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SPRING, 2015



CANADIAN ORGANIZATION FOR TROPICAL EDUCATION &
RAINFORREST CONSERVATION

RAPHIA

COTERC AT SHOWS

Recently COTERC had a booth at two very different types of events. The goal of attending these shows is two-fold — to educate the public about rainforest conservation and to recruit volunteers who may be interested in helping out either here in Canada or at Cano Palma Biological Station.

February 1—Partners in Protection at the Royal Ontario Museum by Susan Kunanec

'Partners in Protection' is an event that takes place at the ROM (Royal Ontario Museum) in Toronto on the first Sunday of most months. Dave Ireland, Managing Director and Aaron Phillips, Assistant Program & Gallery Coordinator from the ROM's Centre of Discovery in Biodiversity invited COTERC to participate in the program on the first Sunday in February. The event takes place in the Earth Rangers Studio in the Life in Crisis: Schad Gallery of Biodiversity. As described on the ROM's website, Partners in Protection is "*an opportunity for organizations interested in biodiversity-related issues to connect with visitors at the Royal Ontario Museum through informal presentations, crafts, games, stories, hands-on specimens and/or other activities, suitable for the whole family*".

COTERC board members Tom Mason, Susan Kunanec and Julie Scott spent the day interacting with the visitors who wandered through the gallery, discussing issues related to biodiversity. About 400 visitors of all ages stopped to chat.

The photographs from Cano Palma Biological Research station sparked a lot of interest, especially those of tent bats (who can resist those fluffy little Honduran ghost bats that look like cotton balls). These were a great lead into discussions about biodiversity among bats – where they live, what and how they hunt and how beneficial they are.

The ROM supplemented the COTERC displays with several specimens visitors were invited to touch. The stuffed hawksbill turtle sparked many conversations about the plight of sea turtles, climate change, the research COTERC is doing and opportunities for volunteering. A pitiful-looking stuffed juvenile caiman was especially attractive to the very young. Some interesting discussions were held with them about what kind of souvenirs to buy and not to buy (and real eyes vs. glass eyes!). Other conversations revolved around the importance of preserving habitat in both Canada and the tropics as half of the bird species tagged at the station in Costa Rica are migrants from Canada.

The Partners in Protection program has relationships with other organizations, so it will be a while before COTERC comes up on their list again, but something that should definitely be continued.

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RESEARCH COORDINATOR UPDATE

by Emily Khazam

Caño Palma Biological Station has proven to me, in the last three and a half months, to be a place full of enthusiasm, humor, and research potential. The following is an update on the wonderful things that have happened at the station regarding research and collaboration, and some incipient research projects that will hopefully bring lots of good data, publications, and publicity to Caño Palma!

ZSL: The Zoological Society of London conducted their EDGE (evolutionarily distinct globally endangered) fellows course at Caño Palma this year. The eight fellows came from all over the world – South Africa, the Philippines, chose an EDGE species on which to create and implement conservation projects and research. The presence of the students and instructors of the EDGE course enhanced the station environment –

– staff and EURIs (European Undergraduate Research Interns) were able to sit in on some classes and make connections to other biologists

UTSC: Dr. Nathan Lovejoy, now a new member of the COTERC board, brought a field biology course to the station for one week. Students primarily focused on fish sampling and identifying, but also joined us on several surveys including mammals and caimans. We enjoyed having Dr. Lovejoy's group around; it is always a rewarding experience introducing people to a unique and biodiverse Neotropical forest. We are also looking forward to continuing to work with Dr. Lovejoy and continuing to receive his, and hopefully other courses at the station!

: Our major long-term surveys (mammals, caimans, plant phenology, shorebirds, snakes, and climate monitoring) are all being carried out with extreme regularity. As many years of consistent data have been collected for many of these projects, we are beginning to select and analyze some of the data for publication. For example, Luís Fernández (research coordinator and assistant manager) is preparing a manuscript which will report baseline population numbers of the caiman population in Caño Palma. This article will provide future researchers with an invaluable base of information on the population demographics of the spectacled caiman.

