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Plantation

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ARA: Volume 1

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RAINFOREST SOUNDS

SCAN HERE!



EDITOR'S NOTE

Welcome to the first edition of the ARA magazine. This is the FIRST of its kind where it's entire content is focused entirely on Borneo's wildlife & nature. There are many fantastic magazines out there on Borneo which focus on various topics however it is surprising to see that there are none so far which are solely focused on the Wildlife of Borneo and involve organisations from all over the island. We hope you enjoy the content by the various partners that will keep you up to date on the groundbreaking and outstanding work done by various people from Pontianak to Kuching to Brunei to Sandakan! There is a great variety of content and we hope they are resourceful. We hope in the next edition, we will have more organisations featured and we are open to feedback on what kind of content can be included! Enjoy and please share!



**EDITOR ARA MAGAZINE,
SHAVEZ CHEEMA**

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USEFUL FACEBOOK GROUPS

SNAKES OF BORNEO

IDENTIFICATION • INFORMATION • CONSERVATION



Snakes of Borneo



Birds of Borneo



Butterflies of Borneo

Public group · 2.1K members

Join Group

Discover
& Share



to save the
Mammals
of Borneo

BORNEO
MAMMAL
CLUB

Borneo Mammal Club

A scenic view of a mountain range in Sabah, Malaysia. The image features a prominent mountain peak in the center, partially obscured by a layer of white clouds. The sky is filled with soft, white clouds, and the foreground shows dark, forested hills. The word "SABAH" is overlaid in large, bold, yellow letters with a dark outline, centered on the mountain range.

SABAH

RESTORE OUR AMAZING RAINFOREST



Volunteers at BSBCC

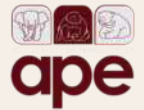


ROAR Initiative



APE Team at the planting site

BY APE MALAYSIA



Animal Projects & Environmental Education Sdn. Bhd. (APE Malaysia) is an accredited social enterprise established in 2007 with a focus on improving wildlife welfare and habitat restoration. APE Malaysia participates in ongoing conservation projects with willing partners who share the same ethos and who are working towards common conservation outcomes. Everyone can be a part of these projects either through volunteering or education programs, or Corporate Social Responsibility (CSR) projects.

APE Malaysia currently has 2 project sites in Borneo which are at the Bornean Sun Bear Conservation Center (BSBCC) and the Lower Kinabatangan Wildlife Sanctuary (LKWS). At BSBCC, they manage the international volunteer project. Volunteers work alongside the BSBCC team, providing enrichment for the bears and ensuring highest welfare standards are met.

APE Malaysia's forest restoration project is based out of Sukau. The Sabah Wildlife Department has assigned a few plots within LKWS to APE Malaysia to restore and reconnect the fragmented forest in the area. This project works together with the local community in Kampung Sukau by hiring them as field staff and purchasing saplings from the local family-run nurseries.

APE Malaysia's projects have seen more than 50,000 trees planted and maintained, providing extra income to 24 families, and the involvement of more than 2,000 volunteers and students from all over the world.

APE Malaysia welcomes participation from individuals and companies to join them and plant more trees on their forest restoration project through their Restore Our Amazing Rainforest (ROAR) initiative.

More information is available at <https://apemalaysia.com/plantatree/>

SAFE PROJECT



Sunbear caught on camera trap



Photo by: Sui Heon



Women of SAFE



Bornean Banded Kingfisher (Photo by: Jessica Hightower)

The Stability of Altered Forest Ecosystems Project (SAFE) is one of the world's largest ecological experiments, conducting research to understand how logging, deforestation, and forest fragmentation affect the functions of tropical ecosystems. Situated in the Kalabakan Forest Reserve, the experimental site covers an area of approximately 7,200 hectares of forests and six watersheds, which have undergone varying degrees of land-use change (from primary forests, logged forests to oil palm plantations).

SAFE was established in 2010 and is a collaborative effort by Imperial College of London, Southeast Asia Rainforest Research Partnerships (SEARRP) and funded by the Sime Darby Foundation. In the past 10 years, SAFE has hosted researchers and scientists from all over the world and trained local students. Additionally, SAFE has trained a dedicated and highly skilled team of local research assistants.

One of the primary goals of this project is to conduct science that delivers impact, in order to provide scientific data that underpins future policies and best management practices for tropical forests. Through our partnership with SEARRP, we have contributed to the development of a riparian set-aside policy with the Sabah government and the development of the High carbon stock approach toolkit used to identify key areas for conservation.

To date, we have established 18 research areas, created 264 outputs (scientific papers, theses, book chapters), hosted 481 researchers, and published 142 datasets. To find out more about our scientific discoveries, new species and our impacts, visit: <https://www.safeproject.net/> or follow us on **Twitter: SAFE_Project**.



HUMAN-ELEPHANT CONFLICT (HEC) IN OIL PALM PLANTATION

A CASE STUDY OF SIME DARBY PLANTATION



BY SIME DARBY PLANTATION
BERHAD

Asian elephants (*Elephas maximus*) are megafauna of great ecological and cultural significance. In Malaysia, elephant numbers have decreased in recent decades due to habitat loss, poaching, and human-elephant conflict (HEC) which mainly involves them competing with people for natural space and resources. Thus, an important part of elephant conservation in Malaysia initiative today is to create spaces for both animals and humans to coexist outside protected areas, especially along commercial oil palm plantations.

Recognising that oil palm depredation by elephants is a major concern for the industry, Sime Darby Plantation (SDP), together with University of Nottingham Malaysia and the Management and Ecology of Malaysian Elephants (MEME), collaborated in a scientific and evidence-based research on HEC management within oil palm plantation areas. The research, funded by Yayasan Sime Darby, aimed to understand spatial and temporal patterns of HEC in oil palm estates and design a baseline HEC response protocol for plantations in Malaysia.

SDP's research was conducted in both the Peninsular and East of Malaysia in Sabah. From 2011 to 2018 (8 years), HEC pattern analysis in eight SDP's estates showed that 55.15% of 200,242 damaged oil palms were a year old, and 98% of those damaged trees were below five years old. The study found a minimal correlation between rainfall pattern (which influences elephant movement) and the number of damaged oil palms. It was also revealed that the total loss linked to HEC in the eight estates during the same period was RM24,227,235 (~USD5.8 million). The main cause of the oil palm damage by the elephants seemed to be linked to the timing and location of replanting operations. Following the construction of a planned and well-maintained electric fence system, the number of trees damaged was 60 times lower in 2017 than in 2016.

The research, which has been made publicly available by SDP in 2020, hopes to encourage other plantations not only to replicate evidence-based and adaptive management approaches to HEC, but also to work in collaboration with surrounding stakeholders within the same operational landscape.





RESTORATION OF RIPARIAN ZONES WITHIN OIL PALM PLANTATIONS

A COLLABORATION BETWEEN SIME DARBY PLANTATION AND BORA



BY SIME DARBY PLANTATION BERHAD

Plantation

Committed to preserving and improving the environments in communities we operate in, Sime Darby Plantation collaborated with Bringing back Our Rare Animal (BORA) to restore the riparian zones on both sides of a small stream within the Pertama Division of Segaliud Estate in Sabah.

Located about 600 metres from the nearest part of Lung Manis Forest Reserve to SDP's estate, the site is known as the travel corridor for orangutans. Wild male orangutans usually move long distances through oil palm plantations and between blocks of forest to mate with wild female orangutans that live within the area.

In the past, these orangutans were caught and translocated to promote repopulation; however, this decreased their survival rate and hampered the breeding process as they struggled to adjust to an unfamiliar habitat. The old approach also means reducing the population in the current area and contributing to the decline and local extinction of the species. In addressing this issue, researchers advocate retaining the mammals in their original habitat, but food source continues to be a problem for the male species throughout their journey to mate.

Through the collaboration with BORA, Sime Darby Plantation hopes to address the issue by planting these intelligent creatures' favourite food trees. This will help supply food to the male orangutans in the long run and restore the riparian zones that meet the Malaysian Sustainable Palm Oil (MSPO) and the Roundtable on Sustainable Palm Oil (RSPO) riparian zone management requirements.



BORA staff measuring the growth of *F. racemosa*



Poll for tree planting

ELEPHANT COLLARING

BY SERATU AATAI



One of the iconic species in Sabah - the Bornean Pygmy Elephant, is the smallest elephant species globally, yet its population is shrinking. Although many would argue that forest degradation is the most contributing factor to elephant loss, we believe human-elephant conflict has a far more significant impact.

This is what brought Seratu Aatai into elephant conservation in Sabah. Pertubuhan Pemuliharaan Biodiversiti Sabah or locally known as "Seratu Aatai" was established in 2018 with our mission to create a society that is willing and capable to take responsibility to protect and coexist with elephants.

We work with different stakeholders that are directly or indirectly involved in elephant conservation at the national and international levels to develop a long-term strategy that balances elephant conservation needs and socio-economic benefits.



Our projects are based on 3 pillars;

Elephant Research

We regularly monitor and document elephants using GPS collaring to gain scientific knowledge of elephant ecology and movement through human-dominated landscapes. As a result, we can identify potential connectivity within landscapes, and stakeholders can access information precisely and effectively.

Community Engagement

We plan and work with the local community to find a better way to reduce conflict situations in their area. Through our training workshop, we hope to increase their capacity and confidence to coexist with the elephant.

Environmental Education in STEM

We work with STEM Club students and teachers to include elephant conservation and environmental education in co-curriculum activities. Our program empowers young people to share their voices and make a difference in the community.



REEF CHECK MALAYSIA



Sabah, the land of many wonders that never stops keeping us in awe of its natural beauty. That is what brought Reef Check Malaysia to Sabah in 2008 when we were invited to join the Matakang island annual Reef Day and conducted our first surveys in Sabah.



The survey programme grew slowly in subsequent years and now covers over 100 sites, providing essential information on coral reef health around Sabah. We also introduced the Green Fins programme, which encourages best environmental practices for diving and snorkelling operators.

In 2012, we expanded our work to Mantanani Island when it was identified as a hotspot for fish bombing. We have a team of 3 full-time staff based on the island that runs the Cintai Mantanani programme, which aims to build social and ecological resilience for the island's natural resources and the Mantanani community.



Some of the other activities we have been running in Sabah include:

- Waste Management & Plastic Recycling
- Developing alternative livelihoods
- Community-based tourism
- Eco-friendly snorkeling guide training

These activities support the livelihoods of the Sabahan community and move us towards a more sustainable economy where our natural resources are able to continuously thrive and provide. We always hear and talk about how beautiful the land, the ocean, the wildlife and marine life of Sabah are, let's keep them that way.



Follow Reef Check Malaysia on Facebook or @reefcheckmalaysia on Instagram for more updates.

UNDERSTANDING THE INTERACTIONS BETWEEN BORNEO'S TOP PREDATORS AND THE LANDSCAPE

BY The Bornean Carnivore Programme



The Bornean Carnivore Programme (BCP) led by Dr. Andrew Hearn is currently based in Tawau Hills Park, Sabah. Over the last 4 years, BCP has been specifically focused on understanding the decisions that dictate how top Carnivores on Borneo use a landscape. How much is too much modification? What landscapes can carnivores utilize for travelling? Does habitat types for residency and long-range traveling differ, or are they the same?

These are questions that have occupied Dr. Hearn and his team, employing a wide range of cutting-edge tools, which include satellite-collar tracking, camera-trapping, and genetic surveillance.

