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# GREEN HEART

PP12747/01/2013(031306) ISSUE 02 • 2020



A juvenile *Polypedates leucomystax*, the size of our fingernail looks big through macro photography technique.  
Photo: © Claudia Mutek / Panda CLICK! / WWF-Malaysia



# GREEN HEART

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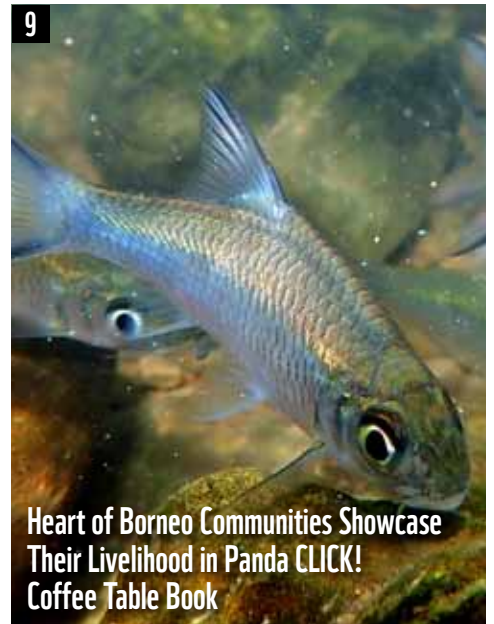
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# Green Economy in the Heart of Borneo

By Amanda Nayra,  
Sarawak Conservation Programme Communications Officer

Photo: © David James / WWF-Malaysia

Borneo is one of the world's biodiversity hotspots with over 500 species found endemic to the island (meaning they are found nowhere else in the world). However, industrial demand and population growth are causing the world's third-largest island to lose much of its rainforest cover. A strategic plan is needed in order to maintain Borneo's biodiversity heritage without neglecting community needs and economic prosperity.

Realising this, WWF-Malaysia and WWF-Indonesia identified a two-million-hectare site traversing from central Sarawak, Malaysia and northern West Kalimantan, Indonesia for a transboundary corridor project called the Green Economy in the Heart of Borneo (HoB).

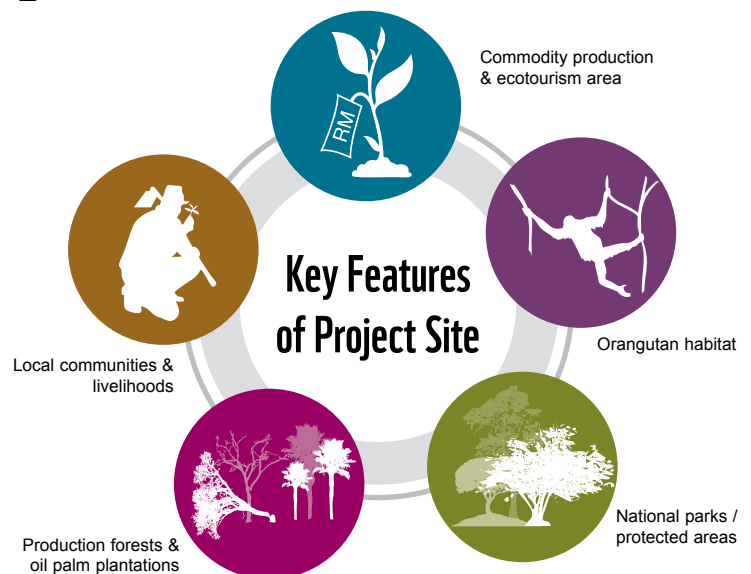
Within this corridor, there are four protected areas located next to each other, running along the Sarawak and West Kalimantan border. They are Batang Ai National Park and Lanjak Entimau Wildlife Sanctuary in Sarawak; and Danau Sentarum National Park and Betung Kerihun National Park in West Kalimantan.

