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Return of the AGM!



Over the weekend of February 10-12 the annual general meeting (AGM) of Danau Girang Field Centre (DGFC) was held for the first time in three years due to the COVID-19 pandemic.

The DGFC staff are primarily based either in the office in Kota Kinabalu or at the field centre in the Lower Kinabatangan Wildlife Sanctuary (LKWS). As a result of the last AGM being held several years ago, there have been many new staff additions since the last AGM who have never had a chance to meet each other. The AGM weekend provides the opportunity for everyone to meet new faces, catch up with each other and enjoy a great weekend of food and activities together.

A morning of games was held where staff were split into three teams and competed in five different events. Some of the games were certainly more competitive and intense than others, such as the balloon battle, and each team accumulated points throughout the day. Overall, it was closely fought, with the winning team decided by the last game. However, depending on whom you ask there would be controversy surrounding the eventual winners!

A fantastic feast was then prepared for the Saturday night, thanks to the huge efforts from all the staff, and afterwards the first ever DGFC talent show was held. All the acts including several duet and solo performances on guitar and a poetry recital were amazing. However, the big star was field assistant Mit Zuraimi (otherwise known as Magic Mit) who stole the show with several very impressive card tricks and won first place after voting!

Overall, it was a highly enjoyable weekend for all, and it was a great chance for all the staff to catch up. The talent show was a roaring success and will most definitely be returning next year!



The first annual DGFC talent show



Ecotoxicology Group Visit



Ecotox group, Wild Asia and DGFC staff and students

During the last week of February, Danau Girang Field Centre (DGFC) hosted an ecotoxicology group from the UK. Made up of researchers from Cardiff University and the UK Centre for Ecology and Hydrology (UKCEH) they included: Professor Peter Kille, Dr Pablo Orozco-terWengel and Mr Tyler Cuddy from Cardiff University and Dr Claus Svendsen, Dr Julia Brewer, Dr Elma Lahore, Mr Lee Walker and Mr Nick Porter from UKCEH.

Ecotoxicology is a multidisciplinary field combining several areas of science (namely ecology and toxicology) which studies the effects of toxic chemicals (such as pesticides) on both aquatic and terrestrial environments; examining these effects from the individual level through to whole ecosystems. The group from Cardiff University and UKCEH are hoping to expand the current study of chemical use in oil palm plantations and their environmental effects in the Lower Kinabatangan Wildlife Sanctuary (LWKS).

There are many plantations in the Kinabatangan region and chemicals such as pesticides are often used; but the accumulation and effect of these chemicals in the environment is poorly understood. Amongst the group were PhD students Tyler and Nick who will be studying the ecotoxicological effects in the Kinabatangan from the accumulation of these chemicals. This project builds on the work of former Cardiff University PhD student Meaghan Evans who studied heavy metal accumulation in civets at DGFC.

Following a one-day workshop with Sabah Wildlife Department, at their headquarters in Kota Kinabalu, the group headed to DGFC for a one week stay. The week involved several visits to the surrounding oil palm plantations, meeting with the plantation owners to discuss current chemical use and management strategies. The group also took part in a three-day workshop with Sabah's NGO Wild Asia who collaborate with small holders to encourage alternative strategies to using chemicals. Finally, the group headed to Tabin Wildlife Reserve to meet with ecotourism company Sticky Rice, who are also planning to work with nearby plantations.

The weather was not on the groups side during their stay, raining heavily for most of the week. However, the visit was a highly enjoyable one and the night walks were a particular highlight. The group were particularly impressed by the quality of the facilities at the field centre, the standard of food and the enthusiasm of all the staff, students and volunteers!

Kenneth Keuk PhD Return



Credit: Kenneth Keuk

Pig Tailed Macaques

DGFC welcomed back PhD student Kenneth Keuk in February, who first visited DGFC as a volunteer in 2014 whilst he was a veterinary student. He had participated in the nocturnal primate project led by DGFCs Danica Stark, collecting activity and ranging data of two collared slow lorises which served the basis of his veterinary thesis. Kenneth then returned to DGFC as a research assistant for the P²ARASITE project in 2017.

Kenneth began his PhD titled “Ecological networks of hosts and parasites: studying disease transmission at different scales” whilst at Kyoto university in 2020. His PhD has involved studying infectious disease transmission in the Japanese Macaques of Kōshima (Kōshima Macaque Project), invasive raccoon dogs of Yakushima (YakuTan Project) and the many primates of Sabah (P²ARASITE project). At DGFC his fieldwork has involved conducting primate boat surveys along the Kinabatangan river estimating primate species distribution and collecting fecal samples the following day to study their gastrointestinal parasites. By studying the distribution of primates and their proximity to humans the associated risk of infectious disease can be examined.