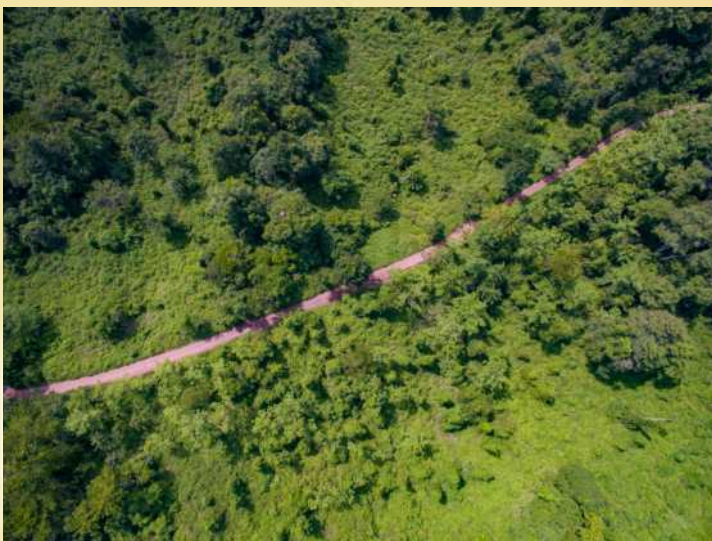
The team has been hard at work for several years now and is in the final stages of answering these valuable questions. Areas of research such as this can rarely be studied perfectly as better tools and access to raw data increase over time but having baseline data to start with is of pivotal importance to get the ball rolling in the right direction.

The BCP is managed by Chrishen Gomez, who is a current PhD candidate at Oxford University, whose study focuses on the genetic relatedness of carnivore populations on Borneo.

REFORESTATION AT BUKIT PITON FOREST RESERVE CONTINUES..



The tree planting project at Bukit Piton Forest Reserve that we started in 2017 was faced with some challenges. Some donors had to back out due to job loss & income. Maintenance work halted during the movement control order (MCO) for 3 months and we lost some of the saplings that were previously planted. But things happen for a reason. The pandemic and shutdowns made us realize that there's no reason for the orangutan and other wildlife to lose their habitat once again.



IS THE PANDEMIC STRONG ENOUGH TO STOP REFORESTATION EFFORTS BY THE BUKIT PITON ORANGUTAN PROJECT?

The much-feared Covid-19 pandemic outbreak resulted in the majority of countries across the globe shutting their borders. Malaysia was not spared from this. During the shutdown in March 2020, we naively predicted that the borders would be open at the latest September 2020. That remained a false prediction as at the time of writing this piece, the Malaysian border continues to shut down indefinitely.



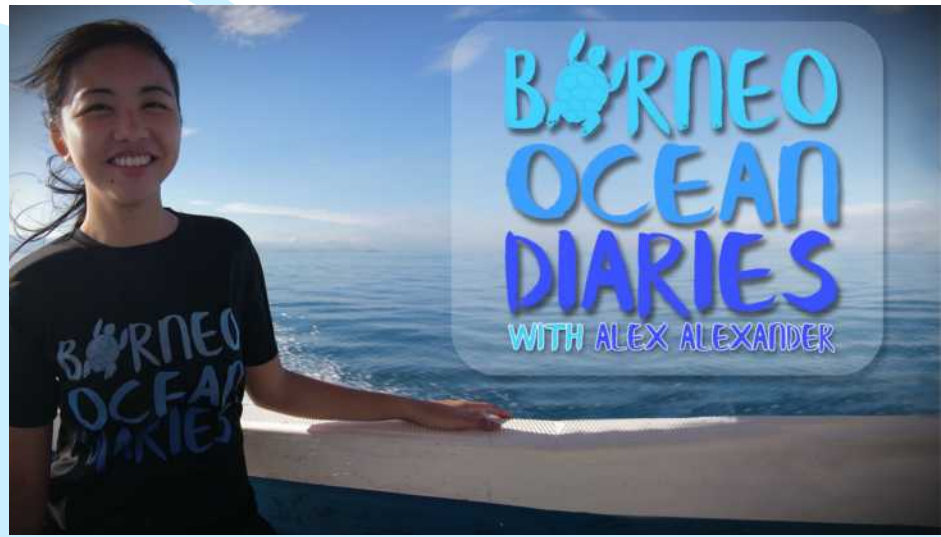
Spirited to make it work, we recruited a new committed forest contractor, engaged in better communication with the Sabah Forestry Department and we set up crowdfunding to gain awareness to finance the existing work. We also started our food project through Hawa's Artisan Kitchen and part of the proceeds goes towards financing tree planting at Bukit Piton.

To date, we managed to expand our tree planting efforts from 1/2 ha in 2017 to 13ha in 2021. In January 2021, we started silviculture work on a 20ha plot at Bukit Piton and initiated planting *Dipterocarp* and Fig trees under existing planted primary trees to further cover and connect the canopies at Bukit Piton.

The pandemic will not stop us from continuing our efforts to provide a better habitat for the Orangutans and other wildlife at Bukit Piton.

SCUBAZOO'S BORNEO OCEAN DIARIES ARE NOW AVAILABLE ONLINE

BY SCUBA ZOO



Like many habitats around the world, Sabah's seas are under threat from pollution and destruction, but there is also an added threat of overfishing which could upset the balance of the ecosystem.

Kota Kinabalu based natural history production company, Scubazoo Images, is proud to announce the launch of Borneo Ocean Diaries - the latest of the 'Borneo Diaries'.

Funded by the Sime Darby Foundation, and following on from the success of Borneo Jungle Diaries, Alex Alexander (local Sabahan presenter and actress) steps out of the jungle into the tropical underwater world of Borneo.

One of the main reasons that Alex decided to accept this latest challenge was because of her love and passion for conservation. Alex feels that it is her duty to try and bring the conservation message to fellow Malaysians as well as the world, to help protect the oceans for future generations

The series begins with Alex literally 'taking the plunge' as she immerses herself into her PADI Open Water dive course, before her Pan Borneo marine exploration can truly begin. PADI certified Alex is then guided by KK's very own Marine Research Foundation Team, headed by Dr. Nicolas Pilcher.

Alex's underwater adventures take her around Sabah discovering its marine wonders, learning about the creatures, people and scientists that are all connected by the ocean and how we can all help to protect it for the future.

Borneo Ocean Diaries is available for viewing on www.scubazoo.TV and on YouTube.



WORLD'S FIRST: RHINOCEROS HORNIBILLS GIVE ARTIFICIAL NEST BOX SEAL OF APPROVAL

BY GAIA 



Photo Credits: Sanjitpaal Singh/jitpics.com

Rhinoceros hornbills (*Buceros rhinoceros*) are vibrant birds found in the tropical rainforests of Southeast Asia. They are categorised as Vulnerable on the IUCN Red List of Threatened Species. When in pairs, they have a peculiar habit of engaging in a duet call, with the male calling out in a short note 'hok' while the female responds with a short 'hak'. Together they celebrate their monogamous relationship through their song, 'hok, hak, hok, hak, hok, hak...'

These birds nest in tree cavities and yet, despite their large bill and casque (the helmet-like structure that sits on their bill), they are unable to create tree cavities themselves. The species relies on other animals such as woodpeckers and sun bears to create cavities, which the hornbills later occupy.

To address this issue, in September 2013, the local conservation organisation HUTAN-KOCP, with the support of Chester Zoo and Beauval Zoo, ran a pilot project to set up five artificial nest boxes in the forest to test whether large-bodied hornbills would use them.

In July 2017, what seems to be the same pair of rhinoceros hornbills, nested in the box and managed to successfully raise a chick until it fledged. This represents the first ever wild pair of rhinoceros hornbills to nest in an artificial nest box. Over the five years, 5 rhinoceros chicks have fledged from these boxes.

The knowledge gained will be applied to the development of the new batch of artificial nest boxes. The team hopes that the new boxes will encourage more individuals to nest, such as the Wrinkled Hornbill (Near Threatened) and the Helmeted Hornbill (Critically Endangered). Gaia partners with HUTAN for this important initiative.



BRINGING BACK OUR RARE ANIMALS (BORA)

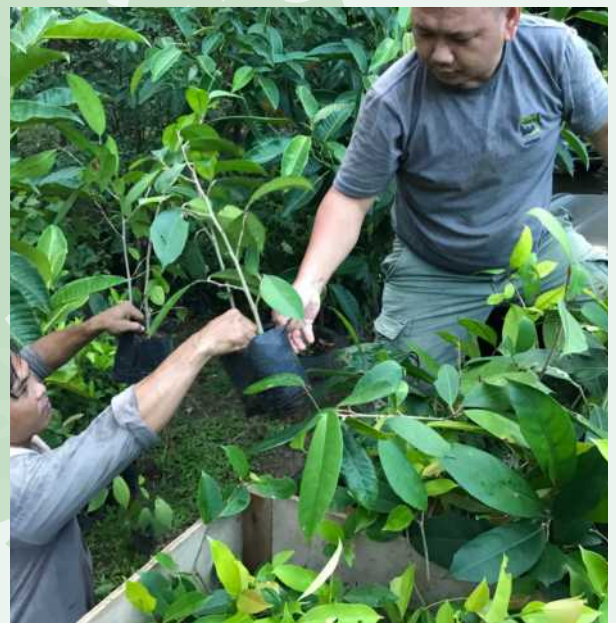


Ficus is a genus containing trees, shrubs, climbers, epiphytes and (most famously) hemi-epiphytes, the latter commonly known as strangling figs. The genus is collectively known in English as Fig, and in Bahasa Melayu and Indonesia as Ara.

The term fig and ara refer to the genus *Ficus* and to its fruit. The 'fruit' is actually an inflorescence in an enclosed receptacle, known technically as a 'syconium'. Fig plants can be recognised by every fruit having one 'ostiole', a tiny opening that allows female wasps to enter to lay their eggs and pollinate the tiny flowers inside. Without fruits, fig plants can often be recognised by having a white or watery-whitish latex. Figs are well-known amongst biologists as 'keystone' (very important) food sources for multiple wildlife species.

The Sabah *Ficus* Germplasm Center in Tabin Wildlife Reserve, Sabah, grows some 90 species of living native Borneo fig plants. They are grown from seeds, cuttings and marcots. The purpose is to provide a source of planting materials for restoration of wildlife habitat, both within damaged protected areas and in oil palm plantations.

The latter provides an exciting new opportunity for the palm oil sector to help support wildlife conservation. With the prevalence now of voluntary and government-mandated sustainability standards for the palm oil sector, plantations have to retain or restore 'set-aside' lands along rivers and on steep slopes. These represent ideal sites to grow native figs.



HUTAN

Saving orang-utans and other wildlife
in multiple-use landscapes



Through the community-based “Kinabatangan Orang-utan Conservation Programme”, HUTAN empowers local communities to manage and protect wildlife in Kinabatangan, Sabah and Borneo. Our mission is to secure a future for wildlife outside of protected areas by designing and implementing ways for people and wildlife to co-exist peacefully.

Over 70 local researchers, all hailed from the villages, are leading five central units to achieve our goals.

The “Orangutan Research Unit” conducts ground-breaking studies of wild orang-utans in degraded forests and non-forest habitats (especially oil palm plantations) to protect our cousins in the Anthropocene.

The “Wildlife Survey and Protection Unit” studies elephant ecology and movements to mitigate conflicts, conducts long-term monitoring of biodiversity to better understand the impacts of habitat degradation and fragmentation on wildlife, and through the Honorary Wildlife Wardens is active in law enforcement activities.

The “Forest Restoration Team”, a team of women in charge of planting and maintaining trees to recreate forested corridors in the Lower Kinabatangan.

The “Pangi Swiftlet Recovery Team” is protecting forests and colonies of swiftlets living in the caves of Pangi limestones.

The “Hutan Environmental Awareness Programme” intends to strengthen the impact and effectiveness of other units by raising awareness and encouraging behavioural changes of people in Sabah.