Continued on Page 6

THANK YOU TO THESE DONORS

We are very grateful for donations from the following:

Professor Frances Burton

Marilyn Scott

Pennie Mason

Susan Kunanec for her pledge

Steve Furino

And these monthly donors

Lauren Stewart, Toronto, Ontario

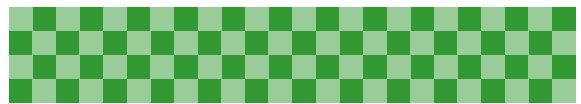
Linden Cook

We welcome new members

John Gormaly, Toronto, Ontario

Kathy Lau, Toronto, Ontario

Alex Lee, Oshawa, Ontario



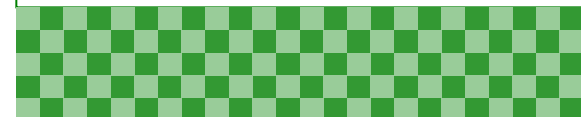
COTERC receives no government funding and depends on your generosity to continue our work. Please consider making a donation. You can make a one-time donation or arrange for a monthly withdrawal easily through Canada Helps. Just go to their website

<https://www.canadahelps.org/en/donate/>

Click on "Find a Charity"

Type in COTERC and then follow the instructions.

Whether the amount is \$5 or whatever, your donation is greatly appreciated — and Canada Helps issues a tax receipt to you



METHANE, THE NATURAL GAS

If you try to sit, I'll tax your seat If you take a walk, I'll tax your feet

If you make a fart, I'll tax what you excrete.

The Beatles' taxman didn't foresee that last one. But, in 2011, the Malawi justice minister proposed making farting in public illegal. When the laughter died down, he withdrew his brainchild. But governments around the world aren't laughing as they search for ways to reduce increasing emissions of methane, the powerful greenhouse gas. **Grazing animals, especially cattle, are the primary villains**, and several countries have considered a tax on ruminant emissions.

It's actually belching that accounts for 90-95% of such emissions. Anaerobic bacteria, which aid digestion in ruminant stomachs, can produce up to 1000 litres of methane a day in a single cow. As recyclers of wood, termites also release methane when mutualistic microbes in their gut break down cellulose into the energy both host and microbes need to survive.

Wetlands also belch, so much so that they are the largest source of naturally produced methane. Again, anaerobic microbes are responsible for producing the gas. Costa Rican wetlands are responsible for about 0.6% of global tropical wetland emissions.

Ironically, though a fossil fuel, methane can 'help' the atmosphere. That's because it's the simplest of the hydrocarbons, having only one carbon molecule. So it burns cleaner, releasing less CO₂ into the atmosphere than other energy sources – 30% less than crude oil and 45% less than coal. How does it compare to natural gas? Methane is natural gas. Thus, switching power plants to natural gas from coal reduces CO₂ emissions significantly. In the USA (and probably Canada), this has resulted in the lowest CO₂ emissions since 1994. As well, methane produces more heat per molecular-mass unit than the more complex hydrocarbons.

Besides lowering CO₂ emissions, burning natural gas means that less methane is available to be let loose into the atmosphere. Why's that important? Because methane is a much more potent greenhouse gas than CO₂. Its heat-retaining capacity is about 60 times that of CO₂. That ability is mitigated by the relatively short life of methane in the atmosphere. Still, though its average lifespan is about 10 years compared to 100 for CO₂, methane is rated as having 25 times the global-warming potential of CO₂ over 100 years.

