Jungle Times

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Photos of the Month Credits: ***October*** *- Regrow Borneo Team;* ***November*** *- Lim Jia Zhen;* ***December*** *- DGFC Camera Trap*

Inside This Issue:

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Regrow Borneo Update

Coming towards the end of the year we have now started our small mammal surveys in Kaboi Stumping 3.0 and Kaboi Lake 3.0 before the sites are opened.
Similar to the frog surveys, we wanted to compare what small mammals are coming to the site before and after cleaning. We managed to capture 10 different species in those areas. However, the plots are currently underwater, and no fieldwork can be done currently.
We are happy to announce Regrow Borneo launch as an independent UK charity. Charitable status will allow us the opportunity to pursue our vision of a reforested Kinabatangan where an awe-inspiring environment, wildlife, and community develop harmoniously. We remain strongly committed to research-led, transparent, ecosystem restoration and we hope that you will support us in our mission by visiting our web site: https://regrowborneo.org/donate

With Christmas fast approaching why not consider a gift for nature this year? Through donating to Regrow Borneo you can help to re-forest the Bornean Jungle, preserving the wildlife for years to come! If you would like to donate, please click here, and all of us at DGFC wish you the happiest of holidays!

Merry Christmas and a happy new year!!

Hong Kong University Partnership

In March 2020, a team of researchers from the University of Hong Kong (HKU) successfully identified a SARS-CoV-2 related coronavirus in Malayan pangolins (*Manis javanica*) seized in anti-smuggling operations in southern China. This raised a grave concern as to the role of the species in the COVID-19 pandemic that started around November 2019 and quickly spread worldwide.

To further this research, HKU and DGFC are now collaborating in a project that aims to study the viral diversity (virome) of wild pangolins as well as sympatric bats and other wildlife in identified locations in Sabah. The project has been ongoing for a couple of months now; to date biological samples have been collected from both wild and rescued pangolins, sympatric bats, and a moonrat that had shared a burrow with a wild pangolin. A wild pangolin, nicknamed Galak, was fitted with a VHF tag to facilitate with the research in identifying more pangolin sleeping sites and other sympatric wildlife.

The fieldwork is co-led by Jerry Lim, an HKU researcher assisted by DGFC's research officer, Timothy Chang and the team at the field centre. Bat sampling is carried out in collaboration with Lawrence Alan Bansa from University College Sabah Foundation.

Another Congratulations to Dr Milena Salgado

The Mexican Federation of Biology Colleges (Federacion Mexicana de Colegios de Biologos) awards, every two years, the Medal “Juan Luis Cifuentes” to recognise professional merit. The goal is to support and disseminate the work performed by those Mexican biologists whose work is outstanding in different areas of the Biological Sciences, such as: Scientific Research, Public Management, Academic Management, Science Dissemination, Business Development and Teaching. The candidates are nominated by their respective state College.

The Biology College of the State of Morelos (Colegio de Biólogos del Estado de Morelos) nominated Dr Milena Salgado Lynn. The Mexican Federation gave her one of the awards, but since she works in Malaysia, they created a new category that fits her profile: Public Management Abroad.

DGFC would like to congratulate Milena for this recognition, which represents her work for DGFC’s management, fund raising, capacity building, and her support given to the Sabah Wildlife Department in the creation and management of the Wildlife Health, Genetic and Forensic Laboratory, and for the establishment of the SWD’s Intelligence and Forensic Units, as well as the Interagency Working Group on Wildlife Crimes Intelligence.

Sabah Forestry Department Award

Thank you so much Sabah Forestry Department for this Conservation Partner Award received on November 30th during their appreciation event 2021. The event was blessed by Yang Amat Berhormat Datuk Seri Panglima Haji Hajiji Bin Haji Noor, Chief Minister of Sabah, who gave the awards together with Datuk Frederick Kugan, Chief Conservator of Forests.

