“Together We Unite To Conserve and Protect Our Biodiversity”-

Zolkipli Mohamad Aton
Chief Executive Officer, SFC
Controller of National Parks and Nature Reserves
Controller of Wild Life

Photo background: Kubah National Park
Sarawak Forestry Corporation (SFC) is proud to be the host of the inaugural Malaysian Conservation Conference 2022 (MCC). Firstly, we would like to extend our utmost welcome to all conference delegates to our beautiful State of Sarawak – the Land of Hornbills; as well as to our delegation partners from the Department of Wildlife and National Parks Peninsular Malaysia (PERHILITAN), Sabah Parks and Sabah Wildlife.

The MCC is a platform for field conservationists, wildlife authorities as well as park managers to congregate while engaging in various sessions to gather and exchange ideas, methodologies plus approaches in conservation policies, protection, enforcement, ecotourism and management; amongst others.

Due to the Covid-19 pandemic situation, SFC has decided to hold a hybrid conference i.e., a virtual conference with partial presence of participants to mitigate and curb any upcoming waves of the pandemic. Concurrently, it is our responsibility to ensure all conference participants present physically, abide with all safety and health regulations.

We are very much aware of the catastrophic happenings involving our environment such as the extinction of various species of flora and fauna as well as climate change worldwide. Thus, human intervention is crucial to ensure the conservation and protection of our wildlife and environment is our utmost priority. It is hoped that the outcome of this conference would pave ways in ensuring the sustainability of our biodiversity is safeguarded in order to maintain a healthy, functional ecosystem and beneficial to our current and future generations.

I truly believe that MCC will open up a plethora of opportunities to explore key issues in conservation, gaining in-depth knowledge of the issues and challenges concerning our environment and ultimately creating impact and discovering what we can do to champion the conservation and sustainability of our environment, wildlife and biodiversity.

Hence, I urge all delegates to take this opportunity to unearth, rediscover and resetting our goals in biodiversity conservation while simultaneously pledge our allegiance to a better future for all, in line with our theme “New Frontier in Conservation: Past, Present and Future”.

We look forward on the outcome of this first-ever Malaysian Conservation Conference 2022; where all concerns in regards to biodiversity and environmental matters are address tactfully. Towards the end, the outcome of the conference will be presented to the policy-makers for the betterment and adoption of best practices as a way forward in our tireless conservation journey. The success of this inaugural MCC will indeed be a testament for us to steer our direction for the next conference in 2025!

SFC would like to extend our deepest gratitude to our partners; the management of PERHILITAN, Sabah Parks, Sabah Wildlife and all conference delegates in making this Malaysian Conservation Conference 2022 a success!
So much has happened since the country was declared as a megadiverse country in 1997. Challenges come in many forms, Y2K, the internet boom, IR but the most talked about is definitely COVID-19 and it is, unfortunately, linked to wildlife.

Conservation of wildlife and its habitat are intertwined with the surrounding changes and challenges. Whether it is land use change, deforestation or displacement, wildlife and their habitat will continue to be affected. But what say we?

We must adapt to challenges. Our laws must be updated, and our techniques should be innovative to catch up with technology and landscape changes. Highly iconic species like the Malayan Tiger, Orang Utan and Borneo Pygmy Elephant are facing extinction, so we must work together to enhance our understanding and efforts to conserve these species as well as other species in Peninsular Malaysia, Sabah and Sarawak.

The main theme for Malaysia Conservation Conference is “New frontier in conservation: past, present and future”. It is timely and realistic, both the conference and its theme to address the ongoing challenges faced by wildlife and protected areas. We must not also forget local communities that live and interact with nature day in and day out. Yes, Malaysia is a megadiverse country and it is a fact that everyone knows. But we should not take it for granted. Participants at the Conference will discuss and strive to come up with thoughtful resolutions which will provide conservation parties in the country better understanding of these challenges and efforts to tackle them.

The Ministry of Energy and Natural Resources (KeTSA) through PERHILITAN would like to thank the Sarawak Government and especially Sarawak Forestry Corporation for taking the initiative in hosting the inaugural Malaysia Conservation Conference. Let us hope that the Conference will act as a catalyst for better things to come.

Foreword from Director General
PERHILITAN
Dato’ Abdul Kadir bin Abu Hashim
Foreword from
Director of Sabah Parks
Dr. Maklarin Lakim

Borneo has long since been a source of mystery and wonder for explorers throughout the world. Borneo Island, the third largest island in the world and the biggest in the Southeast Asian region, is also a biodiversity hotspot. Its rainforests, one of the oldest in the world, is home to 15,000 species of plants, 3000 species of trees, 221 species of mammals and 420 species of birds. Many of these are endemic species, irreplaceable and found nowhere else in the world. Borneo is also a melting pot of different peoples of various ethnic groups, each with their own unique languages and customs. All of whom share a special relationship with the nature that envelops this wonderous island.

Sabah Parks is honoured to be one of the partners of the Malaysian Conservation Conference 2022 alongside the Sarawak Forestry Corporation (SFC) the state government of Sarawak. We view the SFC as brothers-in-arms, conserving the rich biodiversity of the Borneo rainforests. We and the SFC share the common vision of seeing the rich heritage of these forests to be protected for generations to come.

The Borneo rainforests are unfortunately under threat due to many factors: deforestation, illegal poaching and gathering of jungle resources and global warming which results in the degradation of the forests and the disappearance of many of its species. Therefore, the Malaysian Conservation Conference 2022 is very much needed. Governments, as well as many scientists, conservationists, and non-governmental organisations not only in this country, but also around the world need to come together to share research, strategies and formulate policies to better protect our green heritage in Borneo.

Once again, I, on behalf of Sabah Parks would like to thank the organizing committee for our involvement in the Conference. We wish the attendees from all over the world to have a fruitful discussion and we hope the solutions presented during the Conference be beneficial to all attendees.
Malaysian Conservation Conference (MCC) is a meeting platform for field conservationists and their international collaborators working in Malaysia. MCC was conceived by the four Malaysian government partners, i.e. Sarawak Forestry Corporation (SFC), Department of Wildlife and National Parks (PERHILITAN), Sabah Parks and Sabah Wildlife. The conference is a forum to discuss conservation challenges as well as to present applied conservation research. The forum in turn supports networking amongst the community of applied conservation practitioners.

MCC 2022 will be the inaugural conference for Malaysia. It will be held in Kuching, Sarawak, from the 29 Mar – 31 Mar 2022. SFC will host for this conference. The main theme for MCC 2022 is “New frontier in conservation: past, present and future”. In line with the main theme, presenters will share their knowledge and experience on six sub-themes:

1. **Conservation Governance**: Policy, Legislation, Protection and Enforcement.
4. **Ecosystem and Habitat**: Restoration, Rehabilitation, Enhancement & Protection.
5. **Totally Protected Areas (TPAs) Management**: Sustainable Conservation and Revenue generation.
6. **Beyond Conservation**: Ecotourism, Education, Community Engagement, Traditional Ecological...
Participants in MCC 2022 will have opportunities to engage in presentations from impactful speakers, learn about different technologies, methods, and approaches to conservation, participate in post-conference tour, and form new or strengthened partnerships among the conservation community. Resolutions will be drafted and adopted by participants attending this conference.

MCC will be held once in three years, and the host will be rotated between the above-mentioned regional partners of Sarawak, Sabah and Peninsular Malaysia.