Read on only if you want to become more confused – In the last issue, we talked about why wetland areas like Caño Palma are so important as carbon sinks. Nonetheless, such sequestered carbon is slowly broken down by anaerobic bacteria. One byproduct is methane. Some researchers claim that these methane emissions actually make wetlands net emitters of greenhouse gases. Other researchers claim that, beyond 300 years, the methane emissions decline enough that wetlands again become net radiative sinks. (<http://link.springer.com/article/10.1007%2Fs10980-012-9758-8>) BUT more recent research suggests that methane emissions from wetlands have been underestimated because they were measured at ground level. Researchers found that trees in wetlands emit 3 or 4 times as much methane as the ground. That's because tree roots in waterlogged areas can't get enough oxygen from the ground. They adapt by enlarging the lenticels, or pores, (interesting pictures on Wikipedia) on their trunks to take up more oxygen, which is dispersed to the roots. However these pathways work in both directions, resulting in methane traveling from the ground up to the lenticels to be released into the atmosphere.

(www.sciencedaily.com/releases/2013/02/130213100724.htm) Elsewhere, beavers are now being accused of increasing methane emissions. I won't attempt the long explanation (<http://www.sciencedaily.com/releases/2014/12/141216082529.htm>). Basically, their shallow ponds create the right conditions for the production and release of methane into the atmosphere. It's estimated that the increased population of beavers over the last 100 years has resulted in 200 times more methane being released annually. Increasing numbers here and in Europe combined with a warming planet will only increase emissions.

FAREWELL & WELCOME

Recently there have been changes to the make-up of the Board of Directors of COTERC, and we would like to share these with you.

Nancy Cox, Director of Special Events has resigned from her position. Nancy was responsible for heading up the team that presented Fiesta Verde 2014, and we would like to thank her for all her hard work. It is not an easy job to put on such an event and we appreciate her hard work. At the moment this position is vacant.

In an effort to bring in fresh ideas to the Board, we have recently appointed five new directors.

We would like to welcome:

Dr. Nathan Lovejoy, a professor at the University of Toronto Scarborough Campus, as the incoming Director of Conservation & Research. Nate has recently been to Cano Palma with his students (see the article "Monkeys for Alarm Clocks" on Page 7.

Alex Lee is currently a student of finance at University of Ontario Institute of Technology in Oshawa, Ontario, with some background in biology. He has led a media creation teach & assisted in the management of volunteers &

fundraising station of McHappy Day which led to raising \$19,000 for that group. This dynamic individual is a landlord & property manager as well as being a self-employed investor, and we're excited to have him bring in fresh ideas.

Kathy Lau is a Chartered Accountant and currently is Supervisor, Financial & Reporting at Toronto Hydro. She has assumed the Director of Finance position. She is well travelled, with a background in biology during her school years, as well as has experience with Special Events.

Anders Holder has assumed the position of Director of Education. He is Program Officer for Environment Canada responsible for the management & implementation of projects for the Lake Simcoe/Southeastern Georgian Bay Clean-up Fund and other duties. He has visited Cano Palma Biological Station as well as Africa, Europe, North America. He is an avid outdoor enthusiast as well as an advanced aquarist & reptile hobbyist.

John Gormaly is a Director at Large and is the National Database Manager for Habitat for Humanity Canada where he leads a 35-member team to develop and deliver pro bono market research to 17 non-profit organizations. He grew up in a family where he spent much time in the outdoors. His father worked for the Ministry of Natural Resources and he's looking forward to visiting Cano Palma.

Each of these individuals brings different strengths & expertise, and we are pleased to welcome them to the Board of Directors.

NEW COMMUNITY INTERNS

We are also pleased to welcome our two new Community Interns.

Elena Almansa Lopez has a BSc in Biology, with experience working with raptors in Greece. and has several years of experience in science and environmental education with kids in Spain and Greece.

Javier Falquina has a Masters in Conservation Biology, with experience working with both turtles and birds, as well as developing environmental education programs for kids age 5-12. He originally applied for a turtle intern position, but because of his background in education and science, he was interviewed for and offered the education internship.

In early April, they had the kindergarten class over to the library for International Book Day. They did a morning on "The Very Hungry Caterpillar" with the kids illustrating their own version of the book, as well as looking for butterflies in the garden.

