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Front Cover: Bengoh Dam. Photo Credit: Wong SY

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Director's Message 2021

MOHD AZLAN JAYASILAN



The year 2020 has been a challenging one for many of us- with restricted movement control order put in place, restricting field visits for data collection and other once normal activities of the Institute. Despite these challenges, we continued working, emphasizing lab work, manuscript writing and collecting field data from areas permissible while following strict SOPs. Discussions and meetings were held online, and did not hinder the quality of outputs produced in 2020 by our academics and postgraduate students. As such, It is a pleasure to see the newsletter progressing, highlighting invigorated research, as well as current updates.

Noteworthy is that the Institute's energetic academics continued to demonstrate excellent track records in terms of publications and in securing research grants from a variety of sources in 2020. We are grateful to the senior management of our university for strengthening the Institute and helping enhance our respective research profiles. These activities are expected to both expand outreach of the Institute as well as the university. We hope that the momentum of our research culture can be maintained if not accelerated in the months to come, to achieve targets set for 2021. We strongly believe that this is the time stakeholders should come together and explore possible research collaboration, as many States in the country are on the verge of lifting travel restrictions and reopening doors. We hope to see the pandemic situation improve in the very near future, and to welcoming more academic achievements by our colleagues and students in 2021.

LISA LOK

The Distribution and Ecology of Medium to Large Mammals within an Oil Palm Plantation in Sarawak

Oil palm while beneficial to the economy is a prominent threat to biodiversity. There is relatively little information on the persistence of mammals in large scale oil palm plantations in Sarawak. Camera trap assessment on medium to large mammals was conducted in Wilmar-PPB Oil Palm Plantation in Miri, Sarawak from November 2018 to February 2020 and recorded a total 21 species from a total of 14,838 independent photos over 8,067 camera trap nights.

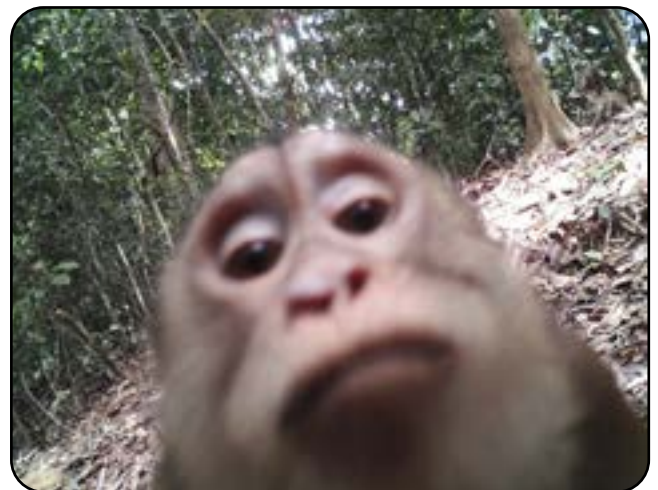
Records of mammals largely followed a pattern of decline away from the forest edge. Activity patterns did not have significant differences between the oil palm and forest fragments. Greater intactness of forests represented by the number of canopy trees were found to have a positive effect on three species while none of the microhabitat variables in the oil palm had strong effects. Occupancy of mammals were greater in the forest compared to the oil palm except for the Leopard Cat and Common Palm Civet. Habitat type, distance to forest and distance to river were the top models that influenced selected species in this study. Leopard Cats and Pig-tailed Macaques recorded the greatest relative abundance in this study, highlighting their potential as biological pest regulators in oil palm plantations. Key conservation areas were also identified in this study.

Overall, this study highlights the importance of forest fragments within oil palm plantations and suggests that conservation efforts should have greater focus on landscape heterogeneity to improve biodiversity aspects. However, ecological enhancements on the local scale should also complement this effort whenever possible.