As MCC 2022 is hosted by Sarawak, the following Sarawak-linked development principles of biodiversity conservation, eco-tourism, rural transformation, revenue generation and digital economy are also highlighted by Sarawakian presenters.
### DAY 01, 29th MARCH 2022 (TUESDAY)

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8.30-10.00am</td>
<td>Registration of Participants</td>
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<tr>
<td>8.30am</td>
<td>Closed Session (Members only)</td>
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<td>- Appointment of Conference Chairman</td>
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<td>- Appointment of Conference Officers</td>
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<td></td>
<td>- Discussion</td>
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<td></td>
<td>- Establishment of Standing Orders for MCC 2022</td>
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<tr>
<td>10.30am</td>
<td>Tea Break</td>
</tr>
<tr>
<td>10.45am</td>
<td>Arrival of Invited Guests and Media</td>
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<tr>
<td>11.00am</td>
<td>Arrival of Guest of Honour</td>
</tr>
</tbody>
</table>
|          | The Right Honourable Datuk Patinggi Tan Sri  
|          | (Dr) Abang Haji Abdul Rahman Zohari bin                             |
|          | Tun Datuk Abang Haji Openg                                          |
|          | Premier of Sarawak                                                  |
|          | Chairman of The Board of Directors, SFC                            |
|          | Welcoming Address by;                                               |
|          | Tuan Haji Zolkipli Mohamad Aton                                      |
|          | Chief Executive Officer                                              |
|          | Controller of Wild Life                                             |
|          | Controller of National Parks and Nature Reserves                    |
|          | Keynote Address by Dr Madhu Rao                                      |
| 12.30pm  | Lunch                                                               |

Note: only the main speaker and his/her institution is highlighted. For the full list of speakers and their affiliations for each paper, please refer to the abstracts.
Plenary Session I: Main Working Paper

2.00 - 2.20 pm  Sarawak Forestry Corporation
2.20 - 2.40 pm  Sabah Wildlife Department
2.40 - 3.00 pm  PERHILITAN, Peninsular Malaysia
3.00 - 3.30 pm  Sabah Parks

Sub-theme 1: Conservation Governance: Policy, Legislation, Protection and Enforcement
Session Chair: Oswald Braken Tisen, Sarawak Forestry Corporation, Sarawak

3.30 - 3.50 pm  Mainstreaming Biodiversity Through Sarawak Biodiversity Master Plan for A Sustainable Future - Tang Hung Huong et al. - MUDeRN
3.50 - 4.10 pm  Overview Trends of Wildlife Cyber-crimes During Covid-19 Pandemic in Peninsulas Malaysia Noraini Nasaruddin et al. - PERHILITAN
4.10 - 4.30 pm  Tea Break
4.30 - 4.50 pm  Towards an Internationally Recognized Standard for Protected and Conserved Areas in Sarawak - The IUCN Green List Cynthia Chin et al. - WWF Malaysia
4.50 - 5.10 pm  Protected Wildlife Seizure Cases in Sarawak INSPI. Mohd Shafiq Bin Kassim - Sarawak Contingent Police Headquarters, Kuching, Sarawak, Royal Malaysia Police
5.10-5.30pm  Q & A
5.30pm  Ends

Note: only the main speaker and his/her institution is highlighted. For the full list of speakers and their affiliations for each paper, please refer to the abstracts.
**Sub-Theme 2: Integrated Wildlife Management: Technology, Innovation and Practices**  
**Session Chair: Mohamed Shah Redza Hussein, Perak State Park Corporation (PSPC)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.00 - 9.20 am</td>
<td>Use of Drone in Protected Areas Management in Peninsular Malaysia</td>
<td>Salman Saaban <em>et al.</em> – PERHILITAN, Peninsular Malaysia</td>
</tr>
<tr>
<td>9.20 - 9.40 am</td>
<td>An Overview Of The Population Of Bearded Pig (Sus Barbatus) In Gaya Island, Tunku Abdul Rahman Park</td>
<td>Fred Tuh Yit Yu &amp; Nasruhlakim Maidin – Sabah Park</td>
</tr>
<tr>
<td>9.40 - 10.00 am</td>
<td>One Health Approach in Zoonotic Surveillance in Sarawak</td>
<td>Cheng Siang Tan <em>et al.</em> - UNIMAS, Sarawak</td>
</tr>
<tr>
<td>10.00 - 10.20 am</td>
<td>Assessment of Red List Flora of Lowland Dipterocarp Forest in Pasoh Forest Reserve, Negeri Sembilan.</td>
<td>Mohd Afzanizam <em>et al.</em> - Forestry Department, Peninsular Malaysia</td>
</tr>
<tr>
<td>10.20 - 10.40 am</td>
<td>Mapping your organism management strategy for prioritizing conservation areas</td>
<td>Ramlah Zainudin <em>et al.</em> - UNIMAS, Sarawak</td>
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<tr>
<td>10.40 - 11.00 am</td>
<td>Q &amp; A</td>
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<tr>
<td>11.00 - 11.20 am</td>
<td>Tea Break</td>
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</table>

**Note:** only the main speaker and his/her institution is highlighted. For the full list of speakers and their affiliations for each paper, please refer to the abstracts.

**Sub-Theme 3: Wildlife Conservation and Research**  
**Session Chair: Sylvia Alsisto, Sabah Wildlife Department**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.00 - 11.20 am</td>
<td>Mitigation Measures to Reduce High Incidences of Human–Tapir Conflicts and Roadkills in Peninsular Malaysia</td>
<td>Mohd Samsudin Mohd Suri <em>et al.</em> – PERHILITAN, Peninsular Malaysia</td>
</tr>
<tr>
<td>11.20 - 11.40 am</td>
<td>Conservation Assessment Practice – A Case Study of The Bornean Giant Freshwater Crab <em>Isolapotamon Bauense</em> Ng, 1987 From Southwestern Sarawak</td>
<td>Jongkar Grinang <em>et al.</em> - UNIMAS, Sarawak</td>
</tr>
<tr>
<td>11.40 - 12.00 pm</td>
<td>Current Status of Land Vertebrates of Lanjak Entimau Wildlife Sanctuary</td>
<td>Roslina Ragai <em>et al.</em> - SFC, Sarawak</td>
</tr>
<tr>
<td>12.00 - 12.20 pm</td>
<td>The Diversity of Bats in Batu Supu Cave, Lower Kinabatangan Wildlife Sanctuary, Sandakan, Sabah</td>
<td>Azniza Mahyudin <em>et al.</em> - UMS, Sabah</td>
</tr>
<tr>
<td>12.20 - 12.40 pm</td>
<td>Q &amp; A</td>
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<tr>
<td>12.40 - 2.00 pm</td>
<td>Lunch</td>
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</tbody>
</table>
DAY 02, 30th MARCH 2022 (WEDNESDAY)

2.00 - 2.20 pm  Distribution and Status of Irrawaddy Dolphins in Rajang Delta,
Ian Levi Jackery et al. - SFC, Sarawak

2.20 - 2.40 pm  Conservation Genetics in The Genomic Era: Application of Genome Skimming for Mitochondrial Genome Assembly
Frankie Thomas Sitam et al. - PERHILITAN, Peninsular Malaysia.

2.40 - 3.00 pm  Q&A

Sub-Theme 4: Ecosystem and Habitat: Restoration, Rehabilitation, Enhancement & Protection
Session Chair: Abang Arabi bin Abang Ainran, Sarawak Forestry Corporation, Sarawak

3.00 - 3.20 pm  Biodiversity Conservation Partnership Towards A Sustainable Energy Future
Marconi Madai - Sarawak Energy Berhad, Sarawak

3.20 - 3.40 pm  Empty Forest Syndrome: A Preliminary Analysis of the Hunting Activities in Selected Areas of Sabah, Malaysia.
Fiffy Hanisdah Binti Saikim et al. - UMS, Sabah

3.40 - 4.00 pm  Improving the Connectivity of the Central Forest Spine in Peninsular Malaysia
Nazarin Ezzaty binti Mohd Najib et al. - Forest Department, Peninsular Malaysia

4.00 - 4.20 pm  EX-SITU Conservation of Threated and Endangered Species in Landeh Forest Reserve & Botanical Research Centre, Semenggoh, Sarawak, Malaysia
Jacqualine Henry Ripan and Gleecia Barry - SFC, Sarawak

4.20 - 4.40 pm  Preliminary Results of Orangutan Distribution Using Occupancy Modelling at The Sedilu-Sebuyau-Lesong Landscape in Sarawak
Joshua Pandong et al. - WCS, Malaysia

4.40 - 5.00 pm  Rehabilitation of An Ex-tin Mine: 20 Years of Challenges, Opportunities and Surprises
Ho Wai Mun et al. - Forest Research Institute Malaysia (FRIM)

5.00 - 5.20 pm  Q&A

5.20 - 5.40 pm  Tea Break

End of Programme for Day 2
Sub-Theme 5: TPAs Management
Session Chair: Maipol Spait, Sabah Parks