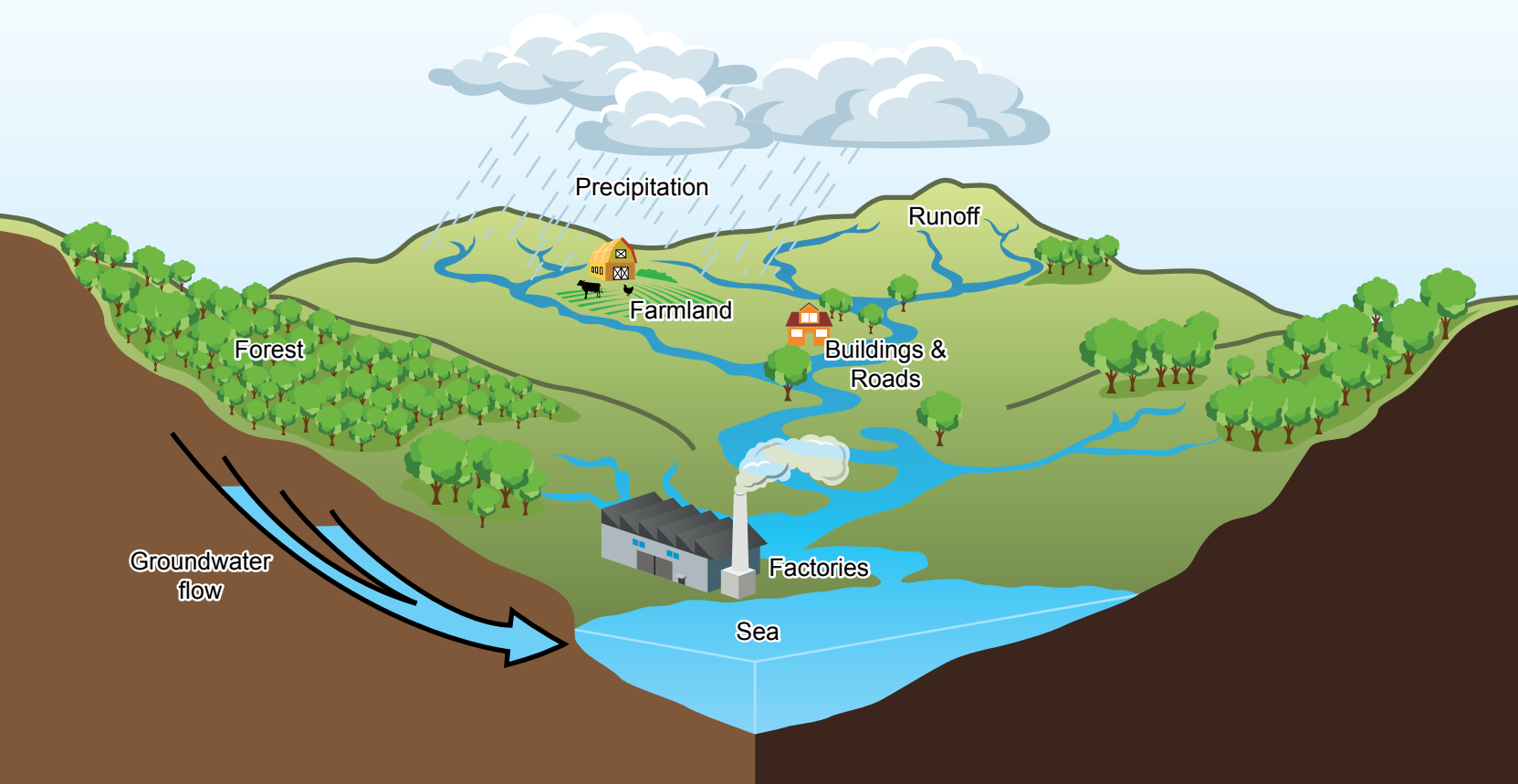
These protected areas form a network of corridors, akin to the concept of 'highway' for plants and animals. Such highways are intended to enable gene flow of wild populations between fragmented landscapes caused by different land uses. One of the most prominent species found in the area is the Bornean orangutan subspecies, *Pongo pygmaeus pygmaeus*. This subspecies is the most threatened in the world. It is listed as critically endangered (only one step away from going extinct) in the IUCN Red List of Threatened Species.

However, these national parks are surrounded by different land uses such as oil palm plantations, logging concessions, roads and community areas. Increasing demand for palm oil and timber paired with expanding human populations, as well as growing needs for roads and development will threaten the gene flow of plants and animals. This will eventually lead to inbreeding which will then result in long-term biodiversity decline. This is because inbreeding causes a decline in trait value which makes animal susceptible to have offspring with low fitness and birth defect.

