Dear Friends and Supporters,

Happy Spring! It has been an eventful month full of good news and great progress made on new and ongoing projects. I travelled to Los Angeles for the annual meeting of the American Association of Biological Anthropologists where I presented a talk on how variation in orangutan body size can complicate our interpretation of the human fossil record. It was great to reconnect with so many colleagues and have productive discussions on research.

Earlier this month we received word that we had been awarded a Darwin Initiative grant! This grant will help fund our work with communities in supporting Village Forests and Sustainable Livelihoods and help fund our exploration of the differences among different habitat types and their ability to support orangutans and other biodiversity.

This month, we hear from Ranti, our Sustainable Livelihoods Manager, and Salmah, our sustainable Livelihoods Field officer, as they discuss a topic that is dear to our hearts and timely for the close of Women's History Month – the role of women in creating traditional handicrafts as a sustainable livelihood and contributing to household income and conservation, as they serve as the keepers of traditional knowledge and culture.

We also have an article by Zoe Albert, my Ph.D. student from Boston University, who has started her research project at Cabang Panti studying the microbiome of the orangutans. This work has required a great deal of preparation and the initiation

IN THIS ISSUE:

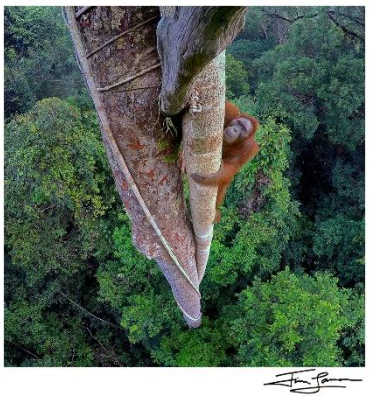
We are thrilled to announce that our Executive Director, Dr. Cheryl Knott, has been recognized as one of the Disney Conservation Fund's Trailblazing Women! What a great way to celebrate Women's History Month. You can read more here.

of a new genetics lab at the remote research camp! We are excited to see how this work progresses.

During the coming month of April, Ramadan, which most of our staff observe, will come to a close and Idul Fitri will be enjoyed with some well-deserved time off to be with family and friends.

I wish you all the best as we begin Spring in earnest.

Cheryl Knott, PhD
Executive Director
Gunung Palung Orangutan Conservation Program (GPOCP)



Print SALE! Now through April 22nd (Earth Day), you can buy one of Tim Laman's gorgeous orangutan prints for 25% off and all of the proceeds will support GPOCP's efforts to #SaveWildOrangutans. Get yours **here**.

Join Save Wild Orangutans

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The Intergenerational Expertise of Women is Integral for Conservation

By Ranti Naruri, Sustainable Livelihoods Manager, and Salmah, Sustainable Livelihoods Officer

The role of women in the use of natural resources brings a fresh perspective to conservation efforts. Women have a closer relationship with the environment around forested areas in terms of their use of Non-Timber Forest Products. Women have always been involved in daily activities around forest areas, looking for medicinal plants, finding food sources and looking for raw materials for Non-Timber Forest Products (NTFP) to be used in creating products to add to family income. In the interest of preserving traditional skills and building the capacity for sustainable livelihoods, Yayasan Palung, through the Sustanainble Livelihood program, assists several groups around Gunung Palung National Park who utilize non-timber forest products to create handicrafts made from *Pandanus*, *Nipah* palm, and *Resam* ferns. These women make woven crafts from these raw materials found in the village forest area. There are several groups that produce a variety of woven crafts, namely the Ida Craft Women's Group, the Peramas Indah Women's Group, the Karya Sejahtera Group and the ResamKU Group. Two

women, Ibu Aisyah and Ibu Saparidah, from the groups Yayasan Palung assists, shared their experiences about their expertise in utilizing Non-Timber Forest Products with us.

Ibu Saparaidah is weaving a mat made from pandanus.

