



# IBEC Bulletin

Vol. 1 No. 2 – June 2020

e-ISSN: 2716-6422



**IBEC BULLETIN 2020**

**Vol. 1 No. 2 - June**

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## WEBINAR- 'HERPETOLOGY OF AN ANTIQUE LAND' BY PROF. INDRANEIL DAS ON FACEBOOK LIVE

By  
Pang Sing Tyan, Ph.D. Candidate

Prof. Indraneil Das shared his work in an interview hosted by Jayaditya Purkayastha in 'Heart Talk', live on Facebook on 17 May 2020, at 2.30 pm (Malaysia time), which is part of a series of webinar interviews of environmentalists and scientists on a variety of topics. It began with an introductory presentation that covers his recent research works with his colleagues and students in UNIMAS. Life history strategies of amphibians and reptiles is his all-time interest and passion, inspired by his mother at a young age, paving the way to his career. The main talk entitled 'Herpetology of an Antique Land' follows the chronology of collectors and researches in India and South Asia, starting from Vedic times, through the British colonial period, to the current period.

Post-presentation questions from viewers included advice on writing and publishing papers, as well as collecting and curating specimens. He is regarded as "The Walking Encyclopaedia of Herpetology" for his vast experiences, knowledge and credibility in the field.

The session took 105 minutes and had 675 live viewers.

# WE WILL FIGHT COVID-19



join me on **FACEBOOK LIVE** with

## DR. Indraneil Das

Topic: Herpetology of an antique land

Date and time: 17 May 2020, 12:00 PM (IST)

Live on : [www.facebook.com/mail.jayaditya](https://www.facebook.com/mail.jayaditya)

# STAY HOME SAVE LIVES

## ELECTION AS 'MEMBER-AT-LARGE' TO THE SOCIETY OF MARINE MAMMALOGY (SMM) BOARD

By  
Cindy Peter

I was recently voted in as a Member-at-Large in the Society for Marine Mammalogy (SMM) board. The voting poll was conducted online between 23 April to 11 May 2020 by members of the SMM. I will be joining the Board for a four-year term, beginning in July 2020.

The Society for Marine Mammalogy was founded in 1981 and is the largest international association of marine mammal scientists in the world. The mission of the SMM is to promote global advancement of marine mammals science and contribute to its relevance and impact in education, conservation, and management. The SMM holds biennial international meetings with the goal of enhancing collaboration, sharing ideas, and improving the quality of research on marine mammals within the scientific community. *Marine Mammal Science* is the journal arm of SMM where it publishes significant new findings on marine mammals resulting from original research.

I am so grateful that the SMM board gave a chance for this researcher all the way from the island of Borneo, to run for the election. I hope to bring positive energy to the committee while pushing for my priorities of being a voice for developing country members, especially students, and to promote their inclusion in the Society, thus advancing marine mammal science globally.



**The Society for Marine Mammalogy**



## WORLD TURTLE DAY 23 MAY 2020

By  
Indraneil Das

23 May is celebrated as 'World Turtle Day' annually. The reasons are manifold- to bring attention to arguably one of the most threatened groups of animals (with over half the species listed as in danger of becoming extinct), and also, proverbially the longest lived species, the symbol of longevity, patience and good luck.

Two IUCN Specialist Groups are tasked with monitoring their status and conservation- the Marine Turtle Specialist Group and the Tortoise and Freshwater Turtle Specialist Group. Yet, not much is known of the natural history of the turtles and tortoises of Sarawak and Borneo, nor are there serious efforts to understand their conservation requirements.

To remind us of our responsibility to this group of animals, the Institute is pleased to release on this day, a special postcard. It features a classic Sarawak stamp from 1955 (part of the Queen Elizabeth II Definitive Series; 15 cent ultramarine) on obverse, and a short conservation message on the reverse. The card, along with a matching postage stamp, will be mailed out to our partners on the day.



## HIGH ENDEMICITY OF CAVERNICOLOUS CRABS – IMPLICATION OF HIGH CONSERVATION VALUE

By  
Jongkar Grinang

Limestone outcrops represent less than one percent of the total landmass of Borneo. Nonetheless, these small and often isolated habitat contains high diversity of plants and animals including cave inhabitants or cavernicoles, many of which are endemic. In particular, the crab fauna of limestone caves is well represented with no less than 18 species. Interestingly, 14 species are trogliphilic (live both inside and outside of the cave) and four species are truly troglobitic or live entirely in the dark habitat (see table below). All troglobitic and some trogliphilic species are endemic to the respective cave system.