9.00 - 9.20 am
Proposal of Action Research for Enhancing Wildlife Management Utilizing Wildlife Tourism in National Parks of Sarawak
Takao Itioka et al. - Kyoto University, Yoshida, Japan

9.20 - 9.40 am
Exploring Other Effective Area-Based Conservation Measures (OECMs) in Malaysia
Melissa Payne et al. - Assistant Director of Policy, SE Asia Rainforest Research Partnership (Sabah)

9.40 - 10.00 am
The Recovering Mangrove of Tanjung Piai
Lili binti Tokiman and Ismail bin Sairan – Johor National Parks Corporation, Johor

10.00 - 10.20 am
Community-Based Wildlife Protection – The Royal Belum State Park experience.
Shah Redza Hussein – Perak State Parks Corporation, Perak

10.20 - 10.40 am
Q&A

10.40 - 11.00 am
Tea Break

Sub-Theme 6: Beyond Conservation: Ecotourism, Education, Community Engagement, Traditional Ecological Knowledge
Session Chair: Salman bin Hj. Saaban, Department of Wildlife and National Parks, Peninsular Malaysia (PERHILITAN)

11.00 - 11.20 am
Managing Visitor Experience and Appreciative Attitudes: Applying Traditional Ecological Knowledge to Guided Tours in Sarawak National Park
Victor Luna Amin and Margaret Chan Kit Yok - Ministry of Tourism, Art and Culture Sarawak (MTAC)

11.20 - 11.40 am
Empowerment of Youths for Environmental Conservation in Kuching, Sarawak.
Mark Liao Jun et al. - Kuching Beach Cleaners, Sarawak

11.40 - 12.00 pm
Q&A

11.40 - 12.00 pm
Conference Resolution Discussion

12.00 - 2.30pm
Lunch
D A Y  0 3, 31st MARCH 2022 (THURSDAY)

**Closing Session**

- 2.30 – 4.00 pm: Conference Resolution Presentation & Adoption
- 5.10 - 5.30 pm: Tea Break
- 4.30 pm: Closing Ceremony
  - Arrival of Guest of Honor
  - Closing Speech by Guest of Honor
  - Presentation of Memento
- 5.30 pm: End of Programme

Note: only the main speaker and his/her institution is highlighted. For the full list of speakers and their affiliations for each paper, please refer to the abstracts.
**Post-Conference Tour**

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>8.00 am</td>
<td>Gather at Hotel Lobby</td>
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<tr>
<td>5.10 - 5.30 pm</td>
<td>Departure to Post Conference Venue</td>
</tr>
</tbody>
</table>

***To select either one location. Registration and place in tour is based on First come first serve basis***

1. Semenggoh Wildlife Centre (40 pax)
   - Safety Briefing by Park Warden
   - Feeding of Orangutan

2. Fairy Cave Nature Reserve (40 pax)
   - Safety Briefing by Park Warden
   - Viewing/Trekking/Hiking to:

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.00 pm</td>
<td>Arrival at Hotel</td>
</tr>
</tbody>
</table>

-**END**-
1. Systematic Conservation Planning to Identify Priority Conservation Areas in Sarawak
   Jason Hon et al. - WWF Malaysia

2. Smart Partnership in Forest Fire Management and Forest Restoration in Bukit Lima Nature Reserve After Fire
   Lily anak Sir - Sarawak Forestry Corporation, Sarawak

3. Empowering Iban Communities Towards Environmental Stewardship at The Sedilu-Sebuyau-Lesong Landscape in Sarawak
   Wivina Richard et al. - WCS, Malaysia

4. Communication, Education and Public Awareness (CEPA) to Reduce Human-Crocodile Conflict (HCC) in Sarawak
   Bistari Mahmood & Mohd Izwan Zulaini Abdul Gani - Sarawak Forestry Corporation, Sarawak

5. Sabah Park’s Governance
   Maipol Spait – Sabah Parks

6. Survey on Land Dwelling Mammal Distribution in Kinabalu Parks
   Andy Martin – Sabah Parks

7. Combating Illegal Wildlife possession and Trade in Sarawak
   Abang Arabi Abang Aimran et. al. - Sarawak Forestry Corporation
SESSION 1
Sub-Theme: Conservation Governance: Policy, Legislation, Protection and Enforcement
ABSTRACT

Biodiversity provides valuable ecosystem services worth up to USD$44 trillion, more than half of the global Gross Domestic Product (GDP). However, biodiversity loss is currently at an unprecedented rate, threatening not only the people and economy but also the planet’s survival. Many countries are called to take concrete actions to conserve biodiversity in response to global biodiversity targets. These actions are increasingly being realised through decentralising biodiversity planning to the sub-national and local level namely regional or sub-national biodiversity strategies and action plan (R/S-NBSAP). Sarawak Ministry of Urban Development and Natural Resources (MUDenR), in partnership with United Nations Development Programme (UNDP) is formulating its own Sarawak Biodiversity Master Plan (R/S-NBSAP). This masterplan is envisaged to serve as a policy instrument towards successful mainstreaming of biodiversity agenda across institutions, and to support Sarawak’s vision to preserve its natural resources for a sustainable future and subsequently contributing to Malaysia’s biodiversity targets and the Post-2020 Biodiversity Framework.

Keywords: biodiversity, mainstreaming, master plan, policy, natural resources
OVERVIEW TRENDS OF WILDLIFE CYBER-CRIMES DURING PANDEMIC COVID-19 IN PENINSULA MALAYSIA

Noraini, N.¹, Aini Hayati A.¹, Afiq Zikri J.¹, Pazil A.P.²

¹Division of Enforcement, Department of Wildlife and National Parks Peninsula Malaysia (PERHILITAN), KUALA LUMPUR
²Division of Ex-Situ, Department of Wildlife and National Parks Peninsula Malaysia (PERHILITAN), KUALA LUMPUR

Corresponding author: ani@wildlife.gov.my

ABSTRACT

Pandemic Covid-19 hit the world since March 2020 and ends up the public to be home quarantine and isolated. Stays at home with tonnes of free time, boosted the wildlife trade online. Objectives of this paper are i) Identify the wildlife related cyber-crime trend, ii) Distinguish between the fake account and legal one. Due to Movement Control Order (MCO), during the pandemics, the advertisements and trade continue to proliferate on social media platforms. There are various type of wildlife species and products that being promote in online platform for business, hobbies, showed off, wildlife abuse/ cruelty, media social content and others. Trends showed an increment on public report in online platforms in 2020 and 2021. Comparison since 2019 to 2021, quarterly report increased from 8% (year 2020) to 10% (year 2021). It is crucial to prevent and reduce the illegal wildlife online promotion and trade, for wildlife conservation sake and prevent it from extinction.

Keywords: pandemics, cyber-crimes, wildlife products, online platforms, illegal wildlife crime
ABSTRACT

The IUCN Green List of Protected and Conserved Areas is a voluntary sustainability standard and a global benchmark to achieve effective management and conservation of protected and conserved areas (PAs and CAs) all over the world. It helps towards achieving effect measures for biodiversity and ecosystems to not only survive but thrive; and bring value to communities around these natural systems at the same time. Any protected or conserved area which is Green Listed is certified and internationally recognized as achieving on-going results for nature conservation and people’s well-being. It was conceptualized in 2008 under the World Congress for Protected Areas (WCPA), piloted in 25 sites worldwide in 2014; and officially launched in 2016. It is sanctioned under CBD-13, where parties are to “promote the IUCN Green List of Protected and Conserved Areas as a voluntary standard to encourage protected area management effectiveness”. The Green List Standard comprises four components, 17 criteria and a total of 50 indicators. The IUCN Green List was rolled out in Malaysia in 2016, beginning with the establishing of the Malaysian group of Expert Assessors for Green List (EAGL). This comprised experts in protected area management, biodiversity, social engagement and policy from the three regions in Malaysia. Since then, the group has adapted the generic Green List standard for the Malaysian context. To date, eight Malaysian PAs and CAs have started the application process towards Green Listing, including three from Sarawak. This paper emphasizes the usefulness and importance of benchmarking Sarawak’s conservation and management of PAs and CAs against an internationally recognized standard. The journey towards Green Listing in Sarawak is of as much value as obtaining the recognition itself.

