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Regrow Borneo Update



The pre-planting biodiversity monitoring has now been completed in three different sites: Laab 3.0, Kaboi Stumping 3.0, and Sungai Pin 1.0. These surveys included night transect walks to identify frogs present, small mammal trapping, pitfall traps to determine dung beetles present and mist-netting for identifying birds. Across these three sites there have been a varying number of species recorded which will be presented in the annual Regrow Borneo report that will hopefully come out later this year.

Over the last couple weeks carbon monitoring started at two of the Regrow sites: Kaboi Lake 1.0 and Laab 1.0. The carbon monitoring coordinator and chair of the UK side of the Regrow Borneo charity, Dr T.C. Hales, recently visited DGFC to train Maz (who has just started her PhD evaluating the impact of reforestation within the Regrow Borneo project) on how to carry out carbon sampling at the different sites. This involves measuring the below ground biomass of the roots and the carbon content of the soil; as well as measuring the above ground biomass of leaves and deadfall. This sampling will be done annually across all the Regrow sites with the ultimate aim to determine the carbon sequestered per hectare from each site!



Pangolin Project Update



One of the main projects running at DGFC is colloquially known as 'The Pangolin Project' a collaboration study being run with the School of Public Health at the University of Hong Kong. The study is exploring "The potential role of Sunda pangolins in the emergence of SARS-CoV-2 and other viruses in humans". This research is a direct response to the seizure of smuggled Sunda pangolins, by the Hong Kong government, during a layover on their journey from Southeast Asia to China. A routine screening of the smuggled goods uncovered SARS-CoV-2 related coronaviruses in the pangolin carcasses, however, it is unclear whether they are the source of these viruses, or whether they caught it from other animals smuggled with them.

As a result of this finding, two research assistants came to DGFC: JiaZhen Lim and Dr Macarena Gonzalez, the veterinarian for the project. This was initially a 2-and-a-half-year project but was extended to 3-and-a-half-years due to the outbreak of the pandemic. Their aim was to discover the source of the strain, as well as to uncover the role of wild populations of Sunda pangolins in the transmission of coronaviruses, or of any other virus that may pose a risk to humans.

Initial investigations used camera traps placed outside pangolin sleeping sites, as it was key to learn more about any potential interactions between pangolins and other animals in the Bornean jungle. From this, it was discovered a number of sympatric species shared burrows with pangolins, however, the most significant finding was that bats and pangolins share the same burrows. Bats are infamous as propagators of disease, although the Horseshoe bat (*Rhinolophus affinis*) is of particular interest because it is known to carry a strain of COVID that is closely related to the SARS-CoV-2 found in the samples of smuggled pangolins.

Over the last few weeks, the pangolin project has been using wire cage traps to collect samples of blood from other animals that are known to share burrows with pangolins, including small mammals like mice, rats, shrews, and squirrels, as well as medium-sized carnivores such as monitor lizards. Investigating the relationships between these species will enable a better understanding of the viral transmission pathways in the community, with the ultimate aim of predicting any potential outbreaks in the future. Unfortunately, with monsoon season fast approaching, logistical challenges means that new avenues of research cannot be explored, so the schedule for the near future involves further sampling of small mammals, medium-size carnivores, and bats to further increase the size of the dataset.

Maz and Amanda Start their PhD's



Our very own Maz and Amanda have both begun their PhD's at DGFC after being granted Vice Chancellor scholarships by Cardiff University.

The focus of Maz's PhD will be within the Regrow Borneo initiative under the title "Evaluating the Impact of Forest Restoration in the Lower Kinabatangan, Sabah, Malaysia". The aim of the PhD is to assess the effects of forest restoration on the biodiversity and ecosystem function at different stages of restoration. The biodiversity aspect will be assessed by monitoring small and medium-large mammals, anurans, dung beetles and avian surveys; the ecosystem aspect will focus on carbon sequestration. Maz was keen about this project because while there are many reforestation efforts in Borneo, there are few intensive studies which are evaluating these efforts and with this PhD, by covering lots of aspects, the biodiversity and carbon sequestration of the forest can be measured as regeneration occurs.

