

Summary Report

13th APBON Web Seminar

1. Date: September 13th, 2022

Time: 15:00-17:30 in Japan, South Korea

13:00-15:30 in Cambodia, Thailand, Indonesia, Vietnam

11:45-14:15 in Nepal

14:00-16:30 in Malaysia, Philippines, China

20:00-22:30 (12th September) in Hawaii

2. Location, Participants

- Webex Meeting Room
- 25 participants (21 participants and 4 from secretariat) from 9 Nationalities
- MC: APBON Co-chairs; Dr. Hiroyuki Muraoka, Ms. Runi Anak Punga, Dr. Yongyut Trisrat.

3. Program:

Opening remark from the secretariat

Mr. Ryo Mabuchi (Biodiversity Center of Japan, Japan)

He emphasized the depth of gratitude to the participants and co-chairs for their contribution to APBON activity and the 13th meeting. He hoped a constructive discussion will be exchanged at the 13th APBON meeting and the upcoming 15th AOGEO symposium.

Opening remarks from Co-chairs

Ms. Runi Anak Sylvester Punga (Sarawak Government • Forest Department Sarawak, Malaysia)

We will continue the active discussion via online until the day we can meet physically. We also welcome any comments and inputs. Also thanks to Biodiversity Center for the sponsorship.

Dr. Yongyut Trisrat (Kasetsart University, Thailand)

This meeting is to collect input and outcomes for the upcoming 15th AOGEO symposium. I expect active discussion for it.

Dr. Hiroyuki Muraoka (Gifu University, Co-chair of APBON)

Introduced the agenda program of the day, objective and goals of the 13th APBON meeting, and announced the outline of the 15th AOGEO Symposium (28-30 September).

Session 1:

Review the recent research/engagement outcomes (2020-2022) and discuss the activity plan (2023-2025) (Moderator: Runi Anak Sylvester Pungga, Hiroyuki Muraoka)

Dr. Bunthang Touch (IFReDI, Cambodia)

Introduced The Mekong Integrated Water Resources Management Phase III project (M-IWARMIII) which was implemented at upper Cambodian Mekong in the northeast of Cambodia between 2017 and 2022 to enhance Cambodia's capacity to sustainably manage its water and fishery resources. Component 1 of the project: support for fisheries and Aquatic Resources Management which implemented by IFReDI/FiA were focused on 1) i) developing Community Fisheries (CFi), including fisheries management plans and demonstration of supplementary livelihood activities, ii) strengthening public sector fishery management, and iii) providing support for local government capacity building and rural infrastructure.

The key outcome of this project were:

- 70 Community Fisheries (Cfi) in Kratie and Stung Treng Provinces received project support supported by project

- 50 Cfi are fully functioning in Kratie and Stung Treng Provinces

- 8,862 households in Kratie and Stung Treng Provinces received project support

For activity plan 2023-2025, we plan to conduct the activities as below:

- Rice Field Fisheries Catch Assessment in the Mekong River Delta, Cambodia

- Understanding the Implications of Water Infrastructure Development and Climate Change on Fish Yield and Welfare Value in Cambodia

Dr. Tomoaki Miura (University of Hawaii, USA, JAMSTEC, Japan)

Exploring the utility of the new satellite data. One is the Himawari geostationary satellite data, another is the Planet, commercial satellite data. Himawari has super high temporal resolution data taken every 10 minutes, which is able to capture the surface status of vegetation much better than other existing polar-orbiting satellite data, which captures image data once a day, so it is a great improvement in terms of temporal

resolution. Second, with the commercial satellite data, this planet's commercial satellite data can acquire high spatial resolution data on a daily basis, it captures a general flowering event but is limited only to white flowers, it cannot observe other colored flowers such as yellow. We need to expand it to a larger region. Since the Himawari Satellite data can capture the vegetation status two weeks or one month basis, the next steps is to develop its simple operational processing system to continue a generation of cloud-free satellite image time series over the Borneo area. The challenge we face is new alga species in remote pacific islands which threaded some northern Hawaiian island areas, we need to explore the satellite remote sensing technology to map and detect these alga species for the conservation of biodiversity in the Pacific Ocean.