A Leopard Cat (*Prionailurus bengalensis*) is a potential biological pest control agent in the oil palm plantation



A group of Bearded Pigs (*Sus barbatus*) foraging in an oil palm plantation



A Pig-tailed Macaque (*Macaca nemestrina*) curiously checking out the camera trap



The Critically Endangered Pangolin (*Manis javanica*) foraging in the oil palm areas



*Batang Ai National Park: Where
Culture and Nature are One*

PANG SING TYAN



Photo credit: Wong Jye Wen

'Batang' refers to rivers, while 'Ai' means water. Both protected area and the hydropower dam were named after the site of Batang Ai, the source of impoundment for the hydropower dam. Batang Ai Hydropower Dam was completed back in the 1980s. Massive migration of occupants from the area affected by the dam were moved to resettlement areas provided by the Sarawak Government. At present, there are six remaining longhouses, that are scattered along Batang Ai- Nanga Jambu, Nanga Sumpa, Pala Taong, Nanga Jengin, Nanga Delok, and Tapang Punggaare.

Batang Ai rings many bells. The first to come to mind are the people. Inhabiting the area is the main tribe of Sarawak, the Ibans. Also known as the Sea Dayak, Iban communities conquered rivers and forests, and expanded their territories which made them good warriors in the past. Brave warriors earned the change to have tattoo permanently inked on their bodies, especially on the neck after conquering their enemies in combat. Nowadays, tattoos are more symbolic. For instance, Bunga Terong, the eggplant flower as the common pattern is seen tattooed on both sides of the shoulder, symbolising maturity for a male, and beauty for a female. Image above shows the traditional tattoos of the Iban, residing at the longhouse of Nanga Delok, Batang Ai.

Batang Ai is famous for its hydro-natural elements. Heading east inland from Nanga Delok longhouse to the gazetted area, the river becomes shallow and narrow, the colour of water turning crystal-clear, with more rapids. Navigating a boat here requires a skilled and experienced boatman, with the aid of a 'watcher' to ensure a safe passage by avoiding rocks and submerged trees. Boatmen often have to tilt the engine so as not to spoil the propeller. Yet, for most, it is a must-have wild experience.

Several waterfalls are located adjacent to and within Batang Ai National Park. Some waterfalls are hard to access, and travelling on foot is necessary. Others are of easy access, and reachable by longboats. Jelia waterfall (pic below) is only 10 minutes from Nanga Delok, and accessible by longboats. A visit to the waterfall is enjoyable, with the splashing of icy-cold and crystal-clear water as it tumbles down rocks, and natural pools at different levels, all perfect for family trips. Sitting on a rock and enjoying the cool breeze itself offers visitors peace of mind.



Batang Ai National Park is well-known for its wildlife in the 240 km² gazetted area. Researchers from around the world come here to study hornbills, orang-utans, amphibians, fishes, fungus and other groups.

The image (next page) shows a pair of Wreathed Hornbill (*Rhyticeros undulatus*) that were sighted during the trip. Wild orang-utans often stay high up on trees. Typically, they are shy, and when detected by humans, tend to run or hide. An image (next page) shows an orang-utan peeking through the foliage at us.

Photo credits: top (Izneil Nashriq) and bottom (Wong Jye Wen)



Batang Ai not just sustains the Iban people and their culture, as well as nature, but is also one of few remaining habitats for the many iconic species on Borneo. As a recommended tourism site, one hopes that Batang Ai National Park and its adjacent areas will continue to be protected for all time.

On behalf of the team members from the Sarawak Tourism Project, based in IBEC, led by Prof. Dr Indraneil Das, I would like to thank the Ministry of Tourism, Arts and Culture, Sarawak for the grant to UNIMAS, and Prof. Dr Lo May Chiun and Dr Abang Azlan of the Research Innovation and Enterprise Centre, Universiti Malaysia Sarawak, for awarding and administering the grant.

Our gratitude extends to the Sarawak Forestry Corporation staff based at the Batang Ai National Park Headquarters. Mark Kuneiglibuan Tisen, the Park Warden, Adrian Anding, Sirai Dayong, Gading Gajah and Roseny Chang for the assistance during our trip at the Park.