The title of Amanda's PhD will be "The ecology of small sympatric felids in oil palm dominated landscape". When Amanda first started studying at DGFC for her masters in 2019, she wanted to pursue her interest in carnivores and was especially interested in studying either sun bears or the flat-headed cat. However, as both species are rare to see, studying them for a masters presented many challenges. Luckily, around the same time she arrived, the leopard cat project began! Amanda took over the project, and whilst capturing leopard cats to study their spatial ecology the team caught a flat-headed cat – purely by chance! This happy accident inspired Amanda's PhD, studying the diet, behaviour and spatial ecology of both species that cohabit the area around DGFC. This project is really exciting as the 5 species of wild felids found in Borneo are unique in the way they use their habitat, and studying multiple species at once can be challenging. It's been made possible by the fantastic team at DGFC that were able to capture 5 cats in 4 months, with hopefully many more to come!

Cardiff and Wyoming Delegation visit



Left to right: Benoit Goossens, Isadora Helfgott, T.C. Hales, John Koprowski, Brent Ewers, Rudolf Allemann, Anne Morgan, John Robertson, Amaziasizamoria Jumail.

From the 27th to the 30th October DGFC welcomed a joint visit from Cardiff University and Wyoming University. Wyoming operate the UW-UPS Research Station in the Grand Teton National Park, US. The purpose of the joint visit was to continue exploring a collaboration between the field centers of the respective universities, after a visit by Cardiff to Wyoming in the spring.

Visiting from Wyoming was Vice Provost for Global Engagement Dr Isadora Helfgott, Director of the Biodiversity Institute Professor Brent Ewers and Dean of the HAUB School of Environment and Natural Resources Professor John Koprowski. From Cardiff University was Pro Vice Chancellor for International and Student recruitment Professor Rudolf Allemann and Head of International Partnerships Anne Morgan.

During their stay presentations were given about Regrow Borneo, the Leopard Cat Project and various Wyoming University projects. The delegation visited several of the Regrow Borneo sites and were able to assist in tree planting efforts, which was a particularly memorable moment for all.

Field centres like DGFC and UWUPS are important for students and as PVC Allemann commented "University often provides students with education and a piece of paper but they should do more than that in terms of experience, innovation and include the whole issue of doing things in a sustainable way". With this ethos in mind, Wyoming and Cardiff are keen to work together. Talks about the collaboration were very positive, Vice Provost Isadora Helfgott saying "I think we definitely are going to see more people from Wyoming here, I really hope we will see some collaborations on the teaching and research front, I would love for us to see some folks from Cardiff and Malaysia coming to UW and bringing what they know to us so that we learn from them while also allowing us to be part of the global network that Benoit and his team have established here". Moreover, as Dean Koprowski puts it "The opportunity to connect with others, the problems we face, that society and the world faces are not the kinds of problems that one person solves, it takes a willingness to work with others and to do that you have to start by building relationships and that's really what this has been about".

Royal Holloway Field Course



A two week field course from Royal Holloway, University of London, was hosted for the first time over the end of August and beginning of September.

The students experienced some of the various ongoing work and spent time tracking pangolins, observing orangutans and going on primate boats. Students conducted and gave presentations about their own projects which included: the territoriality of Carpenter bees, the reaction of ants to different predation threats, gecko behaviour and millipede uncurling latency. The projects provided a taste of tropical biodiversity research, as well as some of the challenges that can be faced – such as thievery of fruit baits by the centre’s resident long tailed macaques!

The student reception was very positive and DGFC looks forward to welcoming them back next year. Royal Holloway Borneo Field course convener Dr Steve Portugal commented “We were amazed at the biodiversity immediately surrounding the Danau Girang Field Centre, and the variety of activities on offer. We particularly enjoyed the boat trips and can’t wait to come back next year”.