Dr. Hiroyuki Muraoka (Gifu University, Co-chair of APBON)

Have been Interested in leaf and forest phenology focused on photosynthesis in the context of carbon cycling and climate change. For nearly 20 years in Japan, I have observed with my colleagues the single leaf level phenology and photosynthesis and tried to upscale it to the forest canopy and landscape level by using satellite remote sensing and ecosystem process-based modeling. Our technical challenge is how we can observe forest canopy photosynthesis and phenology by satellite remote sensing, and we have been trying to study the physiological, biochemical and anatomical structure of the single leaf, and the geometrical distribution of the leaf of the forest canopy, it will be described in our recent research papers in two years. The next steps, we try to have research activities focusing on the validation of ECV and EBV related to the carbon cycling and biodiversity, it could be relevant to APBON level activity, one of the ideas is to have a master site concept. We will discuss it in detail in near future.

Dr. Shin Nagai (JAMSTEC, Japan)

I have submitted a review paper titled "Monitoring of land cover changes and plan phenology by remote sensing in East Asia. I have been serving as one of the international directors of a remote-sensing society in Japan, let me share these activities in near future for our activities. In Japan, solar power plants are expanding to promote zero carbon emissions but we don't have sufficient knowledge of its environmental impacts. We should collect sufficient evidence of environmental impact. In Japan, we also have a negative impact on animal protection such as deer, in past time. We need to overcome the language barriers to strengthen our collaborations because the past record of our data was provided in Japanese, the many historical records on biodiversity, and bio-methodological record. Those past data should be converted and provided in English.

Dr. Takehisa Yamakita (JAMSTEC, Japan)

Introduced some recent research activities such as publishing papers, seminars, and workshops conducted by APMBON members, and the research plans in response to the UN Decade of Marine Science, and the survey using an automatic camera and biodiversity assessment was nominated as a future research plan. As the emerging challenges in biodiversity, a decline of Seaweed be due to the climate and plant eaters. In last year, we have red tide in Hokkaido which we have never expected in such a cold water area, it was a serious impact to the fishery, I'm not sure it will be occurring in the next year.

Dr. Amit BATAR (NIES, Japan)

Introduced past research activities on the development of an integrated model toward forest landscape integrity focused on forest fragmentation susceptibility (FFS) mapping and Assessment. Since one of the priority targets in the post-CBD decade is Ecosystem integrity, SDGs especially goal 15 also refers to the degradation of forests, conservation of mountain ecosystems, and the protection of biodiversity and natural habitat. For this purpose, our concern is how we can integrate the forest landscape using the earth observation data. As shown in my PPT slides, using some statistical methods, we can easily identify the area where degradation is happening due to anthropogenic or natural disasters in the mountain ecosystems to the forest landscape. Using the application of this integrity model, we can easily identify which forest species are under threat due to forest fragmentation. I believe this nature-based solution and restoration approach could be applied to the particular study area. In near future, I expect to collaborate with other APBON colleagues.

Dr. Xu Xuehong; (Chinese Academy of Science, China)

As for China, we have webinars every month that invited two speakers, one is expert inside China and another is invited from outside China. Training course are also conducted on the technology of biodiversity monitoring technologies such as rider, we are preparing two review papers for review of ten years on biodiversity monitoring in China and review of community assembly mechanism based on Chinese Forest Biodiversity Monitoring Network (CForBio), and we are going to focus on the data platform construction for next few years.

Mr. Christian Ellolan (ACB, Philippines)

Recently we had a technical meeting on the ocean biodiversity information system especially data management of Marine biodiversity. Regarding the partnership with APBON, the data from APBON and the Ocean Biodiversity Information System (OBIS) are the most remarkable contribution to ACB. This is the milestone and next month, ACB will be joining GBIF governing meeting. In Thailand, we have data management training, I hope we can strengthen the collaboration among ACB, APBON, GBIF, and OBIS on biodiversity data management.