Ibu Aisyah is a 48-year-old woman who learned to make woven handicraft products when she was a child and continues to do so until this day. Aisyah typically creates mats and baskets. She derived her expertise from her parents who taught her as a child about which raw materials were available around the village directly adjacent to Gunung Palung National Park. Mrs. Saparidah is a 51-year old woman who uses forest products to create various woven handicrafts. She learned weaving from her grandmother as a child. Due to their skill and expertise, Ibu Aisyah and Ibu Saparidah were invited to several regions in Indonesia, including Jakarta and Papua, to serve as resource persons and trainers for other communities to utilize Non-Timber Forest Products. Through these experiences, their intergenerational traditional knowledge is being shared with new communities and new generations.

Ibu Aisyah putting the finishing touches on her woven basket.

At the local level, woven products are marketed at Yayasan Palung's Bentangor Gallery, at the Dekranasda (Regional National Handicraft Council), the North Kayong Regency Industry and Trade Office, our Mobile Market that we run at tourist attractions, and, exhibitions both at the local and national levels. The proceeds from the sale of these handicrafts are used to meet household needs, while any extra is used for emergency fund savings.

A variety of woven handicrafts in production.

In our support of sustainable livelihoods groups, Yayasan Palung works to increase the capacity of these groups in a number of ways – increasing the creation of markets for woven products, and also to promote gender equality and strengthen the role of women in forest management. Women's participation in utilizing NTFPs provides a clear example of the importance of women in efforts to reduce deforestation and forest degradation.

Young students learn the skill of weaving during our Goes to School program.

One of our concerns is that the traditional skills involved in creating these handicrafts are becoming increasingly rare. Weaving is not the hereditary skill that it once was. In order not to lose this expertise, Yayasan Palung routinely conducts Goes to School activities, where we visit elementary schools and high schools to impart this knowledge and foster interest in keeping these skills alive. Through this Goes to School program, Ibu Aisyah and Ibu Saparidah are sharing skills in weaving with a new generation. This traditional knowledge has existed for a long time and through this program it can be passed on to the younger generation and not be lost in the progression of time.

One of our mobile markets of crafts made from non-timber forest products from our Sustainable Livelihoods groups.

A Lab(or) of Love

By Zoe Albert, Ph.D. Candidate, Department of Anthropology, Boston University

My experience with primatology began on the other side of the globe in Costa Rica. Even though I was young and inexperienced, a Tulane PhD candidate saw my drive and passion and took a chance on me. The field proved to be challenging both mentally and physically. Despite this, I fell in love with primatology and the beautiful primates who allowed me the unique opportunity to bear witness to their lives.

Roughly midway through that first field season, I was on a follow observing an Alpha male capuchin named Cicatriz. I looked down at my tablet to record his behavior, *sitting vigilantly*, and when I looked up, I was met with a face full of mushy, seedy, insect laden monkey poop. While this may have been a career deal breaker for some, for me it felt reminiscent of Newton and his apple. I was a young scientist under a tree when *inspiration* fell from above. As I wiped his pungent poo off my face, and out of my hair, I couldn't help but think of everything that I could learn from it. By simply observing his feces I could tell what he had eaten and get an overall sense of his health. If I had more tools, I was certain I could discover which offspring he had sired, and which microbes lived in his gut. Thus began my journey into the world of the primate gut microbiome, or the complex network of microbes that live within the gut of an animal and help it perform basic functions such as the fermentation of indigestible fiber.

Top: Zoe (center) presenting her research plans at Universitas Nasional (UNAS) in Jakarta.
Bottom: Visiting a school group with our Environmental Education team.

Now, as a 4th year PhD candidate in Dr. Cheryl Knott's lab, those musings have become hypotheses and questions (i.e. how the gut microbiome responds to periods of low and high fruit; and, how the microbiome changes when orangutans are social). Since that first field season, I have taken courses, attended conferences, spoken with experts, and even attended a laboratory course in the Amazon jungle to gain the skills needed to test those hypotheses.