By developing a green economy management concept, it will help to promote environmentally-friendly resource use and production within the transboundary HoB Corridor for Sarawak and West Kalimantan. The project's four major outputs are:

1. A transboundary Green Economy Management Concept comprising **Land-Use Plan and Green Economy Action Plan** is developed and accepted by government authorities;
2. **Awareness is raised** and **capacities are developed** among business sectors to adopt environmentally-friendly business practices for palm oil and timber productions;
3. **Local communities are empowered** to co-manage natural resources in a sustainable manner and according to the green economy concept; and
4. The Green Economy Management Concept is **replicated across the whole of HoB**, particularly in conservation areas that are of critical importance to the international community.





# Safeguarding Our Water Source Through Integrated Water Management (IWM)

By Belinda Lip, Manager (Freshwater management & water security) / Interim Sarawak Conservation Programme Lead

A watershed is an area of land where all water, including groundwater, flows into one large water body such as a larger river, a lake or the sea. When rain falls on a high, steep mountain, there is no other way to go, but downhill. Gravity will then pull this water into an area where all water can be contained.

However, before reaching its destination, the water will flow through areas where human activities are conducted (farms, residential areas, factories, etc.). This means that the water flow will also bring rubbish, sediments, nutrients and chemicals together with them. This condition is also known as non-point source pollution.

## How do we minimise this?

All stakeholder groups in the watershed areas e.g. government agencies, private sectors, non-governmental agencies and communities need to be in sync with each other and work together to coordinate their activities to reduce pollution into rivers, and to protect areas for water and wildlife. This approach is called

integrated watershed management. An integrated watershed management process enables development plans and protection of rivers and water resources to go hand in hand. With this, there is clean water for all and everyone takes part in taking care of their river and water resource.

WWF-Malaysia advocates for the adoption of this approach to improve management for rivers and its freshwater ecosystems' health. We conducted capacity building and awareness workshops, supported the organisation of multi-stakeholder groups for discussions and facilitated the collection of ecological and environmental information necessary to support the implementation of integrated watershed management.

The Baleh watershed located in Bukit Mabong district, Kapit has been identified to be a pilot area and agencies which were engaged are supportive, calling for a direction to be set for IWM implementation in Sarawak. A successful watershed management relies on all its stakeholders to come together and play their parts to take care of the rivers which they depend on. ■



# Sungai Kain Communities Initiate Tagang

By Hafida Bolhen, Sarawak Conservation Programme Freshwater Management & Water Security Officer

After a successful assessment was conducted on the river and fish stocks in Sungai Kain, the communities from Rumah Engsong and Rumah Gare agreed to conserve their river and fish stock by implementing *Tagang*. These two Iban communities organised their longhouse people and set up a *tagang* committee to lead the implementation to ensure there are shared responsibilities and ownership among them over the *tagang*.

The assessment of fish stocks recorded at least 24 species in Sungai Kain. The *Semah* fish was found to be the most abundant and could be a potential and stable source of livelihood income for the communities.

The communities are also responsible to keep out anyone from fishing in the prohibited area by setting up an agreed system of rules and penalties as part of their management. The committee with assistance from WWF-Malaysia and Inland Fisheries Division, Agriculture Department conducted ground marking to zone their river into Red, Yellow and Green Zones. Each colour determines the types of activities allowed in the area.

River Zonation:

|                    |   |
|--------------------|---|
| <b>Red zone</b>    | No activities are allowed. Generally area for protection of spawning sites and juveniles. |
| <b>Yellow zone</b> | Minimal disturbance only. Occasional fishing is allowed.                                  |
| <b>Green zone</b>  | Human activities are allowed. Fishing and recreational activities can be done here.       |