Ms. Runi Anak Silvester Punnga (Forest Department of Sarawak, Malaysia)

One of the functions of the Forest Department Sarawak is to monitor activities including research conducted within the Permanent Forest Estates (PFE). Researchers from the Sarawak Herbarium are responsible to conduct the collections of flora and fauna and research projects. Currently, the department is collaborating with the international researchers under SATRTEPS project and to hold a seminar in November 2022. The Forest Department Sarawak welcome members of APBON and GEOBON to initiate collaborations and partnerships in future.

Dr. Ai Nagahama (National Museum of Nature and Science, Japan)

We recently published a research activity.

(<https://nph.onlinelibrary.wiley.com/doi/full/10.1111/nph.17897>)

This is a review of phenology in Southeast Asia, especially flowering in this region. Comparing a phenological pattern in various places in Asia is important, but phenological data is not sufficient to conduct it. In the future, we need to increase the data collected from various area in Southeast Asia.

Dr Yongyut Trisrat (Kasetsart University, Thailand)

In the last two years, I have been conducting research on climate change impact to species distributions and ecosystems, Since APBON is nominated as a representative of Asia to work on the Key Biodiversity Areas (KBAs), now I am working with Dr. Andrew Pumtre, Head of KBA secretariat, to develop a proposal to get support from CEPF. This proposal will support the Global Biodiversity Framework 2030, the mission of Thailand's Department of National Parks and the workplan of APBON 2023-2025. I will let you know an update on it if any.

Dr. Yayoi Takeuchi (NIES, Japan)

I am currently working on the SATREPS project which Ms. Runi mentioned. We will

discuss our research update in future seminars on it. Other than this, we are now planning the Mapping of EBV in Japan, this is a collaborative project with the Finnish Environment Institute so-called "SYKE", which focuses on the terrestrial ecosystem to map and use the protocol of EuropaBONs.

Dr, Yuichi Kano (Kyushu University, Japan)

Recently I am making many colored 3D models of wild animals as shown in the screen. This model comes from a real specimen and many specimens such as flowers, flogs and lobsters, lizards, sharks, and so on. This model can be useful for taxonomy and many fields such as entertainment industries offering me to utilize it.

Dr. Alice Hughes (University of Hong Kong, China)

I have many papers on climate change in Southeast Asia based on the various taxonomic groups and on the many drivers of the bird diversity in more effective planning cityscapes, what are the best ways for cities to sustainably develop to maximize bird diversities in the cities of developing regions. This highlighted that continuous access of the green spaces in cities is probably one of the best things to maintain a bird diversity. We also have papers on wildlife trade in Bangladesh, particularly on the perpetrator displacement, the Bangladesh government's scheme of pirates removal from the Sundarbans forest area, was very successful at removal of pirates, but created a void which enabled increased trading of species such as tigers, we need more effective policy around the region. We also have some research on the post-2020 global biodiversity framework, at the meeting in Nairobi on agreeing on post-2020 global biodiversity framework, only 2 of 23 targets and 20% of text has been agreed on and there is a significant possibility we will not agree consensus on the global biodiversity framework. This may have direct implications for the allocations of global environment facilities of biodiversity, and a lack of mandate to achieve the goals. The Asian region is also important to push the compromised agreement and collaborations for the agreement, as the 3 days scheduled to finish the framework may be insufficient.

Dr. Manabu Onuma (NIES, Japan)

Recently I resumed a research program in Pasoh forest reserve using environmental DNA, I want to upgrade my detecting techniques, want to modify the method to detect species more efficiently than before using Nanopore sequences. I recently joined SATREPS program in Sarawak, so I am trying to apply this technic to Sarawak.

