



Myakka canopy walkway continues to host thousands of visitors, especially children.

TREE Foundation

Annual Report 2018

- **Dr. Meg Lowman, Director**
- **14 November 2018**
- **Bay Plaza boardroom, Palm Ave, Sarasota Florida**



TREE FOUNDATION

Dr. Thomas E. Lovejoy, President, The H. John Heinz III Center for Science, Economics, and the Environment
Honorary Board Chairman

Dear TREE Foundation Supporters,

1 November 2018

Thank you for all your support and enthusiasm of TREE Foundation as we enter our 20th birthday year upcoming. It is an auspicious time for our natural resources, and never has our conservation of forests been more important to the future of the planet. Highlights of this past year are described in our three mission pillars: research, education and exploration. We are humming on all fronts and look forward to ramping up our activities as TREE's 20th anniversary approaches. Big achievements this year include: enormous education success with virtual connectivity around the world via the Jason expedition for middle schools broadcast from Malaysian rain forests; achievement of 50% forest conservation metrics in Ethiopia; continued focus on education and research for girls; international exploration expanded with three new canopy walkway projects in Bhutan, Mozambique, and Malaysia; special activities planned in Southwest Florida for our upcoming 20th birthday; and focus on local Florida partnerships that include Conservation Foundation, Spanish Point, Gulf Coast Community Foundation, and Ringling School of Art and Design.

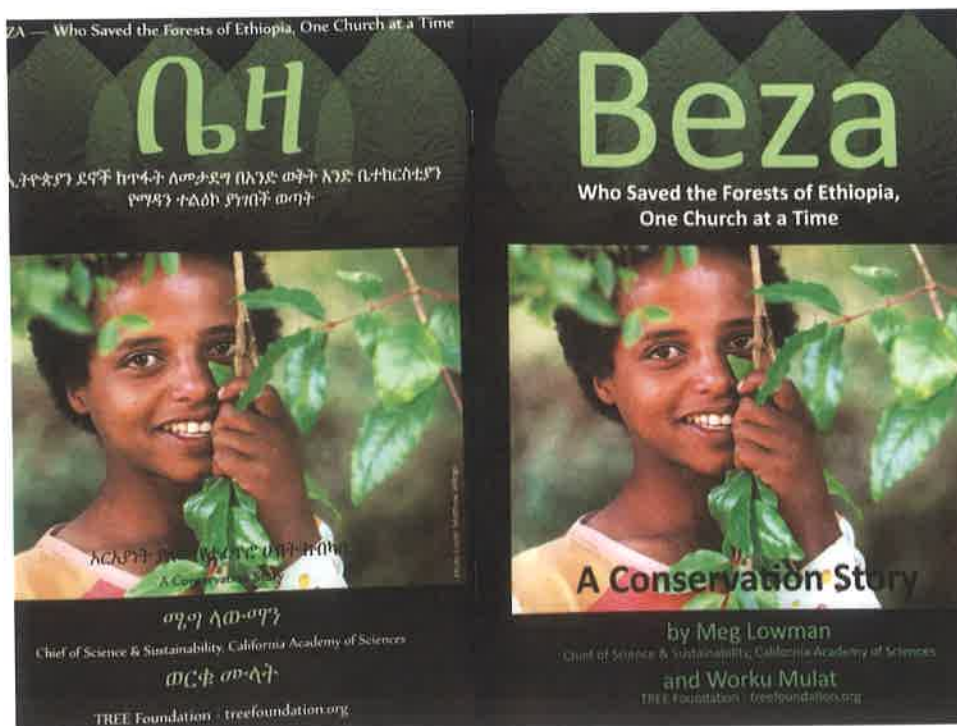
1. RESEARCH

- a. **Scholarships** – Thanks to individual TREE donors, we now have 3 women-in-science scholars from developing countries who are the female role models of the future. Tizezew Sisay from Ethiopia received her Master's degree in Women and Environmental Science at University of Maine as a TREE Scholar; and Sky Lan from Taiwan was awarded her PhD in Canopy Science at Oregon State University recently on May 29. Congratulations to these young pioneers who will return to their countries and become role models for many other young women. Our newest TREE scholar, Puja Koluru from India and an award-winning graduate of Ringling School of Art and Design, is in the final phases of her documentary called A Woman Who Climbs Trees, the first of her series of films about women in science. Big thanks to the Replogle and the Kluttz families of North Carolina for their support of Puja's art-n-science project.
- b. **Grants** – Two National Science Foundation grants just ended a five-year stint to mentor undergraduate science students: one for wheelchair-bound students to climb trees and conduct research on micro-arthropods including tardigrades, otherwise known as water bears, and one to provide students with international experiences by working on Ethiopian environmental issues. Over 5 years, our mobility-limited student teams collected over 40,000 water bears in temperate forests. Students presented at several national conferences, and generously donated the naming opportunity of three of the water bears as fund-raisers for

TREE, generating funds for forest conservation. The Ethiopian research teams have published multiple papers on issues ranging from women and environment to aerial surveys of church forests to water quality.