Keywords: The IUCN Green List, protected areas, conserved areas, Malaysian group of Expert Assessors for Green List (EAGL)
PROTECTED WILDLIFE SEIZURE CASES IN SARAWAK
Insp. Mohd Shafiq Bin Kassim

Extremist Threat Division (E5), Special Branch,
Sarawak Contingent Police Headquarters,
Royal Malaysia Police, Jalan Badruddin, Kuching, Sarawak

Corresponding author:
mdsyafiqkassim@gmail.com

ABSTRACT

Since the launching of the ‘Op. Bersepadu Khazanah’ in 2019, Sarawak Forestry Corporation (SFC) has taken a proactive move in enforcing the Sarawak Wildlife Protection Ordinance, 1998. A total of twelve (12) wildlife seizure cases involved alive protected animals or parts and derivatives has been taken action by SFC. SFC continue to lead in enforcing the Ordinance with a total of 58 (50%) cases reported from 2019 to September 2021. Inter-agency Joint Enforcement with involvement of Royal Malaysian Police (PDRM), through General Operations Force (PGA) and The Marine Police Force (PPM), and also involved the Land and Survey Department, Malaysian Anti-Corruption Commission (MACC), Sarawak Energy (SESCO) and City Council, has recorded 49 (42%) cases, the second highest seizures within the same period. Royal Malaysian Police, through PGA, has recorded 10 (9%) cases from 2019 to September 2021. Overall, total seizures cases reported from 2019 to September 2021 is 117 cases with Miri recorded the highest cases with 29 cases (25%), followed by Sibu (13 cases,11%), while Lubok Antu, Mukah, Saratok, Kanowit, Limbang, Simunjan dan Lundu recorded the lowest number of cases (1 case: 0.9% respectively). The seizures were reported in twenty-one (21) districts in Sarawak. Since 2019 until September 2021, a total of 13,094 unit of alive animals or animal parts from 196 species were confiscated. From this seizure, highest number of seizures recorded for fifth teen species of protected animals including coral reefs 5,242 pieces (40%), turtle eggs 1,474 pieces (11%), stone magpie 1,102 birds (8%), oriental magpie-robin 782 birds (6%) and others.

Keyword: Seizure, incidence, case, SFC, PDRM, wild life
SESSION 2

Use of Drone in Protected Areas Management in Peninsular Malaysia

Salman, S., Syarifah Khadiejah, S.M.K. and Arsir, A.

Department of Wildlife and National Parks Peninsular Malaysia (PERHILITAN), KM 10 Jalan Cheras, 56100 Kuala Lumpur, Malaysia.

Corresponding author: khadiejah@wildlife.gov.my

ABSTRACT

Encroachment, wildlife poaching, illegal logging and land clearing for agriculture or illegal mining remain significant issues in securing protected areas in Peninsular Malaysia as they are still abundant with natural resources. Most of national parks and wildlife reserves in Peninsular Malaysia are very dense with many parts are physically inaccessible by road. Regular monitoring is required but patrolling on foot has its limit in time, energy and very risky due to unpredicted weather or the potential of attack by wild animals. Besides the monitoring, drone was also deployed for the purpose of investigating reports on encroachment, monitoring human-wildlife conflict or developing profiles for the protected areas. In this study, locations selected were Penang National Park, Tapak RAMSAR Tasik Bera and Jemaluang, which is nearby Endau Kota Tinggi Wildlife Reserve. The pros and cons of using drone in protected areas for management purposes will be discussed further.

Keywords: Drone, protected areas, monitoring, photographic, videos
AN OVERVIEW OF THE POPULATION OF BREARDED PIG (*SUS BARBATUS*) IN GAYA ISLAND, TUNKU ABDUL RAHMAN PARK

FRED TUH YIT YU AND NASRULHAKIM MAIDIN

ABSTRACT

A series of complaints from tourists on Gaya Island, one of the islands in Taman Tunku Abdul Rahman, has prompted the Park Authority to seek a new management approach in order to avoid future conflicts between humans and Bornean Bearded Pigs. Conflicts could be avoided by understanding the population size, movement pattern, and what caused the pigs to visit the tourist recreational area. During this study, the methods of recce survey, line transect, and interview were used. This study confirmed the presence of seven individual bearded pigs in tourist areas and ten pigs in the park’s staff quarters. These bearded pigs only move between these two locations when they are active, which is between dawn and dusk. According to the study, the presence of these bearded pigs is due to an abundance of food in these two locations. Observations in the pig route area, however, revealed no foraging marks, indicating that the bearded pigs’ behaviour has shifted from foraging in forest areas to foraging in recreational areas. The conflict arose as a result of the overabundance, as well as the attitude of tourists, who frequently feed these pigs despite Park Authority rules that clearly prohibit such behaviour. A few management approaches were used, including moving some of the bearded pigs to the forest on the main land and others to other parts of the island away from the tourist area.

Keywords: Bornean Bearded Pig; tourism; conflicts; population; Gaya Island

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ONE HEALTH APPROACH IN ZOONOTIC SURVEILLANCE IN SARAWAK

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ABSTRACT

Multidisciplinary and multisectoral collaboration has been the core principle of One Health in preventing and managing zoonoses. University Malaysia Sarawak (UNIMAS), Sarawak Forestry Corporation (SFC), and Sarawak Biodiversity Centre (SBC) have long been in close collaboration to study the biodiversity and assessing the risk of zoonoses in the human-wildlife interface. There are three key guilds of animals that the group is focusing on, i.e. bats, rodents and birds. A recent bat virus surveillance in Wind Cave Nature Reserve has discovered the prevalence of novel alphacoronaviruses and betacoronaviruses endemic to Borneo with no evidence of reverse zoonosis of Severe Acute Respiratory Syndrome Coronavirus – 1 (SARS-CoV-1) and SARS-CoV-2 from human back to bats. Similar virological surveillance in bats back in 2019 has led to the discovery of Mobatvirus, a novel Hantavirus in Murina aenea. However, no evidence of hantavirus-specific antibody was detected in rodents captured in residential and forested areas of Sarawak, suggesting that Hantavirus prevalence may be low or unevenly distributed. The avian pathogen study focusing on avian malaria and pathogenic yeasts has yielded interesting preliminary results. All these studies have shed light on the presence of potential zoonotic agents in Sarawak and allow authorities to carry out public health interventions based on real, local prevalence data. Further long-term equipment and research funding are required to enhance the surveillance of zoonotic agents in Sarawak.

Keywords: zoonoses, mobatvirus, avian pathogen, zoonotic agents
ASSESSMENT OF RED LIST FLORA OF LOWLAND DIPTEROCARP FOREST IN PASOH FOREST RESERVE, NEGERI SEMBILAN.

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ABSTRACT

The IUCN Red List criteria are a globally accepted method to assess species vulnerability and extinction risk for both flora and fauna. Based on flora inventory at our 1-ha Tropical Ecology of Assessment and Monitoring (TEAM) ecological plot Pasoh Forest Reserve, Negeri Sembilan, there are 1474 flora from 235 species and 125 families were recorded during tree census. Of this 192 individuals are categorized as ‘threatened’ according to criterion by IUCN Red List and Malaysia Plant Red List. Calculation of biomass and carbons stocking using established allometric equation tropical inland forest conversion factor for tropical forest. Forest stand for stocking density, tree basal area and tree volume were 192 stems ha⁻¹, 8.24 m² ha⁻¹ and 193.39 m³ ha⁻¹ respectively. Almost 13% of total individuals are redlisted. List of taxa for 19 families categorized as threatened from our investigation from 2017 until 2019 are as follow; 2 Critically endangered (CR) species namely Aquilaria malaccensis and Shorea lepidota; 7 endangered (EN) species namely Dipterocarpus sublamellatus, Dipterocarpus cornutus, Neobalanocarpus heimii, Parashorea densiflora, Shorea bracteolata, Shorea maxwelliana and Shorea pauciflora; 11 Vulnerable (VU) species namely Castanopsis nepholioides, Ctenolophon parvifolius, Dacyryodes macrocarpa, Dacyryodes puberula, Dipterocarpus crinitus, Hopea sangal, Horsfieldia polysperula var maxima, Lithocarpus curtisii, Parashorea stellata, Shorea ochrophloia and Shorea guiso; 12 Near Threatened (NT) species namely Aglaia forbesii, Castanopsis curtisii, Cynometra malaccensis, Dipterocarpus costulatus, Gluta malayana, Horsfieldia superba, Intsia palembanica, Myristica malayayi, Payena lucida, Myristica gigantea, Sarcotheca monophylla and Shorea leprosula. Ex-situ conservation are deemed appropriate as part of rehabilitation and restoration effort to protect endangered flora.