Dr. Yoshihisa Suyama (Tohoku University, Japan)

I published one paper introducing the developments of two techniques, MPM-seq which can easily get phylogenetic data, and improved version of MIG-seq. It is also a case study of phylogenetic data analysis, we can get three phylogenetic trees by using these two methods, they are cpDNA, ITS2, and MIG-seq. By using these methods, we analyzed 25,000 samples in two years. In my recent paper, I mentioned that sometimes it is difficult to identify species due to natural hybrids, this technique can easily identify the figures of what species originated in the hybrid. We are planning to analyze approximately 20,000 species in Japan by using MIG-seq2, which supports low-throughput to ultra-high-throughput DNA sequencing.

Dr. Yongyut Trisurat (Kasetsart University, Thailand)

For the next two weeks I have discussed the AOGEO contribution to nature and economics, Dr. Nagai and Dr. Muira might have good contributions to the seminar by providing photo data.

Session 2:

Discuss what and how do we strengthen the biodiversity observation in our region

(Moderator: Yongyut Trisurat)

- Introduced the key targets of the Global Biodiversity Framework 2030 and particularly referred SDGs targets, 12 (responsible consumption and production), 13 (climate), 14 (life below water) and 15 (life and land) relevant to the conservation of biodiversity.
- To strength the biodiversity observation in the region, Dr. Yongyut pointed out that we need collaborative research, integrative analysis of existing data and knowledge, EBV, and link with satellite remote sensing.

Collaborative Research (fund resources)

Dr. Alice Hughes (Chinese Academy of Sciences, China)

CEPF (Critical Ecosystem partnership fund) is one option, the other is CI (Conservation International) is one of the GEF (Global Environment Facility) eligible groups. Maybe following the post-2020 framework launched, CI has more access to funding, as well as the regional one, ASEAN funds.

Mr. Ryo Mabuchi (Biodiversity Center, Japan)

As far as I know, funding support of the Biodiversity Center is limited to APBON, do you know of any other funding support from the Japanese government or societies?

Dr. Amit BATAR (NIES, Japan)

Asia Pacific Network for Global Change Research is providing a fund for collaboration in East Asia pacific countries for a specific maximum of two years. The key topic is very similar to APBON activities i.e., climate change and biodiversity, ecosystems.

Dr. Hiroyuki Muraoka (Gifu University, Co-chair of APBON)

Dr. Yongyut, Dr. Takeuchi and I tried to make a proposal for JSPS (Japan Society of Promotion Science) funding program, this is under the ministry of education and Science Technology Japan. Some of the projects funded by JSPS, the deadline of the proposal is around May to July, it also requests proposals written in English and a particular language where the research will be conducted. I want to discuss on it also latest of this year.

Item2:

Integrative analysis of existing data and knowledge and EBV

Dr. Hiroyuki Muraoka (Gifu University, Co-chair of APBON)

We already have three books published in Springer, we might think more on it and any other idea such as international journals such as ecological research organized by the ecological society of Japan, I also got the information from the Japan office of Springer that they remember my name and APBON, I can communicate with them if we are willing to publish a book. In case we prefer to make an article in the journal papers like a special issue by collecting 7 – 10 papers as a special issue.

Dr. Alice Hughes (University of Hong Kong, China)

It might be useful to make webinar more visible to the people in part of APBON region, thinking more as a communication channel because we have discussed much broadly relevant information but other people such as students and other people in the region are not able to watch it. Make it more public, recording and open as APBON Youtube for example.

Dr. Hiroyuki Muraoka (Gifu University, Co-chair of APBON)

On ideas of policy brief of APBON, we might consider input to CBD or other international organizations and it is also impact.

Dr. Alice Hughes (University of Hong Kong, China)

That's good idea. The party delegates from different parts of Asia Pacific region have variable knowledges and experiences about regional biodiversity. Providing more brief information and also translating some of the key elements is effective.

Dr. Yayoi Takeuchi (NIES, Japan)

I am not sure the Japanese government would have a side event in the next CBD COP but previously we had an event during COP. We are going to discuss how we can appeal our findings and activities to policymakers in the next CBD COP.