EDGE FELLOWS AT CAÑO PALMA

By Carly Waterman, EDGE
Programme Manager

Zoological Society of London (ZSL) staff and EDGE Fellows received a warm welcome this January when they arrived at Cano Palma Biological Field station for the fourth annual EDGE Conservation Tools training course.

ZSL, a UK-based conservation charity, aims to protect the world's most extraordinary threatened species through its EDGE of Existence programme (www.edgeofexistence.org). 'EDGE' prioritises species for conservation attention according to their degree of unique evolutionary history (Evolutionary Distinctiveness), weighted by conservation urgency (Global Endangerment). Evolutionarily Distinct and Globally Endangered (EDGE) species have few close relatives on the tree of life and tend to be unique in the way they look, live and behave and in their genetic material. They are also on the verge of extinction.

Some EDGE species, such as elephants and pandas, are well known; many others, such as the Chinese giant salamander (the world's largest living amphibian), the long-beaked echidna (one of only two types of egg-laying mammal) and the pillar coral (a reef colony up to 2m high) are poorly understood and have been largely overlooked by conservation efforts. Since 2007, ZSL has developed EDGE priority lists for mammals, amphibians, corals and birds. Our research shows that 70% of the 100 highest ranking EDGE species in each group are

receiving little or no conservation attention. If they disappear, millions of years of unique evolutionary history will be lost with them and there will be nothing like them left on earth.



ZSL is working hard to put poorly-known EDGE species on the map, and to initiate conservation attention for those that are currently overlooked. One of the most effective ways of achieving this is by supporting conservationists around the world to set up projects on local EDGE species. Each year, up to ten early-career conservationists are awarded EDGE Fellowships, a unique combination of vocational learning,

Continued from Page 2 Research Coordinator Report

In addition to organizing and preparing to publish some of the data that has been generated from our long-term monitoring programs, we have several interns who have assisted in augmenting our database. For example, one of the EURIs, Gijs Bouwmeester, for the last two months has collected shorebird data at Laguna Cuatro. This additional transect complements our existing data from Laguna Tortuguero. As his internship comes to a close, his report will shed light on any differences in species composition and/or abundance of shorebirds between the two transects based on water salinity and human impact. Another EURI, David Boeren, has been participating in most of our mammal surveys, and collecting his own data on tent-making bats. While we do not include bats in our mammal surveys, the data that he is collecting will supplement the general mammal data that we have, and will shed a great deal of light on the ecology and roosting site selection of tent-making bats, something about which little is known.

Finally, as research coordinator, I have begun some independent projects here at the station. The first of these examines tadpole rearing site selection of the strawberry poison dart frog, *Oophaga pumilio*. Several EURIs have conducted research projects on them here at Caño Palma because of their visibility, high density, and interesting breeding behaviors. My research project, in collaboration with Dr. Matt Dugas (post-doc at Case Western University) will more deeply explore details of rearing site selection. Also, with the potential for regular sampling for a long period of time, we will be able to test effects of seasonality in this forest which has a very high flooding risk compared with a more consistent, drier forest across the canal. I am thrilled to have started this project and look forward to even more data collection and eventual publication of these data.

My first three months here have flown by; it is hard to believe that it's already April! I am looking forward to the next nine months – new research interns visiting, new research projects, new collaborations, and new visiting researchers! Caño Palma is full of amazing research potential and I am delighted to be a part of bringing this potential to fruition with the help and collaboration of the staff, interns, and volunteers here!

It must have been around June or July last year when I realised with horror that, if everything went to plan, my contract would end and I would be leaving Caño Palma at the end of November. That was less than six months away. Panic! It took a few minutes to regain my composure and when I began breathing normally again I put in my request to stay for the 2015 turtle season. I hoped to stay and spend another season in Costa Rica patrolling the beach and protecting the turtles that nest on Playa Norte. Once I had placed my request all I could do was wait and hope that the work I had done so far would be enough to ensure I kept my place here for the next season.

Success! My request was accepted and not only would I be able to stay another season I would also be able to stay for the interim. Now I could stave off the panic until November 2015! But what does the Marine Turtle Programme Coordinator do when there are no turtles?

