INSTITUTE FOR TROPICAL BIOLOGY AND CONSERVATION

Borneensis Bulletin

ISSUE NO.10 2020

INSTITUTE FOR TROPICAL BIOLOGY AND CONSERVATION
BORNEENSIS BULLETIN ISSUE NO. 10 2020

ITBC's fieldtrip to Bogor, Indonesia

By Noor Haliza Hasan

Figure 1. Visit to the Bogor Agricultural University (IPB), Indonesia (at the university's main entrance).

On the July 31st 2019, a total of 29 ITBC's staff have the chance to join a fieldtrip to the Research Centre for Biology (Pusat Penelitian Biologi, Lembaga Ilmu Pengetahuan Indonesia – LIPI) and to the Bogor Agricultural University (IPB), Indonesia. The objectives of this work visit were to learn from these prestigious and experienced organizations regarding their specimen collection management, as well as the type of research that are conducted. Apart from this, this work trip was considered to improve the happiness index of the ITBC's staff and improve the teamwork spirit.

Upon landing at the Soekarno-Hatta International Airport, Jakarta, the team was transported by bus to Bogor, and visited the first stop the very next morning, which is the Bogor Agriculture University (IPB). The team was warmly welcomed by the IPB with briefings from the Research and Community Services Institution (LPPM), the Primates Research Centre (PSSP), the Centre for Environmental Research (PPLH), the Department of Conservation of Forest and Ecotourism, Faculty of Forestry. The briefings provided were useful and relevant since the ITBC itself have got our own Unit of Primate, and Eco-tourism is one of the main research areas for the institute.

Figure 2. After briefing from the four research institutes and faculty in IPB.

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MESSAGE FROM THE DIRECTOR

This issue highlights several of our activities from middle of 2019 to middle of 2020. The second half of 2019 was a memorable time for many of ITBC staff when we had a study tour to Bogor, Indonesia. We visited several institutions, including LIPI and Cibodas Botanical Garden. This is the first ever overseas trip for the whole institute, giving opportunity for our supporting staff to see how other institutions manage their specimens. Then in October 2019, we organized the 2nd Borneo Geographic Expedition to Kadamaian, Kota Belud, in collaboration with Sabah Parks. The two weeks expedition was participated by 138 of researchers from all over Malaysia, strengthening our collaboration and networking with researchers from other institutions.

Early 2020 was a very sad time for ITBC when we lost our dear colleague, Associate Professor Dr Bakhtiar Effendy Yahya. His untimely demise is a big loss to ants taxonomy in this region. He will always be remembered for his passion in entomology and the undivided love for his beloved mother.

Covid-19 has changed the way we do many of our normal activities. Malaysia is not spared from the Covid-19 pandemic; lockdown nationwide was implemented from March 2020, paralyzing most of the institute's planned activities for the first half of 2020. The last physical activity we had before the lockdown was the "English communication and fieldwork skill for biodiversity communication and conservation programme" for Rakuno Gakuen University students. We learned new skills during the pandemic including communicating research findings via webinar without the hustle of travelling across the globe.

Lastly, I would like to thank Mdm Nur Aisya @Petherine Jimbau, Senior Curator for BORNEENSIS, for compiling all the material for this issue. Thank you also to those who have contributed in this issue.

Stay safe!

Assoc. Prof Dr Monica Suleiman
Institute for Tropical Biology and Conservation

Figure 3. Welcoming briefing by the LIPI for the ITBC

Figure 4. Tour session to the dry vertebrate collection in LIPI.

On day 2, the team visited the Research Centre for Biology, LIPI where we have got the chance to have a tour to their enormous collections of botany, zoology and ethnobotany specimen, before heading to the Indonesia National Museum of Natural History. Witnessing their well-managed specimen and intricate work of preservation techniques, a staff attachment program would be beneficial to the ITBC's BORNEENSIS team to better learn and improve their collection management system and work skills.

Figure 6. A tour session to the mushroom collection in LIPI.