Cave systems in Sarawak play a crucial role as historical and cultural sites, and have been regarded as natural laboratory for investigating evolution and climate change because of their stable microclimate. Current utilization of cave systems including production of edible bird-nest and guano, and ecotourism pose a threat to geological forms and biodiversity of these systems. Our research focuses on describing species, and documenting their occurrence and conservation issue that are crucial for management of the cave systems and their biodiversity. As such, we are expanding our collaboration with counterparts from Sabah and Kalimantan to achieve our goal to systematically document the crab fauna of limestone caves in Borneo. Our research activities are funded by grants from The Mohamed bin Zayed Species Conservation Fund (Project No. 13054042) and Malaysian Palm Oil Board (GL(I01)/MPOB/03/2016).

### Species

*Adeleana chapmani* Holthuis, 1979\*  
*Cerberusa caeca* Holthuis, 1979\*  
*Cerberusa tipula* Holthuis, 1979\*  
*Guaplax denticulata* Naruse, Ng & Guinot, 2008\*  
*Balassiathephusa phasma* Ng & Guinot, 2014\*\*  
*Arachnothelphusa rhadamanthysi* Ng & Goh, 1987\*\*  
*Isolapotamon bauense* Ng, 1987\*\*  
*Isolapotamon collinsi* Holthuis, 1979\*\*  
*Parathelphusa pulcherrima* (De Man, 1902)\*\*  
*Parathelphusa valida* Ng & Goh, 1987\*\*  
*Perithelphusa borneensis* (von Martens, 1868)\*\*  
*Stygothelphusa antu* Ng & Grinang, 2014\*\*  
*Stygothelphusa bidiense* Ng, 2013\*\*  
*Stygothelphusa cranbrooki* Ng, 2013\*\*  
*Sundathelphusa tenebrosa* Holthuis 1979\*\*  
*Thelphusula styx* Ng 1989\*\*  
***Arachnothelphusa new species* (in review)\*\***  
***Stygothelphusa nobilii* (Colosi, 1920)\*\***

### Type locality

Great Cave, Niah National Park, Miri  
 Deer Cave, Gunung Mulu National Park, Miri  
 Clearwater Cave, Gunung Mulu National Park, Miri  
 Gua Laowacling, East Kalimantan  
 Gua Kambing, East Kalimantan  
 Gomantong Cave, Sandakan, Sabah  
 Gua Sireh, Serian  
 Clearwater Cave, Gunung Mulu National Park, Miri  
 Uncertain. Baram  
 Gomantong Cave, Sandakan, Sabah  
 Uncertain. Kalimantan  
 Gua Rembus, Padawan  
 Bidi Cave, Bau  
 Gua Sireh, Serian  
 Deer Cave, Gunung Mulu National Park, Miri  
 Bat Cave, Gunung Mulu National Park, Miri  
**Bukit Sarang limestone cave, Bintulu**  
**Uncertain. Samarahan (research in progress)**

\* trogliphilic – live both inside and outside of the cave system

\*\* true troglobitic – live entirely inside the cave system

type locality – the place where the specimen used for species description (a holotype) was discovered





**A.** An entrance of Great Cave, Niah; **B.** A Padawan limestone formation; **C.** *Adeleana chapmani* at Niah Great Cave; **D.** *Stygothelphusa antu* inside Rembus Cave, Padawan; **E.** *Stygothelphusa cranbrooki* in Gua Sireh, Serian; **F.** *Cerberusa tipula* from Agong Cave, Gunung Mulu National Park; **G.** *Arachnothelphusa*, a new species from a limestone cave of Bukit Sarang, Bintulu; **H.** *Arachnothelphusa rhadamanthysi* from Gomantong Cave, Sandakan, Sabah; **I.** garbage dump as a result of edible bird-nest and guano production activity; **J.** one of cave surveys participated by the author at Gunung Mulu in September 2012. **G** and **H** photographed by Tan Heok Hui and Keith Christenson, respectively.



## SYSTEMATICS, ECOLOGY AND BIOGEOGRAPHY OF THE GEKKONID GENUS *CNEMASPIS* IN BORNEO (SQUAMATA: GEKKONIDAE)

By  
Izneil Nashriq, M.Sc. Candidate

The genus *Cnemaspis* includes small-bodied, diurnal or crepuscular geckos that inhabit primary to old secondary rainforests found in Africa and Asia, and are mostly associated with rocky biotopes. The Southeast Asian *Cnemaspis* representatives range from southern Laos, southward through Vietnam, Cambodia, Thailand, through the Thai-Malaya Peninsula and eastward to Borneo and Java, through the Seribuat, Anambas and Natuna archipelagos. The unique characters of these rock-dwelling geckos are expressed in their long limbs, slender digits, rounded pupils, bright colours, and often, interesting behavioural displays.