I would like to dedicate this piece to the residents of Rumah Nyindang, Nanga Delok, and especially Edward Empaling anak Juing and his family for their warm welcome and hospitality throughout our stay in the longhouse.

Photo credits: Izneil Nashriq and Pang Sing Tyan (inserted pic)

IZNEIL NASHRIQ

Ecotourism Escapades in Sarawak



A mother and a child orangutan dangling on the man-made rope vine, making use of the enrichment installed in the center



The entrance of Semenggoh Wildlife Center

2020 was the year *Homo sapiens* faced the deadly Covid-19 pandemic. As human adapted to the physical distancing regulations and sanitize every possible contaminated surfaces and objects, multiple efforts were underway in producing effective vaccines to overcome the situation. The pandemic hinders movement in order to control the number of infections. In December 2020, when the numbers of new infections were reduced, IBEC team under the Sarawak Tourism Project, was able to visit three sites (Semenggoh Wildlife Center, Sama Jaya Nature Reserve, and Batang Ai National Park), that were included in Module 3 of the Sarawak Tourism Project.

On 20 December, we visited Semenggoh Wildlife Center, a nature reserve focussed on sheltering and rehabilitating orangutans. Located at KM 20, Jalan Puncak Borneo, 93250 Siburan, it is open to public, where visitors are welcome between 0800 to 1000 h to observe how orangutans are fed at the Center. With ~ 3,379 reviews on Tripadvisor, the entrance fee is divided into local and foreigner rates which aids in the maintenance of the Reserve. Upon entrance to the Wildlife Center, the staff in charge directed visitors to the feeding platform where they can

have a chance to observe the great apes swinging between branches and eventually grabbing the fruits prepared on the wooden platforms. The wildlife center previously housed a number of other animal groups, such as birds and crocodiles. However, upon receiving feedbacks from members of the public, other animals were relocated. The sole goal of Semenggoh is the protection of orangutans.

Other attractions at the Center include a gallery with information on the orangutan and conservation efforts, and a botanical research center consisting of orchid nursery, ethno-botanical garden, fruit orchard, fernarium, and a bamboo garden.



Batang Ai National Park signage

the boat rides, with the needs to either boat through the blockage or carefully navigate between small openings. Apart from the minor difficulty, Batang Ai National Park offers scenery of old secondary forests, mixed dipterocarp forests, shifting cultivation and house quite a number of protected animals such as the orangutan.



A monkey and her baby cuddling for warmth on a stump of a coconut tree after a drizzly morning of looking for food.

On 22 December, the Sarawak Tourism Project team visited Sama Jaya Nature Reserve. Located in Tabuan Jaya within Kuching, it is a forest patch preserved under an urban forest concept. This urban forest park is frequented by locals for recreational activities, such as jogging, or simply for admiring nature without having to venture far. Night walks are allowed with prior booking. The 38 hectares of kerangas forest is home to multiple species of animals. Attractions include bamboo museum, Japanese garden and the jogging tracks.

On 24 December, the team had the opportunity to visit Batang Ai National Park. Batang Ai is a river system, with a dam fed by four tributaries, constructed in 1982 and opened in 1985. We stayed with the Iban community of Nanga Delok. The purpose of the visit was to mine information regarding tattoos in the Iban community, apart from photographing the attractions. Arriving during Christmas Eve, we were welcomed with open arms by the local residents. The communities were preparing for a celebration on the next day and the team managed to mingle with the locals, winning their hearts. Upon setting off to photograph the National Park, we could only reach each destination by longboat rides.