Three endemic species of *Hymenandra* (Primulaceae) from Sabah

BY SANDAKAN HERBARIUM (SAN) Forest Research Centre Written by Suzana Sabran



Fig. 1. *Hymenandra rosea*: **A.** The bright pink flowers on short lateral fertile branches; **B.** Close-up view of the open flower; **C.** Fruits & **D.** Habit, showing the narrow leaves and cuneate leaf bases.

Hymenandra A.DC. is a small genus of flowering plants belonging to the family Primulaceae formerly Myrsinaceae, comprising of understory shrubs and includes eight species distributed from India to Malasia with its center of diversity in Borneo. Five of eight species *i.e.*, *Hymenandra beamanii*, *H. diamphidia*, *H. rosea*, *H. calcicola* and *H. lilacina* are recorded in Borneo with the first three species endemic to Sabah. The genus is rarely found in Borneo and so far, only represented less than 30 specimens that are mostly collected from Sabah. In Sabah, it is found in hill mixed dipterocarp forests, including disturbed forests, riverine and limestone forests from 12 to 1500 m altitude.

Further research or ground truthing will be conducted especially to other sites with similar soil association in Sabah. Other field information such as animals that eat the fruit of this plant also needs to be studied.



Fig. 2. **A.** *H. diamphidia* with the racemose paniculate infructescence & **B.** The scattered black pustular glands on the lower leaf surfaces.

Fig. 3. **A.** The habit of *H. beamanii* showing the long lateral fertile branch, wide leaves and cordate or slightly winged bases & **B.** Close-up view of the open flower.



DAMAI RAINFOREST COMPLEX, AMONGST THE WORLD'S LAST REMAINING STRONGHOLDS OF A PRISTINE FOREST

By Yayasan Sabah

Written by CAMD



The DaMai Rainforest Complex comprises of Danum Valley Conservation Area (DVCA), Maliau Basin Conservation Area (MBCA), and Imbak Canyon Conservation Area (ICCA). The complex constitutes a representative sample of Bornean rainforest ecosystems, consisting of highly diverse assemblages of Bornean plant and animal communities and species. It is one of the world's last remaining strongholds of a pristine forest in Sabah, Malaysia.

Maliau Basin Conservation Area preserves a continuous range of 12 forest types from lowland dipterocarp to upper montane moss forest and is home to some unique plant species. The vast range of biodiversity in MBCA attracts researchers, students, tourists, and special interest groups around the world, predominantly venturing into the Maliau Basin or known as Sabah's Lost World, a crater-like form of a pristine forest, 58,840 ha, a truly astonishing ecosystem protected from the outside world by forbidding cliffs and escarpment.

Imbak Canyon Conservation Area is another safe-haven for the rare and endangered species of Bornean wildlife and biodiversity. With a total area of 30,000 hectares, ICCA encompasses two ridge-top Virgin Jungle Reserves plus the Canyon itself and makes a significant contribution to the coverage of protected areas in the center of Sabah.

Nestled in between Maliau Basin and Danum Valley, it is set to become one of Sabah's primary forest research and education facilities that will provide a focal point for the continued exploration and conservation of the extraordinary natural wonder. As a pristine forest, ICCA will have a key role as a gene bank or seed source for forest rehabilitation in the future.

The Danum Valley Conservation Area is one of the most important protected areas in Southeast Asia, Malaysia, Sabah. Spanning approximately 438 sq km, it is the last stronghold of virtually undisturbed lowland rainforest which holds an important conservation value of rich biodiversity in flora and fauna. Prominent for its rich diversity of animals, Danum Valley is recognized for its large terrestrial mammals, inhabited by more than 121 species of mammals, and 328 species of bird.

Individually, the core areas of Danum Valley, Maliau Basin and Imbak Canyon have great value as some of the last completely pristine ecosystems with intact large mammal communities remaining on the island of Borneo. Considered collectively within the wider surrounding landscape, the DaMal Rainforest Complex is of immeasurable global importance.

#PLANT4TAWAU

BY 1StopBorneo Wildlife



It is a visionary, long-term project that aims to reconnect fragmented areas of rainforest in Sabah; some of these are identified in Figure 1, which represents their locations in the district of Tawau in Southeastern Sabah. For example, reconnections are planned between Tawau Hills Park, an area of 29,000 hectares, with the much smaller areas of Bukit Gemok and Tajong Forest. It is a forest rehabilitation project between Sime Darby Plantation Berhad and 1StopBorneo Wildlife

The Plant4Tawau project was established for multiple reasons:

- To educate visitors on the best practices for restoring damaged forest back to the original diversity of Borneo's native forests.
- To provide wild food for the local wildlife at Tawau Hills especially hornbills, gibbons and langurs, allowing visitors to watch these animals at close quarters.
- To provide a living gene bank of Borneo figs freely available to both Malaysian and overseas researchers into fig ecology, taxonomy and biodiversity.
- To provide planting material for the much larger adjacent habitat enhancement project described here and other forest restoration projects in Borneo.
- To carry out field experiments on how best to plant strangling figs on oil palms to enhance the edge of oil palm estates for wildlife habitat throughout Borneo.
- Our hope is that in 50 years' time the Tawau Hills Fig Garden will provide a diverse wildlife-rich forest garden that will attract students, researchers and tourists from around the world.
- Finally, we hope that this living example of what is possible will stimulate the creation of hundreds of similar projects throughout Borneo. We can provide free fig seeds and growing advice to anyone interested in similar projects and forest restoration.

Through The Lens



Adi & Mala



Chestnut Munia



Dusky Munia



Javan Sparrow/Javan Finch



Brahmini Kite



White Bellied Sea Eagle



Peregrine Falcon



Pick Necked Green Pigeon



Pink Necked Green Pigeon



Green Imperial Pigeon



Sunda Pygmy Woodpecker



Juv. Black Shouldered Kite



Pied Fantail



Whiskered Tern



Whimbrel



Common Sandpiper



Striated Grass Bird



Oriental Magpie - Robin



Asian Koel Female
Male all black with red eyes



Yellow Vented Bulbul



Oriental Dollar Bird



Brown Shrike



Asian Glossy Starling Juvenile



Asian Glossy Starling Adult



Yellow Bellied Preenia



Through The Lens



Adi & Mala



Cattle Egret
Yellow beak, med size, Stocky



Little Egret
black legs, black beak, small



Giant Egret
Yellow beak, black legs, large slender



Blue Throated Bee Eater



Eurasian Sparrow



Collared Kingfisher



Cattle Egret in
breeding Plumage



Rufous Night Heron Male/
Nanking night Heron



Rufous Night Heron Juvenile
Nanking night Heron



Long Tail Parakeet



Blue Naped Parrot



Blue Rumped Parrot



©Through The Lens
Mala & Adi
Rare Sightings



Rainbow Bee Eater



Pied Hornbill



Honey Buzzard



Sunda Scops Owl



Hoopoe



Rudy Breasted Crake



BIGGEST & SMALLEST MAMMALS OF BORNEO



BORNEO ELEPHANTS

Photo taken in Tawau, Sabah



Hose's Pygmy Shrew

BIGGEST & SMALLEST FIG IN THE WORLD



Ficus punctata



Ficus excavata



WILDLIFE CHAPTER

The Borneo Wildlife Chapter is a resource material designed for school teachers and parents. Most children on Borneo know more about the wildlife found in Africa or the Amazon than their own backyard animals. It can be downloaded for free here

<https://www.1stopborneo.org/library>

OR

simply scan the QR code below!



**BORNEO
WILDLIFE
CHAPTER**

1STOPBORNEO WILDLIFE 

SCAN HERE!



BIRD WATCHING IN TAWAU

Are you from Tawau and want to learn about the places to do birdwatching? This is the page for you!

BIRDING MAP!

"This map shows the popular birding location in Tawau!"

1 BIRDING SPOTS!

- 1) Tinagat Beach
- 2) TV Station
- 3) Tawau Hills Park
- 4) Tawau Golf Club
- 5) Wakuba
- 6) Apas Parit

2 ITEMS!

- 1) Binoculars
- 2) Sustenance
- 3) Appropriate clothing and footwear

3 DO'S & DONT'S!

- 1) DO put your cell phone away.
- 2) DO enjoy the common birds.
- 3) DON'T scream.
- 4) DON'T feed the birds.

4 ID GUIDE

<https://www.birdwatchersdigest.com/bwdsite/learn/identification.php>

5 CONTACT US!

Do you know White-crowned Shama (Burung Mural Batu/ Burung Kapi Susu)? Report to us if you see anyone keep them in the cage!

+60 12-824 8052 | 1StopBorneo Wildlife | @wildlifeclub

SCAN HERE!





BRUNEL

Brunei Nature Society



The aims of the Brunei Nature Society (BNS) are to promote an interest in, and to study, Natural History in general and that of Brunei Darussalam in particular.

Visit our Facebook page for activities:
www.facebook.com/Brunei-Nature-Society-172706682807930



Photos by: Hanyrol H. Ahmad Sah



Nepenthes Trail outing

The Society does this through:

- Organizing monthly lectures (usually on the second Tuesday of the month). The monthly meetings are open to non-members.
- Organizing a monthly outing for members (usually on a Sunday).
- Supporting the conservation of threatened species in Brunei Darussalam through research and education (The BNS Biodiversity Conservation Programme.)
- Working with relevant government departments to enhance and protect the natural environment and natural history of Brunei Darussalam.
- Organizing educational programs for children on aspects of natural history.
- Making available its library on natural history subjects to its members.

Common snakes of urban environments

Not all snakes are created equal

HARMLESS	HARMFUL
<p style="text-align: center;">Thin, red spots or green – tree snakes dream</p> <div style="text-align: center;">  <small>Paradise Tree Snake</small> </div> <div style="text-align: center;">  <small>Green Vine Snake</small> </div> <p style="text-align: center;">Tiny, shiny, and blind – so kind. Their good for your garden said the warden.</p> <div style="text-align: center;">  <small>Common Blind Snake</small> </div>	<p style="text-align: center;">Thick and black – stand back</p> <div style="text-align: center;">  <small>Spitting Cobra</small> </div> <p style="text-align: center;">Green with triangular head – do not touch, I said.</p> <div style="text-align: center;">  <small>Green Keel Pit-Viper</small> </div>

WHITE CROWNERS



A new beginning.

White crown birding group is a newly formed birding group in Brunei Darussalam. It first started as an idea sparked between the judges, organizing committee and participants during the Brunei Bird Race in 2019. The idea was to pool the participants and create a small Whatsapp group of like-minded, active and committed birders no matter how young or old, beginner or expert as long he or she has the interest to be a part of it. The group will then serve as a platform to share experiences, photos, birding tips and to plan birding trips and outings

The group currently consists of 23 participants or white crowners as we call them. The name White Crowners were derived from the White Crown Hornbill which we believed to be the reason and the catalyst for the group to be formed in December 2019 when the members were actively looking for the species, which also happened to be the first outing for the group and it all started from there until now. One of the key outings since then was the hunt for the Bornean bristlehead, *Pityriasis gymnocephala*. The Bornean endemic is a major target bird for Borneo, and Sabah happened to be the prime area for bristlehead sightings but unfortunately the year 2020 was the year Covid struck forcing the borders to close. Unfiltered by this, we began the hunt for it locally, there had been some sightings all over Brunei including the most recent one during the bird race itself in Labi (the first-ever photographic record of it in Brunei). Countless solo trips and outings made within the area until the 4th of April 2020 - a date we shall remember when a group of bristleheads suddenly flew to us and stayed for a few minutes, ample time to take some of the very first video footages of the species in Brunei.

