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British High Commissioner, HE Charles Hay, Visits DGFC



(Credit: Rhiannon Peacock)

His Excellency Charles Hay MVO, British High Commissioner to Malaysia, visited Danau Girang Field Centre (DGFC) between April 10 and 12 along with his aide Mr Muru Loganathan, Energy and Climate change advisor for the High Commission, and Mrs Sylvia Alsisto, Kinabatangan Officer for Sabah Wildlife Department. Mr Hay joined the Foreign and Commonwealth office in 1993 and previously served as the British Ambassador to South Korea from 2015 to 2018, before his appointment to Malaysia in 2019 which is scheduled to end this July. A high commission is the term for a British embassy in a Commonwealth country, responsible for bilateral relations and the care of British nationals.

There have traditionally been strong ties between Malaysia and the UK, particularly regarding education with five UK university campuses established in Malaysia. In addition, there are centres such as DGFC (which was established in 2008, through a formal partnership between Sabah Wildlife Department and Cardiff University) and after hearing about the field centre Mr Hay was keen to visit.

Despite only a two night stay the High Commissioner was immersed in the conservation work being carried out at the field centre, taking part in: pangolin tracking, primate and night boat surveys, night walk and a series of talks from the students and researchers. The presentations covered a wide range of topics such as the history and origins of the Field Centre and research projects which included: Regrow Borneo; the wild cat project; the two ecotoxicology projects and the current research projects being undertaken by Cardiff University's Professional Training Year students.

The High Commissioner took questions regarding existing funding opportunities from the UK government and announced a new International Science Partnerships fund, of which Malaysia will be one of the eligible countries.

Commenting on his stay he said, "It's so nice to be somewhere where people are so enthusiastic about their research, working on a wide range of different projects in this area of forest. I really enjoyed the presentations I had from the students and researchers, and I learnt a lot about different aspects of wildlife and biodiversity here in the Kinabatangan." After leaving DGFC, Mr Hay was visiting our friends at the French NGO, HUTAN, who established the Kinabatangan Orangutan Conservation Programme (KOCP) in nearby Sukau.

Despite the flooding, Leiden enjoys another successful field course!



Credit: Roel Walters

Barrington macrostachya.
(Credit: Roel Walters)

For the fifth time, Leiden University (Netherlands) returned to Danau Girang Field Centre (DGFC) for their two week Tropical Biodiversity Field Course in March. In addition, two Malaysian students, representing Universiti Malaysia Sabah and University Malaysia Sarawak also attended the course, and who are sponsored by the Leiden Students themselves, each year.

Due to the prolonged rainy season the field course was initially faced with partially flooded trails and high water levels upon arrival, causing a more spatially restricted study area compared to previous years. However, although the weather improved greatly, it served as an example to the students of the uncertainties and challenges of fieldwork and they did a great job adapting to the new and unpredictable environment.

For the first few days the students could sign up to different workshops such as monitor lizard trapping, butterfly catching and insect collection, ecology walks, plant identification, camera trapping, night walks and boat surveys of primates and birds. The students then devised their own projects in small groups which included: butterfly mark-recapture, fern diversity, camera trap surveys of non-flying vertebrates, leaf herbivory and wood decaying fungal diversity. Some of the highlights of the field course included tree planting with Regrow Borneo and the finding of *Barrington macrostachya* (Family: Lecythidaceae) a woody plant with flowers which only bloom for a single night before abscission (shedding), discovered by Leiden University senior lecturers and botanists Dr James Byng and Dr Roderick Bouman.

Finally, the returning field instructors were impressed by the new renovations to the field centre, particularly the addition of solar power. Reflecting on their stay, Dr Jeremy Miller, the lead instructor said “This field course has gone very well and smoothly, the students have all had a great attitude dealing with the challenges of working from a field station and have taken all that in their stride which is great. I think there has been a general sense of wanting to contribute and a couple of the projects have been successful in feeding back on the ongoing work here which is a very positive thing”.



Credit: Miriam Gehre



Credit: Roderick Bouman

Meet New Ecotoxicology PhD Students Tyler and Nick

Cardiff University Ecotoxicology PhD students Tyler Cuddy and Nick Porter arrived at Danau Girang Field Centre (DGFC) in February to begin their six month long fieldwork. Both PhDs are funded through the NERC ECORISC Centre for Doctoral Training in partnership with the Joint Nature Conservation Committee (UK).