Ruth Padel's Visit



Left to right: Dhivi, Gwen and Ruth

In September the centre welcomed British Poet, novelist and author Ruth Padel and her daughter Gwen Burnyeat, a post doctoral anthropologist at Oxford University. Ruth is the great great granddaughter of Charles Darwin, a former trustee of the Zoological Society of London and a current trustee of New Networks for Nature. During their two-day-stay the pair took part in project work such as changing camera traps, a plantation walk, took part in primate and night boat surveys and also looked for signs of the Bornean elephants – which is the main purpose of Ruth's trip here. Ruth delivered a talk about tiger conservation to the staff and volunteers, reading several extracts from her book "Tigers in Red Weather" (2005) and was even kind enough to donate a signed copy to the centre's library. Ruth was visiting South East Asia to research for her upcoming book about elephants "I really want to write a book that makes a difference to how people think about nature and about elephants" and the next stop on her trip was to Thailand.

Coinciding with Ruth and Gwen's stay was veterinary student Dhivijah Sivadas (Dhivi), who stayed with the centre for two weeks. Dhivi is about to enter her third year of vet school at Universiti Putra Malaysia (UPM) and hopes to become a wildlife vet upon graduation. In her two week stay Dhivi gained experience in pangolin tracking, camera trap setup and mist netting surveys, which were her favourite activity "my favourite activity was the mist netting because of all the different types of birds I was able to learn how to handle". Dhivi was a wonderful, if brief, addition to DGFC and we hope to see her again.

Meet the PTY's



Left to right: Jess Bassett, Rhys Davies, Jack Gibbon, Rhiannon Peacock, Zara Calvert, Hannah Shapland and Bryce Johnson

Thanks to the lifting of travel restrictions in March, at the beginning of September the centre was able to welcome PTYs and graduates from Cardiff University again after a two year absence. Read an introduction to the seven new residents of DGFC for the next year...

Bryce Johnson



Hi I'm Bryce, 23 years old from Wales! I'm studying Biological Sciences at Cardiff university and currently undertaking my Professional Training Year at DGFC. I am particularly interested in conservation biology as well as animal behaviour and ecology. I came to DGFC in the summer for my field course in Ecology and fell in love with the research, wildlife, and the community around the centre.

My favourite animal is the elephant and seeing them swim across the Kinabatangan River here has been a dream come true. I also love frogs; the cinnamon frog is on top of my list of must-see's this year! My research project will focus on the selection of core locations of Leopard cats based on diet populations. I will survey frogs, small mammals, birds, and the habitats!

Meet the PTY's

Hi, my name is Jack, and I'm a biological sciences graduate from Cardiff University. I originally intended to come to DGFC on a PTY 2 years ago, but a global pandemic delayed that, so instead I was able to come here as a research assistant. It has been amazing to finally come here, as I will finally be doing all the things a PTY would be able to do, despite not being affiliated anymore with the university. This includes writing a project, which will likely be using pitfall and funnel traps to sample reptiles, comparing species richness, diversity, and assemblage in Regrow Borneo sites with the nearby natural forest. My biggest interest is snakes, so I am hoping that I will sample some of them in my project, although I am also really excited for elephant season! Due to the pandemic cancelling my field course, this will actually be my first project that I will be collecting my own data for, so planning my sampling methods has been very exciting for me. I especially can't wait to get out into the field and start collecting my own data for a project I designed myself!

**Jack
Gibbon**



**Zara
Calvert**



My name is Zara and I am currently a placement year student at Danau Girang Field Centre (DGFC) as part of my Biological Sciences degree at Cardiff University. As a part of the majority of degrees, you have the option to have a 'sandwich' year in the industry or abroad; for me this was always a must as I had always travelled a lot and wanted to travel whenever the opportunity arose. That's when the idea of doing my placement year at DGFC arose from my tutor. DGFC in general was always talked about in high regards and I never thought I would be one of the lucky few to do my placement year here. From having a range of interests coming to DGFC was the right choice. Simply the location allows you to see certain species that many others will never see and really helped me grow even more passionate for ecology and conservation. Lectures in contrast did not even come close to what I am experiencing in the field and how the freedom of planning my own project is fun and challenging. Aside from the countless amazing attributes of DGFC, finding a balanced routine for the first couple weeks were hard especially with getting used to the heat, dampness and constant itchiness. But in regard to these challenges there is always someone to turn to with the staff truly making the place feel like a home away from home.

