

Jungle Times

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PTY Experiences



OLIVIA FITZPATRICK

The 8 months I spent as a PTY at DGFC were amazing and full of some of the most incredible experiences that I will never forget! I definitely miss riding in the boat everyday and seeing all the amazing wildlife and I can't believe I'm saying this but I do miss tracking civets in the morning, I learnt so much while I was there from all the researchers I got to talk to and especially from being able to do my own project on the sleeping sites of reticulated pythons with the help of Rich and all the amazing RA's. I was surrounded by the best people and while it is sad we all had to leave early I feel especially lucky for the experiences I had in the rainforest, all that I got to see and the procedures I got to be a part of. I am incredibly thankful to everyone at DGFC and I'm looking forward to one day returning and being able to see a proboscis monkey again!



PTY Experiences



HARRIET MILES

Just going to first say that my highlight of the entire placement was seeing a porcupine just a few metres from the tree where I was carrying out field work for my project! Close second is when two elephants walked past the field centre and down the main path with no warning at all. It was experiencing unexpected things like this that made my time at DG so special. I went there knowing that the field work and the climate would be hard, but the jungle always gives back which makes the whole thing worth it. I was lucky to be able to help Elisa Panjang with some field work to collect data for her pangolin sleeping sites which I am writing up for my PTY report, I wouldn't have been able to do any of this without the support of everyone at the field centre. Everyday is exciting going out to work on different projects and it's extra fun preparing for and going out on a collaring procedure. I feel I went to Borneo knowing embarrassingly little about ecological field work, and I've come away from it so much more confident. I would love to be able to return!



PTY Experiences



KIRSTY LEACH

My time at DGFC was an enjoyable and enlightening experience. I got to spend a lot of time with some dedicated scientists who have so much passion for their projects, which I got to be a part of. I got taught a multitude of new skills such as using various tracking devices, monitoring wildlife with non-invasive methods (using camera traps) and adapted successfully to an environment I would never usually encounter. Working and living in a different county with varying levels of responsibility has allowed me to mature to and grow in confidence, especially within my respective field of study. I owe a huge part of my journey to everyone at the field centre for all the time and effort they put in everyday and the people that I met. There were so many highlights of my experience; being immersed within different cultures, talking to visitors from a multitude of different fields and of course the amazing wildlife that I would see every day.



PTY Experiences



TYLER CUDDY

During my time working at DGFC as a field researcher I was lucky enough to work with wild pangolins, reticulated pythons, tracked civets and leopard cats through the jungle, and lived amongst all of the jungles' inhabitants for the best part of a year. These are just a few of the incredible experiences that I had during my stay at DGFC, and there are many highlights that will definitely stick with me for the rest of my life. Especially being able to work amongst orang-utans in their natural habitat. DG has taught and equipped me with many skills which will hopefully help to springboard me into a future career in wildlife conservation, for which I am very grateful. Not only did I get to experience much of the incredible wildlife and culture that Borneo has to offer; I also had the opportunity to work alongside (and meet) many incredible people, which was a true honour. The staff and researchers at the centre really are what made my time so special. Having to leave early was such a shame, but it gives me even more incentive to return in the near future, and I look forward to doing so!



PTY Experiences



KATIE WEBB

I started the year terrified of butterflies. So, as a logical course of action, I started a project on butterflies. Fear turned out to be a valuable asset and I quickly learnt how to use the net! My project was comparing butterfly diversity between forest, plantation and restoration plots. I was able to develop my planning and leadership skills while exploring the importance of restoration ecology. I am sad that I had to leave and end my project but at least I can work from home on animal crossing! One memory I have that summed up jungle life is about a dung beetle Emma was studying. He had no longer wanted to be identified and instead decided to do a flying tour of the office. Cue to all of us trying to catch this one beetle. Some armed with plastic containers, others using nets and some were even using their bare hands. Surprisingly, the latter worked but it was a good 5 minutes of chaos (yes, I did film it). Thank you to everyone at DGFC for this unforgettable experience, I hope to visit again!



PTY Experiences



EMMA REMOTTI

After almost two months of being at home, thinking about the time spent at DGFC feels a little bit like a dream. Going from living in the jungle back to living in a city during a pandemic is quite a big change. Despite the rushed departure and the (relatively) short stay, I still managed to have some amazing experiences there. While definitely challenging, working in DG taught me a great deal about ecological field work and life in the field. It has also given me skills I hope will be useful in my future career. If there is one thing that this year definitely taught me is to never underestimate the data collection section of a paper! Some of my favourite moments in DG include assisting with the civet collaring procedure, helping Katie catch butterflies and spotting wild orangutans. Oh, and also seeing a sleeping pangolin in a tree behind the centre! Another thing that made this placement so great was definitely the amazing team at DG, who I have to thank for teaching me so much, putting up with my breakdowns over insect ID and failed attempts at speaking Malay.