We hope that we're able to continue supporting and showcase the Brunei birdwatching scene and nurture young Bruneians to aspire to be not just birdwatchers but also as an all-rounder conservationist.

JOREMY'S JOURNEY

Joremy anak Tony, is an avid wildlife photographer and researcher based in Brunei. He started to be more proactive in the wildlife conservation scene in 2016 after graduation.

Armed with his trusty 600D camera and 250 mm lens and some trainings in herpetology, he sets out as a freelance nature guide while being an active research assistant at Universiti Brunei Darussalam (UBD) for several ongoing research projects. His main faunal interest would be birds and herps partly due to his interest in photography as these two groups tend to be well diversified in colors. His mission, apart from doing research is to nurture more like-minded individuals to be more involved in conservation. He always tries to share what he sees in the field to the public. He currently shares more of them on his **Instagram or Facebook : joremytony.**



He is an avid advocate of being there to see the animal or plants in real life. He was never satisfied with what the TV could offer - a trait that not many Bruneians have. He has dealt with a lot of students in his career and had partake in many research projects that keep him busy in the field. Not a big fan of hearing story from others, he would personally seek out the source of the story and be the story teller himself, something that he would advise students and his juniors to do.

CREATIVE ARTISTS IN BRUNEI

BY: ZATI RAHMAN



This art piece was painted during a mourning period where a close friend had passed away back in Secondary school. Before her death, she had encountered an unfortunate miscarriage, which brings to the obsession of 'Baby in the Womb' theme for most art studies during Form 6 (Pre-University). It builds this philosophical belief that perhaps the universe was built like a mother's womb, where food and shelter is provided, and our provider is out there in the unknown. Similar to how babies are swimming without proper understanding that it is currently in someone's womb. The interconnection between animals and people is what makes the world go round and living, supported with our understanding of the quintessential food chain. The more animals are extinct and dying, the more it causes a disruption to the ecosystem similar to how the womb requires enough nutrients and energy in order to give life to a healthy human baby.

CREATIVE ARTISTS IN BRUNEI

BY: TINA

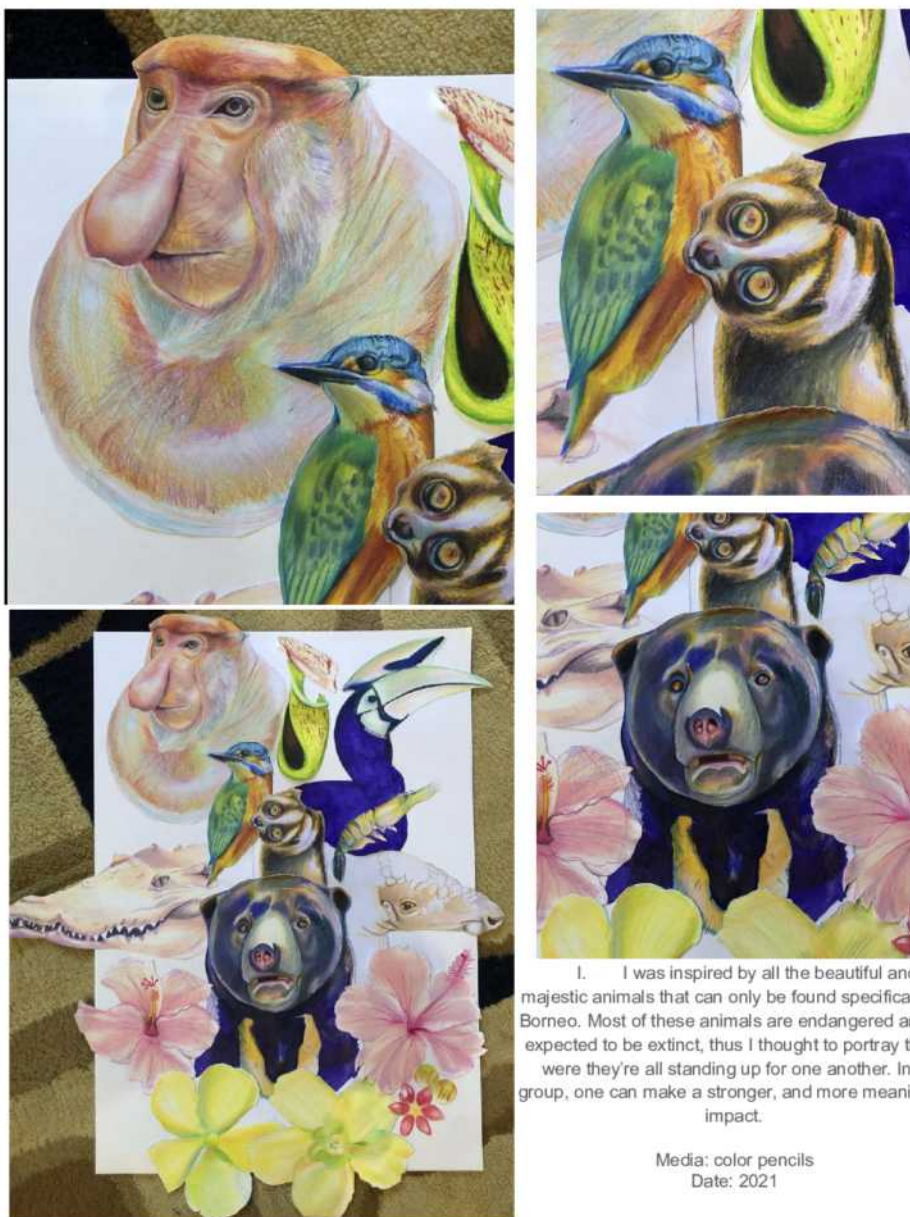


I decided to choose my family pet, Licha who was a silver leaf monkey. Her kind is also quite an endangered species and unfortunately, baby monkeys get swiped from their mothers to be sold at the black market. Unfortunately under the hands of the wrong people, they don't last very long either due to being fed the wrong diet or mistreatment. Licha luckily lived a healthy 3 years, we rescued her because we knew she would have been in better care under our supervision, but there is still an endless number of cases where baby monkeys like Licha are still being sold at the black market. I hope one day we can put a stop to the illegal selling of animals

CREATIVE ARTISTS IN BRUNEI

BY: TINA

Animals of Borneo



I. I was inspired by all the beautiful and majestic animals that can only be found specifically in Borneo. Most of these animals are endangered and/or expected to be extinct, thus I thought to portray them were they're all standing up for one another. In a group, one can make a stronger, and more meaningful impact.

Media: color pencils
Date: 2021

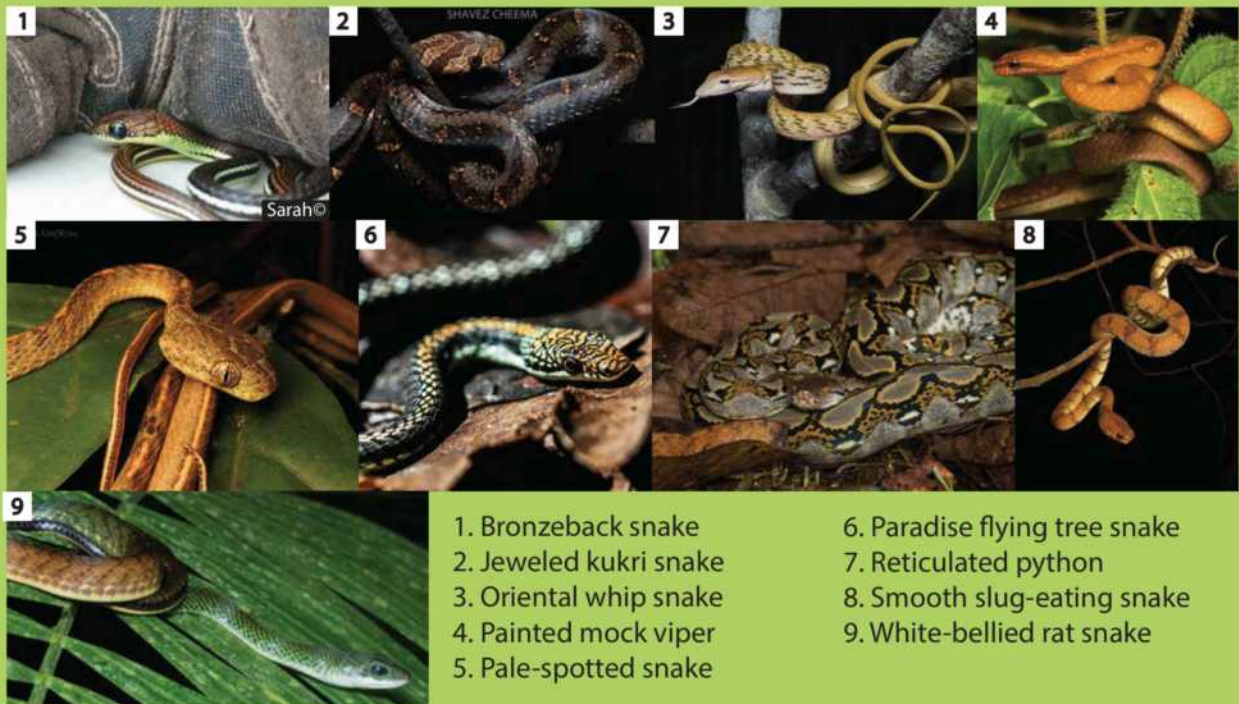
COMMON SNAKES IN BRUNEI

VENOMOUS SNAKE (BUT PLEASE, DON'T KILL IT.)



- | | |
|-------------------------------|-----------------------|
| 1. Banded krait | 5. Mangrove cat snake |
| 2. Banded Malayan coral snake | 6. Red-headed krait |
| 3. Borneo keeled pit viper | 7. Sea snake |
| 4. Dog-toothed cat snake | 8. Sumatran cobra |

HARMLESS SNAKE



- | | |
|------------------------|-------------------------------|
| 1. Bronzeback snake | 6. Paradise flying tree snake |
| 2. Jeweled kukri snake | 7. Reticulated python |
| 3. Oriental whip snake | 8. Smooth slug-eating snake |
| 4. Painted mock viper | 9. White-bellied rat snake |
| 5. Pale-spotted snake | |

For any advice or assistance; please contact:

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Joremy Tony (Brunei Nature Society & BruWILD).....	8934279

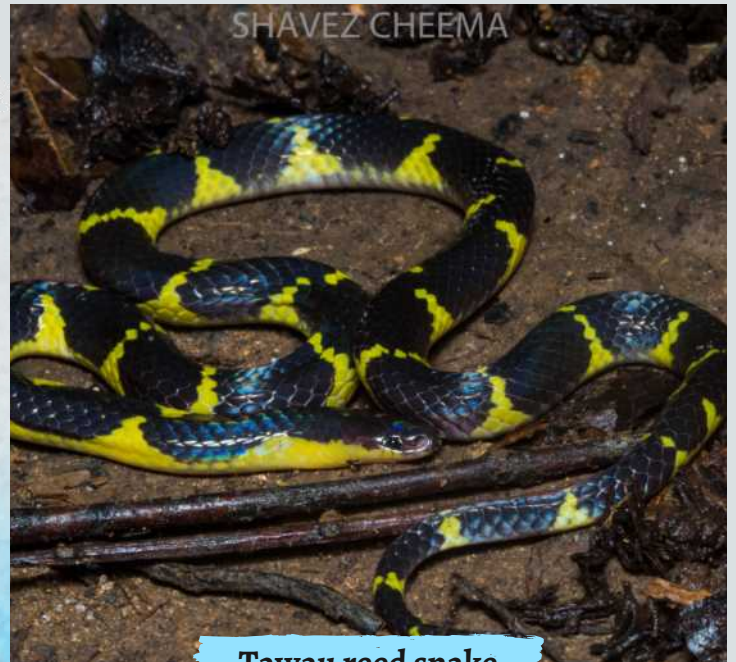


ANIMAL OF THE MONTH

calamaria



Calamaria suluensis



Tawau reed snake



Calamaria lovi lovi

Calamaria is a group of harmless snake species found on Borneo. They are mostly underground and below the leaf litter. It's a very poorly studied group due to the fact that they are so difficult to find. This is also a group where there is a chance to find new species of snakes! *Calamaria suluensis* is the first live photographic record of the species from Borneo and also the *lovi lovi* from Borneo. The Tawau reed snake is still an unidentified species of snake. All three photos were taken in Tawau.