National Geographic has awarded a new grant to survey the biodiversity of reptiles and amphibians (collectively called “Herpetofauna”) in the church forest conservation walls in Ethiopia. This grant brings a new student into the TREE family: Daniel Greenburg of Simon Frasier University in Vancouver, Canada, will conduct field work on the herps and is really excited to be on-board!

- c. **Research Publications** -- TREE shares the joy of new scientific findings with the world through our well-distributed web presence. Several new papers were published that described new water bear species, and another cluster of papers were published based on the Ethiopia research. A new book of environmental essays, called “Muddy Boots – essays of a field biologist” was published by our own Canopymeg (available on amazon.com) which is a compilation of relevant nature essays from her Sarasota newspaper column called Nature’s Secrets. And the children’s book, “Beza – who saved the forests of Ethiopia, one church at a time.” continues to sell briskly, with each English-sold volume funding a copy printed in Amharic (Ethiopia’s native language) distributed free to rural kids in Ethiopia. What a joy to see their faces, receiving their first-ever book in a lifetime, with many additional copies made available from the Brethren Foundation! Two new children’s books are underway: Wendy Water Bear (about the canopy adventures of a tardigrade) and another volume about the biodiversity of Malaysia, to education children over there about their heritage. Stay tuned!



2. EDUCATION

a. K-12 Education

Outreach: JASON LEARNING Returns – Dr. Lowman presented a talk to the Jason Learning Conference in Washington DC last summer. This highly successful distance learning science program for middle schools has been re-born after its original success when Dr. Bob Ballard hosted it during the 1990s (> 10 million student participants) when CanopyMeg served as his co-chief scientist. In the new version of Jason Learning, TREE funded its first re-revived international, virtual expedition for middle schools around the world. A huge thanks to the Spurlino Foundation for making this possible! The Jason expedition headed to Malaysia in October, bringing teachers and high school students to partner with scientists in the field, and with live-streaming of NGSS (Next Generation Science Standards, which is America's science curriculum) activities throughout all broadcasts. TREE Foundation website was a major host of all activities for Jason Learning, as was National Geographic and media outlets in many American and Malaysian school districts as well as other global partners. World Wildlife Fund, Hong Kong partnered with TREE to broadcast to regions of Asia, and they funded a team of teenagers as part of the field expedition component. All the students had a life-changing experience, working alongside our 117 field scientists to conduct biodiversity surveys.

b. Florida Forest Education - TREE Foundation continues to attract thousands of visitors to southwest Florida with two outdoor educational destinations: our nationally-acclaimed canopy walkway in Myakka River State Park of southwest Florida, and the TREE Treehouse at Spanish Point historical site in Osprey, Florida. Visitors to Florida can now explore the treetops in Myakka, and then enjoy a lovely waterfront picnic at Spanish Point in our thatched chickee hut on stilts along the gorgeous edge of Sarasota Bay! Using the Myakka walkway as a flagship achievement, TREE has launched a YouTube video series of the "World's Ten Best Canopy Walkways" with Myakka as the Number One video. Check it out on www.treefoundation.org. We plan to ramp up some local events surrounding our 20th anniversary in 2020, including a Moonlight-over-Myakka gala outdoor banquet on Thursday 18 April 2019, so save that date!

c. Citizen Science Expedition to the Amazon Canopy – TREE will co-host our 27th annual citizen science expedition to the Amazon forest canopy during summer 2019, taking enthusiastic teachers, students, and families to conduct research and assimilate the culture of this amazing region. Interested in participating? In addition to canopy research benefits, our groups generate local revenues for villagers who find employment in ecotourism (instead of logging). All travelers are blessed by the local shaman, learn about medicinal plants, explore the canopy, and contribute to research on tropical rain forest health by measuring insect damage in the canopies. For anyone interested, our next Amazon citizen science expedition

heads out on July 23-31 2019; please share this with families, teachers or adventurers! Info on: www.treefoundation.org

d. Virtual nature education – Our website has been expanded to offer educational opportunities about forests and forest canopies to diverse audiences both local and global in English, Amharic, Spanish and most recently, some segments of Chinese language. We have exceeded 3 million hits per year with both of our canopy websites. An increasing number of students, schools and teachers continue to write emails to TREE seeking information about forests and conservation! Part of this national school outreach has been inspired because many states are now required to read The Most Beautiful Roof (by Kathryn Lasky), a children's book about Lowman's work in forest canopies, for NGSS (Next Generation Science Standards). Some of these classes and student artwork are featured on our website, with several 5th graders from rural schools commenting, "Speaking by Skype to a real scientist was the most exciting day of my entire school year!"

