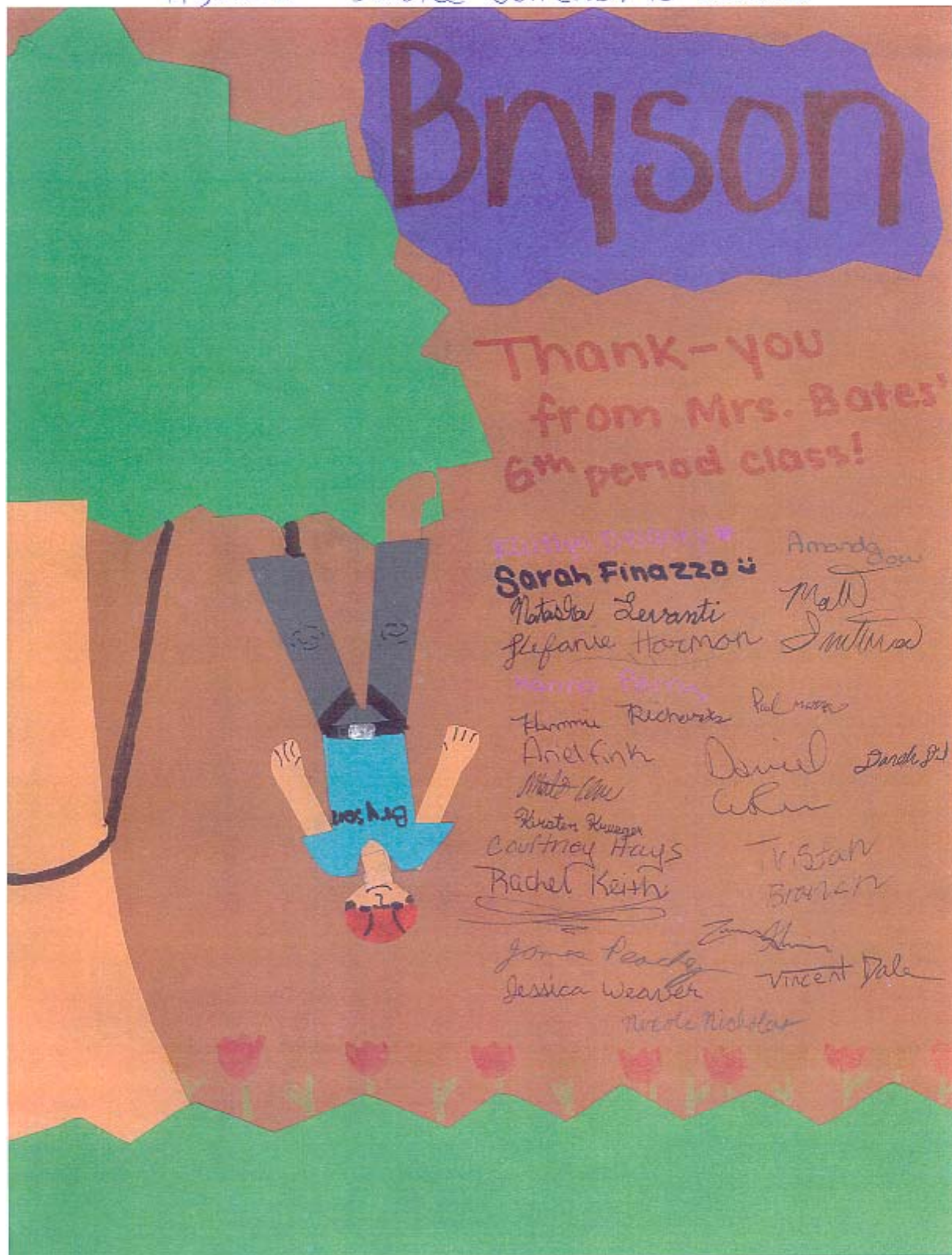


Figure 8- cont.



Figure 8- cont.