Meet the PTY's

Hi, my name is Peacock, and I'm a graduate from Cardiff University. It's really exciting to be here at DGFC as I was originally meant to do a PTY here in 2020, but because of Covid have had to postpone my study twice! Two years and one graduation ceremony later and I'm finally here, and I can't wait to get started on my own project. I think I want to study mammalian herbivory at the Regrow Borneo planting sites and investigate economically sustainable ways to minimise the damage caused by herbivores to the saplings. I'm really excited to work closely with the planting team and hopefully help increase the survivorship rate of the saplings in the future! I wanted to do a study on herbivory at the planting sites as human-wildlife conflict mitigation and community collaboration are two of my key interests within conservation, and now I'm here I can't wait to get started!

Rhiannon Peacock



Rhys Davies



Hey I'm Rhys, I'm 23 and I'm from Hereford in England. I study Biological Sciences at Cardiff University and I first heard about DGFC after speaking to one of my lecturers and when I was told I could do a placement year living in the jungle and working on conservation projects I was immediately sold! Two months in I have loved the experience so far, the Kinabatangan is a beautiful river, and I can't believe my daily "commute" gets to be along it and seeing all the amazing wildlife on offer. My favourite animal would have to be the Hornbills, many mornings I'm woken up to the sound of them flying between the trees outside my room and seeing them soar across the river when I'm out on the boat is always a treat. Coming here I didn't have a specific area of interest, like some of the others did, and I have just been enjoying immersing myself in the different work going on here. However, I am hoping for my project to study the impact that the reforestation efforts are having on butterfly abundance and diversity because butterflies can be a useful bioindicator which are important to look at in degraded environments such as the jungle around the Kinabatangan.

Meet the PTY's

Hi I'm Hannah, I'm a PTY from Cardiff University staying at DGFC for a year! I'm from Cornwall and have always enjoyed the outdoors and I love to surf. As a zoology student I have a big interest in animals and after swabbing frogs for Chytrid fungus in Honduras I developed a particular appreciation for herpetology. Hearing about DGFC at a university open day I decided to go to Cardiff and apply for a placement year in the jungle as it's a completely unique experience. I plan to work as a field biologist and my time at DGFC is only reinforcing this goal. The community here is such a positive one and understands the importance of collaboration with local people as well as wildlife conservation. Here at DGFC I get the opportunity to investigate sampling techniques when surveying frog communities. I will be using AudioMoth acoustic recorders to analyse frog vocalisations in comparison to visual and acoustic surveys. This will ultimately determine species abundance in a variety of forest ages and habitats. Assisting in frog surveys here I've seen lots of species, however there's lots I still hope to see like the File-Eared Tree frog. Overall I've thoroughly enjoyed my time here at DGFC and can't wait to get started on research of my own!

Hannah Shapland



Jess Bassett



Hi I'm Jess! I'm a recently graduated Zoology student from Cardiff University and will be spending the next year as a Regrow Borneo Research Assistant at DGFC.

Cardiff University's link to DGFC and the opportunity for students to carry out research as part of a Professional Training Year was a unique opportunity I hadn't seen anywhere else and was the reason I applied to study at Cardiff. Unfortunately, the pandemic meant both my field course and PTY in Borneo were cancelled. I decided to finish my final year and then come out as a postgraduate research assistant, so I was still able to pursue my dream of coming to Borneo. During my final year I became part of the Regrow Borneo communications team for the social media, so it's exciting to be here to share the work we do in the field and updates of our reforestation progress! During my time here, I hope to get a range of experience in the field as well as working with a team of other researchers and students! So far, I have been carrying out an observational study on Orang-utans around the centre, observing their behaviour, prevalence and feeding habits. I've been using this opportunity to improve my wildlife photography skills too! For my longer-term project, I will be using Audio Moths to detect Primate occupancy in our Regrow Borneo sites, comparing natural, regenerated, and active reforestation sites through analysing primate calls. I will be combining this data set with drone imaging to detect nest prevalence by Orangutans and potentially Gibbons. Through this study I hope to see if our Regrow Borneo sites are acting as effective habitats for primates that were once heavily degraded and which fragmented the landscape.