Keywords: vascular plants, red list plant, extinction risk, conservation management, assessment criterion
MAPPING YOUR ORGANISM MANAGEMENT STRATEGY FOR PRIORITIZING CONSERVATION AREA

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ABSTRACT

Well-known as hotspot area for biodiversity at rainforest tropical region, Malaysian Borneo is experiencing excessive landscape modifications resulted in habitat fragmentation. It is crucial for organism to maintain heterozygosity so that the population may have strong fitness to adapt in changing environment. Our study employed three attributes to map organism management strategy of the Bornean horned frogs, Megophrys nasuta across landscape fragmentation. Three attributes include intensive database of molecular DNA (extensive gene flow, high heterozygosity), cellular level (variations of skin structure as indicator for anti-microbial defense mechanism), and ecological data (microhabitat adaptation) which lead to the status of the organism in the fragmented habitat. All variables were then inserted into ArcMap (ArcGIS) for mapping with each variable represented by colored regions. Jacknife test of variable importance shows that the variables with highest gain when used in isolation, is epidermis of the frog skin and further destruction of the areas will affect the epidermis layer of the frog, thus lead to the decline of the species population. The attributes above showcase the organisms’ adaptation and status in the fragmented landscape, hence giving the conservation priorities to the organism. This mapping is very useful for landscape management and conservation strategy of the Bornean natural heritage.

Keywords: Bornean frog, Habitat fragmentation, gene flow, epidermis, frog skin, microhabitat, GIS
SESSION 3

Sub- THEME: Wildlife Conservation and Research
MITIGATION MEASURES TO REDUCE HIGH INCIDENCES OF HUMAN-TAPIR CONFLICTS AND ROADKILLS IN PENINSULAR MALAYSIA

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Abstract

The human-Tapir conflicts and roadkills have been showing an increasing trend in Peninsular Malaysia. The Department of Wildlife and National Park (DWNP) has received at least 350 human-Tapir conflicts and 119 cases of road kills involving Malayan tapir in the past ten years (2011-2020). Between January to September this year, 51 human-Tapir conflicts in the form of public complaints on Malayan tapir (roaming into human settlements and plantations, causing emotional disturbances, damaging properties and crops) and 19 Malayan tapirs died due to collision with vehicles on the road have been recorded. Habitat loss, fragmentation and the construction of roads and highways that encroached into the Malayan tapir’s natural habitat, have resulted in Tapir displacement, which exposes them to human-Tapir conflict and becoming victims to roadkill. This paper will highlight some mitigation measures currently undertaken by the DWNP in an effort to reduce human-Tapir conflict and tapir roadkill incidences in Peninsular Malaysia.

Keywords: human-Tapir conflict, roadkill’s, habitat loss, habitat fragmentation, mitigations

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CONSERVATION ASSESSMENT PRACTICE – A CASE STUDY OF THE BORNEAN GIANT FRESHWATER CRAB, ISOLAPOTAMON BAUSENE NG, 1987 FROM SOUTHWESTERN SARAWAK

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ABSTRACT

The conservation of freshwater crabs in Borneo is important as they have a significant role in the rainforest ecosystem and a key indicator for habitat health. Borneo island has a high diversity of freshwater crab species and to date, 85 species have been described. All these described species are endemic to the island, with some species being rare and occurring only in very small ranges. The threats to these animals are of great concern, especially due to accelerating habitat destruction, increased pollution and climate change impacts. The conservation assessment of global freshwater crabs shows the invertebrates are one of the most endangered aquatic animals. Biodiversity conservation efforts in the region, however, have not sufficiently focused on these invertebrates, and this is partly due to insufficient baseline data to support drafting an effective conservation policy. Several Bornean species are categorized in the IUCN Red List as endangered and vulnerable. The IUCN list does not accurately reflect the actual situation on the ground. This paper shows a case study of the conservation assessment practice of the giant freshwater crab, Isolapotamon bauense, in Sarawak. All the ecological and biological data suggest that the conservation status of Isolapotamon bauense in the IUCN Red List needs to be revised. We propose that the conservation of Sarawak’s biodiversity under the Wildlife Protection Ordinance 1998 may need to incorporate the IUCN Red List, especially for threatened freshwater crab species.

Keywords: Brachyura, limestone, IUCN, Borneo, conservation
CURRENT STATUS OF LAND VERTEBRATES OF LANJAK ENTIMAU WILDLIFE SANCTUARY
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ABSTRACT

Lanjak Entimau Wildlife Sanctuary safeguard highly unique diversity of the land vertebrates in Sarawak. There are at least 91 species of mammals, 267 species of birds, 63 species of freshwater fish and 84 species of amphibians and reptiles recorded from various sites within the sanctuary and its surroundings since 2000 until 2019. Spectacled flowerpecker (Dicaeum dayakorum) was collected from Nanga Segerak in 2019 after 10 long years of awaiting of the holotype specimen to be described. The rare and elusive species of Hose’s civet (Diplogale hosei) and bay cat (Catopuma badia) photographed during a four year surveys from 2016 until 2019. After more than a decade gazetted as a wildlife sanctuary, there are still more new discoveries obtained from this rich wildlife reservoir. In order to understand the ecological relationship between totally protected areas and its neighbouring mixed use landscapes, long-term monitoring of land vertebrates in this sanctuary is recommended.

Keywords: land vertebrates, wildlife sanctuary, conservation, sustainable management
THE DIVERSITY OF BATS IN BATU SUPU CAVE, LOWER KINABATANGAN WILDLIFE SANCTUARY, SANDAKAN, SABAH

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ABSTRACT

Batu Supu cave is a touristic area, besides Gomantong cave in the Lower Kinabatangan Wildlife Sanctuary. Due to the current pandemic, there is a concern about the availability of bat coronaviruses host, especially from the family of Rhinolophidae. Therefore, this study was conducted to study the diversity of bats in Batu Supu Cave of Lower Kinabatangan, Sabah, with the objectives; 1) to identify the diversity of bats and their species composition, and 2) to determine the conservation status of the bats in Batu Supu cave based on the IUCN Red List of Threatened Species and Sabah Wildlife Conservation Enactment, 1997. Harp traps and mist nets were deployed in this study, with a total trapping effort of 40 trap nights, in January 2019. A total of one hundred (100) individuals were captured, consists of seven (7) species, and with the most abundant species is Hipposideros diadema. All reported species were listed as least concern (LC) under the IUCN Red List of Threatened Species except for Miniopterus paululus (Data deficient- DD). None of these species is protected under Sabah Wildlife Conservation Enactment, 1997. Also, we compared bats’ diversity in Batu Supu cave in 2010 and 2019 using the value from the Shannon-Weiner diversity index. It was found that the Shannon-Weiner diversity index for 2010 and 2019 are 1.75 and 1.52, respectively. However, there were no significant differences in bats’ diversity between 2010 and 2019 (p >0.05). The findings from the study can contribute as baseline data for the conservation of bats in the Lower Kinabatangan Wildlife Sanctuary, Sandakan, and Sabah.