Human activities in the past had affected some parts of the rivers as the river was congested with log blockage which caused difficulties to

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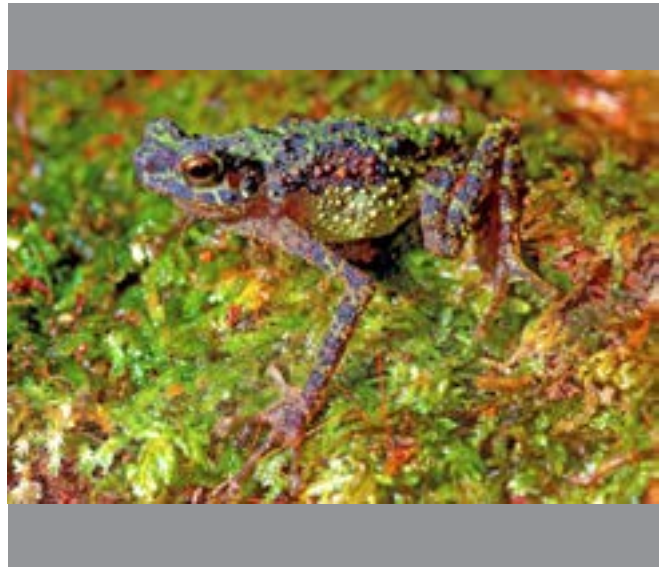
INDRANEIL DAS

The Toad That Inspired a Watch!

In 1966, the Bornean Rainbow Toad (*Ausonia latidisca*), a 5 cm long rainforest denizen, collected way back in 1924 from north-western Borneo, was described by the American herpetologist, Robert Inger. Since then, the species had remained 'lost to science', till a 2010–2011 effort funded by Conservation International, under its 'Lost Frogs' campaign found a population. A team from this Institute surveyed the upper reaches of Gunung Penrissen, and reported on its rediscovery, the news covered widely in the media. In the intervening years, the discovery has resulted in an enhanced understanding of the biology of the species through research, leading to a thesis and research papers.

In 2020, Casio Japan, under its G-Shock series, issued GWFA1000BRT-1 Master of G Frogman, a limited edition watch, that retails for US\$1,100. Given the attention received by its launch, netizens and watch companies predict a strong interest from collectors of designer watches. Although part of the winter 2020 release, the website of G-Shock indicates that the item is sold out (but may be offered at a premium in the gray market and at auction sites).

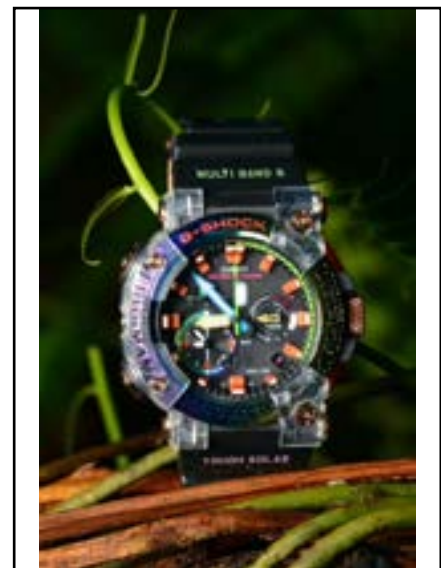
This is a rather large watch, measuring 56 x 53 mm, and 19 mm thick, weighing 119 gm, and made of carbon fibre-reinforced resin, with stainless steel in monocoque construction. It is embedded with a sapphire crystal, with non-reflective coating on a black dial. Its movement is solar-powered for approximately 30 months, with power-saving function on after a full charge. Being also a divers watch (and therefore, hardy for field use under damp, rainforest conditions as well), it is waterproof to 200 metres. Other features include: dive mode, tide mode, moon data, multi-band atomic timekeeping, blue-tooth connection, compatibility with iOS and Android smartphones, second zone time display, world time with 39 time zones, daylight savings on/off, 1/100 second stopwatch, countdown timer, 24-hour display, with AM/



PM indicator, automatic calendar (to the year 2099), and power-saving mode.

Of its design, perhaps most significant is the attempt to incorporate the species highlights onto the watch bezel and sub-dials in terms of its vivid coloration, and the bezel even features a unique textured surface, mimicking the warty skin of the toad.

Nature has the infinite capacity to inspire, and what can be a better tribute to the rainforest-linked Bornean Rainbow Toad, and presumably affected by large-scale forest clearance and climate change, which was once lost and rediscovered, than a beautiful item of everyday use, to remind us of these challenging times.