Dr. Lowman

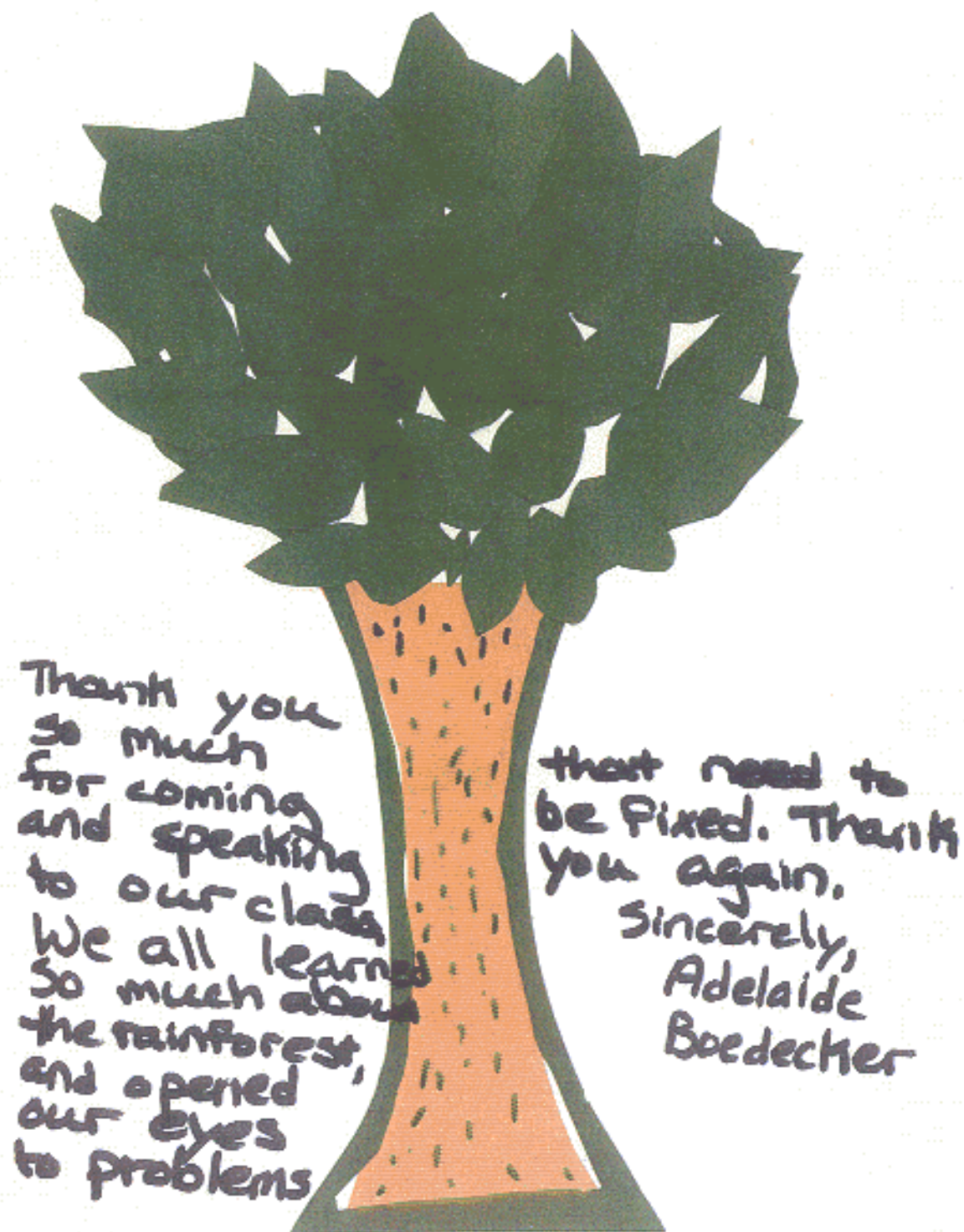
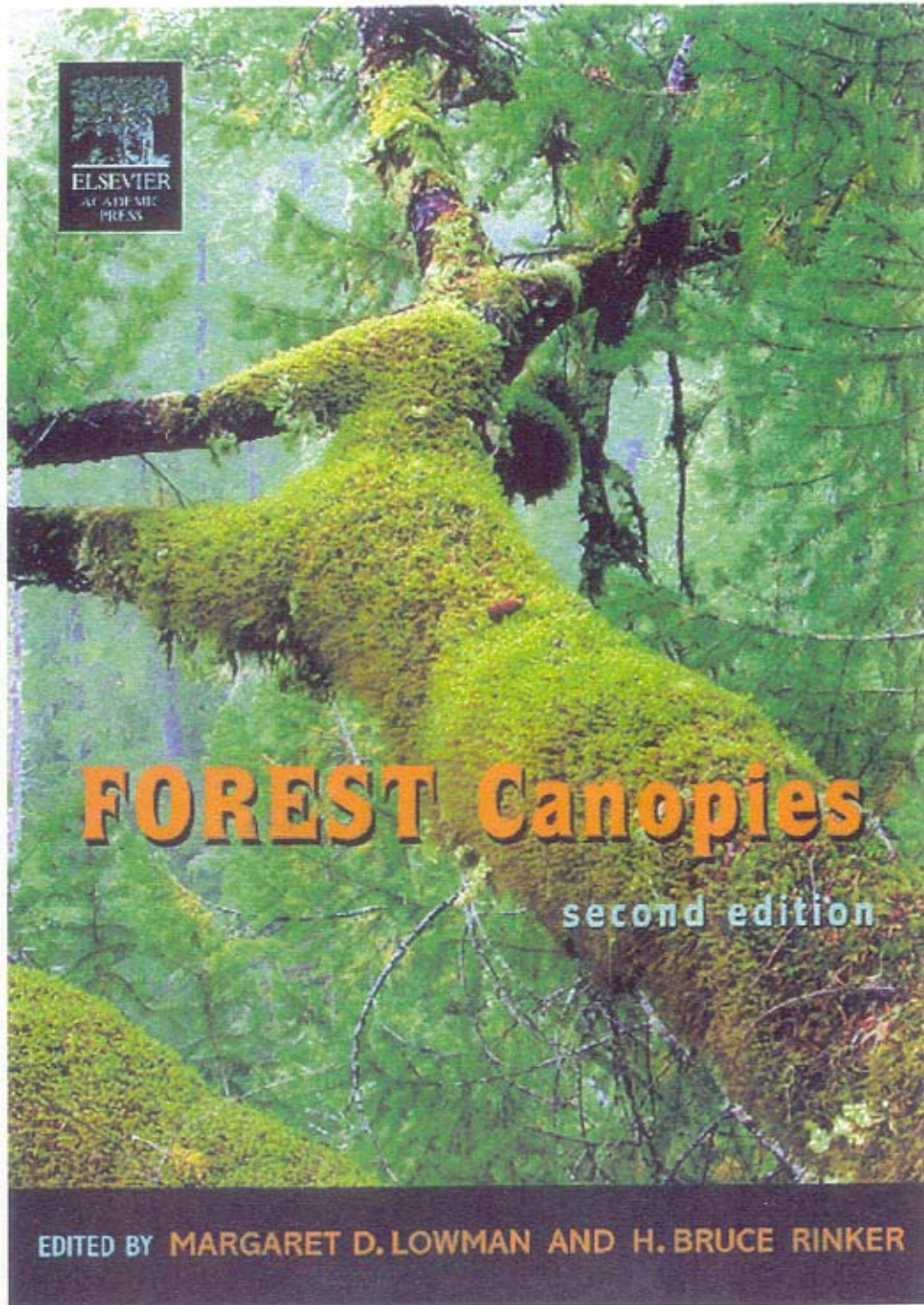