My background isn't specifically with turtles; I actually have experience spanning 12 years working with other herpetofauna species. And now I had three months outside of turtle season to explore the jungle and the canal and investigate some non-turtle herps. Heaven! My remit was to come up with a couple of mini projects that would work to the benefit of the station but were non-invasive to the species being studied. This meant minimal handling and no trapping. Oh and no budget. Challenge accepted!

One thing I had noticed – it be fair you would have to be blind not to notice – was that the green iguanas (*Iguana iguana*) were lekking at this time of year. Iguanas have a complex social structure and during the breeding season the males change colour from their usual green to brilliant orange. Their dewlaps enlarge and they posture and head-bob in prominent locations ensuring that they are visible to any females in the area. The females, far more cryptic in colouration, congregate around males and complete for mating opportunities. How considerate of them to have their breeding season exactly when there are no turtles! This timing, combined with them being so easy to survey allowed me to design a survey which can be undertaken annually. At the time of writing the proposal is in draft format, but in essence the objectives were two fold. 1. design a relative abundance survey, and 2. investigate what other data could realistically be taken on the individuals observed. The methodology was simple, kayak between Vera Cruise and Turtle Beach Lodge counting the number of green and orange iguanas visible. GPS co-ordinates were taken as close as possible to each individual and a comment was made on the condition of its tail (green iguanas can atomise (shed) their tail in the event of a predation attempt so a possible future research opportunity investigating predation pressure could be possible if there are sufficient observations of their tails). I also investigated various methods of estimating the heights at which they were observed, however the degree of subjectivi-

ty in this was such that the accuracy would be lost should these data be collected by multiple observers. As I say the proposal is still in draft format but will be finalised before the start of the turtle season and I hope will be adopted as an out of season survey for years to come.

The second project I have been working on was a tree frog survey. This season I supervised an intern project on frogs. One of the things that came up early in the design stage was that they were keen to work with tree frogs but my concern was that they wouldn't get enough data surveying from the ground. They settled for studying the strawberry poison dart frog (*Oophaga pumilio*) instead but it got me thinking about ways that we could survey tree frogs here. In my last position in Paraguay I was undertaking numerous species inventories and a method I didn't have time to try out was placing artificial refugia for frogs to use. In the literature both PVC piping and bamboo have been successful, here PVC isn't really an option as there is a danger of it being washed away the next time we flood. But bamboo on the other hand is freely available washed up on the beach. So with the help some trusty volunteers we gathered as much as we could carry and chopped it into various lengths. We then measured and numbered all the pieces and attached them to trees in the forest. There made three types of refugia, two are simply tubes placed either horizontally or vertically on the tree and the third type we left the bottom of the bamboo intact so that it holds water. I was interested to know how long it would need to be in the forest before frogs started using it – if they used it at all. Which type was the most successful and what species we attracted. It took only two weeks before the first frog was found in a vertical pipe (*Hypsiboas* sp.) and only a week for one with a pool to be used (*Craugastor* sp.) This is great news for future research. A month in and four different species have used them and as a bonus if anyone wants to come and study invertebrates there are no shortage in these tubes!

Finally I have also been getting involved with tagging snakes, the beach profile survey and continuing the river turtle survey that Jeffery, one of our HAS interns, designed. All that and finishing the nest excavations, writing the end of season reports and planning for the next turtle season has kept me pretty busy. I hope I have given back as much as I have gained this year and am looking forward to the start of the 2015 marine turtle season; it's just around the corner – eek! (Editor's note— they've arrived!)

Monkeys for alarm clocks – a biodiversity expedition in the tropical rainforest

by Don Campbell

Reprinted by permission from UofT News

Photographs by Nathan Lovejoy

It's not every day you get a chance to use the rainforest as a laboratory, waking up each morning to the distant calls of howler monkeys as your alarm clock.