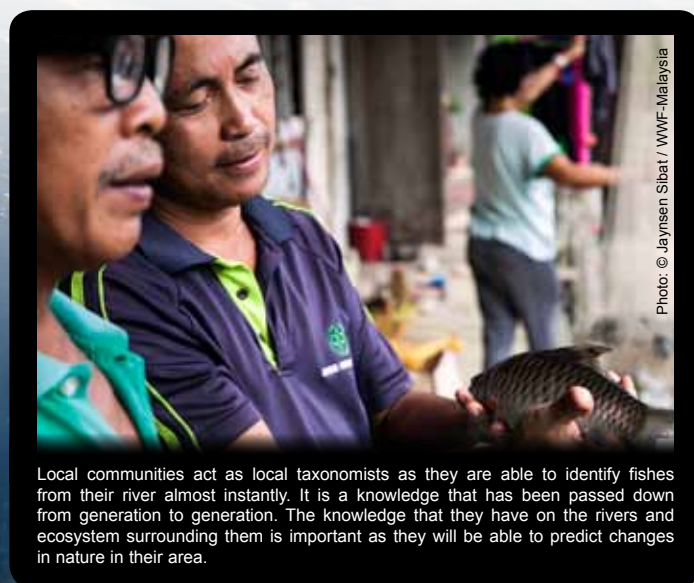


Photo: © Jaynsen Sibat / WWF-Malaysia

Local communities act as local taxonomists as they are able to identify fishes from their river almost instantly. It is a knowledge that has been passed down from generation to generation. The knowledge that they have on the rivers and ecosystem surrounding them is important as they will be able to predict changes in nature in their area.

## What is *Tagang*?

In the Iban language, the word '*Tagang*' means restricted. The *Tagang* system is managed by a committee comprising local people in order to limit fishing activities and implement sustainable fishing methods along the river. These local communities then become staunch stewards of their rivers and will take on the tasks of making sure their river is clean and protected from any form of destruction and pollution.



Photo: © Hafida Bolhen / WWF-Malaysia

*Tor douronensis* (Common name: Semah) found in Sungai Kain.



Photo: © Hafida Bolhen / WWF-Malaysia

*Hampala macrolepidota* (Common name: Adong) hiding under a rock for shelter.

They have also started taking turns to feed the fish at designated red zone areas using fish food pellets provided by WWF. This is part of the *tagang* process to attract native fishes in Nanga Kain with food pellets which conditions them to use that part of river at the *tagang* site. After weeks of feeding, the communities were excited to see positive signs of fishes returning to the feeding ground. The communities are now keen to continue the effort to fully implement the *tagang* and will withhold any harvesting until the agreed amount and size of fishes in the green and yellow zones are observed. Hopefully, when this is achieved, it will provide long-term security of their livelihood and help to replenish riverine stocks and consequently, preserve the natural fish habitat.

WWF-Malaysia also supports the community through capacity building and is communicating with the Inland Fisheries Division, Department of Agriculture (DOA) to also support the project, especially in providing fish feed. ■

# Exploring Wildlife Connectivity

By Lukmann Haqem Alen, Senior Field Biologist, Sarawak Conservation Programme

Lanjak-Entimau Wildlife Sanctuary is a significant orangutan conservation area in Sarawak. Together with Batang Ai National Park, these protected areas are estimated to shelter approximately 2,500 orangutan as well as numerous wide ranging species, such as the Sunda clouded leopard (*Neofelis diardi*), Bornean gibbon (*Hylobates muelleri*), and Bearded pig (*Sus barbatus*).

Unlike humans, animals such as orangutans do not recognise man-made boundaries and there are possibilities that this gentle creature will venture out of the allocated parks and into danger. Therefore, WWF-Malaysia collaborated with the communities in Ulu Katibas to conduct a series of orangutan recce surveys in the upper reaches of Sungai Katibas where orangutans were historically found or recently sighted by villagers. These surveys involved counting the nests that the orangutans made in order to determine their population size in these areas.

After months of exploration, the team found several old nests in one of the areas called Pasin. This was an indication that

orangutans were present in the area and it allowed the team to measure its population size in Pasin. The team estimated that there are approximately 20 orangutans in the area using the Marked Nest Count method.

Although the number of orangutans found in Pasin is relatively low, it is also a sign that orangutans have ventured out to human-populated areas. Efforts to prevent forest loss and human-wildlife conflict must be made to maintain orangutans in this area so that this species can thrive at its natural carrying capacity.

This is because orangutans are regarded as an umbrella species whereby they are important to an ecological system of an area and are more susceptible to habitat change than other animals. As orangutans require a vast area of forest to survive, we need to protect their habitat in order to maintain or increase orangutan populations. This is because when a forest is protected, it also benefits the other species that live there, as they are protected as well.



Photo: © Lee Shan Khee / WWF-Malaysia



While searching for orangutan nests, the team took the opportunity to set up camera-traps in the research area. From these camera-traps, we recorded 34 mammal species such as banded civets, bearded pigs and clouded leopards, six bird species and three reptilian species. Here are some of the wildlife images captured on camera.

Common name: Bornean Bearded Pig  
 Scientific name: *Sus barbatus*  
 Fun fact: Bearded pigs regularly follow primates, feeding on food dropped by the primates.