ANIMAL OF THE MONTH



The Kinabalu Birdwing is a species of Birdwing which is only found on the island of Borneo. They are confined to montane forests. The Long Pasia subspecies has only in the recent past been collected as a specimen until this year in April 2021, Chun Xing Wong and Shavez Cheema photographed the first few individuals along a forest stream.

ANIMAL OF THE MONTH



**MALAYAN
FLATBACKED
TURTLE**

**HUNTSMAN
SPIDER
MOTHER
CARRYING
HER EGGS**



A photograph of a large, dark cave interior. The ceiling is covered in numerous stalactites hanging down. The floor is dark and uneven. At the far end of the cave, there is a bright opening where sunlight is streaming in, illuminating the surrounding greenery and a small structure. The word "SARAWAK" is overlaid in large, bold, yellow letters with a black outline across the center of the image.

SARAWAK

Frog Race. It's a Race for Humans!

Pang Sing Tyan, Pui Yong Min & Indraneil Das



Bornean Tree Hole Frog (*Metaphrynella sundana*)
Photo credit: Indraneil Das

INTERNATIONAL BORNEAN FROG RACE



Minute Slender Toad (*Ansonia minuta*)
Photo credit: Indraneil Das

Despite its 9th anniversary celebrating frog diversity, many common folks here imagine a group of frogs put before the line, ready for release and at least one hop to the finish line. No, that does not happen at our Race!

It is, in reality, a Race between people, a photographic competition, to be exact.

The International Bornean Frog Race is open again and is seeking all human participants, to venture into the wild and other frog habitats (may include your backyard or vacant parking lot), to find and photograph amphibians. Showcasing the rich diversity of amphibians in the region and highlighting their beauty to people, many of whom have never seen more than one or two of the most common types. Participants have to race to the field and return with their harvest of photographs before closing time and submit the possible winning images.

The 9th International Bornean Frog Race 2021 is a novel version of the event, compared to previous versions, when it was held over two hours or overnight, at one or a few sites within Sarawak. It is now a 90-day Race, covering all of Borneo. Upon registration on the official website and the nature photography platform "iNaturalist". All on Borneo are eligible to take part, and there are two categories of prizes- 'The Best Photos' and 'The Most Number of Species'. Regardless of devices used (any sort of camera or mobile phone), one can receive monthly prizes given out over three consecutive months, starting September until November, and eventually take the pride of place for being the best of the best at a grand closing ceremony, where the grand prizes are awarded.

The International Bornean Frog Race provides fun for all, while emphasizing conservation and protection of amphibians. In addition to the photographic competition, there are webinars on amphibians by renowned herpetologists throughout the Race Period. A participant is also entitled to monthly Frog Race Newsletters, downloadable field guides of amphibians in pdf format and a customized e-certificate. And the cash prizes are generous, thanks to our sponsor, the Ministry of Tourism, Arts and Culture Sarawak. Monthly cash prizes are RM 200 for five winners of the categories, Best Photo and Most Number of Species, for September, October and November. Grand Prizes for two categories are RM 1000 (3rd prize), RM 1500 (2nd prize) and RM2500 (1st Prize) to be given away during the grand closing ceremony, planned for December 2021.

The International Bornean Frog Race is one of its kind, setting an example how citizens can interact with and derive pleasure from being with nature, as the world slowly emerges from the long period of isolation and social distancing rules.

"No one will protect what they don't care about. And no one will care about what they have never experienced" - David Attenborough

Marble Tree Toad (*Rentapia rugosa*)

Photo credit: Indraneil Das



Bornean Rainbow Toad (*Ansonia latidisca*)

Photo credit: Indraneil Das



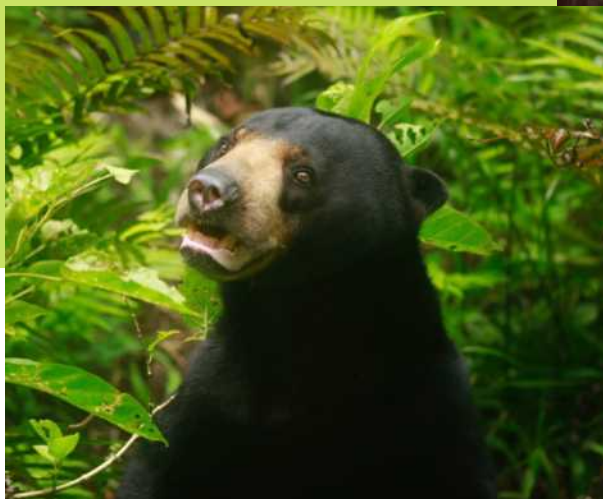


PROJECT BORNEO



Project Borneo <https://www.projectborneo.org>, is an organization based in Kuching, Sarawak. They are helping rehabilitate wildlife such as Orangutans and Sunbears as well as an array of other animals from slow lorises and in the recent past even clouded leopards. Leo set up the hugely successful volunteer project at Matang, which is now in its 14th year.

We assist with providing food, building infrastructure, releasing animals, commissioning research, and providing expert consultation - as well as helping with the day-to-day running of the centre. The volunteers play a key role here, and over the years we have contributed significantly to major improvements at the site. Matang also features in our eco-tours, which aims to educate and enchant, all in a responsible way.



MALAYSIAN PRIMATOLOGICAL SOCIETY

Colobine Monkeys in East Malaysia

Bornean Banded Langur / *Presbytis chrysomelas*

Behaviour: Arboreal and diurnal; found in swamps, lowland forests and mangrove forest



Status: Critically Endangered

Presbytis chrysomelas cruciger

Location: Coastal Sarawak
Physical Features: Has red hair on the head and shoulders, white undersides and with black hair from its hands to its tail.



Status: Critically Endangered

Presbytis chrysomelas chrysomelas

Location: West coastal Sarawak
Physical Features: Almost all black in body colour, with a slim band of white fur within its inner thigh.

#MalaysianPrimates #MPSPrimateCampaign





Status: Vulnerable

Hose's Langur / *Presbytis hosei*

Location: Sabah and Sarawak
Physical Features: Has a pinkish face with a distinct black band across each cheek. Has grey hair with white undersides, and black hands and feet.
Behaviour: Lives in the lowlands and hill ranges. Feed on seeds and leaves.

Sabah Grizzled Langur / *Presbytis sabana*

Location: Sabah
Physical Features: Its face is mostly skin coloured with two black streaks on the sides of the nose.
Behaviour: Found mainly in lowland riverine forests. Young leaves make up most of its diet.



Status: Endangered



Status: Vulnerable

Red Langur / *Presbytis rubicunda*

Location: Sabah and Sarawak
Physical Features: Has reddish-orange fur with some variations between the subspecies. It's facial skin is grey to bluish-grey with pale lower lips.
Colour: Infants are born white/cream and slowly change to the adult colouration, starting from the tail.
Behaviour: When available, they eat mainly large, dry forest seeds that are devoid of flesh. They are also very territorial.

#MalaysianPrimates #MPSPrimateCampaign



Status: Vulnerable

White-fronted Langur / *Presbytis frontata*

Location: Sarawak
Physical Features: Has grey-brown fur with a distinct white spot on the forehead.
Behaviour: A very rare langur and scarce in sightings or observations, but camera trappings had revealed that it does come to ground to feed on salt lick!

Silvery Langur / *Trachypithecus cristatus*

Location: Sabah and Sarawak
Physical Features: The tips of their hair are a lighter grey, giving a silvery effect. The black hair atop their heads sweeps upward into a point.
Colour: Infants have orange natal fur while their hands, feet and faces are white.
Behaviour: Arboreal and shy. Often found near proboscis monkey groups near rivers.



Status: Vulnerable

Proboscis Monkey / *Nasalis larvatus*

Location: Sabah and Sarawak
Physical Features: Has orange-brown to red-brown fur around the head and shoulders. The arms, legs, and tail are gray. Males have a large protruding nose while the females have a smaller nose.
Colour: Newborns have sparse blackish fur and dark blue faces with snubby upturned noses.
Behaviour: Feed on fruit and leaves with a high preference for seeds. They are also good swimmers.



Status: Endangered



Photo credits:

P.c. cruciger: Dok. KLHK via gardaanimalia.com
 P.c. chrysomelas: Photo (c) Chien Lee
 Hose's Langur: Roger Rajah via borneomammals.online
 Sabah Grizzled Langur: Coke Smith
 Red Langur: Vilma D'Rozario via ecologyasia.com
 White-fronted Langur: Milan Janda
 Silvery Langur: Chlidonias via zoochat
 Proboscis Monkey: Aini Hasanah

BAKELALAN OWL HOUSE HOMESTAY

Nestled deep in the heart of Borneo at 900m above sea level is Sarawak's hidden highland paradise, a place called Bakelalan. Bakelalan is made up of 13 villages and is home to the ethnic Lun Bawang tribe

With elevations ranging from approximately 900m to 1600m then further up to Mt Murud at 2423m, Bakelalan has a rich biodiversity of flora and fauna, many of which are endemic to the island of Borneo. Bakelalan is also where the rare and elusive Dulit Frogmouth can be found.

Our team at the Bakelalan Owl House Homestay has been actively documenting as many of these amazing flora and fauna as possible through photography. After proper identification (many with the help of gracious individuals who are professionals in their respective fields) we create checklists and keep updating them. Everything from birds and mammals to reptiles and amphibians.

A small project that we did at the beginning of lockdown last year is a simple plant nursery/conservatory, to keep normal house plants but most importantly to house rescued orchids and pitcher plants

Many dead branches, with pitcher plants and epiphytic orchids attached, drop along the roadside and jungle especially during heavy downpours and after long dry spells. A small cutting is taken from a few and introduced to the conservatory. After some months to a year when the plants are stable, they are propagated and reintroduced to the same places we found them.



Bakelalan Owl House Homestay



© Bakelalan Owl House Homestay



SARAWAK ECO-WARRIORS

In 2017, a few youngsters came together under the banner 'Sarawak Eco-Warriors' wanting to do something to protect our home 'Sarawak' which is filled with rich biodiversity, wonderful people and beautiful places.

We started off with several activities such as coastal clean-ups, school workshops, and public exhibitions. Over time, we started working with other organizations such as Kuching Beach Cleaners and Wildlife Conservation Society Malaysia Program (WCS-Malaysia) and we believe that by working together we could create a bigger impact within our community.

Through these partnerships, clean-ups have been made easier and attracted the attention of more people and organisations wanting to go greener. The programs also incorporated research-based elements to record and analyse the types and amount of trash collected. This information became exceptionally useful in terms of working with government bodies and decision-makers in supporting local green initiatives.



Recording marine debris collected from the beach

With the strike from COVID-19 in 2020, the group has since shifted its focus on physical activities to a more virtual approach focused on youth empowerment. This initiative has garnered support from international donors namely Global Environment Facility (GEF) and United Nations Development Programme (UNDP).