Figure 5. Visit to the Research Centre of Biology (Pusat Penelitian Biologi, Lembaga Ilmu Pengetahuan Indonesia (LIPI)

On day 3, we have casually visited the CIBODAS Botanical Garden which are home to approximately 10,792 living plant specimens, followed by a tour to their herbarium, bryophytes park and their Nepenthes house. It is an amazing experience to physically observed the system and practices of these long-experienced organizations in the management of biodiversity collection, apart from having numerous research collaborations worldwide. A botanical garden management could be an inspiration for the university if we ever plan to create UMS version of a botanical garden in Sabah.

Figure 7. ITBC visit to the CIBODAS Botanical Garden.

In summary, the fieldtrip gives an overall positive implication on the potential research collaboration and specimen collection management with the related organizations. It is a definite happiness index elevating experience and teamwork spirit is definitely improved by the time we landed at the Kota Kinabalu International Airport on the August 5th 2019. It was a wonderful memory for all the staff involved and hopefully it has motivated everyone to perform better, or even better, extraordinary.

"If you cannot do great things, do small things in a great way." – Napoleon Hill

Figure 8. Tour session to the wet herbarium collection in CIBODAS.

Figure 9 and 10. A tour session to the dry herbarium specimen in CIBODAS.

A tribute to Assoc Prof Dr Bakhtiar Effendi Yahya (1973-2020)

Prof. Madya Dr. Bakhtiar Effendi Yahya is a great researcher specializing in Ant Taxonomy study. He started his career in UMS as a tutor while studying Master under Prof. Maryati Mohamed in 2001. He then furthers his study to the Ph.D. level at Kagoshima University, Japan, in 2007 under Prof. Seiki Yamane supervision. He works on a challenging group of Myrmicaria ants which consists of many cryptic species. He successfully recognized two species groups in Myrmicaria ant, the *Myrmicaria Arachnoids* group and *Myrmicaria brunnea* group that differ by their nesting biology and morphology. He then published his first paper on the nesting behavior of *Myrmicaria arachnoids* in 2006 based on observation in West Java.

He was very passionate about his work. He ensures the ant collection in BORNEENSIS is arranged systematically and easier for other researcher references. He became one of the Deputy Director (Research and Academic in 2008- 2010 and 2012-2015) at IBTP. As a lecturer, he often helps his students work on their research responsibly and follow the schedule to graduate on time. He also let the students work independently and be physically fit. This help the students to become more adaptable to work in challenging forest environment. He is also a key member of ANeT, a group of ant researchers in Southeast Asia and involved in many conferences and arranged meeting. He passed away on 24 February 2020 and will always be remembered as a very compassionate researcher in IBTP, UMS. We lost the only professional ant taxonomy in Borneo and hope those young people will follow and continue his work to clarify the ant fauna of Borneo.

Environmental education activities @ BORNEENSIS, ITBC

By : Petherine Jimbau

Bird watching activity during Friends of BORNEENSIS Program

Environmental education (EE) refers to organized efforts to teach how natural environments function, and particularly, how human beings can manage behavior and ecosystems to live sustainably. Environmental education connects us to the world around us and imparts knowledge about the current situation and future prospects of nature. It raises awareness of issues impacting the environment and also teaches people to explore all the problems related to the environment, and engage in wise ways of preserving it.

Since its establishment, the effort to conduct the conservation and environmental awareness program has been done in Institute for Tropical Biology and Conservation (ITBC) to raise the awareness among public especially to our young generation. There are many activities such as camping, study tours, trekking, trees planting, hands on activities (collecting and preserving) and talks on environmental issue have been conducted and these activities require direct involvement to the participants thus; provide a meaningful experience for everyone.

1) Camping

The camping program organized by ITBC also known as Friends of BORNEENSIS Program (FoB). FoB has been started since 2015 and it was a camping program for school students aged 11 until 17 years olds under the theme "Stay close to nature". This 3 days 2 nights (3D2N) program aimed at creating of informed nature loving society by the exposure of young students to the detailed ground level conservation effort carried out in Sabah. This camp is focused on delivering hands-on experience and academic exposure to the scientific handling of nature and conservation study. Among activities during this camp are: talks on insects, animals and plants; insects collecting and insects specimen making; herbarium making; night walking; light trapping; nature games and bird watching.