NURUL ASNA HIDAYAH MIOR ABDUL RAHMAN

Salt Licks: Essential Supplements for Wildlife

Salt licks or also known as mineral licks or natural licks are naturally deposited mineral-rich place actively visited by animals for nutritional supplementation such as mineral uptake, adsorption of toxin, and pH adjustment of the gut. In conjunction with the term 'salt' in salt lick, sodium is known to be the most important element found to be limiting and sought by the generalist herbivores population. As salt licks draw wide-ranging herbivores visitation, predators were also found to use salt lick to hunt prey around the area. The presence of salt licks is also utilised by humans for hundreds of years as a hunting spot, a salt uptake site for daily use, or for wildlife watching.

In Malaysia, salt licks are currently protected under Wildlife Conservation Act (WCA) 2010 in Peninsular Malaysia and Wildlife Conservation Enactment (WCE) 1997 in Sabah. WCA 2010 recommended a 400m buffer zone while WCE 1997 suggested up to 500 metre buffer zone. To date, documentations on salt licks in Sarawak are rather limited. In Sarawak, salt licks are not protected under legislation as compared to other salt licks in Malaysia.

Thus, this study on wildlife utilisation of salt licks in selected areas of Sarawak aims to understand salt licks from three different perspectives:

wildlife dynamics, mineral composition and communities' dependency towards salt lick within their locality. Nine salt licks located at the northwest of Sarawak (Ulu Baram, Loagan Bunut and Ulu Kapit) were selected for this study.

Camera trapping was utilised to document wildlife dynamics on salt licks reporting a total of 25 species utilising salt lick for mineral supplementation. Sixty-eight percent (n=17) of the total species recorded were listed either as Totally Protected or Protected in the Wild Life Protection Ordinance 1998.

A quantitative questionnaire survey using snowball sampling method was conducted in all communities surrounding the nine salt licks comprising of the Iban, Kenyah, Berawan, and Kelabit communities. Communities around the salt licks were found to use the salt licks for hunting grounds.

Soil samples were collected from nine salt licks. Samples were digested using acid digestion and analysed using an atomic absorption spectrometer. The concentrations of macronutrients across nine salt licks are within the range of nd - 117 mg/kg for Na, 482.96 - 3514.07 mg/kg for Mg, 427.40 - 1499.64 mg/kg for K, nd - 748.33 mg/kg for Ca. The concentrations were observed to reduce horizontally, further away from the salt licks.

The information gathered from this study can be used to suggest suitable conservation buffer zone for salt lick conservation and a holistic management plan for salt licks in Sarawak.



From Top (clock wise):
 Sungan Semait Hilir Salt Lick found in Long Se-
 laan, Ulu Baram, Sarawak.
 Camera trapping was deployed at salt lick to re-
 cord wildlife dynamic.
 Social survey regarding hunting activities at salt
 lick.
 Presence of leeches in salt lick as an opportunistic
 presence as the leeches can easily cling to the ani-
 mals' muzzle as they bow down to drink.



INDRANEIL DAS

World Pangolin Day- Launch of Book on Pangolin Coins and Stamps



With one pangolin killed by humans every 5 minutes, these unusual mammals have come to be regarded as the world's most illegally-traded wild mammal. All eight pangolin species thus find themselves in the IUCN Red List, an international database of threatened plants and animals. A relationship between consumption of pangolins in east Asian societies and the covid-19 pandemic has also been suggested.

17th February is celebrated globally as World Pangolin Day, when the world conservation community gets together to highlight attention to these curious animals. This year, we worked with an Indian NGO, Sahyadri Nisarga Mitra, and produced a book entitled "Pangolins on Coins and Stamps of the World", which was released in the presence of the State Forest Department in Maharashtra State, western India. It was compiled in collaboration with Dr. Ajit Vartak, from the Department of Geology, Nowrosjee Wadia College, Pune.