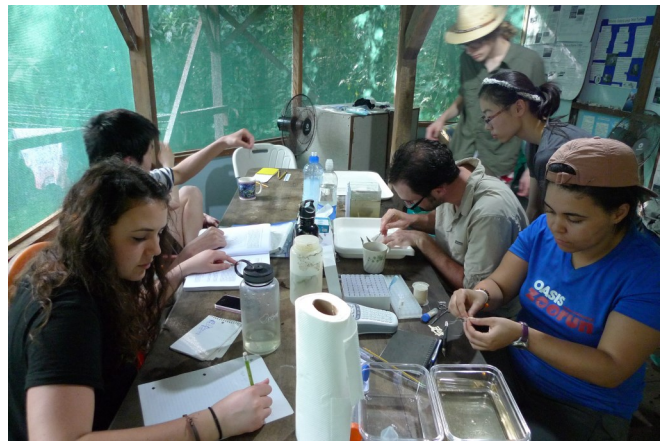
A group of eight students under the supervision of U of T Scarborough professor Nathan Lovejoy were recently able to do just that, getting hands-on research training in a tropical jungle.

The students were part of a recent field course and biodiversity expedition to Cano Palma Biological Station in the heart of the Costa Rican tropical rainforest. They were there to study the area's biodiversity with a focus on collecting fresh water fish specimens that will become part of museum collections in Canada and Costa Rica.

"Living directly in an environment is the best way to learn about that environment," says Susanna Shu, a third-year cell and molecular biology student at UTSC who took part in the expedition.

Shu enjoyed the challenge of collecting fish samples, especially learning the techniques used in catching fish while negotiating the swampy habitats. She will also remember waking up to catch the tropical sunrise and watching hundreds of tropical shorebirds feeding along the river bank.

"I think when you're surrounded by such a beautiful landscape it drives your curiosity and motivates you to learn more than simply reading about it in a textbook," she says.



The station, established in 1991 by a Canadian couple working for the Toronto Zoo and operated by the non-profit Canadian Organization for Tropical Education and Rainforest Conservation (COTERC), offers a venue for learning how to properly conduct a research expedition. Students also took part in various biodiversity surveys offered at the station.

Caño Palma is located in the Atlantic lowlands on the eastern coast of Costa Rica. Much of the surrounding area is protected under the country's parks and reserves system, with Tortuguero National Park and the Barra Colorado Refuge forming a vast corridor that connects to preserved forest in Nicaragua to the north.

"There is incredible aquatic biodiversity in the area," says Lovejoy. "One ongoing concern is run-off from nearby agricultural production that is putting insecticide into the water. The samples collected by our students will add to a good baseline of collections that have been made over the years."

The expedition was anything but a week away in the sun, notes Lovejoy. After landing in San Jose and taking a bus through the mountains to La Pavona, a place where "the road ends," the group travelled by boat to the field station situated in a swampy area of the rainforest.

Continued on Page 9

EDGE FELLOWS (Continued from Page 5)

EDGE Fellows kick off with four weeks in a tropical environment, developing skills to lead effective conservation projects and inspire others to action. This year, Caño Palma Biological Station was the venue for an intense training course designed to help EDGE Fellows from Africa, Asia and Latin America prepare for their projects. Having spent six months at the station in 2009, ZSL's EDGE Fellows Co-ordinator suggested it would be an ideal location for the training course. It certainly was! The wooden buildings are in an idyllic setting, situated on the bank of a stunningly beautiful canal and surrounded by rainforest that is absolutely dripping in biodiversity – perfect for our wildlife surveys.

We arrived on 15th January, a motley crew comprising ZSL staff from London and EDGE Fellows from Costa Rica, Philippines, Kenya, South Africa, Trinidad, Argentina and Mexico. Our task was to train the Fellows to carry out robust conservation projects on species ranging from the majestic Philippines eagle to the humble mist-belt moss frog.