Night activity at the beach

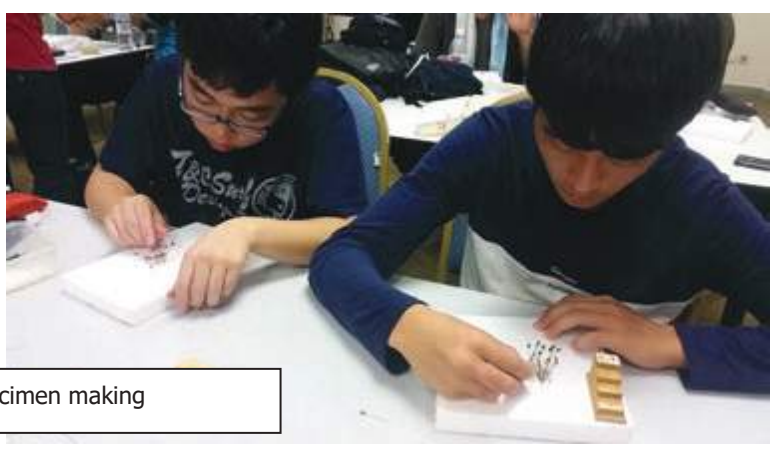
Light trapping

2) Insects collecting and insect specimen making

Insects collecting at Ex-Situ Valley

When one mentions insects many would visualize mosquitoes, flies, cockroaches, which bring diseases or are nuisance to man, or the caterpillars and hoppers that eat our food crops. It was estimated that only 15% of insects that have been reported are actually pests. As one of God's creation, this group of animals has certain roles and functions to fulfill on this earth.

One of the best ways to learn about insects is to collect them. They can learn much more about insects by collecting and handling them than by reading them in books. Where to look for insects? Interestingly, insects can live in almost all kinds of habitat. They can be found by looking in the following places; under rocks, on the leaves of plants, especially on the undersurface of leaves, visiting flowers or fruits and many other places. They will provided with various equipment to collect insects such as swept net, aerial net, and also forceps for picking insects up. These fun activities aimed to expose the student to know more about insects and experienced the insect specimen making.



Insect's specimen making

3) Herbarium making

Preserved plants specimens give us information about plant diversity and distribution. Plants specimens can be stored in a special "library" called herbarium. Plant specimens will rot unless they are preserved properly. They can be pickled, frozen or bottled, but an easy (and cheap) way to preserve most plants is to press and dry them. This must be done well if plants are to be identified, stored, displayed or used for research.

Why make a collection? As we make our collection and identify the plants in it, we will learn about the different kinds of plants that grow around us. To make a herbarium specimen, the plant is collected, and notes are made about it. The plant is then pressed until dry between blotters that absorb moisture and mounted onto a herbarium sheet with a label. This activity is suited to students of all ages. It doesn't require much equipment. This activity will enhance many of their abilities: observation, creativity, concentration, patience, and even vocabulary.

Herbarium making supervise by ITBC's staff and students

4) Trekking to UMS Hills

Hiking isn't just good, healthy exercise; it's a great opportunity for teaching our school children about the natural world. Trekking to UMS Hills from Institute for Tropical Biology and Conservation will take 40 to 45 minutes. This piece of jungle in Universiti Malaysia Sabah is, primarily used for research, hiking, walking, and nature trips. The highest point is about 190m above the sea level. A view over Likas Bay and the city centre of Kota Kinabalu as well as Sepangar Bay awaits here. Apart of that, the students can learn about the vegetation along the trail and chance to spot insects, birds and small animals.

Trail to UMS peak

View of Kota Kinabalu City from UMS peak

Tree planting activity is a learning opportunity to get students involved in the environment and conservation of our natural resources. When students plant trees, they can see for themselves the structure of trees; learn what they need and how they grow. Students become aware that they can play a role in protecting the environment through personal involvement. Ultimately, it is hoped that the experience will help them make intelligent decisions about conservation and use of our valuable natural resources.