Dr. Alice Hughes (University of Hong Kong, China)

In case of NBSAPs for example, each country of APNBON region thinking how to complete NBSAP. Given a role of APBON, what data the country has, how much further data is needed; a gap for NBSAP, additional data sources they haven't considered. APBON can contribute the country to move forward to help NBSAPs in the future.

Dr. Hiroyuki Muraoka (Gifu University, Co-chair of APBON)

AOGEO have discussed Integrating Priority Studies (IPS), which is the mechanism that tries to share data, particularly satellite data from some institutions like JACSA and other institutions, Still AOPGEO coordination board still discussing how to promote this IPS activity, and they will announce a new idea of IPS and data required for the institutions in AOGEO in very near future. Please don't miss the information if you want to use more satellite data in the cooperated mechanism in AOGEO or other methodological data within AOGEO community. This is the chance for us to upscale site-level observation data into more regional scales.

Essential Biodiversity Valuables (EBV)

Dr. Takehisa Yamakita (JAMSTEC, Japan)

We discussed the collection of EBV in the last workshop, it is important to have feedback after collecting data into a database. Because local researchers can use their own data

how to utilize it in larger scales. After collecting those data, we can share and facilitate and review the information.

Dr. Yayoi Takeuchi (NIES, Japan)

We have started EBV research and recently I got a protocol from EuropaBON. Satellite EBV mapping needs a very high special resolution such as 10 m, it is a difficult and big challenge but we will find a way to use the protocol. We can share it if we succeed in it link with satellite remote sensing

Dr. Hiroyuki Muraoka (Gifu University, Co-chair of APBON)

In the linking of in-situ and satellite observations focusing on the phenology and net primary productivity, those two valuables are connecting climate change and biodiversity, this phenomenon could be one of the starting points to connect in-situ and high-resolution satellite remote sensing. This idea is quite related to Dr. Takeuchi's idea, together with other colleagues in Japan, we are trying to propose a research funding opportunity. It could be a good contribution of APBOPN research activity in Japan. If we succeed in this kind of project, we could propose this kind of idea of satellite observation of EBV like phenology and NPP.

Dr. Tomoaki Miura (University of Hawaii, USA, JAMSTEC, Japan)

The 10m resolution data I found in ESA, we can preview the 10m satellite data anywhere in the world, I will dig up the link for share so that you can access the website and go to your area of interest, and preview the sample images, which even enables you to select kinds of layers, change a landscape and time series, I will share the link in later.

Dr. Amit BATAR (NIES, Japan):

I am now working on forest phenology using 30m resolution data from the land-set. I can analyze seasonal variations of forest phenology at national scale in Japan. I have no idea about more high-resolution data to large scale because high-resolution satellite data is expensive and limited to observe the long-term changes.

Session 3:

Discuss the engagement of the broader community (academia, data-users, governments, etc.) (Moderator: Hiroyuki Muraoka)

Dr. Takehisa Yamakita (JAMSTEC, Japan)

Several years ago, CBD produced the assessment of biodiversity of the Asia Pacific region under the IPBES, how is the situation after that report if anyone knows it?

Dr. Alice Hughes (University of Hong Kong, China)

A little bit hard to pick it up but there are many useful conservation initiatives in ASEAN as a high-level effort and many people and groups already engage to think how the most effective method. It also would be useful to know what ASEAN is doing to plan, and complement frameworks of synergy for their efforts.

Wrap-up:

Way forward 15th AOGEO Symposium, APBON Workshop and APBON Web seminar
(Moderator: Hiroyuki Muraoka)

Dr. Hiroyuki Muraoka (Gifu University, Co-chair of APBON)

- Introduced 15th AOGEO symposium on Sep 28. Panelist from APBON.
- Introduced summary and outlines of each session.
- TG co-leads requirements are also introduced for the preparation.
- Draft concept of APBON workshop, it will be postponed because CBD COP 15 would be postponed to December, APBON member gets busy accordingly.
- APBON web seminar 2020 information.

Photo Session