Partnership With Ecoflix

DGFC is partnering with International streaming platform Ecoflix that was launched at the recent COP 26 conference. By joining Ecoflix, and selecting DGFC, you can help us financially. Ecoflix will be sharing the subscription fees paid by people who designate DGFC to receive support.

https://ecoflix.com/

Visit of the Permanent Secretary of Ministry of Tourism, Culture and Environment

On Saturday the 23rd of October we had the pleasure of welcoming the Ministry of Tourism, Culture and Environment's Permanent Secretary, Datuk Sr. Haji Mohd Yusrie Abdullah, his two deputies Encik Mohd Sofian Alfian Nair and Puan Mary Malangking, as well as the Director of Sabah Wildlife Department, Tuan Augustine Tuuga and his deputy Puan Jum Rafiah Abd Sukor, the director of Sabah Parks Dr Maklarin Lakim, the director of the Environmental Protection Department Tuan Vitalis Justin Moduying, the director of Jabatan Museum Negeri Sabah Tuan Arif Abd. Hamid and the CEO of Sabah Tourism Board Puan Noredah Othman. They were welcomed by Dr Milena Salgado Lynn and Mr John Robertson from DGFC and Mr Martin Vogel from KOPEL BHD. A tree planting ceremony at the new DGFC's jetty followed a short presentation by Dr Milena.

Picture by Tracia Goh

Recent Publications

"The price of persistence: Assessing the drivers and health implications of metal levels in indicator carnivores inhabiting an agriculturally fragmented landscape."

ABSTRACT

Patterns and practices of agricultural expansion threaten the persistence of global biodiversity. Wildlife species surviving large-scale land use changes can be exposed to a suite of contaminants that may deleteriously impact their health. There is a paucity of data concerning the ecotoxicological impacts associated with the global palm oil (*Elaeis guineensis*) industry. We sampled wild Malay civets (*Viverra tangalunga*) across a patchwork landscape degraded by oil palm agriculture in Sabah, Malaysian Borneo. Using a non-lethal methodology, we quantified the levels of 13 essential and non-essential metals within the hair of this adaptable small carnivore. We robustly assessed the biological and environmental drivers of intrapopulation variation in measured levels. Metal concentrations were associated with civet age, weight, proximity to a tributary, and access to oxbow lakes. In a targeted case study, the hair metal profiles of 16 GPS-collared male civets with differing space use patterns were contrasted. Civets that entered oil palm plantations expressed elevated aluminium, cadmium, and lead, and lower mercury hair concentrations compared to civets that remained exclusively within the forest. Finally, we paired hair metal concentrations with 34 blood-based health markers to evaluate the possible sub-lethal physiological effects associated with varied hair metal levels. Our multi-facetted approach establishes these adaptable carnivores as indicator species within an extensively altered ecosystem, and provides critical and timely evidence for future studies.

This paper can be found here.

"Epidemiology of the zoonotic malaria *Plasmodium knowlesi* in changing landscapes"

Abstract

Within the past two decades, incidence of human cases of the zoonotic malaria *Plasmodium knowlesi* has increased markedly. *P. knowlesi* is now the most common cause of human malaria in Malaysia and threatens to undermine malaria control programmes across Southeast Asia. The emergence of zoonotic malaria corresponds to a period of rapid deforestation within this region. These environmental changes impact the distribution and behaviour of the simian hosts, mosquito vector species and human populations, creating new opportunities for *P. knowlesi* transmission. Here, we review how landscape changes can drive zoonotic disease emergence, examine the extent and causes of these changes across Southeast and identify how these mechanisms may be impacting *P. knowlesi* dynamics. We review the current spatial epidemiology of reported *P. knowlesi* infections in people and assess how these demographic and environmental changes may lead to changes in transmission patterns. Finally, we identify opportunities to improve *P. knowlesi* surveillance and develop targeted ecological interventions within these landscapes.

This paper can be found here.

“The critical role of natural forest as refugium for generalist species in oil palm-dominated landscapes.”