Tree planting activity

Ex-situ valley which is situated next to ITBC's building is an area for this activity. Various species of Borneo native trees were/will be planted namely kapur paji (*Dryobalanops lanceolata),belian (Eusideroxylon zwageri*), seraya daun mas (*Shorea argentifolia*) and many more.

During this activity, the students will dig a planting hole by themselves but under supervised by our staffs. Then, they will set the plant in the hole, fill the hole gently and lastly label the plant.

6) Talks on environmental issues

The talks started with the short introduction to the related topic presented by our lecturer / researcher. Most of the topics were related to environmental issues in Sabah and biodiversity in Sabah. At the end of the presentation, Q&A session will be conducted.

Talks on environmental issues by ITBC's lecturer

7) Environmental game

Playing an environmentally educational game would assist children in solidifying the concepts they learn in class, as well as introduce them to an engaging new way of gaining vital knowledge. Furthermore, a game exploring concepts, scenarios, and strategies of environmental preservation can encourage and empower children to become active participants in protecting the planet and promoting environmentally responsible behavior.

Among of the game that we conducted are nature games. There are six station were set up around ITBC's building, and each station will provide different activity (this activity may change from time to time).

Station 1 : Galeri BORNEENSIS
Station 2 : Process Room
Station 3 : Resource Room
Station 4 : Pantry (next to visitor's entrance)

Station 5 : Seminar Room
Station 6 : Green House

8) Nature art

Nature art is an activity using natural resources such as leaves, sticks, twigs, bark, flowers, seed pots, stones and more for art and craft.

i. Nature art bugs – students can make their own bugs using leaves and twigs
ii. Stone painting – art with rocks
iii. Book mark from pressed leaves and flowers
iv. Stamping with mushrooms

As for conclusion, children can learn about the environment in many ways. They should be exposed to an environmental education at an early age. Children who receive environmental education will grasp a stronger awareness of environment, more skills of environmental protection, deeper consciousness of the relationship between humans and nature, thus joining in protecting the environment to promote sustainable urban development.

Cleaning the beach #sayangi pantai kita bah!

By Petherine Jimbau

The students and staffs of Institute for Tropical Biology and Conservation (ITBC), Universiti Malaysia Sabah participated in the beach cleaning at the Outdoor Development Centre (ODEC) on 26 June 2019. This program entitled "*Jom ke pantai kita bah*" was officiated by Assoc Prof. Dr Monica Suleiman, Director of ITBC. The program started with the welcoming address by Director. In her speech, Dr Monica emphasized the important of awareness towards environment for the benefit of future generation. Followed by that Dr Fiffy Hanisdah Saikim, lecturer of ITBC gives a talk on environmental awareness. Her talk was focuses on disastrous of the effect of plastics to the sea creature and the pollution. At the end of the activity, a total of 16 trashes bag have been collected during one hour beach cleaning activities.

By Hanisah Binti Abdul Hamid, Wong Rui Yu, Nur Syafawati Shahira Binti Rapan, Valerie Irene Poinson and Nurul Afiqah Abd Lajid

Figure 1: Face-to face-meeting on the first day of the internship programme at ITBC, UMS

ITBC's History in brief

Undergoing our industrial training or internship for 12 weeks (between February-July 2020) at the Institute for Tropical Biology and Conservation (ITBC) in UMS was an experience that we will cherish forever. The internship has helped us immensely to enhance our knowledge, practical skills and ethics in biodiversity management in preparation for life in the real world after finishing our study. At the start of the internship, we were briefed on ITBC's history. Prof. Datin Dr Maryati Mohamed founded this Institute in 1996. The ITBC is primarily a research institution devoted to studying the biodiversity of the terrestrial environment in the tropical rainforest, including the plants, fungi, insects and vertebrate animals, and how they interact with each other and their physical environment. The aim is to understand the functioning of the natural ecosystem and how we can conserve them to maintain the useful ecosystem services they provide. With the establishment of the ITBC, researchers, both local and foreign, can now explore Sabah's biodiversity and study them even more efficiently.