e. Education outreach – The children's book, "Beza – Saving the Forests of Ethiopia, One Church at a Time," continues to sell briskly in the USA. Every copy sold in English funds a copy in Amharic to be distributed FREE to an Ethiopian child. This colorful volume tells the story of a young Ethiopian girl who starts a forest conservation program in her village. We have shipped hundreds of books to Ethiopian schools and will continue to do this, as a means of both educating children about the values of the forests, but also empowering girls in science. Over 500 books were distributed in Ethiopia this year, thanks to a generous contribution from the Brethren Foundation. Please purchase this book, and you will be educating Ethiopian children as well as buying a great gift! We hope to repeat the book distribution next year.

A new book called "The Leaf Detective" by well-known children's author Heather Lang, will be published in 2019. This new educational resource for TREE will expand our children's activities and outreach. Heather was one of our citizen scientists on the TREE Foundation summer expedition to the Amazon last year.

f. Training the next generation - Lowman's Malaysian biodiversity survey team hosted approximately 20 high school students who were mentored by field scientists in a life-changing experience. In addition, Jason Learning live-streamed the expedition to schools around the world. Lowman was featured in the social media show called "Seekers – Extreme Science," talking about canopy research. This show was uploaded over 60,000 times, predominantly by millennials. TREE Research Associate, Bryson Voirin (who also received TREE's first-ever student scholarship), broadcast about his canopy research to over 50 million viewers through programs on BBC

and Japanese TV. Bryson is a part of TREE's succession plan to make forest canopies part of next gen learning. In addition, TREE Research Associate and educator, DC Randle, retired from public school science teaching in order to focus full-time on recruiting underserved K-12 classrooms for Amazon expeditions as part of the mission of TREE. Our newest partner, Ringling School of Art and Design, sent their prize-winning videographer graduate to the Amazon with CanopyMeg, and she is now producing a documentary called A Woman Who Climbs Trees. A big thanks to several TREE donors for their sponsorship of Ringling's top awarded film student Puja Koluru and the upcoming opportunity to advance her career by launching a series on women in science!



New walkways provide canopy access for the Malaysian bio-bltz, including educational walks for the Jason Learning students who participated.

3.EXPLORATION-

- a. **International Conservation** – TREE aspires to expand our global walkway network with new sites, new virtual school programs about forests, social media including YouTube videos and Jason Learning to educate youth about forests, activities to inspire girls in science, and expanded local environmental education. Forest canopies have become “the flavor of the year” in many countries, with canopy research and ecotourism providing a recognized economic as well as ecological value for planetary health. TREE is in a unique position as one of the world’s only nonprofits dedicated to this type of expertise and mission. TREE has expanded its international reach, with three new canopy projects that provide critical conservation and education value at a global scale. These new projects include:

BHUTAN – Funded by the King of Bhutan, TREE will be providing scientific expertise for a new canopy walkway in the Royal Manas National Park in southeastern Bhutan. This region has the world’s largest tiger population, as well as elephants and other endangered species. The King envisions a sustainable project with a long canopy walkway, field station for visiting scientists, and K-12 school for local villagers to insure that visiting scientists will inspire the local kids. This type of visionary project is a global first, fully embracing the economics of ecotourism and conservation using the treetops.

PENANG – The UNESCO World-Heritage region of Penang will soon have its own canopy walkway and environmental education center on Penang Hill, a unique primary tropical rain forest reserve within a 15 minute drive of 1.5 million people. Lowman is working with a Malaysian team to design the walkway as well as a field station that will house international researchers to work at this site. Part of the program involves creating a healthy partnership with the University of Malaysia and the international canopy science community. Thanks to several partners, the Flagstaff Corporation of Hong Kong will fund an international biodiversity survey of Penang Hill this October. Over 40 scientists, both local to Malaysia and international, will come together for this blitz to survey all the creatures in this precious tropical rain forest under Lowman’s leadership. The results will be used to nominate this site as a UNESCO World Heritage site; Jason Learning will work side-by-side with the scientists, broadcasting to schools around the world (thanks to TREE!).

NATIVE AMERICANS – The Yurok Indians of northern California have requested advice for a planned canopy walkway and environmental education center in their forest reserve near Arcata, California. Using proceeds from their successful casino, the Yurok leaders would like to give back to their next generation, by providing this link to the natural world. In addition, tribes in Connecticut and western Canada are exploring plans for a canopy walkway.