That brings us here: my dissertation field work and a year spent in the beautiful and biodiverse Gunung Palung National Park (GP). I knew that this would be difficult. We have a lab at Cabang Panti Research Station (CP) located within GP where amazingly talented laboratory assistants (Sumi, Ishma, and Ari) can perform protocols in parasitology, urinalysis, and fecal particle size analysis. However, prior to one month ago, genetics work, like that needed to conduct analysis on the gut microbiome, had not yet been conducted here. Thus, in preparation for my year in studying wild orangutans, I learned not only how to perform the protocols that I would need to analyze the gut microbiome, but how to successfully build a genetics lab in a remote rainforest. This would prove to require MacGyver levels of creativity. I would need to find smaller equipment than I was used to working with so that it could be transported to the field and could work with limited power, withstanding power outages. Some equipment was easy to find (like a mini-PCR machine designed for the field), others would involve more creative thinking (a nail polish shaker would be a stand-in for a vortex).

Preparing to collect a fecal sample in the early hours of the morning.

Recently, we had our first success in the lab. This, I hope, is a sign of good things to come. The first step in microbiome analysis, after samples are painstakingly retrieved off the forest floor thanks to the wonderful field assistants, is separating the DNA from the rest of the fecal sample. We do this by adding the feces to a tube half full of miniscule beads, that when shaken hard and fast enough, open the cells

to release the DNA. This step involves the use of a piece of equipment known as a bead basher. It is essentially a large, motorized machine that mixes the sample non-stop for roughly 40 minutes. The first use of this machine presented us with a challenge. Rather than gyrating back and forth as it was supposed to, the machine began to exude white, billowy smoke. It was destroyed because of a voltage miscalculation and a lab juggling different types of power and power sources. After two weeks of waiting, a second machine arrived at camp. This time, we made sure to calculate the amount of power needed correctly and were met with a successful DNA extraction that we confirmed via DNA quantification! The next steps, I am sure, will present challenges as well. But, with the help of the amazing lab assistants who have supported me through both my failures and successes, I am confident that we will make it work.

Sharing a meal with new friends and colleagues at camp.

Some days will almost certainly be frustrating, while others will be rewarding. One of the largest personal benefits of a lab in the field, is that when those frustrations do occur, I never need to walk more than 5 minutes to see a new plant or animal that I have only ever dreamed of seeing. This grounds me and reminds me why this work is important to science and conservation of natural places.

I will not only leave the physical lab behind when my year here is finished, but I will leave the Indonesian laboratory assistants, and any Indonesian University students who come here to learn, with the knowledge and skills to conduct their own genetics research. I believe this is a big step toward equity in our field. This will also hopefully eliminate the need to remove samples from the country, an arduous task that also eliminates work for local people. While I am passionate about conducting my own scientific research, I am equally passionate about making science accessible to others. Thus, while I will leave the field with data, I am hopeful that I will leave behind much more – not just a functioning genetics lab, but opportunities for Indonesian scientists who will work here in the future. While in Ketapang, prior to heading to the field, I had a chance to meet some of these future scientists at a local elementary school. Their eagerness to learn about orangutan conservation excited me about the future of conservationists and primatologists in Indonesia. I was also able to meet student scientists a little further on their journey while in Jakarta at Universitas Nasional (UNAS); several of whom will hopefully join me in the field for training in the upcoming months.

Zoe following a wild orangutan and eager to learn more about their microbiomes!

Lastly, I would be remiss to not thank my funders who have made this research possible. Work of this caliber is not only difficult, but it is expensive. Thank you to AMINEF/Fulbright Indonesia, Boston University Graduate Research Abroad Fellowship, and the David L. Goodman Scholarship committee. Thank you also to Dr. Cheryl Knott without whom this project would look so very different. Finally thank you to everyone who works with GPOCP. Because of you I am inspired to be a better scientist.

Management of Cabang Panti Research Station is conducted by the Gunung Palung National Park Office (BTN-GP) in collaboration with GPOCP/YP. Scientific research is carried out in conjunction with the Universitas Nasional (UNAS) and Boston University.

"One individual cannot possibly make a difference, alone. It is individual efforts, collectively, that makes a noticeable difference—all the difference in the world!"

-Dr. Jane Goodall

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