The formal training covered conservation project planning, monitoring and evaluation, ecological and social survey techniques, animal handling, data analysis, community-based conservation planning, communication and fundraising. Phew! In between sessions and on days off, ZSL staff and Fellows benefitted from chatting to station's staff and interns, and learning about COTERC's long-term research programmes, including marine turtle monitoring, shore-bird surveys and snake monitoring. Participating in the snake walks and caiman surveys were some of the highlights of our stay, while a leisurely kayak along the canal was the perfect way to relax after a long day of statistics.

It wasn't all plain sailing. Two weeks into the course the rain started. It rained and it rained. And then it rained some more. The water level steadily rose over a period of four days, and soon it became impossible to tell where the canal ended and land began. Still the water continued to rise, sloshing over the tops of our wellies (gum boots) as we waded from the kitchen to the library, our classroom for the course. The station's dogs refused to enter the water and had to be ferried between buildings in kayaks. The Fellows also took to kayaking into the jungle to retrieve some of our equipment that was in danger of floating away. And then, just as the water threatened to flood the kitchen, the rain stopped, the waters receded, and glorious sunshine returned, along with the hornbills, monkeys and bright orange iguanas, which had been sheltering from the rain.

It was hard to leave such a beautiful place at the end of the course, but we all had work to do. For the Fellows, this is just the beginning; having successfully passed the course, they returned home to set up their conservation projects, with the help of a grant and ongoing support from ZSL. You can follow their progress, and learn more about the Fellowship programme at www.edgeofexistence.org.

We are incredibly grateful to all the staff and volunteers at COTERC, who ensured we had an absolutely fantastic time in Costa Rica. In the words of South African EDGE Fellow Mea Trenor 'All in all the course has left us educated, informed and incredibly inspired. We are ready to take on our individual EDGE projects and save the world one EDGE species at a time!'

COTERC IN SHOWS (continued from Page 1)

April 3-5 Canadian Pet Expo is a three-day affair held at the International Centre in Toronto, that focuses & promotes responsible pet ownership, celebrating all types of pets, from all walks of life while offering education on pets today in Canada. There were events going on throughout the weekend — Cat Show, Ultimate Air Dogs, Canadian Kennel Club Good Neighbour Program, Ontario Cavy Club Cavy Show (that's the real name for guinea pigs), a Bird of Prey demonstration, to name a few. There was something for everyone that shares the passion of sharing their lives with a cat, dog, small animal, bird, reptile, fish, or exotic pet.

The COTERC board felt this would be an ideal show to promote conservation to people who would most likely be interested. We had our computer quiz game for visitors to challenge their knowledge—and to learn, along with our visual displays. We'd like to thank Tom Mason & Jim Taylor for setting up, and volunteers Doug Durno & wife Joanne, Dawn Todd, Susan Kunanec, Joanne Pink, Janalene Kingshott and Marilyn Cole for volunteering their time to man the booth. Many people stopped by with their dogs in tow, so it was an opportunity for COTERC to get better known among pet owners.

And we'd especially like to thank Grant Crossman for his ongoing support of COTERC..



Doug Durno & Janalene Kingshott

NOTICE OF ANNUAL GENERAL MEETING

PLEASE NOTE THAT THE ANNUAL GENERAL MEETING OF CANADIAN ORGANIZATION FOR TROPICAL EDUCATION & RAINFOREST CONSERVATION WILL TAKE PLACE ON

SATURDAY, MAY 9, 2015
BOARD ROOM
TORONTO ZOO
OLD FINCH AVENUE WEST
SCARBOROUGH, ONTARIO
AT 5:00 P.M.

ALL MEMBERS ARE INVITED TO ATTEND THIS MEETING. AMENDED BY-LAWS WILL BE PRESENTED FOR VOTING BY THE MEMBERS.

IN ADDITION, NOMINATIONS WILL BE TAKEN FOR THE FOLLOWING POSITIONS:

CHAIR
VICE-CHAIR
DIRECTOR OF FINANCE
TWO DIRECTORS AT LARGE POSITIONS

MEMBERS ARE INVITED TO A SPECIAL "BEHIND THE SCENES" TOUR OF CERTAIN AREAS OF THE TORONTO ZOO. THE TOUR WILL BEGIN AT 3:00 P.M.