Covid-19 Bringing Light to Wildlife Concerns

- Written by Timothy Chang



Starting in late 2019, there was an outbreak of patients exhibiting pneumonia symptoms in Wuhan China caused by an unknown strain of coronavirus – promptly named ‘Covid-19’ by the World Health Organization (2020). Since the initial reports, Covid-19 has escalated from a local outbreak into a global pandemic within three months, sweeping across 41 countries worldwide (WHO, 2020). The family of coronaviruses derived its name from the Latin word *corona* meaning ‘crown’, as it has a halo of bulbous projections around it when viewed under a microscope. First discovered in 1930s in infected domestic chickens, numerous coronaviruses strains have since been identified, including seven strains that are diseases inflicting to humans- the first one was identified in the 1960s (Tensini, 2020). Of these seven strains, four of them are the usual culprits behind regular common colds. However, the last three strains are far more sinister and had caused severe to fatal outbreaks of pneumonia in the past two decades- 1) Severe Acute Respiratory Syndrome (SARS), 2) Middle East Respiratory Syndrome (MERS), and 3) COVID-19- present pandemic.

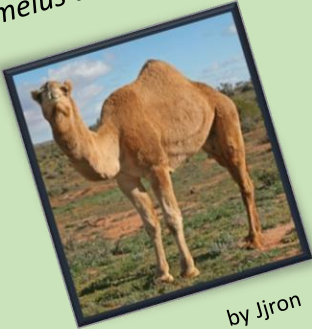
Photo Credit: Virus- Peter Gamal; Wildlife market- Soggydan Benenovitch

Horsfield's Leaf-nosed Bat
(*Hipposideros larvatus*)



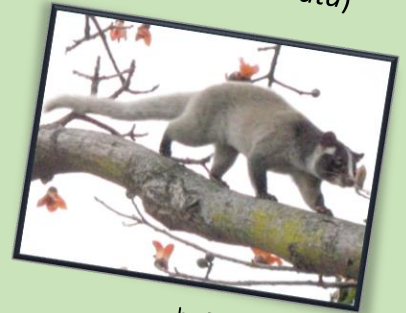
by Wibowo Djatmiko

Dromedary camel
(*Camelus dromedaries*)



by Jjron

Masked palm civet
(*Paguma larvata*)



by Denise Chan

Further investigation at ground zero of the COVID-19 outbreak found that initial COVID-19 cases were possibly linked to the Huanan Seafood Market located in Wuhan, China. This speculation was backed by most of the 535 sample swabs done by the Chinese Center for Disease Control and Prevention (China CDC) of the environmental condition in Huanan Seafood Market tested positive for the presence of COVID-19 (2020). The Huanan Seafood Market was targeted because the previous severe coronavirus outbreaks: MERS and SARS were zoonotic in nature, such as being transmitted from an animal: dromedary camel (*Camelus dromedaries*) and masked palm civet (*Paguma larvata*) to humans, respectively. Also, other than seafood the market was known to sell wild meats (a.k.a. bushmeats) that could have been the transmission host for COVID-19, like bats and snakes (Lu, Stratton and Tang, 2020). Previous studies have found that bats are often carriers of coronavirus strains, called 'reservoir', which then spillover and infect other intermediate host species or are transmitted directly to humans (Plowright *et al.*, 2015). Zhou's team (2020) analysed the COVID-19 and found that it shared 96.2% similarity with the whole genome of a bat coronavirus (BatCov RaTG13), which supports the speculations that it originated from bats.

However, measures to control the spread of COVID-19 should not be haste and fear driven such as to cull all bats- which became popular public idea when COVID-19 outbreak happened in China (Srinivasulu and Molur, 2020). Culling of all bats is a blunderbuss solution to control COVID-19 spreading as bats themselves might not be the only transmitting host of the coronavirus. As described earlier, intermediate host are often present in cases of coronavirus outbreak; for example, although SARS originated from bats, it was contact of infected civets sold at the wet markets found in the city of Foshan, Guandong, China that transmitted the SARS virus onto humans and started the initial outbreak, which then spread rampantly through human to human transmission (Xu *et al.*, 2004). Researchers have suggested that pangolins (Lam *et al.*, 2020) and/or an unidentified animal species (Lu *et al.*, 2020) could be the intermediate host for COVID-19 after it came in contact with infected bats. Lu *et al.* (2020) further reasoned that bats were highly unlikely the direct transmitter host of COVID-19 to humans because, 1) bats were in hibernation at initial outbreak (December 2019), 2) there were no bats found at sell at the Huanan Seafood Market, and 3) although originated from bats, COVID-19 were not close enough (>90% similarity) to bat coronavirus to be the direct transmitter; while pangolin samples had coronavirus much similar to COVID-19.