The activities are based on three pillars which are :

- 1) Introduction to environmental conservation through school workshops and corporate pledges.
- 2) Awareness building and knowledge sharing through webinar series 'Greenbinar' and training program 'Youth Green Leaders'.
- 3) Archival and documentation of youth values.



THE TRADE IN MALAYSIA'S ORIENTAL MAGPIE-ROBIN

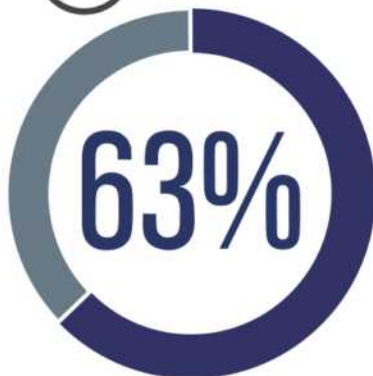


© Prin Pattavaro | Dreamstime.com

26,950 BIRDS SEIZED

Jan 2015

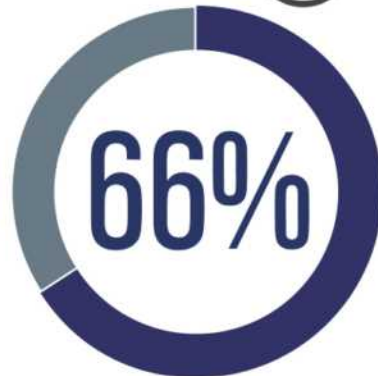
Dec 2020



intercepted in Peninsular Malaysia, 3% in Sarawak



smuggled from Malaysia to Indonesia



seized in 2020



17,314 BIRDS



© General Operations Force of the Royal Malaysian Police

MARUDI CYCLING PROJECT

MARUDI LONGHOUSE CYCLING ADVENTURE

Description:

Cycling across the off-beaten track roads around the quiet town of Marudi; stay for one or two nights at the traditional longhouses, get indulged with friendly locals and traditional cuisine and surround yourself with captivating natural landscapes.

**RENT A BIKE FOR
RM50 PER DAY**



Contact/WhatsApp 016-858 9868 for bike rental.



IStopBorneo Wildlife

NGO Registration Number:



For more info visit:
www.istopborneo.org

Or email to:



tripadvisor

The Marudi Cycling project is where everyone is welcome to visit the town of Marudi, south of Miri. They can rent a bicycle from Lukas, and go from longhouse to longhouse and experience authentic culture and traditions.

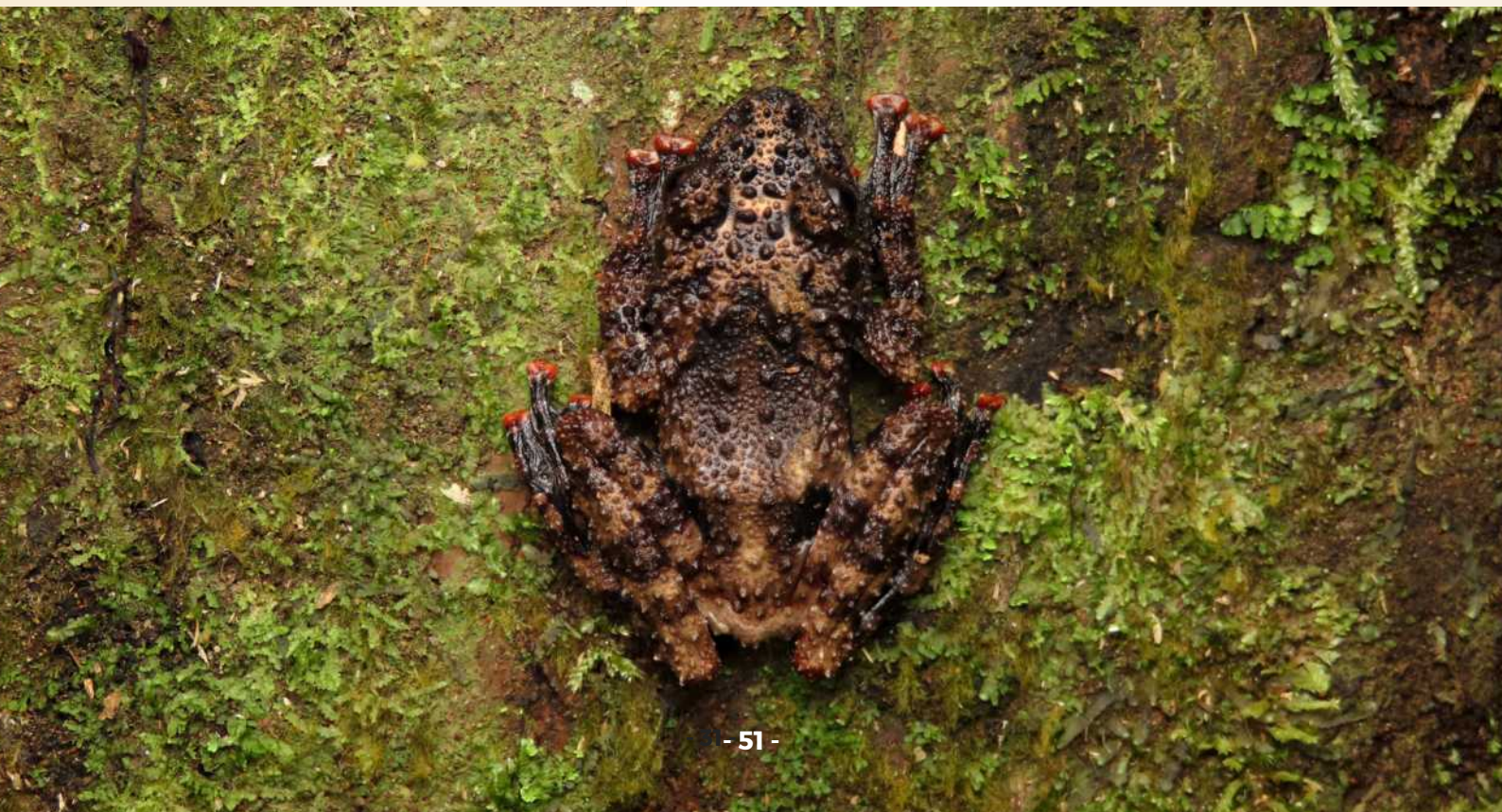
There are also nature treks that can be carried out in some of the villages of Rh Gudang and Rh Ridan. Lots of pitcher plants can be observed while cycling through Marudi. It is hoped a new forest reserve will be created here someday.



ANIMAL OF THE MONTH

SPINY WART FROG (*Theloderma horridum*)

Has only been recorded five times officially by researchers and naturalists alike. This particular individual was photographed for the first time in the Tawau region. It is rarely found or difficult to spot as it's usually found on the trunk of a tree.



ANIMAL OF THE MONTH



**HOSE'S
CIVET**

***Diplogale
hosei***



The Hose's Civet is perhaps the rarest species of civet in Borneo - if not the world. It has never been photographed handheld with a DSLR camera. Early last year, Chien Lee photographed it for the first time with a DSLR camera Trap on Mount Mulu. This year 1StopBorneo Wildlife recorded the Hose's civet in Long Pasia Sabah, Gunung Alab, Tambunan, Sayap Substation Kinabalu Park, and Mount Lucia in Tawau Hills. It is a montane species of civet found only on the island of Borneo.

ANIMAL OF THE MONTH

ANTS

Ants (Family: Formicidae) are little things that run the world - they can be found almost everywhere on Earth. Ants in Borneo are highly diverse. It is estimated that 1,100 to 1,500 of ant species exist in Borneo. Generally, ants can be divided into three categories based on their nesting and foraging behaviours: canopy ants, leaf-litter ants, and subterranean ants.

Ants play important roles in ecosystem functioning. They act as predators and scavengers in an ecosystem, consuming a wide range of animals. Predatory ants such as Trap-Jaw Ants (e.g. Genus: *Odontomachus*) possess exceptionally long mandibles used to capture prey when hunting; while others have venomous stings that function to immobilize the prey. Besides, ants also act as food source for pangolins and some species of arthropods and reptiles.



Furthermore, some canopy ants form a mutualistic relationship with plants. Plant species such as *Macaranga* offer nesting sites and extrafloral nectaries to Acrobat ants (Genus: *Crematogaster*) and Carpenter ants (Genus: *Camponotus*). In return, the ants protect the host plants from herbivory and competition of space among other plant species. On the other hand, the underground chambers within the nest created by subterranean ants promote the aeration and drainage of soils. Consequently, improve the soil quality and promote the establishment of plant species.

by Yvonne Koid



JOURNALS OF THE MONTH

2 March 2021

[Translator Disclaimer](#)

Sun bear predation on an oriental pied hornbill nest

Miriam N. Kunde, Benoît Goossens

[Author Affiliations +](#)

Ursus, 2021(32e3):1-4 (2021). <https://doi.org/10.2192/URSUS-D-19.00018.1>

ARTICLE

FIGURES &
TABLES

REFERENCES

CITED BY

Abstract

Sun bears (*Helarctos malayanus*) are opportunistic omnivores that feed predominantly on fruits and invertebrates, but predatory behavior by sun bears is rarely recorded. Although commonly described as a forest-dependent species, the sun bear is a generalist and seems to have some potential to adapt to changing environments. Here we report the first record of a sun bear preying on oriental pied hornbills (*Anthracoceros albirostris*) in their nest in the Lower Kinabatangan Wildlife Sanctuary in Sabah, Malaysian Borneo, during spring of 2019. It is a human-disturbed landscape surrounded by oil palm (*Elaeis guineensis*) plantations, with the remaining degraded forest providing a wildlife corridor for Borneo's wildlife. The sun bears photographed by camera traps along the wildlife corridor, including the predatory bear, appeared to be in good condition, therefore evidently finding sufficient food resources. Their opportunistic feeding behavior, not necessarily food shortage, may allow them to take vulnerable prey, such as this low-nesting hornbill.

Observations of Hornbills in Tawau Hills Park, Sabah, Malaysia

Qian-Qun Koid^{1*}, Shavez Cheema¹, Chun-Xing Wong¹, Fred Tuh Yit Yu², Rimi Repin² and John Payne³

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Abstract

Hornbills (Family: Bucerotidae) are one of the iconic animal groups in Borneo, forest-dependent and playing a significant role in the tropical rainforest ecosystem. Here, we aim to explore the hornbill species present in the rainforests of Tawau Hills Park (THP), Sabah. We performed two months of field survey using existing trails as survey transects. Detected hornbills were identified and recorded. We recorded all eight Bornean hornbill species. THP together with the adjoining Ulu Kalumpang Forest Reserve to the north provide nearly 800 square kilometers of forest habitat, representing an important hornbill conservation area. Of the eight species, three are classified as Critically Endangered or Endangered in the IUCN Red List. We sighted White-crowned Hornbills *Aceros comatus* and Black Hornbills *Anthracoseros malayanus* frequently flying into the oil palm plantation to the south to feed on oil palm fruits. Finally, we note the need to identify and restore wildlife corridors in the plantation-forest landscapes of Borneo.

Keywords: Bucerotidae, dipterocarp forest, seed disperser, Borneo

Introduction

Hornbills are classified under the Order Bucerotiformes and Family Bucerotidae. They belong to a group of bird species that are characterized by their distinctive long, large down-curved and pointed beak, commonly called the "bill". Some possess a casque located on the upper mandible of the bill, which is coated with a thin keratin sheath known as rhamphotheca. The function of the casque is debated (Kemp, 1969; Alexander et al., 1994), and there may be more than one, including: in aerial jousting contests (Kinnaird et al., 2003); to provide acoustic resonance and enhance the distinctive call of some species (Alexander et al., 1994); and to reinforce the upper mandible, enhancing the maximum force at the tip of the bill (Naish, 2015). There are 62 species of hornbills in the Old World, occurring across tropical Africa, Asia, Australasia (Poonswad et al., 2013).