- b. **Ethiopian forest conservation** – TREE continues to be a global force in the conservation of the last remaining forests of Ethiopia, called church forests because they surround the Coptic churches. Thanks greatly to the Spurlino Foundation and small donations from hundreds of school students, TREE has now exceeded the half-way point in conserving ~40 most critical forests of northern Ethiopia. We need \$250,000 to complete our goal. These church forests now have beautiful stone walls built by the local church community, meaning that cattle are excluded from eating the seedlings and farmers' plows will not ring-bark and stress the edge trees, leading to the loss of integrity and ultimate shrinkage of the church forests. These small plots house the last remaining biodiversity library for Ethiopia, source of fresh water springs, medicinal plants, honey, pollinators, shade, tree roots that conserve soil, and an important spiritual site. National Science Foundation funded groups of undergraduate students to undertake research in the forests during summers for the past 5 summers, and to help foster education outreach for Ethiopian students. Check out several new videos on our website that shares our Ethiopia project with the world. Another outstanding endorsement of TREE's Ethiopia project came from National Geographic, who recently funded a new survey in our church forests. This grant, to census the frogs and lizards and snakes, will engage students as well as provide funding and strong endorsement of the importance of these precious forests fragments.

These are some of our 2017 mid-year highlights for TREE Foundation. Thank you for your contribution. As we approach our 20th anniversary, please consider a special gift to TREE! We are a unique non-profit, because our dollars do not fund buildings, or staff salaries; we are committed to funding programs that benefit the forest environment and education outreach to youth. A big thanks to everyone who funded our Giving Challenge this year, with each donation receiving a match from the Community Foundation of Sarasota. TREE will host Moonlight over Myakka, a gala evening adventure-dinner for the 20th anniversary of our beloved Myakka canopy walkway, so please save the date of Thursday April 18, 2019 for our banquet under the stars.

We look forward to making the world a better place for the next generation, in Florida and beyond.