Studies on Bornean *Cnemaspis* have lagged behind those in other parts of the continent, and only five species have been described, all from Sarawak. My thesis is on the systematics and ecology of these lizards, and fieldwork has led to the discovery of two new species, from Serian and Miri respectively. Although occupying different habitat types, individual species of the genus are restricted to specific geological formations, such as limestone, granite, and sandstone. Many of such habitats, unfortunately, are outside of protected areas and exposed to human activities such as limestone mining and deforestation, reducing potential areas for the species. Conserving these areas is thus essential for the survival of the geckos, and for other endemic components of biodiversity that rely on such formations.



*Cnemaspis paripari*, an endemic of the Wind and Fairy Caves of western Sarawak.



**POLLINATION STUDIES OF AROIDS IN MULU NATIONAL PARK****By****Chai Shong Kian, M.Sc. Candidate**

Gunung Mulu National Park is the largest National Park of Sarawak, consisting of an area of 85,671 ha between Miri and Limbang Division and is one of the UNESCO World Heritage Sites in Malaysia. Gunung Mulu N. P. is dominated by Mount Mulu (2,376 m, sandstone interbed shales), Mount Api (1,750 m, limestone) and Mount Benarat (1,858 m, limestone). There are three notable caves in Mulu's limestone mountains: Sarawak Chamber (World's largest underground chamber), Deer Cave (World's Largest cave passage) and Clearwater cave (World 8<sup>th</sup> longest cave system). Besides, there are other less notable caves with uniqueness among each of them in terms of cave formation and cave features. The park is also famous for its million-bat exodus (Wrinkle-lipped bat) from Deer Cave at dusk and the white pinnacles on Mount Api. The forest types of Gunung Mulu N. P. include riverine forest, lowland limestone forest, lower montane limestone forest, upper montane limestone forest, lowland mixed dipterocarp forest, lower montane forest, mossy forest, kerangas forest, and peat swamp forest. The pristine forest of the park contains over 3,500 plant species and 1,500 flowering plants. There were 20,000 species of invertebrates, 81 species of mammals, 270 species of birds, 55 species of reptiles, 76 species of amphibians, and 48 species of fish identified in the park.

The first time I stepped into the park was during September 2017, where I worked as an intern in the park. At that time, I gained access to most of the guided tours to main attractions of the park (Deer cave, Clearwater cave, Lagang cave, the Mulu's pinnacles). I also did self-guided trekkings to all the trails near the headquarter to look for aroid species (Araceae) as the focused species for my M.Sc. project. There are 96 identified aroid species of which 22 species are new to science. I have recently described four new species which are all Mulu endemics. For my M.Sc. work, I worked on pollination studies of 21 aroid species in the park. The pollination studies of Bornean aroids are still at the beginning stage as there are still many species awaiting to be studied. The timing of anthesis, floral mechanism, floral traits and rewards, pollinator(s) and their behavior, and the type of pollination remain unknown for most aroid species. I also took the opportunity to capture the images of flora, fauna, and scenery of the park which I share some in the next page.



A



B

**A.** Melinau river upstream (Camp 5).  
**B.** Mount Benarat (view from Camp 5).



C



D



E

**C.** Garnet pitta. **D.** *Nepenthes muluensis* (Mulu summit). **E.** *Nepenthes lowii* (Mulu summit).



F



G

**F.** *Amorphophallus julaiihii*. **G.** Mount Api (left), Mount Benarat (right), view from Camp 4.



H



I

**H.** Deer cave interior.  
**I.** Clearwater Cave entrance ceiling.



## WATER QUALITY ASSESSMENT AND MOLECULAR CHARACTERIZATION OF ANTIMICROBIAL RESISTANT BACTERIA FROM RECREATIONAL WATER IN KUCHING AREA

By

**Khairunnisa Mohammad Hamdi, M.Sc. Candidate**

Water is one of the most important components in ecosystem. Owing to the elevating cases of Recreational Water Illness (RWI), the desirable level of water quality should be prolonged in consonance to Malaysia Water Quality Standard (WQI) in the aspect of physical, chemical and biological properties. This is essential as recreational water acts as one of the routes of germ transmission through the act of swallowing or having contact with contaminated water. Accordingly, this study aims to assess and analyze the water quality and the risks associated with antimicrobial resistant bacteria from recreational waters within Kuching area. The analysis will also include the expected relationship between the current status of water quality and the contributory factor of land uses. With all of the procured analysis results, this research will contribute data for the monitoring programme of antimicrobial susceptibility bacteria and recreational water quality status in Kuching, Sarawak.



