

Gunung Palung Orangutan Conservation Program



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Code RED

An e-newsletter from your friends in West Kalimantan

Dear Friends and Supporters,

September has been a difficult month for our ground staff with all the fires. The majority of our research team had to leave the study site because of the hazardous smoke, leaving just a small crew to help keep watch at the station. Many of our Environmental Education activities have had to be put on hold, as the schools are closed due to the high levels of particulate matter in the air caused by the burning. In our first article, GPOCP Program Director, Victoria Gehrke, writes about the history of the fires in Indonesia, their causes and effects.

This month we've also had to say goodbye to Natalie Robinson, our Research Volunteer who spent a year in the rainforest of Gunung Palung. Below she shares

In This Issue:

Indonesia's Fiery History

-

Parasite Infection among
Orangutans in Gunung
Palung

-

Fire Fundraiser Update

-

Call for Orangutan Art!

-

T-shirts help Fight the
Fires

some of her findings on orangutan parasites with you. Natalie will continue to help out with the project as she returns state-side!

On our sidebar, we have some updates regarding our fire-fighting fundraising campaign and a new awareness/fundraising event to get the artists among our supporters involved and recognized for their wonderful talents and love of wildlife conservation!

We hope you enjoy catching up on what we've been doing and tag us wearing your new GPOCP apparel using #saveGPorangutans!

Sincerely,



Cheryl Knott, PhD
Executive Director
[Gunung Palung Orangutan Conservation Program \(GPOCP\)](#)

Indonesia's Fiery History

By Victoria Gehrke, Conservation Program Director

It's hard to miss in the media lately - the world's rainforests are on fire.

Borneo is burning and the smoke from the fires of Sumatra and Borneo is lingering over all of Southeast Asia, causing schools and businesses to temporarily close. People are having to wear masks and are already reporting respiratory illnesses. We're also facing a yet unknown count of injured, misplaced or dead wildlife and habitat loss. At GPOCP we have had to temporarily suspend our activities at the Cabang Panti Research Station due to the severe haze posing a potential risk to our staff, and fires smolder on the edge of the National Park. But other research sites, like our colleagues at Tuanan Research Station in Central Kalimantan, are facing much harder times, with the fires within 150 meters of claiming their research station.

Fire Fundraiser Update

Thanks to YOU all, we have been able to raise an amazing \$1127 so far, and through [Slothgrip](#) we have received an additional \$700 - making it possible for us to buy our first set of fire fighting equipment!

To learn more and donate please visit our [Fundraiser](#)

CALL FOR ORANGUTAN ART!

We recently received a donation of an amazing oil painting by artist Amy Ringholz. Owner, Catherine Bell, has generously given us the painting to help raise funds for orangutan conservation. We have also received other beautiful wildlife and orangutan art and would like to host an on-line auction this Fall to raise funds to support our wild orangutan conservation efforts. So, we are officially opening a CALL FOR ORANGUTAN ART for a conservation auction!



Aftermath of a fire just on the border of Gunung Palung National Park. Photo by Maidina Fitriana.

Beth Barrow, GPOCP Orangutan Survey Manager, was also in Tuanan during the 2015 fires and writes:

"This is the second severe fire season that I lived and worked through in Kalmantan. The experience itself is a surreal one; the thick haze creeps up slowly and before you know it you find yourself in the middle of a heart-breaking environmental disaster with climate impacts of international significance. The way in which peat burns means firefighting teams work tirelessly to slow the spread of fires, whilst waiting and praying that the rains will come. Back in 2015 the fires barely reached Western media, even though they were some of the most devastating and intense



Orangutan oil painting by Amy Ringholz.

In combination with this open call for art, we are also looking for designs for our new t-shirt store!

We would love to hear from you, your friends, or your kids, if you would like to draw or design something for us to put on a t-shirt or would like to donate some original art for our AUCTION!

Of course, full credit (and a free t-shirt!) will be given to selected designs and a beautiful photo of the art featured on the website!