In addition to introducing the history of the formation of ITBC, we were also briefed on the organization structure of the Institute, namely the research and development section, teaching and learning section, the administration and finance section, and the information network section. Briefings on the administration systems included the e-filing system and i-claim. In general, these have allowed us to familiarize with all the basics administration processes. After that, we were shown the BORNEENSIS museum, Galeri BORNEENSIS, laboratories, resource room and other infrastructure.

BORNEENSIS MUSEUM

ITBC's BORNEENSIS museum is an impressive facility which was designed as a repository centre to house extensive reference collections of Borneo's biodiversity resources, particularly of Sabah's origin. It is aimed to support and assist researchers in conducting their investigations on the biodiversity, as well as educating students/visitors on the diversity of Borneo's biological resources and ways how they can do their part in conserving the natural history heritage in this part of the world. As interns, we had the opportunity to curate a small portion of the BORNEENSIS' vast insect specimen collections. During insect curation and the associated data management through Microsoft Access software, we have learned hands-on curation procedure and techniques, and data management in a museum setting. We also gained useful knowledge on the proper equipment used in insect curation and suitable environment needed for the long-term keeping of the specimens.

Laboratory work

Laboratory work was also included in our internship scope of work at the Institute. We were assigned to do lab work on soil, which included determining soil moisture content, analysis of Total Organic Carbon (TOC) and post decomposition of filter paper. Our lab work also included plant tissue culture, autoclave of apparatus used for the tissue culture, preparation of various culture media, sub-culture of plant pods, protocorms and young plants and proper disposal of contaminated specimens.

By analyzing the total organic carbon, moisture content of soil and the rate of decomposition through filter paper, we were able to estimate how fast the carbon, nutrient and mineral transfer flow is in the environment. In the tissue culture, plant specimens used were orchid plants where under natural conditions, their chances of bearing seeds are extremely low. Using plant tissue culture techniques, identical plant individuals, or plant pods, can be cultivated abundantly in a controlled environment. Thus, plant tissue culture techniques are useful to promote the conservation of orchid plant by boosting their chances of survival in an artificial environment.

International collaboration

Many research projects and training activities are conducted collaboratively between the ITBC with other local and international institutions to strengthen the partnership between the institutions. We had the opportunity to work with students from Rakuno Gakuen University (RGU) - an established higher learning institution based in Hokkaido, Japan, to construct an environmental education tool known as the trunk kit. With the objective to educate the general public about Borneo's endemic Proboscis Monkey, we put into practice our creativity and innovative skills to create the trunk kit for students of different age groups in Japan and Malaysia to learn about the Proboscis monkey. Mock presentations using the trunk kit were conducted together with students of RGU. In addition to nurturing leadership, responsibility and teamwork, this project has enabled us to get to know each other better and to share different cultures and values.

Figure 2: Hands-on curation practical of invertebrate and data management in the BORNEENSIS

Some of us were involved in a two-week Tropical Biodiversity Field course participated by international students from Europe. We travelled to the Danau Girang Field Centre (DGFC) located in Kinabatangan, Sabah to attend the field course. We followed many lectures conducted by foreign scientists and were shown some of the on-going research projects in Danau Girang. For example, we experienced python tracking using VHF-tracking using a directional antenna to track signals emitted by transmitters

attached to tagged pythons (named Penagih and Jantung). We also learned how to set up Carrion trap using fresh chicken skin for trapping beetle. While in the forest at Danau Girang, we saw the highly elusive and almost extinct hairy-nosed otter. We considered ourselves very lucky, as this species was actually believed to have gone extinct in the wild. We also sampled beetles to be identified in the laboratory. For the last few days at DGFC, we were engaged in doing our scientific research projects. However, due to the COVID-19 pandemic, we were instructed to return home earlier than planned. Despite the unexpected event, overall, we had a valuable and remarkable experience at Danau Girang.