September Long Stay Arrivals

The month of September saw several volunteer arrivals at DGFC. Ecology student Guillaume arrived for four months from France, Zoology graduate Beth arrived from Australia for two months and veterinary student Zoe arrived for seven weeks from Belgium – read more about the new arrivals below and on the next page!

My name is Guillaume Verchère (Gigi), I'm 24 years old and I'm French. I'm doing a Master's degree in Ecology and Evolution at Paul Sabatier Toulouse III University. I'm here at DGFC volunteering for four months. I am an amateur ornithologist and passionate about nature. I love to go to different environments and grasp all their complexities. France spoils me in this respect and I have travelled a lot in my country to discover all these facets. But you can't always find everything and from this passion I wanted to discover the tropical forests, the ones you see in documentaries, where biodiversity is the most abundant.

In my opinion, the best way to understand a natural environment is to spend several months there. To be able to do this I have waited until I could do a "gap year" (a break in my studies) supervised and authorized by my University. I am here to grasp the complexity of this environment, to enrich my professional experiences, to discover new cultures and improve my English (thanks to my friends at DGFC), to fulfil my passion and to accomplish a dream come true. At the same time, I am partnering with my old primary school teacher to promote science concerning nature and ecology for children at my old school - St Charles School in Rillieux-la-pape.

After I leave DGFC I will do a back-pack trip through Asia and then do one of the biggest treks in Europe, crossing the alpine arc from Slovenia to France alone and bivouacking (yes I'm scared too, but it's going to go well). But for now I'm enjoying taking part in the various projects at DGFC which is just an incredible experience. There is so much diversity in the studies here, lots of wildlife observation and an enriching social experience all of which a single word cannot explain.

Guillaume Verchère



September Long Stay Arrivals

I spent two months volunteering at Danau Girang Field Centre. I'm from Australia, and have a Bachelor's in Zoology and Animal Science. I came to DGFC to gain fieldwork experience that I missed out on during my degree due to the COVID pandemic. I spent a semester studying in Sarawak in 2019, and really wanted to come back to Borneo to complete some jungle fieldwork.

During my time here, I have helped Maz, Amanda, Jerry and Maca with their research projects. I have radio-tracked pangolins, used camera traps in different locations, and assisted with small mammal trapping, mist-netting for bird surveys, frog surveys and pitfall traps for dung beetles. Highlights have included seeing orangutans in the trees above us, hornbills soaring over the Kinabatangan, crocodiles resting on the banks, and capturing clouded leopards and elephants on the camera traps. I also attended the Borneo Bird Festival to help on the booth, and really enjoyed engaging with visitor's and sharing my experience. I have learnt a lot, and thoroughly enjoyed my time in the jungle. Despite all of the mosquitoes, I'm sad to be leaving, and hope to visit again one day!

**Beth
Kynaston**



**Zoé
Detroz**



My name is Zoé, I am 23 years old and I'm currently studying veterinary medicine in Belgium at the Université de Liège. During our 6th year of study we have to do two internships of 6 weeks in an industry, a clinic or in a research center. I have always wanted to travel but also learn more about veterinary research so DGFC was the perfect place for me to go. I have heard about this place via one of my veterinary friends who also liked travelling around the world. I spent 7 weeks at DGFC, following the different projects and especially the Pangolin project which is involved with a veterinarian, Dr Macarena Gonzalez. During these weeks I got the opportunity to do all kinds of activities, including veterinarian manipulations but also a lot of conservation work. We were involved in some of the PhD's projects, helping them in their day-to-day work. It was a really nice way to discover the research side of veterinary studies but also a great social experience, meeting so many great people in this amazing environment.

Tsang Family Visit

DGFC welcomed the Tsang family from Sandakan from the 16th to 18th September. The idea for parents Rosalind Wong and Tsang Hieng Yee to visit a rainforest research centre came after their son Asher, 6, and daughter Jovianne, 9, watched a wildlife documentary on TV. The family was able to experience a taste of life as a tropical biodiversity researcher – up early for a morning bird boat, hiking through the forest changing camera traps and then a primate boat later in the day trying to spot Proboscis monkeys and Langurs in the trees. Reflecting on their stay parents Rosalind and Tsang said:

“We had such a wonderful, yet educational time. Your research center had opened our eyes as to how much efforts have been done to conserve and monitor our rich Sabah ecosystems.”