Please email savegorangutans@gmail.com with your submission or if you'd like some more information! Please title your email with "Auction Art" or "T-shirt Design" depending on what

fires on record. The biggest change this year has been just that, this year's intense fire season, which has a devastating impact on the health and livelihoods of millions of Indonesians, has finally reached Western media. Climate change is finally front-page news, resulting in many more people taking note of the current situation out here. There is no easy solution to the increasingly long dry seasons in Indonesia and there is a long way to go and lots of work to be done in regards to fire prevention, but the more people who are aware of the issues facing Indonesia, the better."

As conservationists we are all pleased that environmental issues are finally hitting mainstream global media but we are all too aware that it can sometimes point the finger in the wrong direction as to who is really culpable for these fires. Misrepresentations of the whole problem create misdirected solutions. As with any environmental problem, there is a complex socio-economic web of causes for the actions (or lack thereof).



Burned land and smoke next to the path our staff use in Tanjung Gunung to get to and from the Research Station in Gunung Palung National Park. Photo by Beth Barrow.

Nearly 41% of the total work force of Indonesia works in agriculture and it is the livelihood for the majority of households. Indonesia is also the world's largest producer of oil palm, cloves and cinnamon, the 2nd largest producer of nutmeg, rubber, cassava, vanilla and coconut oil, and 3rd biggest producer of rice and cocoa. Agriculture in Indonesia dates back to 3000 BC with rice cultivation in Sumatra, and in more recent history there is written evidence of fire as a method of land-clearing witnessed by explorers in the 15th century. Using fire to clear land is not a modern concept nor is it exclusive to Indonesia. However, fires are not part of rainforest ecology and further exasperating the problem are the extensive peat land forests which also do not regenerate well from fires.

section you'd like to contribute to!

We look forward to hearing from you!

T-Shirts help fight the fires

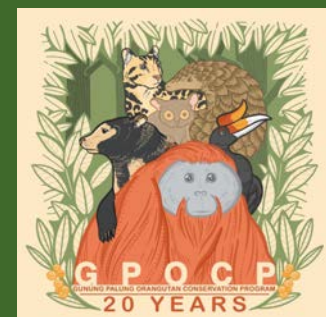
Right now all funds from our T-shirts are going towards funding the fire fighting equipment and protecting orangutans and their habitat from the flames.

To have a look, visit our [t-shirt website!](#)



Patrik sporting our wonderful Sunbear T-shirt!

Thank you [Natelle Quek](#) for providing a series of beautiful images to help raise funds and awareness for the project & Bornean wildlife!



Peat fires are harder to extinguish and release more greenhouse gasses than fires in other parts of the tropics. With increased human population encroachment, selective logging, prolonged droughts, the draining of natural peatlands/wetlands, increased temperatures and industrial scale deforestation (along with the myriad of other problems this leads to), the regeneration rates of forests, and any natural defenses that forests have had for inhibiting the spread of fire, are either exhausted or removed entirely. In short, fires have historically never been great for the tropical rainforest, nor global climate, but on a small scale they were not nearly as devastating as the levels of wildfires and the consequences we are witnessing now.



Our research staff with their N95 Respiratory Masks in Cabang Panti Research station, in good spirits despite the circumstances!

But who is to blame for the fires? Contemporary media would like us to place singular blame on the oil palm companies. Local Indonesian media points towards large faceless companies, whereas the local people are openly talking about how politicians are to blame for allowing the fires for palm oil expansion and increased profit. The most recent development that has been brought to light is that small landholders are also to blame for the fires. Small, unregulated, land-clearing accounted for 73% of fire emissions in Kalimantan in 2015 ([Study](#)). Unclear land rights cause land-use conflicts from industrial-sized companies down to the single farmer, that are 'solved' with fires; no one wants burned land. Traditional Indonesian agricultural methods used to follow traditional seasonal rules; what to plant at what times for the best results while working with the balance of nature - what the West has in recent years coined as 'permaculture'. Many of the techniques and knowledge, however, have been

Design celebrating GPOCP's 20th year as an in-situ conservation organization. Artwork by Natelle Quek.



Choose GPOCP as your Amazon Smile recipient and 0.05% of your sales will go directly to us.



"The most important thing, as I am constantly saying, is to think about small ways in which we can make a difference - every day."