Borneo, the third-largest island in the world, is home to eight species of hornbills: White-crowned Hornbill (*Berenicornis comatus*), Wrinkled Hornbill (*Rhabdotorhinus corrugatus*), Bushy-crested Hornbill (*Anorrhinus galeritus*), Oriental Pied Hornbill (*Anthracoseros albirostris*), Black Hornbill, Rhinoceros Hornbill



Life in the Canopy: Using Camera-Traps to Inventory Arboreal Rainforest Mammals in Borneo

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Arboreal mammals form a diverse group providing ecologically important functions such as predation, pollination and seed dispersal. However, their cryptic and elusive nature, and the heights at which they live, makes studying these species challenging. Consequently, our knowledge of rainforest mammals is heavily biased towards terrestrial species, limiting our understanding of overall community structure and the possible impacts of human-induced disturbance. We undertook the first in-depth appraisal of an arboreal mammal community in Southeast Asia, using camera-traps set in unlogged and logged tropical rainforest in Sabah, Borneo. Using paired canopy and terrestrial camera-traps at 50 locations (25 in unlogged forest, 25 in logged), we assessed the effectiveness of camera-trapping at characterising the arboreal versus terrestrial community, and tested the influence of strata and forest type on community structure and composition. The paired design detected 55 mammal species across 15,817 camera-trap nights (CTNs), and additional canopy sampling in a subset of trees added a further two arboreal species to the inventory. In total, thirty species were detected exclusively by terrestrial camera-traps, eighteen exclusively by canopy camera-traps, and nine by units set at both heights, demonstrating significant differences between arboreal and terrestrial communities. This pattern was strongest in unlogged forest, reflecting greater structural diversity of this habitat, but held in logged forest as well. Species accumulation curves revealed that canopy camera-trapping significantly boosted species inventories compared to terrestrial-only sampling, and was particularly effective at detecting gliding mammals, rodents and primates. Canopy inventories took longer to reach an asymptote, suggesting that a greater sampling effort is required when deploying canopy camera-traps compared to those set on the ground. We demonstrate that arboreal mammals in Borneo's rainforest form a diverse and distinct community, and can be sampled effectively using canopy camera-traps. However, the additional costs incurred by sampling in the canopy can be substantial. We provide recommendations to maximise sampling effectiveness, while bringing down costs, to help encourage further study into one of the last frontiers of tropical forest research.

Keywords: camera-trap, biodiversity monitoring, tropical rainforest, disturbance, Southeast Asia, mammal survey

JOURNALS OF THE MONTH

Observations of
Hornbills in Tawau Hills
Park, Sabah, Malaysia.

Sun Bear predation on an
Oriental Pied Hornbill nest.

SCAN HERE!



SCAN HERE!



Life in the Canopy: Using
Camera-Traps to Inventory Arboreal
Rainforest Mammals in Borneo

SCAN HERE!





KALIMANTAN

In the shadow of one of the tallest peaks in Borneo, Mount Niut, village members gather - rifles in hand, for the sake of conservation.

Historically used for hunting wild game, these rifles have been so efficient at helping hunters secure wild meat that many villagers are having to walk farther into the forest just to find enough food.

In a coordinated effort between Yayasan Planet Indonesia and BKSDA Kalimantan Barat, community members gather to voluntarily exchange their rifles for equipment, such as farming tools, clean water dams, internet towers, or funds that can all be reinvested into sustainable agriculture.

The exchange not only increases food security, it also creates an environment where endangered species, such as the helmeted hornbill or gibbon species, can begin to give life back to the rainforests. Since the health of wildlife populations and human populations are inextricably linked, the return of these rare species will have drastic and positive effects on nearby communities.

PLANET INDONESIA



So far, this program has exchanged 225 rifles from communities over two districts and is showing positive signs of incredible changes across the areas we work. Households were 70% less likely to own wildlife and 78% of households reported they felt more secure and economically safe as a member of these village-led conservation cooperatives.

This rifle buyback program is a part of our wider conservation cooperative program and allows loggers and poachers to build pathways out of poverty and into sustainable livelihoods.

Read more about our community-led conservation at planetindonesia.org





Helmeted Hornbill.
Photo credit: Rangkong Indonesia / Yoki Hadiprakarsa



Photo credit: Rangkong Indonesia / Firman Heru

RANGKONG INDONESIA



Rangkong Indonesia is a conservation unit of the Rekam Nusantara Foundation which has a mission as a leader in hornbill conservation in Indonesia. We believe all 13 species of hornbills in Indonesia should remain in the forest as their home now and in the future, guarding the millions of hectares of remaining tropical rainforest with their wings.



Photo credit: INFIS / Khaerul Abdi



Photo credit: Rangkong Indonesia / Yoki Hadiprakarsa

This belief will lead us to focus on the conservation of these beautiful bird species, their habitats, and the people who benefit the most from their existence.

A great challenge lies ahead of us but with the dedication, passion, and conscience of the staff along with committed stakeholders, the Indonesian hornbill will always be at the forefront of science, conservation action, and hornbill education in Indonesia.

CITIZEN SCIENCE #SAVEMERATUS

Meratus is a lowland ophiolite mountain area that divides the province of South Kalimantan into two parts. It stretches in the main direction to the border of Central and East Kalimantan. Administratively, this mountainous area passes through 13 district cities in three provinces. The highest peak is on the border of Hulu Sungai Selatan, Hulu Sungai Tengah, and Tanah Bumbu regencies; known as the peak of Halau-Halau-Mt. Besar (1,902 asl).

Mt. Meratus is not as famous as many mountains in Indonesia. This mountain holds extraordinary biological wealth. The forests are inhabited by endemic and charismatic flora and fauna such as the Mountain Proboscis Monkey (*Nasalis larvatus*), Helmeted Hornbill (*Rhinoplax vigil*), to the Borneo Horned Frog (*Megophrys kalimantanensis*) which was only discovered at the end of 2019.

Recently, Mt. Meratus became famous because the hashtag #SaveMeratus filled social media, especially Facebook. This happened because several important locations for indigenous peoples were converted into coal mining. This issue is of concern to many, everyone who has experience exploring Mt. Meratus began to tell extraordinary stories about this mountain. Flora and fauna that were not detected in this mountain began to appear along with the hashtag. New records of species that are not recognized in science have emerged.

Indirectly, these are classified as citizen science. The information collected through these hashtags can be used as baseline data to find out the species, distribution and location where the documented species are photographed by the people who find them. These findings also enrich knowledge about Meratus as well as being a consideration for policymakers about the important value of this area for many species, including humans.



New record of Water Skink (*Tropidophorus beccarii*)



Unidentified *Malaxis* orchid



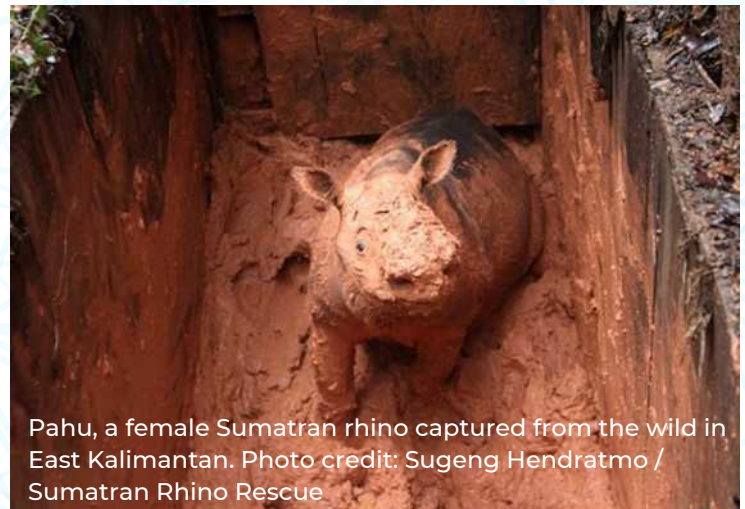
New record of *Philautus macroschelis*



Mt. Kentawan part of Mt. Meratus

Photos by Zainudin Basriansyah Akar

THE LAST RHINO



Borneo has only one Sumatran rhino in captivity at present and it is found in Kalimantan. While the Malaysian part of Borneo no longer has any rhinos in the wild or in captivity, there is at least one, Pahu, on the Indonesian part of the island, and likely a second that WWF Indonesia had targeted for capture last year.

Indonesia's other SRS at Way Kambas National Park in Sumatra, has seven rhinos, two of which were born there under the captive-breeding program.

Source: Mongabay. (February 3, 2020). *Indonesia-WWF split puts rhino breeding project in Borneo in limbo*.
Url: <https://news.mongabay.com/2020/02/indonesia-wwf-sumatran-rhino-captive-breeding-kalimantan>

BOOK CLUB

" K U P I - K U P I , B U K U - B U K U "

The Coffee, Books and Wildlife sessions have been happening regularly since its inception in December 2014. Over 40 sessions of this fun and engaging activity have taken place.

How does it work?

- Pick a place with lots of wildlife/nature books such as local public library, University library or a local NGOs library.
- Set a date for the session.
- Set the limit to a maximum of 10 people per session.
- Prepare draft paper and a pen/pencil for everyone.
- Anyone can choose any one book from the collection.
- Each participant gets 30 minutes each. They may not finish the book but may read up to 10-15 pages for discussion later on.
- Write down ANY interesting fact you have read.
- Once 30 minutes are over, each participant gets 5-10 minutes (make sure you have a timer) to share what they have learned.
- Prepare some light snacks! Enjoy!



FUN, EDUCATIONAL, AND ENGAGING! 3 in 1!





A POCKET GUIDE TO
MAMMALS OF BORNEO

SHAVEZ CHEEMA

BOOKS OF

THE MONTH



Kepelbagaian
**SERANGGA
HUTAN HUJAN
TROIKA**
Sabah

Razy bin Japir
Dg. Fazrinah bte. Ag. Damit
Arthur Y.C. Chung

Jabatan Perhutanan Sabah



ECOQUEEN

EcoQueen is a marketplace that aggregates sustainable beauty, personal care and lifestyle products sold by Malaysian eco-friendly and ethical brands as well as social enterprises. We want to provide our community with an opportunity to make conscious choices that benefit the environment and the people.



We realized that there are many people just like us, wanting to do more for nature, to be guided in our daily habits, and to have a better understanding of what they can do to lead an eco-friendly and sustainable lifestyle

Here's where we think EcoQueen can make a difference.

As a conscious marketplace, EcoQueen will do the hard work and help you with your shopping experience.

We will do the research and provide you with the details to help you make better choices.

Each brand we partner with has been carefully selected to ensure our values are aligned. We want you to consume products that are kinder to the environment and get hold of it in the easiest way possible.

WHY SHOP WITH US



Ethical Values

Products aligned to your ethical values.



Discover Products & Suppliers

Access sustainable products from vetted suppliers that are committed to a code of conduct.



Gives Back

We will partner with organisations that helps people and the environment.

We also realized that there are many local brands, companies and social enterprises that strive to produce products that do less harm to the planet and we want to work closely and support their effort. Visit us at <https://ecoqueen.co> or look us up on Instagram and Facebook @EcoQueen for more information about us and how we can work together.

LOCATIONS OF THE MONTH

The following are three locations which we had visited recently and we recommend you to visit them!

Scan the QR code below to know more about these amazing places.



Gunung Alab Substation



Sayap Substation, Kinabalu Park



Tiga Island

SCAN HERE!



What is the ecological importance of pangolins in the ecosystem?