My Trip to DGFC

Last September, my family and I went to DGFC. Before we arrived, we drove for two hours. Then we went on a boat for half an hour. Finally we arrived, I was excited. First, we went to our room in a hostel, then we watched our laptop. Next, we went to the common room, where the cafeteria, library and staffroom were.

On the next day, we woke up at 5.48. Then we went on a boat to see birds. But we only saw long-tail macaque, hornbills and proboscis monkey. After that, we went eat at the common room. Next, we went to our hostel. We slept, and watched our laptop. Then we went on the boat again to go hiking while camera trapping. Then we went to see primates on the way home. After that, we bathed and went home to sleep.

On the next day, we went to the common room. We ate and stayed there a bit. My brother cried because it was the last day at DGFC. We got on the boat and went home. I really want to go back again.

From: Jovianne Tsang
To: DGFC

A diary entry by Jovianne (9) of her stay at DGFC.



Cardiff University PTY Zara showing the Tsang family how we process the camera trap footage they had earlier helped to retrieve.



A drawing by Asher (6) of his stay.

Publication Corner

Restoring the orangutan in a Whole- or Half-Earth context

Published online by Cambridge University Press: 13 October 2022

A new paper published in *Oryx*, The International Journal of Conservation, is available open access. The Half-Earth and Whole-Earth visions are global-scale proposals aiming to reduce the loss of biological diversity. The Half-Earth vision seeks to set aside half the planet for wildlife conservation and the Whole-Earth vision seeks to diversify conservation practices fundamentally and change the economic systems that determine environmental harm. This paper investigates these visions in relation to the Bornean orangutans and their conservation over a 10-year time frame.

Open Access Link: <https://www.cambridge.org/core/journals/oryx/article/restoring-the-orangutan-in-a-whole-or-halfearth-context/95C49E3F747CF09704C0E5E274D80B64>

Journal of Applied Ecology



RESEARCH ARTICLE | Open Access |

Sundaic elephants prefer habitats on the periphery of protected areas

A new paper has been published by the British Ecological Society in their *Journal of Applied Ecology*. Protected areas (PA's) are not equally effective for all taxa and so the taxa-specific effectiveness must be evaluated. In this study, the effectiveness of PA networks and protected habitats for Asian elephants are evaluated.

Open Access Link: <https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/1365-2664.14286>

Use of accelerometer-informed GPS telemetry in mortality detection of a tagged leopard cat by A. Wilson, H. Bernard, M. González-Abarzúa, S. Guerrero-Sánchez, L. Frías, M. Kunde, R. Burger and B. Goossens



Published in the summer 2022 edition of *Cat News* by A. Wilson *et al*, in a study of the leopard cats in the Kinabatangan floodplain the death of a collared cat was investigated. The collar was discovered and the events around mortality were reviewed using ACC-informed GPS technology as an investigative tool. This paper predicts a possible scavenger that led to the activation of the GPS collar after being immobile for a period of time and thus provides insights to the food-web of the Kinabatangan floodplain.