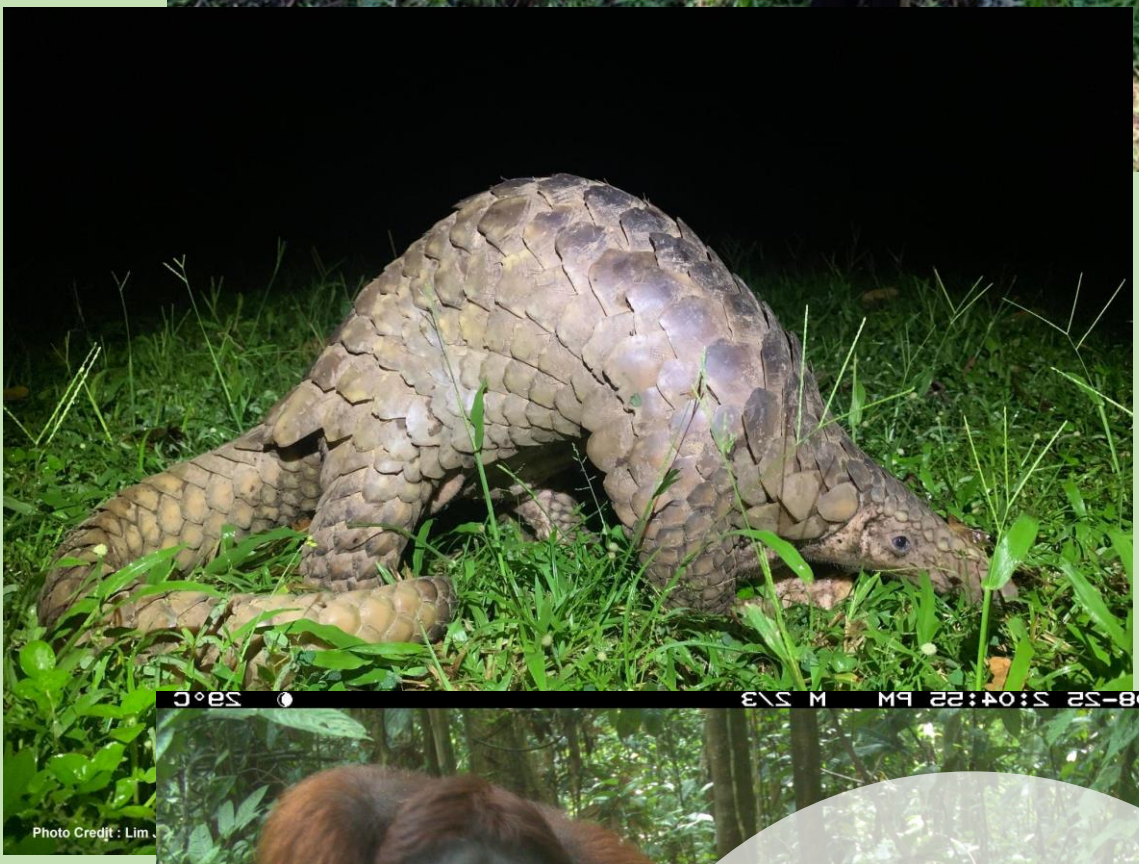
Abstract

In Borneo, oil palm plantations have replaced much of natural resources, where generalist species tend to be the principal beneficiaries, due to the abundant food provided by oil palm plantations. Here, we analyse the distribution of the Asian water monitor lizard (*Varanus salvator*) population within an oil palm-dominated landscape in the Kinabatangan floodplain, Malaysian Borneo. By using mark-recapture methods we estimated its population size, survival, and growth in forest and plantation habitats. We compared body measurements (*i.e.* body weight and body length) of individuals living in forest and oil palm habitats as proxy for the population's health status, and used general least squares estimation models to evaluate its response to highly fragmented landscapes in the absence of intensive hunting pressures. Contrary to previous studies, the abundance of lizards was higher in the forest than in oil palm plantations. Recruitment rates were also higher in the forest, suggesting that these areas may function as a source of new individuals into the landscape. While there were no morphometric differences among plantation sites, we found significant differences among forested areas, where larger lizards were found inhabiting forest adjacent to oil palm plantations. Although abundant in food resources, the limited availability of refugia in oil palm plantations may intensify intra-specific encounters and competition, altering the body size distribution in plantation populations, contrary to what happens in the forest. We conclude that large patches of forest, around and within oil palm plantations, are essential for the dynamics of the monitor lizard population in the Kinabatangan floodplain, as well as a potential source of individuals to the landscape. We recommend assessing this effect in other generalist species, as well as the impact on the prey communities, especially to reinforce the establishment of buffer zones and corridors as a conservation strategy within plantations.

This paper can be found here.

October

November



December

Photos of the Months

October - December 2021

Danau Girang Field Centre

Danau Girang Field Centre was opened in July 2008. It is located in the Lower Kinabatangan Wildlife Sanctuary, Sabah, Malaysia.

Danau Girang is owned by the Sabah Wildlife Departments and supported by Cardiff University. Its purpose is to further scientific research with the aim of contributing to long-term conservation projects in the area and develop a better understanding of our environment and the living things we share it with.

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