Furthermore, culling of the bats would have a detriment effect onto the local ecosystem. Being the second most abundant and diverse group of mammals, bats (order Chiroptera) functions in many ecological roles, such as arthropod(pre) suppression, seed disperser, plant pollinator, and nutrient distributor (Kasso and Balakrishnan, 2013). Their ecological roles then cascade into their economic importance as bio-pest control, agricultural pollinator, and generally maintaining the ecosystem equilibrium. Additionally, Karesh *et al.* (2020) argued that the initial COVID-19 outbreaks speculated from contaminated wild meats in Huanan Seafood Market might not have been infected by bats, but were possibly contaminated by an infected person(s) present at the market. This speculation was drawn because the several species (list not made public) sampled tested negative for COVID-19, and it could be argued that the wild animals found at the market were amplifying the COVID-19 virus initially brought by human(s).

No matter the transmission method, two human activities that improved necessary conditions for a disease inflicting virus (e.g. COVID-19) crossing over from wild animal to humans are 1) human entronement into wildlife habitats, and 2) the trade and demand for wild animal and meat- as suggested by Volpato *et al.* (2020). Seeing that bats and the possible wildlife that act as intermediate transmitters of COVID-19 are experiencing major habitat loss and prone to wildlife exploitation; irresponsible human actions are therefore the drives of viral disease outbreaks, while wildlife become victims of misinformation and receive harsh judgement. A report from the World Wide Fund for Nature (2020) that surveyed participants from five East and Southeast Asia countries saw that 84% of the public are unlikely to very unlikely buy wildlife products from open wildlife products during and after the COVID-19 pandemic. This was backed by high number of participants (>89%) likely and very likely to support actions to regulate illegal trade of wildlife and products from it. Although Malaysia was not part of the WWF 2020 survey, a study done by Wong and Alias (2020) showed that 91% of Malaysians fear consuming wildlife products, reflecting the figures in the WWF survey (87%).



Although it is still too early to see if this mind set will persist, COVID-19 has definitely awoken people to the horrible effects of human derived wildlife issues like habitat loss and wildlife trade, and the unfortunate price to pay- paid in loss human lives, when there is no scientific-based regulations for wildlife consumption. Giving hope to wildlife organizations for better future in wildlife conservation, as the public is empowered to act upon acquired knowledge of the extent of wildlife exploitation and the effect it has on us human and the surrounding ecosystem.

Photo: 6 tons of pangolin scales seized by Malaysian authorities in May 2017 by Manan Vatsyayana.

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The Wildlife Trades' Role in Causing Quarantine

-Researched and written by Tyler Cuddy

There is no denying that the current COVID-19 pandemic has touched the lives of almost everyone, bringing around a global shutdown of which has never been seen or recorded in human history. The question is: where did the virus come from, and is there a risk of another global contagion?

Coronavirus is not a new thing. In fact, the coronavirus family are a well-known group with the virus SARS-CoV being one of the most notorious due to its high mortality rate. However, it is not as transmissible as COVID-19 appears to be, and lacks COVID-19's ability to seemingly creep under the radar and go unseen (making it arguably more dangerous). SARS (or Severe Acute Respiratory Syndrome) is a zoonotic disease; a disease which is transmissible from animal to human, usually via an intermediate host. In the case of SARS it was traced to be circulating amongst bats at its origin. In this regard our current Corona Virus appears to hold many similarities.

COVID – 19 first made an appearance towards the end of 2019 in the Chinese province of Wuhan. Health officials managed to trace the virus back to its supposed origin – a wet market called “Huanan Seafood Wholesale Market”. A wet market is one which specialises in the trade of perishable animal based food products such as fresh seafood and freshly butchered meats. The term “wet” in many cases relates to the liquid spilt from splashing fish, melting ice, and in some cases the onsite slaughtering of livestock. However in rarer cases the congregation of “wet market” and “wildlife market” can be seen, with the trade of wildlife for either pets or for trades such as the bush meat industry. “Bush meat” is a term typically used for meat coming from wild African animals, however the term is now colloquially coined to generally refer to any wildlife sourced meats. The Huanan market is one such market where you could find live animals such as crocodiles, birds and civets. Not only is this trade illegal, but where you have live animals cramped together in bad conditions there is bound to be a large quantity of animal waste adding to the “wet” nature of the market. This leads to these markets being biological ticking time bombs. And COVID-19 appears to have been the explosion.