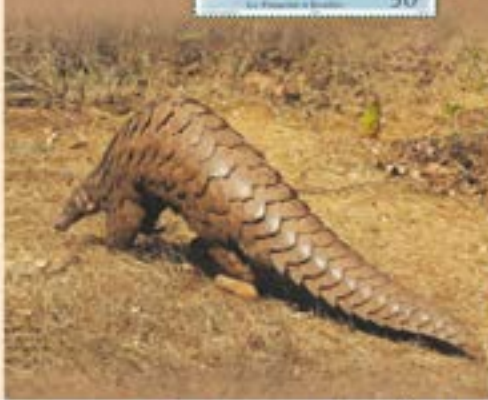
This book documents coins and stamps of the world that feature pangolins. It includes coins in circulation, commemorative coins, tokens, as well as postage stamps and labels. All eight species- four each from Asia and Africa, have been depicted on stamps and a few have appeared on coins. The first such coin was issued by Zimbabwe

in 1997, while the first postage stamp was released by Sarawak (at present, a state within Malaysia) in 1950. Coins and tokens featuring the pangolin have been released by China, Democratic Republic of Congo, North Korea and Zimbabwe. Postage stamps featuring these animals have been issued by a large number of countries and postal authorities, including Angola, Bangladesh, Belgian Congo, Botswana, Burundi, Cameroon, Central African Republic, Chad, Congo (Republic), Congo (Democratic), Equatorial Guinea, France, French West Africa, Gabon, Gambia, Ghana, Great Britain, St. Vincent and Grenadines, Guinea (Republic), Guinea-Bissau, Hong Kong, Indonesia, Ivory Coast, Kenya, Laos, Lesotho, Liberia, Macao, Madagascar, Malaysia, Mozambique, Namibia, Nepal, Niger, Nigeria, Philippines, Río Muni, São Tomé and Príncipe, Sarawak, Senegal, Sierra Leone, Singapore, Solomon Islands, South Africa, Sri Lanka, Swaziland, Taiwan, Tanzania, Togo, Uganda, United Nations- Geneva, United Nations- Vienna, Vietnam, North Vietnam, Zambia and Zimbabwe.

We thank Bhau Katdare, President, Sahyadri Nisarga Mitra, for his Foreword, and Dr. Vishwas B. Sawarkar, former Director, Wildlife Institute of India and Dr. Dan Challender, Chair, IUCN / Species Survival Commission Pangolin Specialist Group, for their messages.

The ecological roles performed by pangolins are poorly understood, and it is likely that as burrowers, they are 'ecosystem engineers', helping aerate soils, creating and maintaining special habitats, and their effect as control agent of specific insect groups are likely to be significant. Further, they afford much opportunity for research on a variety of topics, including food specialisation, home range, movement and behaviour. Finally, pangolins are, in parts of the world, focal species for ecotourism activities, helping livelihoods and drawing attention to neglected habitats.

Pangolins on Coins and Stamps of the World



- INDRANEIL DAS
- AJIT VARTAK



Issued on occasion of the
WORLD PANGOLIN DAY 2021
SAHYADRI NISARGA MITRA

saba

VERONICA LEAH ANAK BUMA



A male *Lanthanotus borneensis* upon release, with a radio-transmitter attached via a harness on the dorsal surface of the pelvic girdle

Lanthanotus borneensis is the sole living member of the family Lanthanotidae, and an endemic of the island of Borneo. Classified as a 'Totally Protected' species in Sarawak, it is a target of the exotic pet trade. My research focuses on the life history of this secretive species through the use of radio-telemetry, to obtain new information on its thermal, trophic and spatial ecology of the species. The objectives of this study include investigating its microhabitat and diet preferences, thermal biology, and movement. The research questions of this study are how the species utilises the environment and whether significant differences exist between sexes and age groups. Microhabitat data collected indicate a preference towards streams, although it appears to avoid fast-flowing waters. Rather, it shows a preference for shallow pools, sheltering in rock crevices. Its diet is currently being investigated, one item being the freshwater crab, *Sundathelphusa* sp. (family Gecarcinucidae).

Below: *Nypa fructicans*
Photo credit: Wong SY

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*“No intelligent species
would destroy their own
environment.”*