One of the recreational areas in Bau, Sarawak.



**EVALUATION AND DEVELOPMENT OF BIO-ACTIVE COMPOUNDS FROM *SENNA ALATA* (L.) ROXB. AGAINST MULTIPLE ANTIBIOTIC RESISTANT BACTERIA FROM AQUACULTURE ENVIRONMENT**

**By**

**Scholastica Ramih Anak Bunya, M.Sc. Candidate**

The emergence of bacteria with multiple antibiotic resistance from the aquaculture environment is a big threat to human health as aquaculture is a major sector in the agricultural industry for protein sources. The decreasing efficiency of antibiotics when treating infections has limited the choice of antibiotics for disease treatment. Therefore, this study targets to search for alternative antimicrobial agents from a medicinal plant: *Senna alata* (L.) Roxb. Although there has been considerable research on the extraction of antimicrobial compounds from *S. alata*, however, there are limited data on the study of *S. alata* against pathogens occurring in the aquaculture environment. This study will provide baseline data on its chemical compounds including any antimicrobial properties with potential to be used as new, safe, efficient and cost-effective natural drugs for combating multiple antibiotic resistant bacteria from the aquaculture environment.



*Senna alata* (L.) Roxb. (Fabaceae)

## ISOLATION AND IDENTIFICATION OF BACTERIA SPECIES FROM RECREATIONAL WATER AND ITS ENVIRONMENT

By  
**Stanley Sait Anak Agusti, M.Sc. Candidate**

Recreational areas such as waterfalls are an attraction in Sarawak, that are becoming increasingly popular among locals and tourists. Although the natural aquatic environment provides enjoyment to users, they are also a potential reservoir for waterborne disease-causing bacteria. Recreational water users may impose various health risks owing to exposure to a range of pathogenic bacteria some due to faecal pollution.

The current study aims to isolate, identify and characterize diverse types of bacterial species from recreational water and its environment. The risk associated with potential pathogenic bacterial from the recreational river water will be assessed in relation to public health.



Sikog Waterfall, Siburan, Sarawak

## RECENT PUBLICATIONS

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6. Hines, E., Ponnampalam, L.S., Junchompoo, C., Peter, C., Vu, L., Huynh, T., Caillat, M., Johnson, A.F., Minton, G., Lewison, R.L. & Verutes, G.M. (2020). Getting to the bottom of bycatch: a GIS-based toolbox to assess the risk of marine mammal bycatch. *Endang Species Res* 42:37-57. <https://doi.org/10.3354/esr01037>.
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10. Perry, G., M. Lacy & Das, I. (2020). Snakes, snakebites, and humans. In: *Problematic wildlife II. New conservation and management challenges in the human-wildlife challenges*. pp:561–580. Angelici, F.M. & Rossi, L. (Eds.). Springer International Publishing AG, Cham, Switzerland. [doi.org/10.1007/978-3-030-42335-3\\_18](https://doi.org/10.1007/978-3-030-42335-3_18)
11. Roslan, H.A., Husaini, A., Lihan, S. & Kota, M.F. (2020). Partial purification and characterization of antifungal peptides produced by *Bacillus amyloliquefaciens* PEP3 against *Phytophthora capsici*. *Applied Science and Engineering Progress* 13(1): 56-66.



# Baram Heritage Survey



The **Baram Heritage Survey Initiative** is a collaborative project that has trained local forest-dependent communities to be effective managers of socioecological communities by connecting scientific methods to Traditional Ecological Knowledge.

Together with a management team, technicians from participating communities will clear walking paths on transects. The technicians will then walk these paths one time per month for 12 months to collect data on animal signs and observations. They will also collect data on household income, hunting, gathering, and land use.

This collaborative process, whereby local communities participate in the long term collection of social and ecological data alongside scientists, generates long-standing buy-in from the communities, deepens local knowledge, and as active participants demystifies the scientific process for communities.



**We are now developing a plant component of the survey to identify important tree and plant species. We are seeking interested students and researchers to assist with developing the methodology and identifying key species.**

For more details, please contact [azlan@unimas.my](mailto:azlan@unimas.my)