Nick Porter



(Credit: JiaZhen Lim)

“ I am thoroughly enjoying my time here, especially now that I have adjusted to the heat and learned to love a cold shower! As someone who has never visited anywhere like this before (and who has come from a chemistry background) I was blown away by the abundance and diversity of incredible wildlife that live here. I feel extremely lucky to be surrounded by people who are so knowledgeable, and I have been constantly learning since the day I arrived.”

Nick’s PhD is co-supervised by Cardiff University and the UK Centre for Ecology and Hydrology (UKCEH) and titled “Sustainable Oil Palm Farming in Borneo: Uptake and Effects of Heavy Metals and Pesticides in Wildlife of the Oil Palm Plantation Affected Landscape of the Lower Kinabatangan Floodplain”. The PhD will focus on metals, pesticides and associated contaminants from Oil Palm in the Kinabatangan. The aim is to characterise the pollution hotspots and pathways and assess the exposure and bioaccumulation risk to different organisms within food chains such as invertebrates. This can then lead to opportunities for effective or reduced chemical use to be identified. At undergraduate, Nick has a BSc in Medicinal Chemistry from the University of Surrey and completed an industrial placement year with the British Geological Survey; gaining skills in analytical chemistry and analysis of environmental samples such as water, soil and vegetation. It was that placement year which inspired him to complete a PhD regarding real world problems such as the human-wildlife conflict.

Meet New Ecotoxicology PhD Students Tyler and Nick

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Tyler Cuddy

“Almost four years ago I was a Professional Training Year (PTY) student at DGFC during my undergraduate degree in Zoology at Swansea University. Unfortunately, my time got cut short due to the COVID pandemic, but this PhD has given me the fantastic opportunity of spending some more time in this incredible place! Now I’m able to use the skills that I developed as a PTY to manage my own projects here, which certainly feels like a nice full circle! It’s great to be back, and fieldwork is going well. We are just coming towards the end of the pilot study phase and will be moving onto the nitty gritty very soon where it will be all systems go! Between trapping carnivores and small mammals day and night, netting leopard cats, and fishing along the plantation waterways - I am going to be extremely busy for the next four months!”



Credit: Tyler Cuddy

Tyler’s PhD is titled “Mesocarnivore Ecology and the Impacts of Heavy Metals in the Environment” and will investigate the effect of heavy metals on small carnivores in the Lower Kinabatangan Wildlife Sanctuary, released through fertiliser leaching from Oil Palm Plantations. The main carnivores of focus are monitor lizards, civets and leopard cats who are generalist species which have adapted successfully to the environment of an Oil Palm Plantation, but their persistence brings them into contact with toxic chemicals which can then build up in their body (bioaccumulate). The aim will be to assess the heavy metal levels in these animals by sampling their fur, scales, bloods, and diets to determine how these toxins are getting into the food chain and the primary methods by which they bioaccumulate.

Newquay University Centre Field Course



Credit: Amaziasizamoria Jumail

Danau Girang Field Centre (DGFC) hosted Newquay University Centre (formerly Cornwall College) for their annual field course at the end of March.

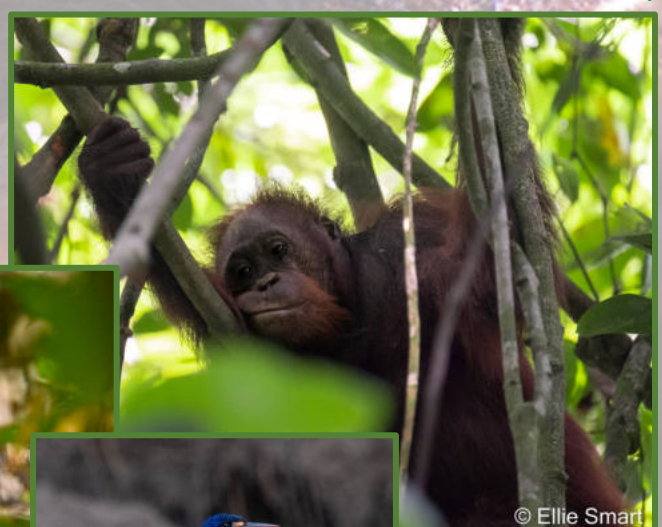
The group from Newquay conduct the same set of surveys annually, accumulating data going back to their first field course in 2010. These surveys include daily bird and primate boats, frog walks, crustacean trapping, bat monitoring, camera trapping and other activities such as moth identification. The primate surveys use GPS data to map the locations of animals along the river, examine species diversity which allows the students to investigate how the animals are using the river in comparison to previous years data.