Figure 9- Cover of Forest Canopies



For more information, please contact Meg (canopymeg@aol.com), Bruce (HBruce_Rinker@antiochne.edu), or Elsevier/Academic Press (<http://www.harcourt-international.com/catalogue/title.cfm?ISBN=0124575536>); publication scheduled for mid-August 2004.

FIGURE 10 Public Educational Canopy Walks
 10-1 Hiking to The Walkway after hurricane Ivan. 10-2



10-3 Students+visitors enjoy TREE'S walkway. 10-4



SARASOTA

Herald-Tribune

A MULTIMEDIA COMMUNICATIONS COMPANY

FRIDAY, JUNE 16, 2000, 50¢



Park ranger Kent Shellenbarger, left, and Doug Kerr of the Boys and Girls Club of Sarasota take in the view from the tower, the walkway's highest point.

Walkway through the treetops opens eyes

A spectacular view of the forest canopy will greet visitors today at the opening of the canopy walk at Myakka River State Park. The walkway, 25 feet above the forest floor, is suspended by cables and rises to 74 feet at the observation tower at the north end.



A golden polypody fern grows on a live oak. Visitors can see epiphytic ferns, bromeliads and orchids at eye-level.



STAFF PHOTO/MIKE LANG

James Burgess, 13, of Sarasota walks amid the top branches of live oaks on the walkway following the dedication and ribbon-cutting ceremony on Thursday. The walkway opens to the public today.