Keywords: Bat, Conservation, Lower Kinabatangan, Sabah, Wildlife Sanctuary
DISTRIBUTION AND STATUS OF IRRAWADDY DOLPHINS IN RAJANG DELTA,
ORCAELLA BREVIROSTRIS

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ABSTRACT

The Rajang Delta is regarded as one of the key areas for many wildlife species including the flagship dolphin species in Sarawak, the Irrawaddy Dolphin (Orcaella brevirostris). Collective research over the last 10 years showed the continued observations of Irrawaddy Dolphins, with sightings frequently being reported in the lower sector of the delta (areas ranging from lower Pulau Bruit towards the Kuala Rajang – Sarikhei). A boat survey was made to assess the abundance of Irrawaddy dolphins throughout the entire Rajang Delta. Ninety-three individuals were observed from 65.6 hours of surveys (793 km of survey transects). The surveyed tracks with high individual count of 20 individuals are Sarikhei–Tanjung Manis track and Seredeng–Belawai track. Remote sensing to investigate anthropogenic disturbance shows potential threats affecting the Irrawaddy dolphin population.

Keywords: Irrawaddy dolphin, species occurrence and distribution, Irrawaddy dolphin abundance, population status, Rajang Delta
CONSERVATION GENETICS IN THE GENOMIC ERA: APPLICATION OF GENOME SKIMMING FOR MITOCHONDRIAL GENOME ASSEMBLY


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ABSTRACT

Effective conservation must consider ecosystem, habitat, population, species and genetics. Conservation genetics is the application of genetics to understand and reduce the risk of population and species extinctions. The human genome project was launched in the 90s has sparked the new era of application of genomic data in conservation since its completion in the early 2000s. Traditionally, short fragments of the mitochondrial DNA genes have been used extensively in various conservation genetic research. Researchers has taken advantage of the much greater sequencing power of next generation sequencing (NGS) to expands or enhance their research. Researchers were often baffled with the huge millions reads of NGS DNA sequence data, and the limited expertise in bioinformatics may leads to erroneous in NGS data manipulations. The National Wildlife Forensic Laboratory (NWFL) of PERHILITAN is expanding its DNA database with mitochondrial genome as reference for forensic analysis, as well for the research and developments in wildlife conservation and management. Here we explored the application of genome skimming for mitochondrial genome assembly of various species, aiming to strengthen our reference database. We established a reliable and reproducible bioinformatics workflow in NWFL which incorporates several pipelines for sequence data evaluation, filtering and visualization. With the available workflow we are able to produce reliable mitochondrial genome sequences and hope to normalize the use of mitochondrial genome in future research.

Keywords: Genomic, NGS, forensic, wildlife, mitochondria
Session 4
Sub-theme: Ecosystem and Habitat: Restoration, Rehabilitation, And Enhancement & Protection
ABSTRACT

As part of our organization wide commitment to embedding sustainability in all our projects and operations, we have taken steps to preserve the biodiversity surrounding project sites - maximizing the positive and minimizing the negative impacts on people and the environment. As Malaysia’s largest renewable energy developer, Sarawak Energy is consistently looking for ways to partner with relevant stakeholders to enhance our approach to balancing the complex interplay between human activity, land and freshwater systems. This include protecting our environment and conserving our biodiversity including key species and habitats that are critical and provide local communities with natural ecosystem services. This is done through an integrated biodiversity conservation approach that allows us to sustain and preserve existing ecosystems surrounding our project areas. We benchmark with best practices such as the Hydropower Sustainability Assessment Protocol (HSAP) and align with Sustainable Development Goals- particularly SDG #15 that entails conserving biodiversity through prevention of endangered species extinction, as well as SDG #17 which calls for multi-stakeholder partnerships that mobilize shared-knowledge, expertise, technology and financial resources concerning biodiversity conservation. This paper will discuss the importance of collaboration and partnership with relevant stakeholders in achieving the common objectives by sharing success story of Sarawak Energy’s Partnership Initiatives which include policy recommendation, biodiversity research, wildlife conservation initiatives, tree planting campaign amongst others as well as challenges and recommendation moving forward.

Keywords: Hydropower Sustainability Assessment Protocol (HSAP), Sustainable Development Goals, partnership, stakeholders
EMPTY FOREST SYNDROME IN SABAH: A PRELIMINARY ANALYSIS OF THE HUNTING ACTIVITIES IN SELECTED AREAS OF SABAH, MALAYSIA.

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ABSTRACT

Hunting has long been known as a threat to the conservation of tropical wildlife, but in recent years it has become an increasingly pressing problem. This study focused on the impact of hunting in some selected regions in Sabah on the distribution and diversity of medium to large terrestrial mammals. Information on hunting pressure and community dependence on these mammals was obtained through interviews with local communities. Forty-five respondents from six study areas were interviewed: Sandakan, Tawau, Kota Belud, Tambunan, Keningau and Tenom. It was found that local communities hunt for food and hunting is their traditional way of life. Bearded pigs are the most commonly hunted wildlife. 76.97% of hunters arrested had parts of bearded pigs in their vehicles, followed by those who kept parts of sambar deer (13.7%). The recent pandemic outbreak has also contributed to a new norm of plant poaching by urban gardeners. The demand for wild plants has skyrocketed. "Rare," "collecting," and "tending" are the most common words in the survey data set, suggesting that poaching rare plants for personal collection has become a trend in society. Preliminary data shows an alarming Empty Forest Syndrome situation in Sabah.

Keywords: Empty Forest Syndrome (EFS), Hunting, Poaching, Community, Bush Meat
ABSTRACT

The Central Forest Spine (CFS) of Peninsular Malaysia as the name implies is the green backbone of Peninsular Malaysia. It is composed of four main forest complexes and is an important natural landscape of Malaysia, supplying 90% of the population’s water supply and harboring extremely rich biodiversity and the remaining population of Malayan tigers in its forests. The CFS straddles across eight state and have experienced loss of forests due to rapid development such as agriculture and urbanization. This has resulted overall reduction of the forest area and fragmentation of the natural habitat. Forest fragmentation inhibits the free movement of fauna and flora which usually leads to habitat destruction thus ultimately reducing the diversity of plants and animals. The CFS Master Plan (CFSMP) was formulated in 2005 to increase the integrity of the CFS through conserving and rehabilitating critical linkages in between each complex. The Improving Connectivity of the Central Forest Spine (ICCFS) project is a GEF funded project supported by the Government of Malaysia to support and enhance the implementation of the CFSMP and conserve biodiversity within the forest landscape. The project will enhance capacity of federal and state governments to better plan and manage the CFS landscape and ecological corridors, reduce poaching by increasing enforcement capacity, develop ecological corridor management plans, improve local community livelihoods, address human-elephant conflicts, rehabilitate degraded sites and ensure sustainable financing for managing and conserving the corridors. These activities are spearheaded by the three main implementing partners namely the Forestry Department Peninsular Malaysia, Department of Wildlife and National Parks and Forest Research Institute Malaysia, with collaboration from state parks, universities and NGOs. This paper provides an account of the main activities that are being conducted under the ICCFS project.

Keywords: Central Forest Spine, ecological corridors, forest conservation, biodiversity
ABSTRACT

Efforts for ex-situ conservation have been an important initiative in Sarawak, especially in saving some of Sarawak’s threatened species that existed outside the Totally Protected Areas (TPAs). Landeh Conservation Area is part of the Semenggoh Forest Reserve and it housed a number of Rare, Threatened and Endangered (RTE) species from dipterocarp and non-dipterocarp group of plants that are in dire need of conservation. As of today, there are five Critically Endangered (CR), four Endangered (EN), one Vulnerable (VU), two Near Threatened (NT) and nine Least Concern (LC) of dipterocarp species listed under the Sarawak Plant Red List Series 1 and 2 while one species is listed under Appendix II of CITES. The project has the potential to serve as progeny trial seedling orchard in the future for reintroduction and habitat restoration program. This paper presents the conservation works, its importance and its long-term future.

Keywords: Ex-situ conservation, Landeh Forest Reserve, Botanical Research Centre, Threatened and Endangered species, Dipterocarp, Non-Dipterocarp
PRELIMINARY RESULTS OF ORANGUTAN DISTRIBUTION USING OCCUPANCY MODELLING AT THE SEDILU-SEBUYAU-LESONG LANDSCAPE IN SARAWAK.