In addition, the students received presentations about the work of the researchers and students at the Centre and were even able to get involved with some of the ongoing project work such as Pangolin tracking and Butterfly surveys. One aspect that many of the students took away was the reality of the palm oil industry and its significance to local community life and the importance of sustainable palm oil. Highlights included tree planting with the Regrow Borneo project, an orangutan appearance and even sightings of red langurs on the river!

Finally, students Gemma and Ellie took some fantastic pictures of the Kinabatangan wildlife which you can see on this page, the highlights page (page 12) and on DGFC social media.



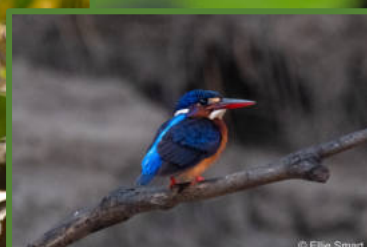
© Gemma Clark



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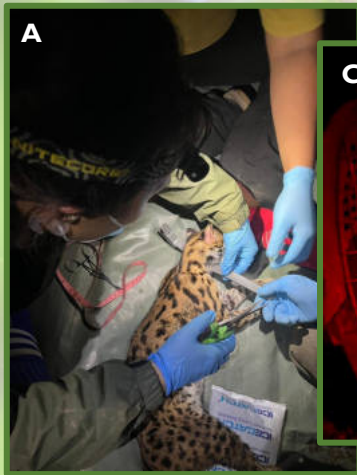


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Amanda collars the first two Leopard Cats of her PhD!



(A) Rimba having her collar installed. (Credit: Amanda Wilson)

(B) Rentap's thorax girth being measured. (Credit: Amanda Wilson)

(C) Individual's recovery from sedation is monitored, red light is used due to their nocturnal nature. (Credit: Amanda Wilson)

(D) Amanda demonstrating to Leiden University students UHF tracking. (Credit: Casper Leygraaf)

The aim of the Cat Project is to understand how wild cats use the oil palm habitat and how human activities within the plantation affect the cat's movements and sleeping sites. Cardiff University PhD student Amanda Wilson aims to investigate how cats, particularly leopard cats and flat-headed cats, find refuge and whether they can tolerate human influences within their home ranges.

On the 17th of March 2023, the first leopard cat was collared at the nearby Hillco plantation to kick-start Amanda's PhD project titled 'The Ecology of Small Sympatric Felids in Oil Palm Dominated Landscape'. The female cat was named 'Rimba', after one of the Malay words for forest. DGFC's wildlife veterinarian Dr Reza determined that Rimba had just given birth to kittens prior to being collared, allowing the potential investigation of how her movements change from her nursing period until she separates from her kittens.

The second leopard cat was captured four days later, during a visit from Sarawak Energy who assisted with the collaring. The cat was therefore named 'Rentap' after a Sarawakian warrior. Tracking Rentap's movements can potentially tell us how home ranges in male leopard cats may change - especially during the mating season.

To retrieve the collar recorded movement data, each cat is tracked using Ultra-High Frequency (UHF) telemetry. This uses a radio with a frequency associated with the cat's individual collar and locates it using a wide-range antenna by listening out for a consistent, high-pitched 'beep'. Once close enough to the collar, determined by the strength and volume of the beep, the radio is attached to a directional (Yagi) antenna and a Base Station which downloads the data. This information can be used for a variety of purposes, such as establishing which areas have been used as sleeping sites and places of refuge.

As this project continues to develop, Amanda is hoping to collar many more leopard cats as well as the elusive flat-headed cat. For the flat-headed cats, Amanda has begun setting up a network of camera traps at a nearby oxbow lake to hopefully capture images of the elusive felines - whom can be eventually captured and collared.

Cardiff University's Professional Training Year Student (PTY) Project

Feature: Bryce

As part of the Professional Training Year (PTY) placement, Cardiff University students undertake their own research project. Each issue of the *Jungle Times* will feature some of these projects so you can learn more about what our PTYs are up to! One of the two featured projects in this issue is Bryce's - who is looking at prey availability of the Leopard Cat (*Prionailurus bengalensis*).