Commenting on his return “The Danau Girang Field Centre is still the most biodiverse place I’ve ever been and I am still amazed by the wildlife you encounter here on a daily basis. It is disturbing to know it’s been 9 years since I first came here! It does not feel that long. Old faces, new faces, the crowd at DG is lovely as usual for me!”. In addition to his lovely personality, Kenneth has become very popular amongst the staff and PTY’s for his fun circuit training sessions and statistics lessons. He will be sorely missed.



Kenneth giving one his statistics lessons

Zara's PTY Project



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 one of these projects so you can learn more about what our PTYs are up to! The next featured project is Zara's - who is studying the prey availability for flat headed cats.



Credit: Miriam Kunde

Prionailurus planiceps (Flat-headed cat) is arguably one of the most elusive felines in Borneo, with an estimated wild population of around 2000 individuals in South East Asia. With a fish orientated diet, flat-headed cats are opportunistic predators residing in riverine forest areas tied to aquatic regions for hunting. They are a brownish grey in fur colour with shorter legs and ears compared to other Bornean cats and have distinct black and white markings on their face. When it comes to flat headed cat ecology, they are highly understudied with relatively little published data about wild individuals. Diet composition has only been recorded in a pair of captive cats in Sungai Dusun Wildlife Reserve, Selangor, Malaysia; little information is also published on what wild individuals eat. Under the guide of Amanda Wilson, who is studying both Flat-headed cats and Leopard cats at DGFC for her PhD, I will be conducting a study on prey availability.

My project title is "Prey availability for wild Flat-headed cats in Lot 6 of the Lower Kinabatangan Wildlife Sanctuary". I have been sampling in a variety of water bodies based in the Hillco oil palm plantation across the river from DGFC and surrounding forest areas in Lot 6; four sites are within a core area of a Flat-headed cat and four are within its home range. Using tracking data recorded in 2021, my sites include a mix of oil palm plantation drains, oxbow lakes and tributaries. Using a variety of fishing techniques (tested through trial and error) such as hook and line, gill nets, cast nets and scope nets; I have mainly focused on catching fish but I have also caught shrimp, leeches and frog tadpoles. I have been collecting data on species diversity and abundance as well as recording abiotic factors such as pH, temperature, and depth. My aim is to be able to compare the species diversity and abundance between the core area sites and home range sites as well as man-made sites and natural sites.

With few expectations and little knowledge of what Borneo holds, I went into my placement year without much idea of what I would like to study for my PTY project. So, when introduced to Amanda's PhD, I was eager to partake, especially given the gap in published data on wild flat-headed cats. While a challenge, I am thoroughly enjoying my project and hope it will give insight to fresh-water communities and the possible diet of a Flat-headed Cat.

Rainy Season Flooding



The wet season in Borneo typically lasts from November to February, although there is no definitive start and end point. The end of January saw several weeks of particularly heavy rain, which resulted in the Kinabatangan River experiencing an annual flooding event.

When it initially became apparent that the flood waters were rising on the trails around the Danau Girang Field Centre (DGFC) and along the river, camera traps were retrieved before they were submerged. Eventually, however, all the usual study sites along the river and nearby plantations were completely flooded and were inaccessible for a period of a few weeks resulting in most projects being held on pause.

The scale of the flooding showcased particularly to the current cohort of PTYs (who have never experienced a wet season before) the realities and difficulties of working in the tropics and the fast and unpredictable speed at which conditions can change. Many of the ongoing PTY projects were all interrupted, except for Cardiff University PTY student Zara Calvert who's fishing project was (for obvious reasons) able to persist through much of the flooding period.

As of the end of February the floods have since started to recede and projects are starting to resume normally. The population of mosquito's (who breed near water), however, has significantly increased and with a life span of up to several months - where one problem disappears, another one presents itself!



Many of the trails around DGFC become flooded and impassable

Short stay visitors

Steve and Maria

As part of their several week visit to South East Asia, Steve and Maria visited the field centre for a few days in mid-January. The couple are lovers of the outdoors with Steve owning a mountain bike tour company and Maria having previously worked on wildlife documentaries for the BBC. Steve had also worked with DGFC several times in the past, running training courses to check canopy level



camera traps and installing orang-utan bridges across tributaries in the area with Chester Zoo. The couple observed the activities of the centre taking part in frog surveys, pangolin tracking and enjoyed engaging with the resident students and researchers "It's been great to be a fly on the wall and see what happens in a working field centre, especially because it isn't an experience many people get to have".