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ABSTRACT

The knowledge on orangutan distribution is currently imperfect and investigation into methods such as occupancy modelling could be used to map orangutan occurrence over time and space. For this pilot study, we spatially indexed 303 hexagonal tiles, each 1 km² in size, to represent plots over the Sedilu-Sebuyau-Lesong (SSL) landscape. We integrated rapid assessments of orangutan nest and occupancy modelling to generate proxy orangutan distribution for the survey period between July 2018 to November 2019. Preliminary results showed an estimate of 11%-22% probability of orangutans occupying 13 out of the 303 hexagonal tiles. These predicted occupied hexagonal tiles represent areas that are around the Ulu Sebuyau National Park and its proposed extension. Our study not only aids in refining monitoring methodology but also guides where management interventions are most needed to ensure the long-term survival of orangutans within the landscape.

Keywords: Bornean orangutan, hexagonal tiles, occupancy modelling, rapid assessment, Sarawak.
ABSTRACT

As demand for wood and pulp continues to increase rapidly, establishment of more timber plantations is imminent to reduce pressure on natural forests. Meanwhile, demand for prime land areas from the agricultural and industrial sectors have also escalated driving timber plantations to degraded areas or marginal lands. In 1996, the Perak State Government has leased a 121 ha ex-tin mine to FRIM with the initial purpose of greening the barren area and establishing timber plantation demonstration plots. The ex-tin mine was then found growing with weeds, shrubs and pioneer species, besides being an illegal cattle-grazing ground. This paper aims to share our experiences in rehabilitation of an ex-tin mine. With limited resources and expertise during the start of this effort in the late 1990s, plantation species commonly available and chosen were exotic species like Acacia spp., Khaya spp. and mahogany. Subsequently, we started exploring indigenous species which included Hopea odorata, Palaquium gutta and Dryobalanops oblongifolia, and matching them to either sand or slime tailings with soil amendments. With Acacia spp. and H. odorata as nurse trees, over 20 endemic and endangered species had been successfully planted and domesticated in the last decade. The once unproductive ex-tin mine is now home to more than 90 species of trees, 95 species of birds and 20 genus of macrofungi. In 2016, it was listed in the Malaysia Book of Records for being "The Largest Man-Made Forest Established on Ex-Tin Mine”.

Keywords: Red List species, pests, potentially toxic elements, carbon pool.
SESSION 5
Sub-Theme: TPAs Management
PROPOSALS OF ACTION RESEARCH FOR ENHANCING WILDLIFE MANAGEMENT UTILIZING WILDLIFE TOURISM IN NATIONAL PARKS OF SARAWAK

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ABSTRACT

Wildlife tourism has a significant potential to cover the management cost of protected areas (PAs), but mammalian wildlife tourism in Southeast Asia is less popular than in Africa. This is because mammalian wildlife tourism in Southeast Asia is generally targeted at terrestrial national parks with forest fauna, but it is difficult to observe mammals in dense rainforest. In this paper, we aim to review our previous studies conducted on the issues with some methods using rental camera trap for visitors (tourists) to observe wild mammals in Endau Ronpin and Taman Negara national parks, Peninsular Malaysia. And then, we are going to propose a few types of research plans to evaluate the availability, efficiency and potential of several methods and protocols of wildlife tourism for enhancing wildlife management systems utilizing wildlife tourism in national parks of Sarawak, based on our experiences in the previous studies, in collaboration with the SFC staff.

Keywords: Biodiversity sciences, Conservation Biology, Field observation of mammals, Southeast Asian tropical rainforests, Wildlife management systems
EXPLORING OTHER EFFECTIVE AREA-BASED CONSERVATION MEASURES (OECMS) IN MALAYSIA

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ABSTRACT

The adopted approach for achieving long-term protection and conservation of Malaysia’s marine, coastal, freshwater and terrestrial ecosystems has been to designate Protected Areas in important habitats. A secondary, and potentially highly complementary approach to this method, is to initiate “other effective area-based conservation measures” (OECMs) that enable the protection of critical habitats and important biodiversity that exist outside of the existing network of Protected Areas in Malaysia. Riparian reserves, privately-run parks, high conservation value forests, and areas conserved by Indigenous Peoples or local communities are likely to have significant benefits for biodiversity conservation – but in order for these conservation gains to be realised, a systems-level understanding of the identification, management and governance of OECMs is essential. Funded by the GEF-Small Grants Programme, SEARRP initiated the Malaysian process to investigate the potential of OECMs and develop an understanding of how this approach could operate in Malaysia. On the ground, SEARRP is testing the IUCN OECM Guidelines and Methodology and this presentation will highlight some of the experiences from these site assessments.

Keywords: Biodiversity sciences, Conservation Biology, Field observation of mammals, Southeast Asian tropical rainforests, Wildlife management systems
THE RECOVERING MANGROVE OF TANJUNG PIAI
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ABSTRACT
Tanjung Piai mangrove face multiple external issues and external pressures that threaten to degrade the quality and intactness or the mangrove vegetation. The ecological health of the mangrove is being modified due to the consistent erosion pressure causes from the high shipping traffic along the straits and oil spill form the ship. Man-made intervention is need to reduce the pressure and enhancing the mangrove regeneration. The establishment of the wave-braker structure by DID in 2016 is the new hope to restored the Tanjung Piai Mangrove. Base on some of the observation there are some positive changes, new regeneration of the Avicenna sp., Sonneratia alba and Rhizophora established at the back of the wave braker. The new regeneration of Avicenna could be seen at accumulating the mudflat and increased the shoreline vegetation. Wader bird are coming back to the mudflat of Tanjung Piai for resting. The increased of mudflat about 1 meter and more climbing crab are dominating the sq km of mudflat at Tanjung Piai.

Keywords: Mangroves, regeneration, wave breakers, biodiversity
COMMUNITY BASED WILDLIFE PROTECTION– THE ROYAL BELUM STATE PARK EXPERIENCE.

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ABSTRACT

With less than 200 in the wild and exist only in the Malayan Peninsular, the Malayan tiger is on the brink of extinction. In Royal Belum State Park – an important tiger landscape in Malaysia, tiger numbers have dropped by over 60% in less the six years (2014 to 2019). To eliminate the threat of poaching and to allow the species a safe habitat to repopulate a community-based wildlife protection patrol unit has been piloted successfully. As the indigenous Jahai Orang Asli are the only local community within the State Park an all Orang Asli wildlife patrolling team called "MENRAQ" (meaning “the people” in the Jahai language) was formed and trained to supplement the State Park rangers doing anti-poaching patrols. In less than 2 years (2019 to 2021) the MENRAQ team has proven a great asset to the State Park anti-poaching work bringing down the number of poaching and encroachment to almost zero. The effort also highlights not only the importance of a community-based program but also the integrated collaborative partnership needed to ensure the program for wildlife protection is successful.

SESSION 6
Sub-Theme: Beyond Conservation: Ecotourism, Education, Community Engagement, and Traditional Ecological Knowledge
MANAGING VISITOR EXPERIENCE AND APPRECIATIVE ATTITUDES:
APPLYING TRADITIONAL ECOLOGICAL KNOWLEDGE TO GUIDED TOURS IN SARAWAK NATIONAL PARKS

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ABSTRACT

A Traditional Ecological Knowledge (TEK) is a sub-set of indigenous knowledge which represents a cumulative body of knowledge, practice and belief acquired over thousands of years by indigenous peoples through direct human contact with the environment. A plethora of studies for past decade believed that the application of TEK can help improved natural resource management and biodiversity conservation practices. Despite its progressive erosion worldwide, there has been little efforts in promoting and reviving the TEK in the context of ecotourism and biodiversity conservation, particularly in totally protected areas. In conservation areas management, thematic interpretation is commonly regarded as a strategic communication tool in helping to achieve desired educational, behavioural and conservation outcomes. An experimental quantitative research, underpinned by the TORE model of interpretation was employed to investigate the efforts of purposively selected trained park guides to examine whether their planned TEK theme-based interpretive guided tours in selected Sarawak national parks could make a difference in influencing tourists’ cognitive, affective and behavioural outcomes of interpretation. Data was collected through post self-assessment questionnaire from the survey of 380 visitor-clients of trained park guides immediately at the end of their guided tours. Various aspects of the study are highlighted. The study concluded that the use of TEK in thematic interpretation can help park managers, interpretive planners and park guides to improve visitors’ experience and promote appreciative attitude while they are in the parks and thus contribute to the better protection and conservation objectives of protected area management. The study also helps to promote and revive some of the elements of much eroded TEK of local communities.