Bryce weighing a captured mammal.
(Credit: Amanda Wilson)



(Above) A Müller's Giant Sunda Rat (*Sundamys muelleri*)
(Credit: Bryce Johnson)

(Below) A Mangrove Skink (*Emoia atrocostata*).
(Credit: Bryce Johnson)



My project focuses on investigating the availability of leopard cat (*Prionailurus bengalensis*) prey species by using existing home range data. For this project I am working alongside PhD student and research officer Amanda Wilson, who is studying the ecology of the small sympatric felids. The leopard cat is the most common wild cat species in Asia, and they are particularly abundant within logged forests and oil palm plantations. As habitat generalists and opportunistic carnivores, they are highly adaptable to the anthropogenic impacts on forests across the Kinabatangan.

Amanda collared four male leopard cats in 2020 and produced estimates on their home range and core locations for her master's degree. I will be using Amanda's data to establish transects and quantify species richness and diversity of the leopard cat's prey. My sampling includes night surveys where I aim to observe animal groups such as frogs, small reptiles, and small birds. I am also using small traps to identify mainly small mammals, particularly rodents which are thought to be the main component of the leopard cat diet. I will also be attempting to spot leopard cats in my study areas to try and determine if they still contain active individuals, given the collared data is from several years ago. Of the four leopard cat core locations, two cats, 'Lincah' and 'Bulan', were within the Hillco oil palm plantation and two cats, 'Laju' and 'Bintang', were within the Pendirosa plantation.

Questions I am exploring within this project include whether the leopard cats prefer areas with high species diversity or high species abundance; are there any trends in which animal groups are particularly abundant in these locations and does the habitat affect the presence of prey species. I hope this project can contribute towards understanding the importance of high conservation value areas (HCV) in maintaining leopard cat communities within oil palm plantations.

Cardiff University's Professional Training Year Student (PTY) Project

Feature: Rhys

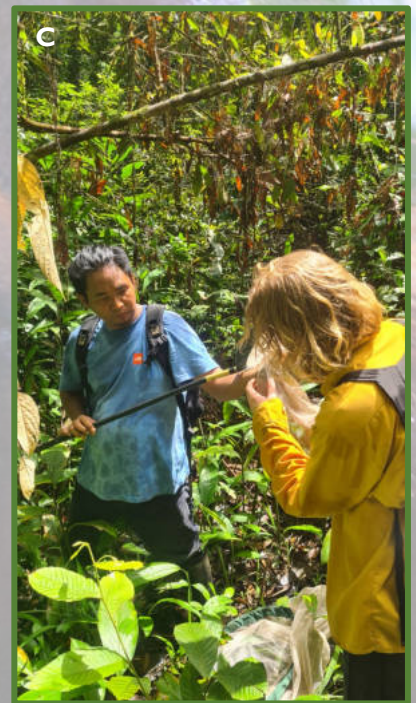
As part of the Professional Training Year (PTY) placement, Cardiff University students undertake their own research project. Each issue of the *JungleTimes* will feature some of these projects so you can learn more about what our PTYs are up to! One of the two featured projects in this issue is Rhys's - who is looking at how butterfly species diversity changes with forest restoration.



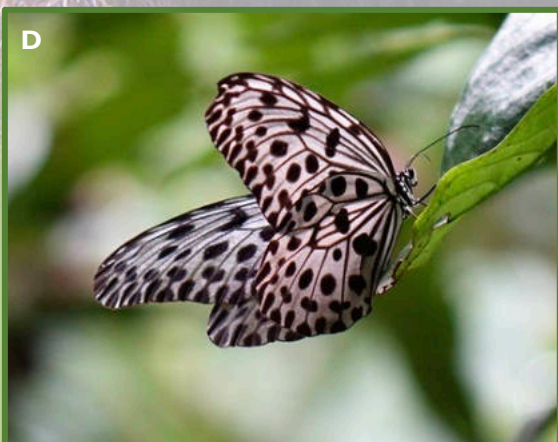
(A) Rhys holding a captured Blue Grass Tiger (*Ideopsis vulgaris*)
(Credit: JiaZhen Lim)



(B) An Orange Banded Yeoman (*Cirrochroa satellita*)
(Credit: Rhys Davies)



(C) One of our Field Assistants, Mit, holding an aerial net while Cardiff PTY Hannah tries to remove a butterfly
(Credit: Nick Porter)



(D) Tree Nymph (*Idea stoli*) (Credit: Rhys Davies)



(E) The most commonly recorded butterfly "Forest White" (*Appias aegis*)
(Credit: Rhys Davies)

My PTY project is investigating the effect of forest restoration on butterfly species diversity in Lot 6 of the Lower Kinabatangan Wildlife Sanctuary under the Regrow Borneo initiative. Insects can be useful indicators when assessing the biodiversity of an environment because they are highly sensitive to environmental changes and have short life cycles compared to plants and vertebrates. Butterflies (Insect Order: Lepidoptera) are a widely used study group because they are taxonomically well documented and readily identifiable to species level compared to many other insect taxa.