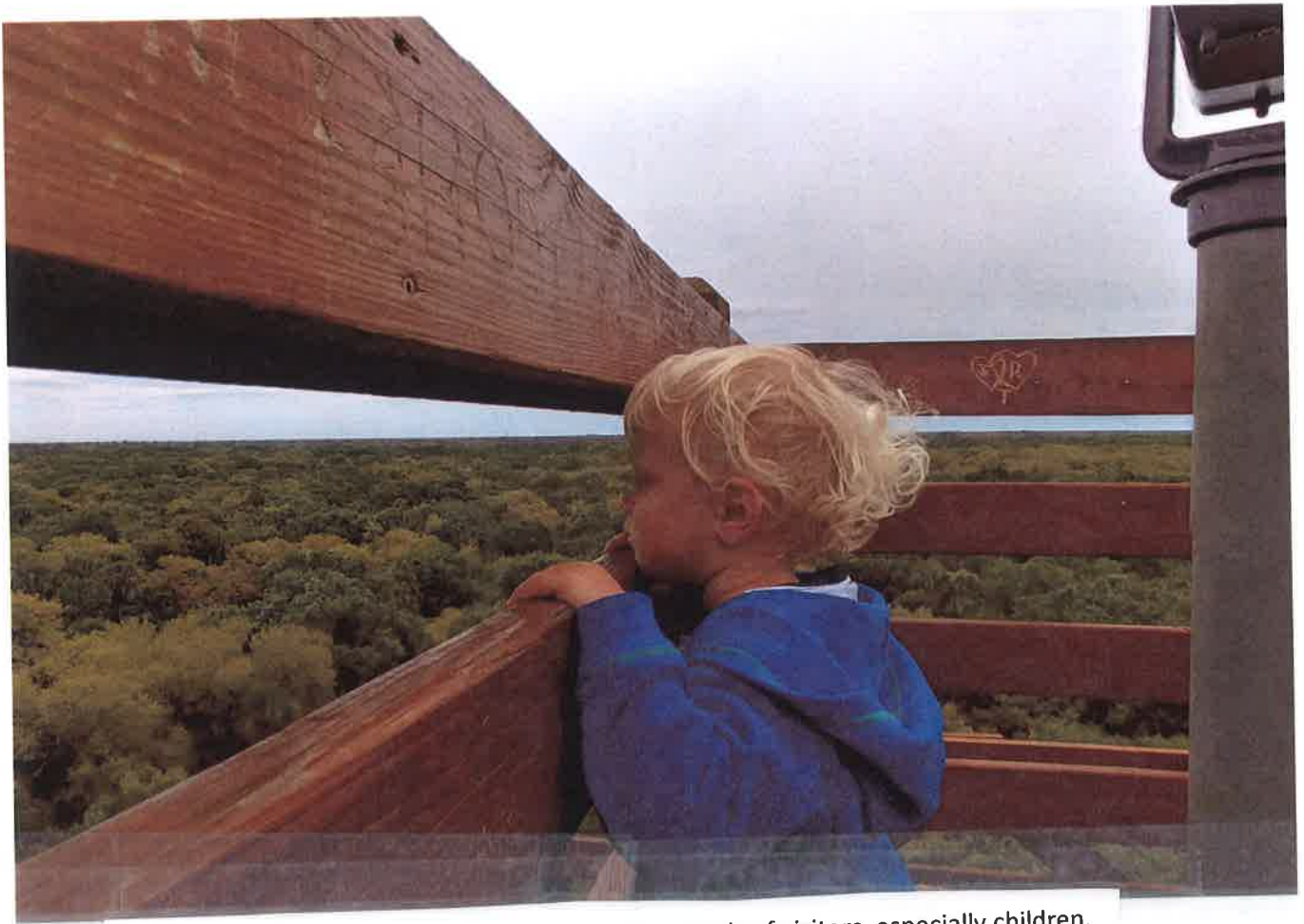
Yours gratefully,

Meg Lowman

Meg Lowman, PhD
Executive Director

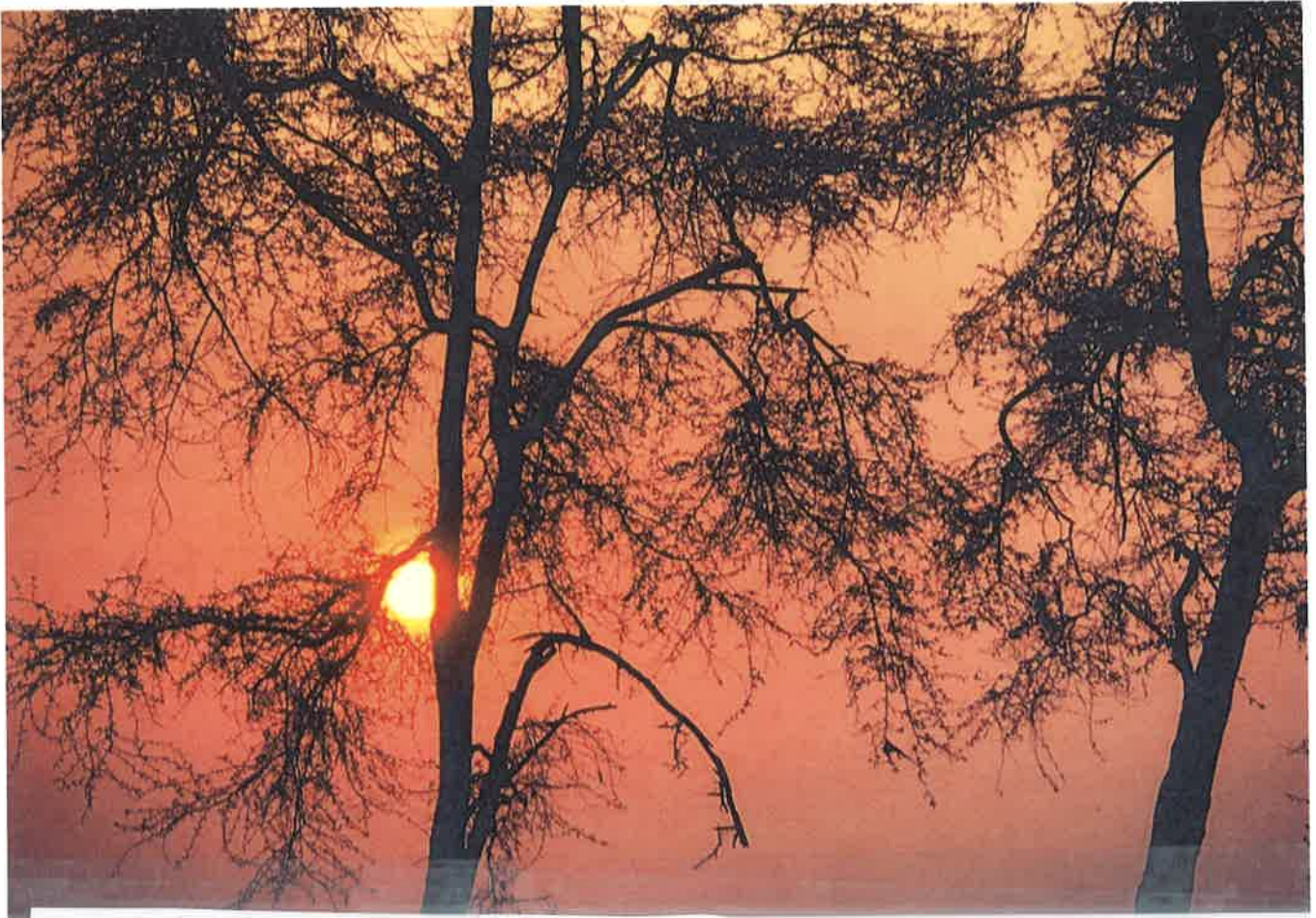
Gerri

Gerri Aaron
Board President



Myakka canopy walkway continues to host thousands of visitors, especially children.