Jane Goodall

lost through the generations and farmers now resort to quicker and more frequent burning of land for new crops, which encroaches into rainforest and wildlife habitat.

So is it large businesses or small land holders that create the problems?



Smoke from the fires and the thick haze seen from the edge of Gunung Palung National Park as our research team left the Park. Photo by Beth Barrow

It is, of course, both. The problem is more complex than a single article can cover. Research has shed light on the fact that it is not only the large-scale industries that need regulations, guidance, and restrictions, but also the small landowners. Getting a more accurate picture means we can better target our solutions as consumers (through buying certified and responsible brands), direct our political lobbying (influencing and helping create regulations) and support the work of NGOs working on the ground. That's why GPOCP focuses on helping to build capacity with local farmers and work towards the best land-use management with local governments. Our Customary Forest initiative combines agroforestry methods with forest conservation management, and our Sustainable Livelihoods program focuses on organic farming. Reducing destructive practices such as slash-and-burn and the promotion of permaculture, multi-purpose tree species, soil fertility, natural irrigation, and organic pesticides. Increasing crop yields (sustainably) reduces the need for further rainforest encroachment and fires. Our education team is spreading awareness about the risk of setting intentional fires and how to effectively put fires out, leading to behavioral changes. These measures will lead to less fire, less haze, less greenhouse gas emissions, less health issues from the haze, less biodiversity loss, less drastic droughts. We cannot do it all, but we can all do something. With your continued help, we are reestablishing traditional farming methods with a modern twist to reduce deforestation, climate change,

and fires.



Farmer planting trees to rehabilitate the land in and around the Padu Banjar Customary Forest, West Kalimantan. Photo by Edi Rahman.

For more information on our programs, please visit [our website](#). For more information about the fires in the GP landscape and how you can donate to our fire equipment fund, please visit our [fundraiser](#), or to donate directly to the program to support our organic farmer initiatives click [here](#).

Parasite Infection among Orangutans in Gunung Palung

By Natalie Robinson, Research Assistant

During the past year, as a Research Assistant at Cabang Panti, I took a particular interest in orangutan health, as knowledge of this critically endangered species' health and disease status can help us to further understand their long-term viability. An important tool in the assessment of wild orangutan health is the detection of parasites in their feces. Parasite infection places stress on orangutans' bodies, which can affect a wide range of biological functions. The analysis of non-

invasively collected fecal samples provides a useful proxy for population health.



Natalie working in the laboratory at the Cabang Panti Research Station. She observed fecal samples under a microscope in order to identify various intestinal parasites.

Intestinal parasites can be transmitted through the oral-fecal route, or through direct contact with contaminated soil or surfaces. Likely due to their solitary lifestyle, orangutans have low white blood cell counts (compared to the African apes), which is indicative of a less active immune system. Lower baseline white blood cell levels may result in a compromised ability to combat disease. Orangutans' solitary lifestyle, coupled with a decreased immune response, leads to the expectation that social behavior and health status would have an influence on parasite infection risk and patterns.

One parasitology study, by Dr. Caitlin O'Connell, had been done at Gunung Palung prior. A goal of this study was to establish a baseline understanding of orangutan parasite infection so that patterns could be monitored over time. Different age-sex classes of orangutans display different levels of sociality, so it was hypothesized that they would also have differing parasite loads. However, it was found there was no significant difference in parasite prevalence among the age-sex classes, or generally between males and females. An association between parasite infection and sociality was not found. There was 100% overall parasite prevalence in the population, as each fecal sample examined contained at least one species of parasite.

Since Dr. O'Connell's initial study we have continued to monitor parasites in the orangutans we study. This year I conducted a study which continued this parasite assessment over a longer time period.



Example of a microscopic parasite larva observed during analysis.