Keywords: traditional ecological knowledge, thematic interpretation, national park, guided walk, park guide, ecotourism
EMPOWERMENT OF YOUTHS FOR ENVIRONMENTAL CONSERVATION IN KUCHING, SARAWAK.

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ABSTRACT

Environmental threats such as climate change, global warming, pollution, and land degradation are constantly increasing, and youths are predicted to be greatly impacted by its repercussions. As a result, more organizations have acknowledged and taken the initiative to empower and elevate skills and capacities of youths as leaders. With many different types of youth-based programs in place, the review explores how these programs have impacted the youths in Kuching, Sarawak. Furthermore, the review extends its investigation into understanding the methodologies of such programs and the placement and roles of youths within its proceedings. Methodology of the review includes qualitative methods such as social surveys and analyzing and reviewing of written publications namely journals, articles, and reports. This paper highlights the effectiveness of components in youth-based programs from both government and non-governmental organizations to derive applicable strategies. The findings of this review benefits environment-based organizations, government bodies and institutions of education.

Keywords: youth, leadership, empowerment, values, environmental issues, environmental protection
INFORMATION
PAPER
SYSTEMATIC CONSERVATION PLANNING TO IDENTIFY PRIORITY CONSERVATION AREAS IN SARAWAK

Jason Hon¹, Belinda Lip¹, Tessy Nimos², Oswald Braken Tisen³, Engkamat Lading⁴, Mohd Shabuddin Sabki⁵

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ABSTRACT

Systematic Conservation Planning (SCP) is an approach to systematically identify areas that are essential for biodiversity conservation, to facilitate the establishment of protected areas network through participatory planning and collaborative implementation, and to avoid conversion of habitats of conservation importance. In 2015, the SCP approach was initiated to develop a Priority Conservation Areas (PCA) map for Sarawak, through the multi-agency Technical Working Group. The guiding criteria were land use policy; species and ecosystems conservation priorities; importance of ecosystem services; existing and proposed protected areas; and agreed set of conservation goals. A dataset of 51 attributes comprising both terrestrial and freshwater, that included flora, fauna, geology, and cultural elements were analysed using the MARXAN programme. The final configuration is a 3.86 million hectares of PCA. These PCA complement existing protected areas, and if properly managed, will conserve key ecosystem services and guide development planning among all agencies.

Keywords: policy, planning, conservation goals, species, habitat, ecosystem
ABSTRACT

This study focused on the "smart-partnership" between Sarawak Forestry Corporation, private stakeholders, government agencies and local community living adjacent to Bukit Lima Nature Reserve (BLNR) in minimizing the threats of fire in BLNR by addressing the issues of fire prevention, alternative management which including forest restoration. Land clearing and open burning activities by the local communities living adjacent to BLNR during prolong dry season had caused regular forest fires and affected the peat swamp ecosystem at the area. The activities were conducted as they were considered as the cheapest and easiest way for the low-income communities to clear their lands especially for agricultural and to build new resettlements.

Keywords: dry season, forest fire, land clearing, open burning, stakeholders
EMPOWERING IBAN COMMUNITIES TOWARDS ENVIRONMENTAL STEWARDSHIP AT THE SEDILU-SEBUYAU-LESONG AND SABAL LANDSCAPE IN SARAWAK.

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ABSTRACT

There is a vital link between culture and the intact forest ecosystem to the Iban communities in Sarawak. Between 2017 and 2018, we investigated this vital link by conducting social surveys to gauge community perception towards wildlife, especially orangutans, and nearby intact forest areas. Using weighted random sampling, we selected 53 villages and interviewed 686 respondents from in and around the protected areas of Sedilu, Ulu Sebuyau, Gunung Lesong (SSL) and Sabal landscape. We used a Participatory Rural Appraisal approach to analyze the responses and found that 72.59% respondents felt the need to keep forest intact, but only 35.42% of these felt a positive cultural association with wildlife. We used the social survey results to develop a conservation education strategy, that revolves around using mediums of interaction such as folklore book and radio programs to instill environmental stewardship towards wildlife and forests among the Ibans of Sabal and Gunung Lesong.

Keywords: Community perception, conservation education, culture, environmental stewardship, folklore, radio program, social survey
COMMUNICATION, EDUCATION AND PUBLIC AWARENESS TO REDUCE HUMAN-CROCODILE CONFLICT IN SARAWAK

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ABSTRACT

Rapid recovery of Crocodile population in Sarawak since 1990’s has led to surge in conflict between human and crocodile (HCC). Over the last 10 years (2011 – 2020), a total of 113 incidents of crocodile attacks on human were recorded in Sarawak. Incidents of crocodile attacks in Sarawak commonly occurred while the victims were fishing, bathing, swimming and performing domestic chores. Communities in Sarawak depend on river for transportation, and source of water and foods, therefore, they are vulnerable to the crocodile attacks. In 2016, Sarawak Forestry Corporation (SFC) introduced a Crocodile Management Plan for Sarawak. One of the important components in the management plan is on how to manage HCC and the community impacted by the HCC. One of SFC’s initiatives under this component is to conduct communication, education and public awareness (CEPA) program known as ‘3M (Mengenali, Memahami, Memulihara) Buaya’. This paper will share on SFC’s experience in implementing the CEPA program for reducing HCC in Sarawak from 2013 until 2021 and to discuss on the effectiveness of stakeholders’ involvement in creating awareness among the local community.

Keywords: Human-Crocodile Conflict, Communication, Education, & Public Awareness (CEPA), 3M Buaya, stakeholder, community
ABSTRACT

This presentation will highlight the management strategy of Sabah Parks which involves three (3) main components in the protection and conservation of Parks in the state of Sabah. The presentation is divided into six (6) parts. First (1), the history and background of the establishment of Sabah Parks. Second (2), the management strategy which involves the policy, direction and commitment of Sabah Parks as one of the Sabah State government agencies. Third (3), the protection of the Park's biodiversity resources is based on the balance between resources conservation and development of the Park. Fourth (4), revenue generation by taking into account the implications of Pandemic COVID-19. Fifth (5), the involvement of stakeholders especially the local community in and around the Park area for mutual benefit and sixth (6), ended by Conclusion.

Keywords:
SURVEY ON LAND DWELLING MAMMAL DISTRIBUTION IN KINABALU PARKS

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ABSTRACT

Wildlife population mainly large mammals’ population situated in two altitude which are low land and high land. This study tent to unveil the land dwelling mammal population of Kinabalu Parks by applying intensive camera traps for data sampling combined with remote sensing technique. The strategy is to learn the concentration of wildlife presence by location and species. Density by species were to be evaluate and calculated. This study tent to combine ground survey data using Camera trap and develop by QGIS to produce wildlife population distribution map. Data taken by direct and indirect observation. Data analysed based on descriptive frequencies of occurrences by target species in plotted location. I assume there will be a significant coloration between elevation altitude and wildlife species occurrence. High altitude area and low land forest would displays a presence of different species of land dwelling mammals. The result of this study will provide a clear inventory of wildlife population which crucial for Kinabalu Parks management and enforcement Department in strategizing follow up action to conduct effective and enhanced forest monitoring operation.

Keywords: Large mammal’s population, altitude, Camera Trap, QGIS, descriptive occurrences, kinabalu Parks
WAGING WAR ON ILLEGAL WILDLIFE POSSESSION AND TRADE IN SARAWAK

Unlicensed possession and illegal trade of wildlife could threaten the survival of many species in the wild. Many endangered species in Sarawak, from rare wild birds to turtles and also corals, are often illegally caught or harvested from the wild. These species are traded internationally or sold locally as pets, food, accessories, ornamental displays, historical and cultural use, and traditional medicine. Sarawak Forestry Corporation (SFC) has been leading the charge to combat the largest direct threat to the future of many endangered species of wildlife in Sarawak. This paper will share statistics on wildlife seizures by SFC including joint operations with other agencies and also highlight strategies adopted by SFC in addressing issues related to the illegal wildlife possession and trade in Sarawak.

Keywords: illegal wildlife trade, unlicensed possession, wildlife seizures, strategies

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