Monkeys as Alarm Clocks *(Continued from Page 7)*



The conditions in the area are extremely hot and humid, with some of the heaviest rainfall in all of Costa Rica, often exceeding 6,000 mm annually.

Living facilities in the one-acre station are clean and comfortable but basic. Volunteers, researchers and students share a dormitory that can accommodate 30 people. A large airy dining room connects to the kitchen and office, which is the central meeting area for the station.

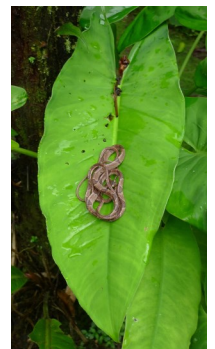
It's the second time Lovejoy has undertaken an expedition to the area and the samples collected will complement those previously taken. His studies will help the Costa Rican govern-

ment in their efforts to understand and protect the biodiversity of the area.

What stood out the most for Lovejoy was how motivated his students were in collecting samples.

"The biodiversity in the area could be very different in the future," notes Anne Benaroya, a student in the Masters of Environmental Science program at UTSC. She was most impressed with the research skills she was able to develop, which left a greater impact knowing the samples she gathered will be put to good use.

"It's cool to think that in 50 years from now the only way of knowing what was once there could be from our work."



RECIPES FROM CAÑO PALMA BIOLOGICAL STATION—ORDER FORM

If you have ever visited Caño Palma, you will want this souvenir, whether you can cook or not!! The divider pages feature colour photos of people, wildlife and station buildings, while the delicious recipes speak for themselves! Marilyn Cole gathered recipes from the cooks, staff and volunteers and compiled the best into this unique cookbook. The Hints and Definitions section feature suggestions that all volunteers need to know! The cost is only \$ 20 plus shipping & handling. You can order online at http://www.coterc.com/store/c1/Featured_Products.html or contact info@coterc.org PayPal or cheque

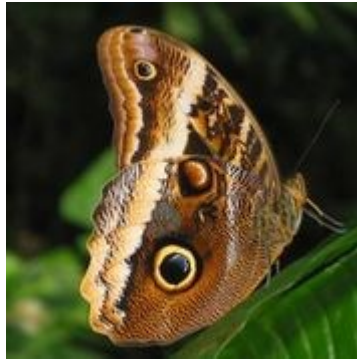
Recipes from Caño Palma Biological Station



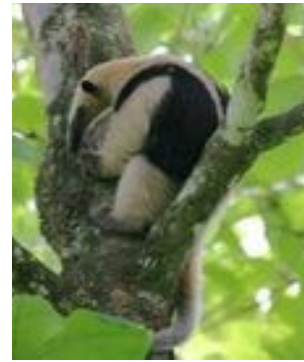
**Canadian Organization for
Tropical Education &
Rainforest Conservation
(COTERC)**



Geoffrey's Spider Monkey



Owl Butterfly



Tamandua

Canadian Organization for Tropical Education and Rainforest Conservation

Membership Application Form

This is a request for: NEW Member: _____ Membership Renewal: _____ *Date:* _____
Membership Type: Individual\$30: _____ Student/Senior:\$25 _____ Family: \$40 _____ Corporate \$100 _____

Surname: _____ Given Name: _____ Initial: _____

Email _____

As a member of COTERC a copy of our quarterly newsletter “*Raphia*” will be sent to your primary E-Mail address unless you check one of the following options.

- Do not E-Mail the newsletter to me. Please send a hard copy to my Mailing Address
- I do not wish to receive the “*Raphia*” newsletter

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We welcome any comments or suggestions from our members so that we can be sure that you feel involved. If you have an idea for an article, or better yet, would like to write one yourself—if you have a photo or two that you think we could use— if you have a suggestion for improving Raphia, please do send it along to us at vice-chair@coterc.org

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