Figure 4: Activities with students of Rakuno Gakuen University, Japan

Figure 5: Prototype design of children pop-up storybook to introduce Borneo's Proboscis Monkey

Figure 6: VHF-tracking and tagging of the pythons named Penagih and Jantung at DGFC

English Communication and Fieldwork Skills for Biodiversity Communication & Conservation Programme

By: Robert Francis Peter

In February 2020, fifteen (15) second year students from Hokkaido's Rakuno Gakuen University took part in a four (4) weeks long English Communication and Fieldwork Skills for Biodiversity Communication & Conservation Programme here in Sabah. This short-term program began on 17 February 2020 and it ended on 13 March 2020. The objective of the program was to enhance the students' understanding and capability in the conservation and communication of biological diversity specific to the most widely spoken language in the world i.e. the English language.

Led by Prof. Kaneko Masami and assisted by Ms Khew Ee Hung, the Biodiversity Communication & Conservation programme focused three (3) weeks on Biodiversity communication and conservation at UMS' Kota Kinabalu main campus and one week on the field at Batu Puteh of Kinabatangan. Four scholars from ITBC namely Assoc. Prof. Dr. Henry Bernard, Dr. Jaya Seelan A/L Sathiya Seelan, Dr. Fiffy Saikim, and Mr Julius Kulip, and four language facilitators namely Dr. Robert Peters, Dr. Pricilla Shak, Dr. Amnah Abdullah, and Mdm. Veronica Atin took turns to assist the 15 Japanese students become familiar with the subject of biodiversity conservation and its communications.

Among the activities that the Japanese students carried out included tree planting, sampling of cultural dance dan traditional delicacies, insect collection and curation, and environmental education boardgaming. There was also an activity that focused on international relations when the Japanese students engaged with local UMS' students (refer to the above picture).

The first time the program was implemented by ITBC was in 2019, while the February 2020 biodiversity communication and conservation program was the second of its kind. A third program was supposed to also take place later this year, but due to the COVID19 pandemic that program had to be cancelled.

In Poring Nature Reserve, Ranau Sabah.

By: Azniza Mahyudin, Chew Shi Wah, Azimah Ali Hassan, Tan Jia Sin, Hairul Hafiz Mahsol and Homathevi Rahman.

Borneo as one of bat diversity hotspots, harbours more than a hundred species with 92% of the species have been recorded in Sabah (Payne et al. 2007; Phillips and Phillips, 2018). The diversity of bats in Sabah also contributes to 40% of mammalian diversity in Malaysia and 10% of the world's bat diversity (Kingston et al. 2006). However, the number of bat studies in Malaysia is generally limited, which includes Sabah, mainly.

The current CoVid19 pandemic has drawn the public's attention on the bat, in a negative way. Bats are regarded as a reservoir to numerous common human and animal viruses and potentially ectoparasites that carry diseases (Quan *et al.,* 2013). Yet, the information on the biodiversity of viruses and ectoparasites associated with bats in Malaysia, especially in Sabah are limited.

There are a few insects orders that identified as ectoparasites from wildlife population. These are including Order Diptera (flies, mosquitoes, maggots, midges), Order Phthiraptera (lice), Order Mesostigmata (mites), Order Ixodida, with suborder Ixodidae and Argasidae (tick) and Order Siphonaptera (fleas). A few of these orders has been recognised as the vector for bacterial diseases, such as Rickettsia and Borrelia.

Figure 1*: Cynopterus minutus*

Realising the gap in ectoparasites studies in Sabah, a study was carried out in Poring Nature Reserves, to identify the diversity of ectoparasite from bats population residing in the protected area.

Figure 2*: Hipposideros cervinus*

Twelve bat-host has been recorded for this study: *Balionycteris maculata*, *Cynopterus brachyotis Cynopterus minutus* (Figure 1), *Cynopterus horsfieldii*, *Macroglossus minimus*, *Hipposideros cervinus* (Figure 2), *Hipposideros galeritus*, *Megaderma spasma*, *Miniopterus australis*, *Miniopterus schreibersii* and *Megaerops wetmorei*. Amongst these bat species, *Hipposideros cervinus* was found highly infected by ectoparasite in the study sites.