Camera Trap Highlights



Bornean Orangutan



Sunda Clouded Leopard



Sunda Pangolin

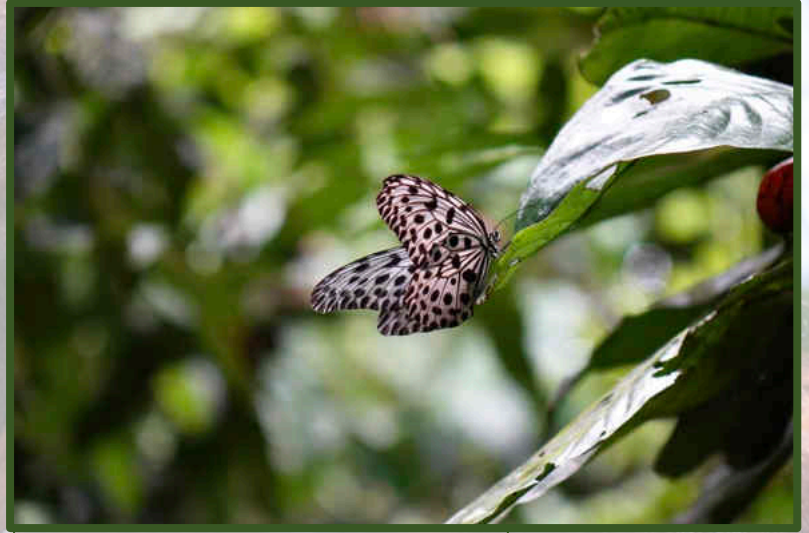


A pair of young Proboscis Monkeys

Photo Highlights



Credit: Hannah Shapland



Credit: Rhys Davies

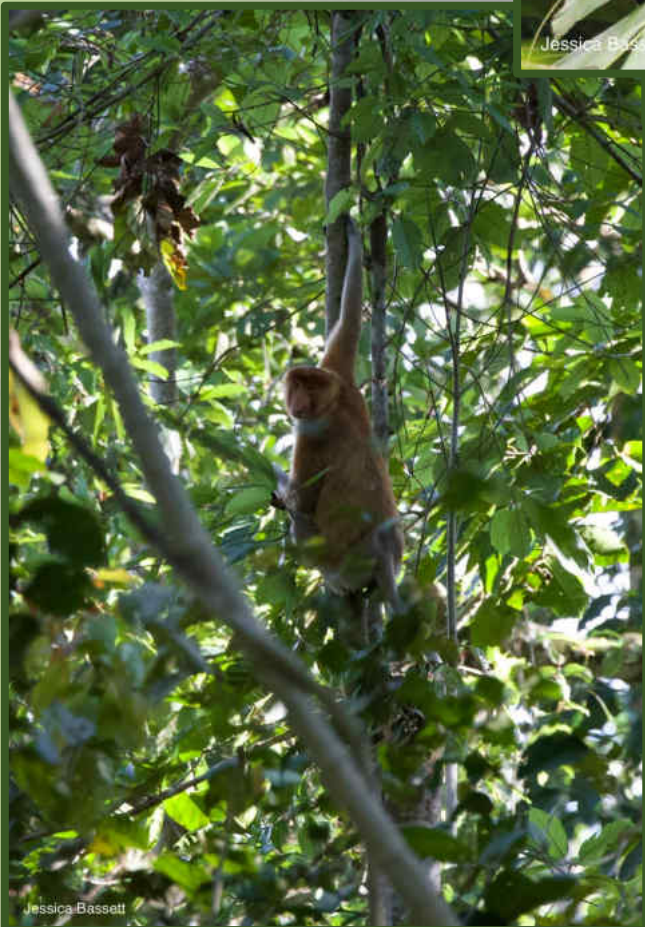


Credit: Rhiannon Peacock

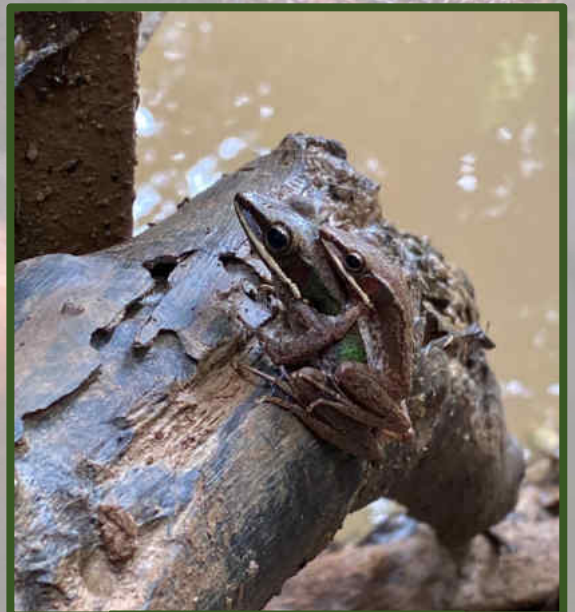


Jessica Bassett

Left and Above Photo Credit: Jessica Bassett



Jessica Bassett



Credit: Zara Calvert



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 Department 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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