My study uses two areas of forest which each contain three sites: an active site of forest restoration, a re-established forest site (restored and no longer actively maintained) and an area of natural forest. I have a transect located within each site which I walk once a week and capture, identify and record the butterfly species present. In addition, Bryce has transects located in two separate oil palm plantations which I use to be able to compare butterfly data between the forest and oil palm areas.

I plan on trying to sample for a total of ten weeks and so far I have completed five weeks of data collection with 476 individuals being recorded across 36 different species! My aim is to compare the species diversity and abundance between the different sites and see how the data changes with forest restoration. I am hugely grateful to all the help I receive from the other researchers, students and volunteers who join on my transects and brave the mosquitoes with me!

Miriam and Barney's Volunteer Experience

Danau Girang Field Centre (DGFC) welcomed German Veterinary student Miriam Gehre and British volunteer Barney Rudd in March for a ten week and four week stay respectively.

Miriam Gehre



Credit: JiaZhen Lim

Miriam is a fifth year student at the University of Hannover and is completing an internship for her Veterinary degree. Keen to integrate her training with wildlife conservation, DGFC provides an ideal place for one of her required internships. Miriam has spent much of her time attached to the Mesocarnivore trapping project and Pangolin project.

"I have a very positive impression of the many different projects happening here. It's especially valuable to have a diverse group of veterinarians on board, I have already learned a great deal from Reza, Maca and Kenneth. What is special about DGFC is its location in the middle of the rainforest. Seeing so many different animals every day is great, even if I could do without mosquitos and fire ants. But I am also amazed by the people who come here. This place gives me the opportunity to meet so many different people who want to protect places like this. It's impressive how much hard work and dedication it takes to do this kind of research, and there are frustrating moments along the way, but it's also a lot of fun. Plus, the team's enthusiasm for their work is contagious!"

Barney Rudd

"I was constantly struck by the biodiversity of the area, something which had made Sabah a place I'd wanted to see for a long time. But I didn't realise how intimate I would be with the 6+ legged creatures who scuttle around, such as the stunning Tarantula on the main path and the colonies of Giant Honey Bees hanging from the trees. The atmosphere created amongst long term researchers and the incredibly hardworking staff is one of support, which made it a very easy place for me to find comfort. The field assistants were also able to bring this out into the jungle with a matchless confidence and I've slightly fallen in love with them. My stay at Danau Girang Field Centre has been inspiring and cemented my desire for a future in field research - and one month certainly wasn't enough!"



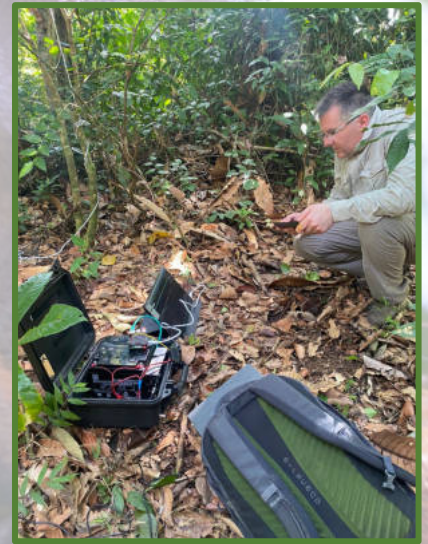
Credit: Bryce Johnson

Barney was visiting South East Asia and decided to spend one month volunteering with DGFC, before heading onto a summer job planting trees in Canada. Having previous research experience volunteering with the Committee Against Bird Slaughter, in Cyprus, and The Macaw Society, in the Peruvian Amazon, Barney settled into DGFC immediately. He was a fantastic help to many of the ongoing projects and all the staff and researchers wished he, along with charming personality and positive attitude, could have stayed longer.