To understand how vital pangolins are in the ecosystem, we need to understand the primary role played in the environment by their main prey: ants and termites, which are believed to constitute around 30% of all animal biomass in tropical rainforests.

Ants are primarily predators, eating many types of insects, including praying mantises, stick insects, beetles and other animals. In turn, ants themselves are preyed upon by a whole range of other animals, not just by pangolins but also many other mammals, birds and frogs.



Let us imagine if pangolins became extinct: what impact might this have on ant populations? Theoretically, in the short term, the loss of pangolin could be a joyous occasion for the ants and their number might increase; but the now excessive number of ants might increase their impact on the ecosystem described above, resulting in an ecological imbalance.

Most importantly, however, ants and termites are soil engineers. They have significant effects on their local environment. Although the individuals are small, they may live in colonies of millions and so their overall effect may be surprisingly large.

Firstly, they may change their immediate surroundings by collecting soil for nest building. Secondly, they may alter the level of nutrients within the ground as they collect food for their colonies and indirectly impact local populations of many animal groups, from decomposers such as *Collembola* to species much higher up the food chain.

Despite being predators, their presence may also lead to an increase in density and diversity of other animal groups on which they are not preying.

CATS & DOGS!

Keep pet cats indoors, say researchers who found they kill 230m native Australian animals each year.

The study found each feral cat kills an average 576 native birds, mammals and reptiles per year, while pet cats kill an average of 110 native animals every year – 40 reptiles, 38 birds and 32 mammals.

In total, this meant pet cats were killing 66.9m native mammals, 79.7m native birds and 82.9m native reptiles every year. The study was not able to estimate the numbers of frogs and insects eaten by pet cats.

Because pet cats live in higher densities, they were responsible for killing up to 50 times more animals per square kilometre in residential areas than feral cats killed in out-of-town areas.

If you spot a stray cat or dog in a national park or reserve in Sabah & Sarawak, please immediately report it to the local park manager. Stray cats and dogs do not belong in a forest reserve or national park as they are destructive to the local fauna.

Source: The Guardian. (May 15, 2020) <https://www.theguardian.com/environment/2020/may/15/keep-pet-cats-indoors-say-researchers-who-found-they-kill-230m-native-australian-animals-each-year>



BIRD POACHER

If you see any suspicious behavior of people catching birds or other animals, please contact the hotline numbers on page III



FICUS DIARY

Ficus subcordata feeding frenzy diary: Tawau Hills 20 July 2021

A fruiting *Ficus subcordata* strangler created a feeding frenzy at Tawau Hills Park on 20 July 2021.

The ripe black oily figs attracted a horde of visitors including a lone Binturong, 6 Gibbons, 5 Helmeted hornbills, 6 Wreathed Hornbills, one Rhinoceros Hornbill, a Bushy-crested Hornbill, a Red Langur and a Prevost's Squirrel all in the space of one hour.

Photos and information provided by Shavez Cheema and Chun Xing WONG of 1Stop Borneo Wildlife.





1STOPBORNEO WILDLIFE
PRESENTS




Plantation

"BORNEO WILDLIFE SERIES"







COMING
SOON

STAY TUNED

 @wildlifeclub

 1StopBorneo Wildlife

   @sime darbyplantation

 Sime Darby Plantation

WILDLIFE OF SABAH

HORNBILLS OF SABAH

FACTS

A very important seed dispersers.

They need a tall, old tree to nest, which is why it is important to preserve the tree.

Love to eat figs.

Usually paired for a lifetime!

Helmeted Hornbill



Rhinoplax vigil

Bushy-crested Hornbill



Anorrhinus galeritus

Rhinoceros Hornbill



Buceros rhinoceros

Black Hornbill



Anthracoceros malayanus

Wrinkled Hornbill



Rhabdoterhinus corrugatus

Wreathed Hornbill



Rhyticeros undulatus

Pied Hornbill



Anthracoceros albirostris

White-crowned Hornbill



Berenicornis comatus

WILDCATS OF SABAH

- Marbled Cat** (*Paripulex marbledus*) - KUCING DAHAN
- Flat-headed Cat** (*Prionailurus planiceps*) - KUCING HUITAN
- Clouded Leopard** (*Niogelis diardi*) - HARIMAU DAHAN
- Leopard Cat** (*Prionailurus bengalensis*) - KUCING BATU
- Bay Cat** (*Catopuma badia*) - KUCING MERAH

-There are 5 different species of wild cats in terms of appearance, food habits and life patterns.

-The smallest wild cat species is "Flat-Headed Cat" (1.5kg-2.5kg) and the largest is "Sunda clouded leopard" (12kg-24kg).

-Wild cats hunt at night and use their different body patterns to hide in the forest.

-Wild cats in Borneo live alone throughout their lives except for females who care for their young for 1-2 years.

PRIMATES OF SABAH

Primates are important seed dispersers as hornbills.

They are carnivorous primates because they eat insects, lizards, bird eggs etc.

An important tourist attraction thus creating local jobs.

- Bornean Gibbon** (*Hylabates muelleri*) - UNGKA BORNEO
- Tarsier** (*Cephalopachus bancanus*) - KERA HANTU
- Philippine Slow Loris** (*Mexica nemestrina*) - BERLIK
- Long-tailed Macaque** (*Mexica fascicularis*) - KERA
- Philippine Slow Loris** (*Nycticebus menagensis*) - KONGKANG
- Red Leaf Monkey** (*Presbytis rubicunda*) - LOTONG MERAH

WILDLIFE OF SABAH

REPTILES OF SABAH

Snakes have their own benefits because they eat rats. So protect the snakes!

Snakes are good natural pest controllers and help reduce disease.

The longest snake in the world is a python that can grow up to 30 feet.



AMPHIBIANS OF SABAH

- Amphibians live underground, near rivers or on trees.

- Amphibians have their own role in the food cycle in the forest.

- Amphibians are predators for mosquitoes, flies and other insects that can carry disease.



INSECTS OF SABAH



SMK BALUNG HAS GONE PLASTIC BOTTLE FREE

FIRST SCHOOL IN MALAYSIA!

SMK Balung has pledged to become the first public school in Malaysia to go totally plastic bottle free. This is a monumental milestone. The school has pledged to go plastic bag free and in doing so they are now officially the fourth school to go plastic bag free in Sabah after SMK Umas Umas, SMK Tawau and Vision Schools.

Present to witness this momentous occasion were the School Principal Hj Arbin, Tawau Education Department Head Tuan Zamri and Borneo Tanpa Plastik & 1StopBorneo Wildlife representatives.

SMK Balung has over 1900 students and it was estimated from a simple survey conducted that a school of such magnitude produced over 350,000 plastic bottles and bags a year. To help the environment of Sabah, 1StopBorneo Wildlife has partnered up with Now No more Plastic in Our Waters(NOW) to make a great role model for Malaysia to make the first school to go plastic bag and bottle Free.



SMK Balung students to adopt eco-friendly practices

By **STEPHANIE LEE**
stephanielee@thestar.com.my

KOTA KINABALU: When school reopens and face-to-face classes resume, teachers in SMK Balung Tawau hope to see most of their students adopting new environmentally friendly practices such as going plastic-free.

Its principal Arbin Setta said this is in response to a "challenge" from NGO 1StopBorneo Wildlife that is trying to push for a plastic-free community in Sabah, starting with schools.

"1StopBorneo Wildlife asked if we would be interested in participating in its programme to realise this vision.

"Seeing how important the issue of environmental awareness is for children, we decided to take up the challenge," he said when contacted.

He said there are three main



Going green: Banners at SMK Balung promoting the initiative.

how to go about it including encouraging students to bring proper water bottles or reusable ones to school instead of relying on sin-

push for minimal use of plastics in its daily operations and gradually get it to zero-plastic use in school.

"This of course would take years

cal classes resume.

As for the Wildlife Chapter adoption, he said this will be managed by their wildlife and environment-related clubs.

About 2,000 people including 1,850 Forms One to Six students and school staff members are expected to participate in the programmes.

1StopBorneo Wildlife founder Shavez Cheema said these programmes are done in partnership with Now No More Plastic in Our Waters (NOW).

He said their aim is to have 20 schools go plastic bag-free.

A petition at <https://www.change.org/p/minister-of-tourism-sabah-borneo-tanpa-plastik> to support this initiative was created and has now garnered over 20,000 signatures.

"In Malaysia, school children know more about African lions, zebras and giraffes than their own

Winner of the Art Competition

WHITE-CROWNED SHAMA



1st place

Elvis Wong Zi Qin
SJK(C) Yuk Chin / 3A



2nd place

Low Zhi Yi
SJK(C) Yuk Chin / 6G



3rd place

Michelle Tang Yee Tung
SJK(C) Yuk Chin / 3B

Winner of the Art Competiton

BOX TURTLE



1st place

M. Farish Shah bin Sulaiman
6 UMS
SK. Kem Kabota, Tawau



2nd place

Pang Guan Er
1G
SRJK(C) Yuk Chin Tawau



3rd place

Elias Ng En Hao
3H
SRJK (C) Yuk Chin Tawau

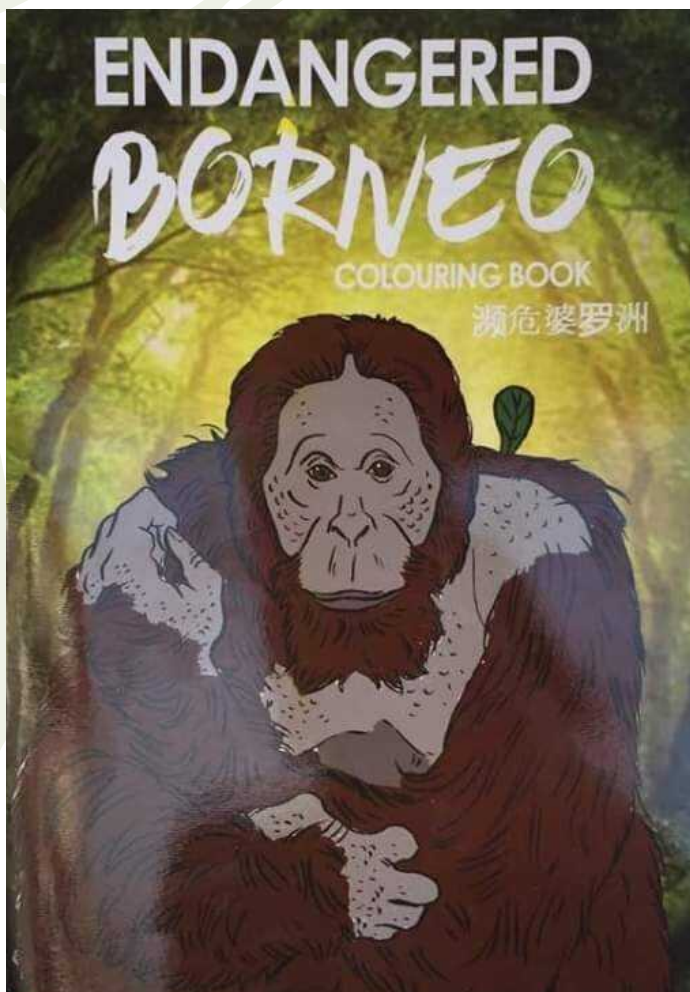
FREE COLORING BOOK!

Parents and teachers alike, we have made our best-seller, the ENDANGERED Borneo Colouring book **free** to be downloaded and used by your children! Enjoy! It can be downloaded at:

<https://www.1stopborneo.org/field-guides>

OR

simply scan on the QR code below!



SCAN HERE!





Mother and Baby pangolin rescued by Joe Tee.
Photo by Shavez Cheema



Plantation