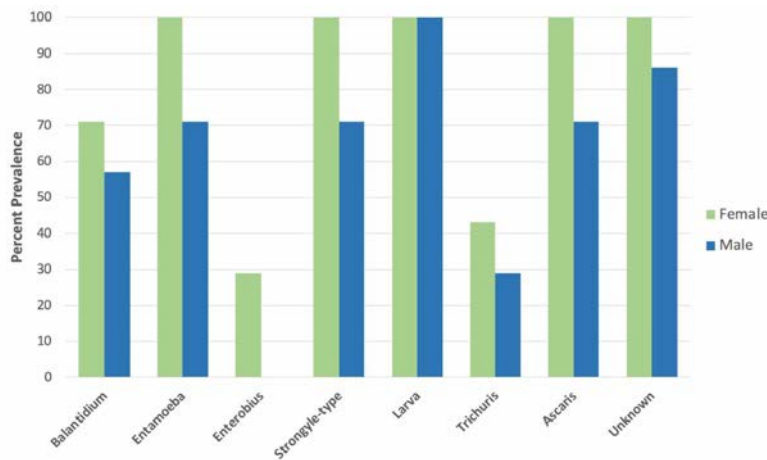
Same-day analyses were done on fresh fecal samples on-site. Samples were collected opportunistically during focal follows of orangutans encountered within the Cabang Panti vicinity. I processed samples using two different methods: the Direct Smear technique and Single Centrifuge Flotation technique. Each method ultimately allowed for the transfer of parasites from fecal matter onto a microscope slide, so that I could then observe samples under a microscope and identify parasites based on morphological characteristics.

Using data I collected, in collaboration with data from former Indonesian counterpart student Ishma Fatiha Karimah, I was able to further examine orangutan parasite infection patterns. Samples were collected from 14 unique individuals - three flanged males, four unflanged males, six adult females, and one adolescent female. Forty nine samples were collected and each sample was analyzed with both methods. Each individual was sampled between one and 14 times. The following parasite types were observed: *Balantidium sp.*, *Entamoeba sp.*, *Enterobius sp.*, *Trichuris sp.*, and *Ascaris sp.* Additionally, Strongyle-type parasites, larvae, and unknown varieties were observed.

In our continued sampled we also found a 100% overall parasite prevalence, meaning that during each sample analysis at least one parasite was observed. Larvae were present among all individuals and unknown species were present in all but one sample. The least-common parasite type was *Enterobius sp.*, which only two female individuals tested positive for.

The figure below shows the prevalence of each parasite type by sex. The green bars represent the percent of females infected, while the blue bars are

the percent of males infected. Looking across each parasite type, it appears that the prevalence among females was always higher, with the exception of larva, in which males and females both had 100% prevalence. Interestingly, no males tested positive for *Enterobius sp.*



Prevalence (percent of individuals infected) of each parasite by sex.

A nonparametric Independent-Samples Mann-Whitney U Test found that the distribution of *Balantidium sp.* and *Trichuris sp.* were not even. For both *Balantidium sp.* and *Trichuris sp.* the prevalence among females was significantly higher. (This test was done using the weighted means for each analysis because although there were an equal number of females (N=7) and males (N=7) tested, the number of total analyses for males and females was not equal.)

These results were unexpected, because during the last study (O'Connell 2018) it was found that there was no significant difference between the sexes. It has also been hypothesized that males (both flanged and unflanged) may have higher infection rates due to their differences in behavior, including home range sizes, sociality, and frequency in which they come in contact with the ground. Here, this was not the case. I think this further highlights how little we understand orangutan health and immune function, and emphasizes the need for continued research.

This study was limited by the nature of opportunistic sample collection. I had no samples from infants, juveniles, or adolescent males, and the number of samples per individual was not consistent. This underscores the importance of continuing assessment as part of a longitudinal study. Additionally, trends of infection may vary over time. It is also important to continue to build up our sample size in order to control for the large number of variables. Here, I compared males and females, though other important factors

may include: flange status, the habitat type an individual lives in, number of offspring, food availability and energetic intake.



Natalie (fourth from the right), along with the rest of the orangutan research team, at Cabang Panti last month.

My time in the forest has now come to a bittersweet end, though I am excited to share the results of my project with all of the GPOCP supporters. I am so grateful for all of my friends at Cabang Panti and GPOCP who have shaped my amazing experience in Indonesia. It would not have been possible without help, encouragement, and hard work from all of the GPOCP field assistants, staff and researchers.

Gunung Palung Orangutan Conservation Program (GPOCP)

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