Gorongosa National Park, Mozambique, received funds for TREE to construct a new walkway in 2019.



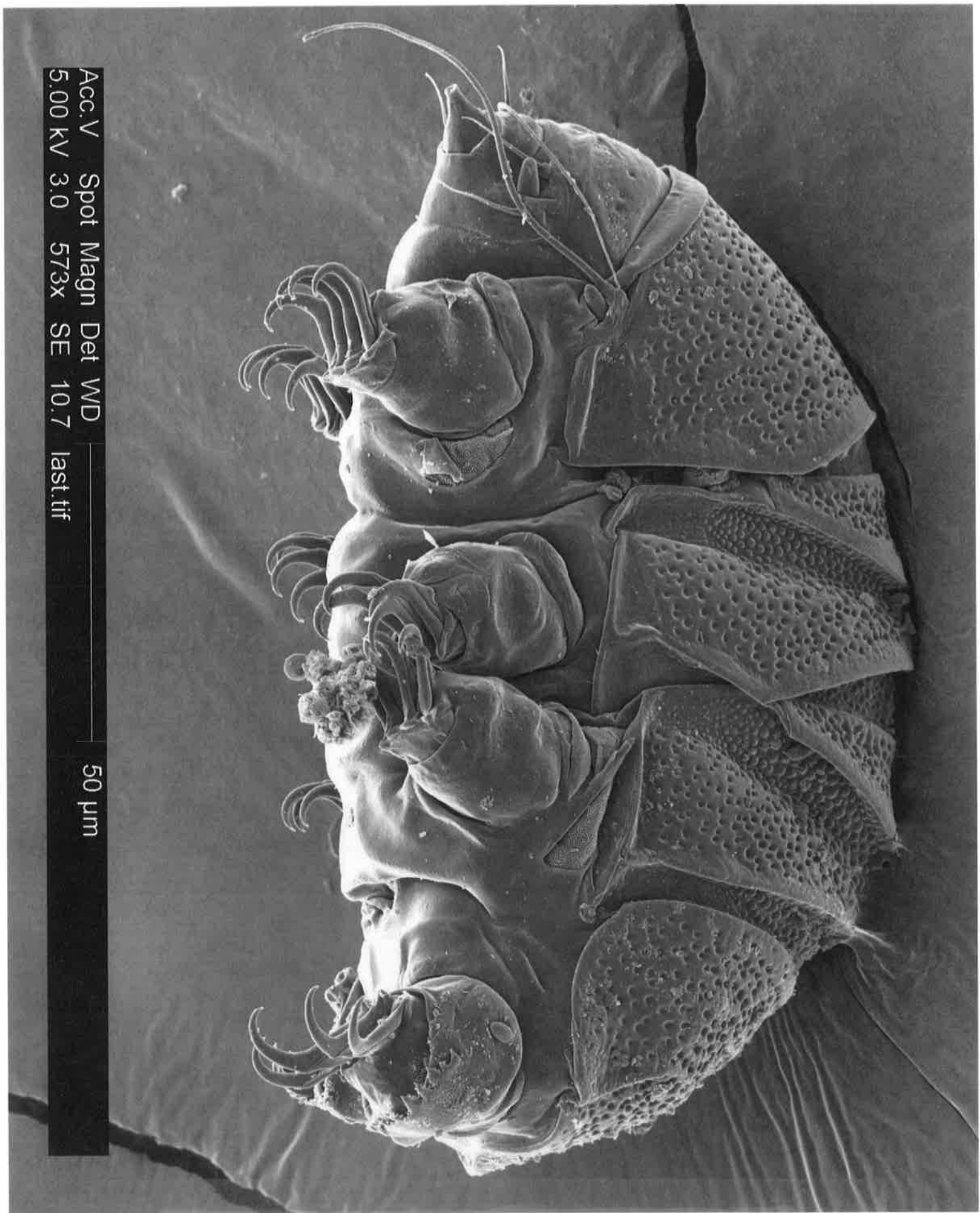


Over 120 scientists/students participated in a BioBlitz in Penang, Malaysia during 2017.