Mark and Sam's Comms-Tech Visit



Sam and Mark enjoying the Hari Raya festivities. (Credit: Miriam Gehre)



Mark testing his equipment in the field. (Credit: Zara Calvert)

Cardiff University communications technology PhD student Mark Butterworth and his wife, Samantha (Sam) Butterworth, stayed at Danau Girang Field Centre (DGFC) for two weeks during April to conduct fieldwork for Mark's PhD.

An issue with animal trapping for conservation research, particularly of large animals such as sun bears, is that traps need to be checked daily which can be a labour intensive task. Mark previously worked for the British Ministry of Defence as a research scientist and is a radio enthusiast. Noticing one of the PhD positions being advertised was about tackling different ways to remotely monitor animal traps and having a strong background in communications, he decided to apply for a part time PhD with Cardiff University. Communications in the jungle is notoriously difficult and Mark came to DGFC to test his hypothesis that the ionosphere can be reliably used to send relatively low power signals. The idea is this can be applied to avoid having to check each trap every day and instead, only the triggered traps would send a signal. Mark's wife, Sam, is currently studying for a masters in security and intelligence which combined with her twenty year career in the British Armed forces made her a perfect research assistant for her husband in the harsh jungle environment.

The husband-and-wife team visited DGFC during Hari Raya and took part in the celebrations at the local village with all the other researchers and students for an unforgettable experience. In addition, they helped with several of the other projects and were an amazing help to Regrow Borneo research assistant Rhiannon Peacock; whose new tree shelter project initially required a very labour-intensive few days and the Butterworths were a fantastic help. Reflecting on their stay "It's been fantastic. Everyone has been really welcoming and getting involved with some of the other projects has been great. The science and research here is quite incredible from the tree planting to the cats and pangolins and the breadth of research is inspiring to us."

Photo Highlights



Long-Tailed Macaques (*Macaca fascicularis*). (Credit: Ellie Smart)



Common Egret (*Ardea alba*). (Credit: Gemma Clark)



A Bornean Colugo (Credit: Gemma Clark)



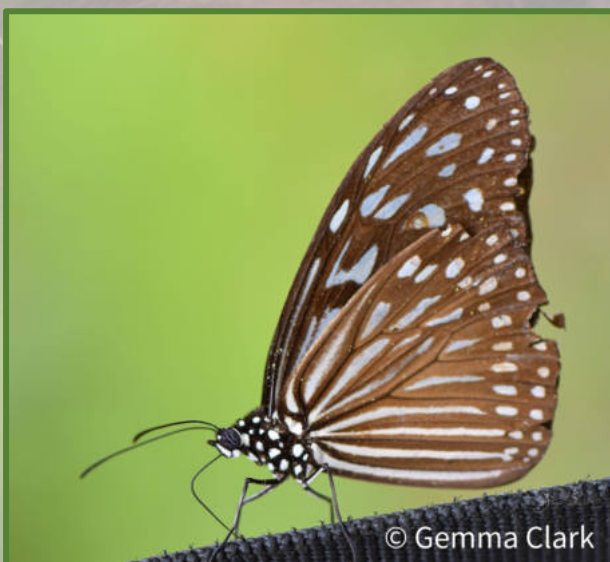
Sunset over the Kinabatangan (Credit: Lotte Pries)



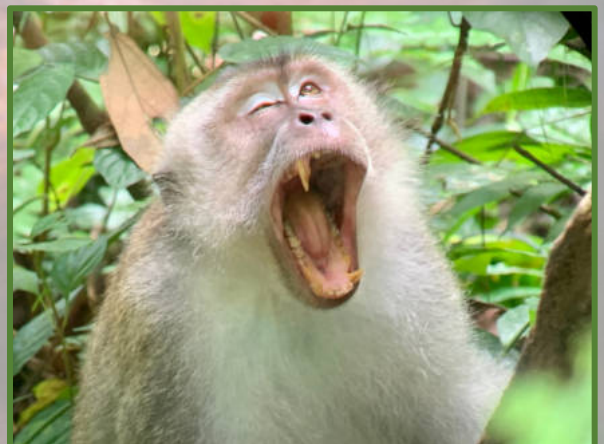
Purple Heron (*Ardea purpurea*). (Credit: Ellie Smart)



Black and Yellow Broadbill (*Eurylaimus ochromalus*). (Credit: Casper Leygraaf)



Blue Grass Tiger (*Ideopsis vulgaris*). (Credit: Gemma Clark)



A sleepy Long-Tailed Macaque. (Credit: Casper Leygraaf)



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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