Matt, Ben and Unding

Tree Climbing trio Matt, Ben and Unding stopped off at DGFC for a few days as part of their road trip around Sabah. The group had been in Malaysia running a workshop in Kuala Lumpur and conducting climbing gear safety inspections in Danum Valley before visiting DGFC. The group weren't particularly lucky with



the weather, however, they still managed plenty of activities such as pangolin tracking and primate spotting despite the rain. Matt and Ben (who are from the UK) particularly enjoyed chatting with the staff and students and experiencing the Kinabatangan river and all the wildlife on offer in a more research focused way!

Publication Corner

Connect elephant habitats in Asia

A new letter published in Science magazine (Davidar et al. 2023) calls for Asian elephant habitats to be better connected. The endangered Asian elephant (*Elephas maximus L.*) is a keystone species which continues to reside in fragmented pockets of habitat. Restoring connectivity would also protect other species, preserve ecosystem functions and reduce the likelihood of harmful interactions between humans and wildlife.

Socio-ecological factors shape the distribution of a cultural keystone species in Malaysian Borneo

Available Open Access: <https://www.nature.com/articles/s44185-022-00008-w>

A new paper published in *npj Biodiversity* (Kurz et al. 2023) used camera trap data to analyze the effect of both socio-cultural and ecological factors on the distribution of the bearded pig (*Sus barbatus*) in Sabah and Sarawak. When modelling wildlife distributions, socio-cultural factors such as cultural hunting practices should be integrated alongside ecological factors. Bearded pigs are a favoured game species for many non-Muslim indigenous communities in Sabah and Sarawak and populations should be managed with context-specific strategies in mind.

Applications and advances in acoustic monitoring for infectious disease epidemiology

Available Open Access: [https://www.cell.com/trends/parasitology/fulltext/S1471-4922\(23\)00012-0](https://www.cell.com/trends/parasitology/fulltext/S1471-4922(23)00012-0)

A new paper published in *Trends in Parasitology* (Johnson et al. 2023) reviews the use of acoustics for monitoring infectious diseases. Emerging infectious diseases still pose a major burden on global public health and understanding the transmission dynamics at the human-wildlife interface is critical. Bioacoustics can answer key epidemiological questions such as species presence and movement within an area and this paper reviews how acoustic monitoring can be integrated into epidemiological studies and disease surveillance systems.

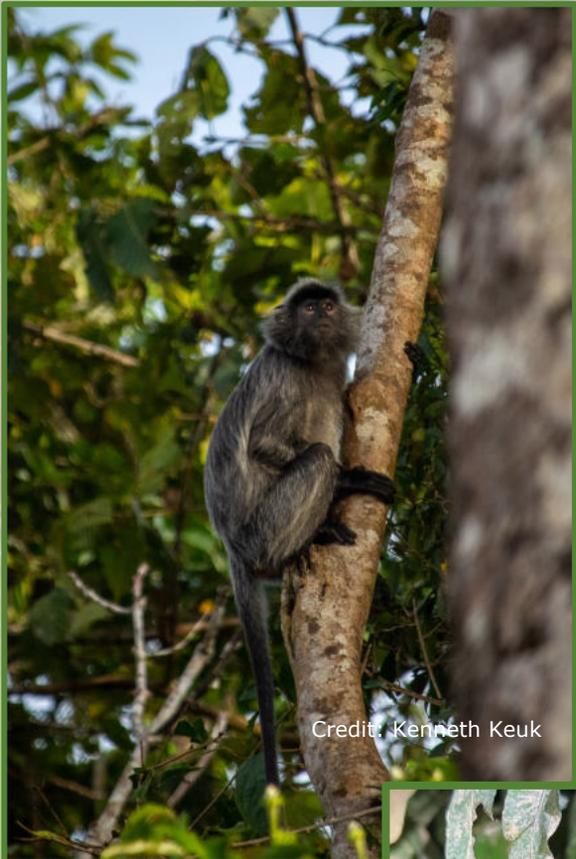
Photo and Camera Trap Highlights



Credit: Kenneth Keuk



Credit: Rhys Davies



Credit: Kenneth Keuk



Credit: Kenneth Keuk



Credit: Kenneth Keuk



Credit: Bryce Johnson



Credit: Rhiannon Peacock



Credit: Kenneth Keuk



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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