Hundreds of virtual students and classes “chat” with CanopyMeg via virtual connectivity.



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50 µm

A new species of waterbear was discovered in the Malaysian rain forest canopy.

Penang Hill – October 3-9 2018

Deliverables from this trip:

1. UNESCO world heritage Man and the Biosphere nomination dossier was edited, finalized and approved by all signatories, using the data from the 2017 bioblitz to advocate for this rain forest.
2. Meeting with Habitat Foundation to talk about future funding (possible options for Esposito and other CAS curators in future), and to discuss the future biological field station on the Hill
3. Presented talk to the Thunderbird Business School/Arizona State University/ University Sains Malaysia collaboratory group of approximately 150 people. I presented a summary of the bioblitz and findings, plus presented the case study of the Cockrell family investing \$30 mil into a rain forest conservation ecotourism site; this could be replicated by some of the other Thunderbird alums who were present and coming from other countries.
4. Moderated a panel on the Sustainability of Nature: panel participants included Kiat Tan (director of Gardens by the Bay, Singapore); Chris Boone, Dean of ASU School of Sustainability; Dato Sri Maimunah Modh Sharif, Executive Director of UN-Habitat programs; and Bjorn Low, co-founder of Edible Gardens in Singapore.
5. In dialogue with Glen Wheatley, Managing Director, Best Solutions International group, University of Adelaide (Australia) about a potential revenue-based distance learning program that relates to canopy science and sustainability based at the Habitat.
6. Met with USM and Habitat Foundation staff to delegate assignments for editing the BioBlitz volume, with chapter submissions from all the participants.



ASU USM Habitat partnership for sustainable forest initiatives



USM biology team who were part of the UNESCO world heritage nomination.



University Sains Malaysia (USM) bioblitz participants



ASU Thunderbird Business School sponsors, the Cockrell family, join Meg to announce new species from the bioblitz.



Lauren Esposito finds the new whip spider on Penang Hill.



Canopy lectures for the ASU and Thunderbird Business School visitors to Penang Hill



Canopy walkways are complete on Penang Hill, Malaysia

Table. Church Forests Fenced and Proposed churches to be fenced.

Ser No	Name of the site	Area Ha	Perimeter Km	No woody Species estimated	Status Of Fencing	Total Cost of Fencing (stone wall) USD	Name of District/Woreda	GPS Location
1	Zhara	8	1.6	46	Finished		Dera	N11° 48' & E37° 24'
2	Debresena	11.5	1.9	40	Finished		Farta	N11° 51' & E37° 50'
3	Goha	7	1.5	38	Finished		Dera	
4	Mosha	13	2.8	53	Finished		W/Estie	N11° 26' & E37° 56'
5	Hiruy	4	0.8	32	Finished		Farta	N11° 51' & E38°
6	Bata (Bahirdar)				Finished		Bahirdar	
7	Geregera	5	1.4	35	Finished		Dera	
8	West Gojam	1	0.25		Finished		Bahirdar	
9	Diocese office Yard Gibstawit	2	0.5	28	Finished		Dera	
10	Kulala	3	0.7	32	Finished		Dera	
11	Wonchet	6.5	1.5	41	80%		Dera	
12	Quar Giorg.	4	1.1	36	90%	1000	Fogera	
13	Zigora Medh.	22.5	2.3	46	50%	2500	Estie	N11° 55' & E37° 48'
14	Zajor	8	1.6	42	90%	1500	Dera	
15	Mesi	32	3.2	44	70%	2000	W/Estie	
16	Woji	22.5	2.3	46	70%	1000	Fogera	N11° 55' & E37° 48'

17	Robit Bata	5	1.2	34	60%		Bahirdar	
18	Dengolt	25	2.6	50	Not Started	19,400	Estie	N11° 36' & E38° 04'
19	Simet	13	2.8	53	Not Started	20,700	Estie	N11° 26' & E37° 56'
20	Mantogera	5	0.89	59	Not Started	8,000	Libo	N12° 09' & E37° 47'
21	Amstyra	22.8	2	57	Not Started	15,500	Ibinat	N12° 01' & E38° 04'
22	Wuahir	8.4	1.4	62	Not Started	11,400	Farta	N11° 51' & E38° 05'
23	Gibstawit	8.7	1.7	52	Not Started	13,400	Ibinat	N12° 07' & E38° 05'
24	Qorata	48	2.8	69	Not Started	20,700	Dera	N11° 45' & E37° 26'
25	Dedim	36.6	3	26	Not Started	22,000	Farta	N11° 47' & E38° 12'
26	Wonkeshit	50	3.8	88	Not Started	27,500	Dera	N11° 30' & E37° 27'
27	Gedam Selase	15	1.9	99	Not Started	14,700	Simada	N11° 21' & E38° 16'
28	Gelawdios	100	6	48	Not Started	42,000	Dera	N11° 38' & E37° 48'
	Total					223,300		