Whilst these wet markets are legal in themselves, sometimes illegal wildlife trade is undertaken amongst the large scale legal trade. This makes it difficult for officials to regulate and enforce, especially considering much of the wildlife trade market has now moved online making it even harder to regulate due to it now being a battle on both fronts.

This being said, the closure of unregulated wet markets is highly supported across Southeast Asia, mostly due to the unethical nature rather than its risk for zoonotic disease transmission. According to National Geographic the World Wildlife Fund distributed a survey to 5000 members of the public across Hong Kong, Thailand, Myanmar, Japan and Vietnam. From this survey it appeared that 93 percent of participants supported government sanctioned closure of illegal and unregulated wet markets.

Now whilst COVID – 19 has not been traced back to a single animal, it has been recorded by international health organisations such as the CDC (Centre for Disease Control) to be present in multiple animal species. Bats are believed to be a prominent host for the virus, and its origin, before jumping to other intermediate hosts. Creatures such as pangolins and a couple of species of snake have been discovered to carry the virus. All of which could be found in Huanan wet market. These animals were often sold for human consumption, with consumption believed to be the initial transmission method from animal to human. It is unclear as to which exact reservoir species caused the outbreak however it is clear where the virus was sourced.

Not only do wet markets obviously have the potential to cause massive health issues, but they also pose major conservational issues. This is due to their link with the illegal wildlife trade, as many of the animals targeted by said industry are either considered by the IUCN (International Union for Conservation of Nature) as either threatened or endangered.

A prime example is the pangolin – previously mentioned as a potential carrier of COVID-19. Pangolins are the world's only scaly mammal, and this unique trait has been their plight. Their scales are highly sought after on the illegal wildlife market for use in traditional Asian medicine. This is regardless of the fact that their scales are comprised of keratin – the same protein that forms your finger nails and thus has no proven medicinal effect. Also in certain places pangolin meat is eaten as a status symbol. These factors combined have now lead to the pangolin becoming the world's most trafficked mammal, with all eight species now considered endangered.

Whilst COVID-19 has been terrible for humans the conservational silver lining is that the illegal wildlife trade was momentarily slowed considerably according to the UN Convention of Natural Biodiversity. This was due to sudden lack of demand and the suspension of market activity due to lockdown. With the trade being placed in the spotlight by the current pandemic many NGOs such as the NYWCS (New-York Wildlife Conservation Society) are calling for the complete ban of wet markets.

The issues this poses is that wet markets are also the location of many legal trades which are the livelihoods of many innocent and hardworking members of the public, turning the closure of these markets into a bit of a grey area. Perhaps what should be properly pushed is more funding for stronger enforcement.

Unfortunately the lockdown has itself caused further conservational issues at the same time as slowing some. This stems from very little funding currently going into conservation, causing many staff on the ground to be furloughed and therefore giving poachers a prime window to work. This has been seen especially in Africa. According to Rhino Conservation Botswana, a non-profit NGO, six rhinos have been killed by poachers taking advantage of the lack of anti-poaching enforcement. Other species affected include elephants, tigers and giraffes – all of which have experienced a spike in poaching based mortality rates.

This just goes to show that, whilst yes, this pandemic could have a positive effect on mitigating the wildlife trade issue; the conservational world is currently in dire need of aid. The wildlife trade is a hefty provider of disease transmission mechanics that not only effect humans but also livestock and now – life as we know it. There is no doubt that wet markets have a huge role in causing the current lockdown, which will hopefully open the eyes of governments and show that it is an issue that severely needs tackling. Not just for the animal's sakes but also for ours. With funding and general support pushing for the ban of wildlife trade in wet markets is definitely an achievable goal, and it is a goal we should strive for.

Humans are by no means the only ones affected by the current outbreak. Once this is all said and done, please show some love to the world of wildlife conservation and give it your support. Together we can turn this health disaster into something positive for the long run.

If you're stuck for smiles and things to do whilst stuck in lockdown: take the time to watch your local wildlife make the most of our current stillness. It will make your quarantine that bit brighter I promise.



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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