The ectoparasite diversity in Poring Nature Reserve is contributed by two orders which are Order Diptera and Order Mesostigmata, with ten morpho-species have been identified. These morpho-species are *Basilia sp. (*Figure a), *Leptocyclopodia sp.* (Figure b), *Penicilidia sp.*(Figure c), *Raymondia sp., Stylidia sp., Laelap sp.* (Figure d), *Steatonysus sp.* (Figure e), *Meristaspis sp.* (Figure f), *Paraperiglischrus sp.* (Figure g), *and Spinturnix sp.* (Figure h).

Basilia sp (Figure a)

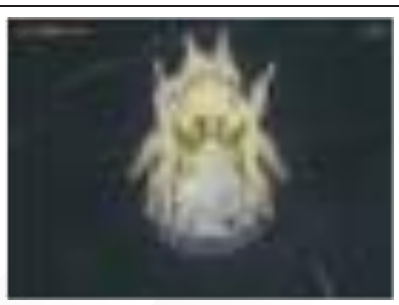
Leptocyclopodia sp (Figure b)

Penicilidia sp.(Figure c)

Laelap sp. (Figure d)

Steatonysus sp. (Figure e)

Meristaspis sp. (Figure f)



Paraperiglischrus sp. (Figure g)

Spinturnix sp. (Figure h)

From this study, we can conclude that the study of ectoparasites in Malaysia, particularly in Sabah, is challenging. It was due to limited taxonomical and ecological information on bats' ectoparasites. Therefore, further study on taxonomy, distribution, ecology and interaction between bats-ectoparasites must be conducted as a reference for future research especially in Malaysia.

Acknowledgment:

We would like to thank Sabah Parks for allowing us to conduct the study, also Mr. Isham Azhar for his bat photos. This study were funded by UMS internal grant SBK 0375-2018, awarded to Azniza Mahyudin and Vijay Kumar, and MOHE grant FRG 0528- 2019, awarded to Azniza Mahyudin, Hairul Hafiz Mahsol and Homathevi Rahman.

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GALERI BORNEENSIS

Mempamerkan

kepelbagaian flora dan fauna yang terdapat di Sabah yang mana penekanan adalah kepada spesimen yang sukar dijumpai, unik serta endemik kepada negeri Sabah. Diantaranya ialah ungka, binturong, tikus bulan, tenggiling, musang tenggalung, kongkang dan monyet belanda. Turut dipamerkan ialah model rangka tulang gajah pigmi yang diberi nama 'Tagas'. Model ini merupakan satu-satunya model rangka tulang gajah pigmi yang dipamerkan diseluruh dunia.

Exhibit

the diversity of flora and fauna in Sabah highlighting to the rare, unique and endemic species to Sabah. Among them are gibbon, bearcat, moon rat, pangolin, civet, slow loris and proboscis monkey. "Tagas" which is the one and only skeleton model of borneo pigmy elephant in the world was exhibit in this gallery.

- Lawatan Berpandu / *Guided Tour*
- Melihat serangga menerusi mikroskop / *Insect under the microscope*
- Kepelbagaian Flora dan Fauna di Sabah / *Diversity of flora and fauna in Sabah*
- Susun suai gambar / *Jigsaw puzzle*
- 5 Ruang pameran : Lobi atas, Aras 1, Enclave, Atrium, Aras Bawah / *Exhibit area*

Bayaran masuk / *Entrance fee*

Warganegara

Malaysia / Malaysian

Dewasa / *Adults*	RM5.00
Pelajar 7- 17 thn / *Student 7-17 yrs*	RM2.00

Warganegara Asing / *Foreigner*

Dewasa / *Adults*	RM10.0
Pelajar 7- 17 thn / *Student 7-17 yrs*	RM4.00

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AND CONSERVATION
Borneensis Bulletin
ISSUE NO.10 2020

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INSTITUTE FOR TROPICAL BIOLOGY AND CONSERVATION

Borneensis Bulletin

ISSUE NO.10 2020

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ISSN 1985-9546