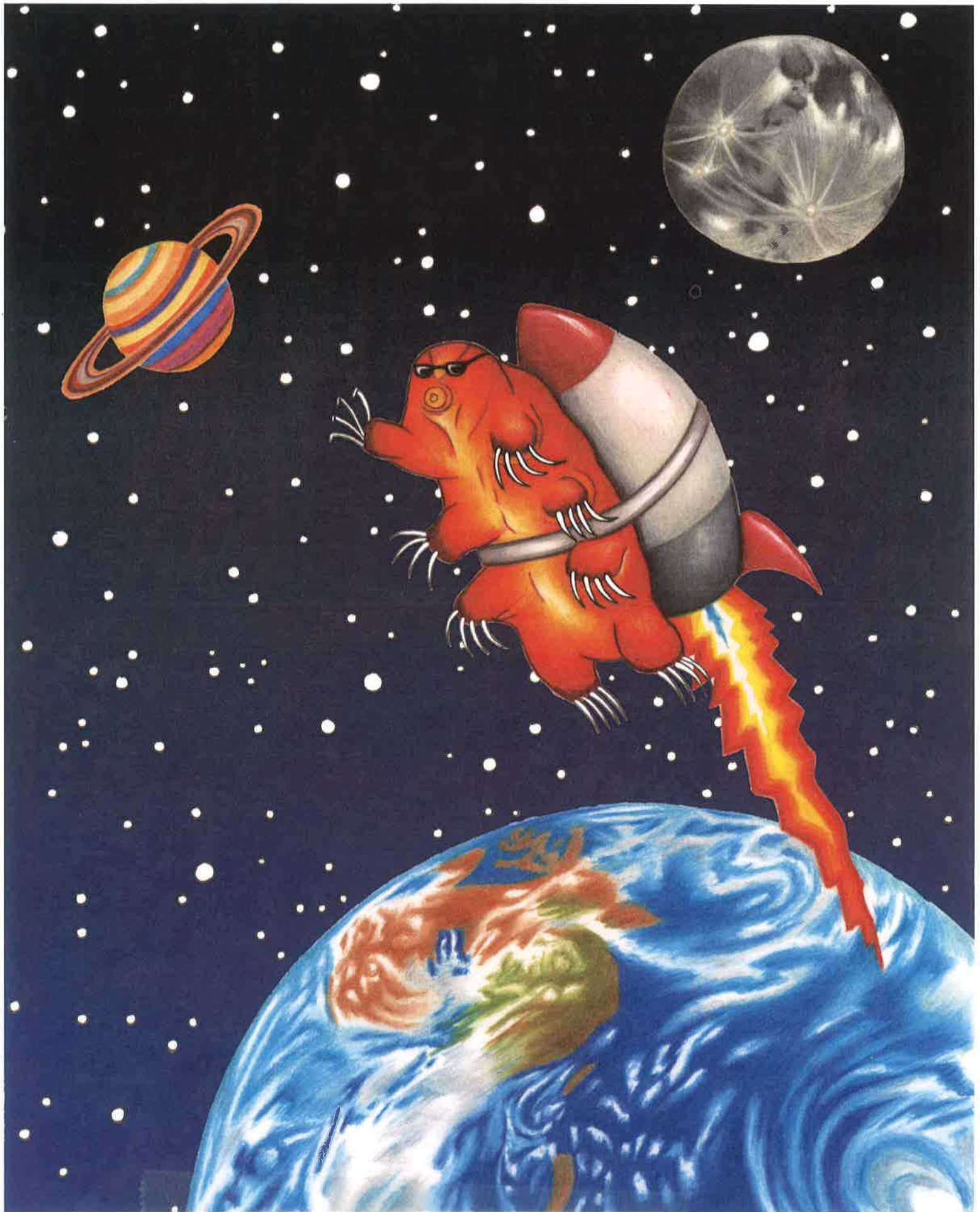
Remark:

1. Our ambition is to fence all the church forests listed above as they represent and accommodate the biodiversity of the region.
2. Every church fence will have three gates made of Iron sheet with concrete Pole
3. With current inflating cost , I estimated the unit cost per meter of stone wall fence will be 6.7 USD. However this amount of money will be enough if we get some labor contribution from the people which I hope we will get and we should!



National Geographic grant will fund surveys of Herpetofauna in the Ethiopian conservation walls.





Wendy Waterbear will be featured in a new children's book!