Photo: © WWF-Malaysia

Common name: Hose's civet  
 Scientific name: *Diplogale hosei*  
 Fun fact: This species has unique habitat preference, and occurs largely in higher elevations. It is only found in Borneo.

Photo: © WWF-Malaysia

Common name: Bornean bay cat  
 Scientific name: *Catopuma badia*  
 Fun fact: Deemed the rarest cat species in the whole island. Only found in Borneo.

Photo: © WWF-Malaysia

Common name: Sunda Clouded Leopard  
 Scientific name: *Neofelis diardi borneensis*  
 Fun fact: Each individual has its own territory. Most of their time and energy are spent patrolling their respective territories.

Photo: © WWF-Malaysia

Common name: Bulwer's pheasant  
 Scientific name: *Lophura bulweri*  
 Fun fact: The males 'dance' to attract the females during courtship

Photo: © WWF-Malaysia

Photo: © Shamir Mohamad / WWF-Malaysia

With these findings, WWF-Malaysia will help business entities and government agencies to identify High Conservation Value (HCV) areas within their boundaries. HCV areas are natural habitats that have outstanding significant or critically important biological, ecological, social or cultural values.

Protected areas are important to conserve our natural environment. These areas preserve the elements that we need

to live in a healthy and comfortable life. However, there is a lack of connectivity between protected areas. Animals such as orangutans, need a large area to feed and find mates. This may prompt them to travel beyond the protected areas' boundaries. We can address this by enabling corridors between protected areas to allow wildlife to move from one area to the other. Ongoing wildlife research and HCV assessment are some of the ways where we can identify and help create suitable connectivity for orangutans and other species. ■



Book launching for Warna-Warni Borneo Panda CLICK! Bersama Masyarakat Kapuas Hulu, Kalimantan Barat dan Kapit, Sarawak coffee table book.

# Heart of Borneo Communities Showcase Their Livelihood in Panda CLICK! Coffee Table Book

By Amanda Nayra, Sarawak Conservation Programme Communications Officer

Late in the evenings, Usik Reba, a farmer from Rumah Engsong, Kapit Division, would go to a river nearby for a dip with a pocket camera. Instead of splashing around, she remained still in the water like a predator waiting for the right moment to strike - but in her case - it was to take photographs of underwater creatures. "Fishes will generally stay still in the water at dusk, so it is easier to take photos of them," she said. Usik is one of the representative of the interactive communication and conservation programme for communities called Panda CLICK! introduced by WWF-Malaysia and WWF-Indonesia.

Usik's persistent traits and local know-how are also seen in other participants such as in Rumah Peter. Its village chief, Peter Jabat for example, maneuvered his way through Sungai Katibas while he took photos of his longboat passengers. In the span of ten months, Usik, Peter and the other 17 participants have snapped a total of 50,000 photographs for Panda CLICK!

The best photos were then selected for a book entitled, *Warna-Warni Borneo: Panda CLICK! Bersama Masyarakat Kapuas Hulu, Kalimantan Barat dan Kapit, Sarawak* (Colours of

Borneo: Panda CLICK! With Kapuas Hulu, Kalimantan and Kapit, Sarawak Communities).

Stories behind the photographs were narrated and translated for this 196-page book. Through this campaign, the participants have beautifully documented and showcased the changes brought on by development that were happening in their surrounding nature, and within their own communities and culture.

This book, filled with interesting photographs representing the diverse perspectives of Sarawak's untapped talents, was launched in Kuching on 17 December 2019. Notable guests such as Bukit Mabong District Officer Mr Douglas Pungga, Hulu Gurung, West Kalimantan District Officer Mr Baharrudin, representatives from WWF-Germany and WWF-Malaysia including two of our Trustees, Mr Robert Basiuk and Mr Rewi Bugo were present. The communities also had the chance to share their experiences learning a new skill and daily challenges during the book launch. This enabled the attendees to have a deeper understanding of the life of these local people living with nature in the midst of development.



A total of fifty photos were exhibited during the launch and then extended to Sarawak State Library for a month. The communities hoped that through their photographs and stories, the public will have a deeper understanding of their cultures, experience living in harmony with nature and also the problems with developments if it is done unsustainably.

The book is written in Bahasa Indonesia and Bahasa Malaysia and is available online via <https://bit.ly/PandaClick>. The English version will be available by the end of 2020. ■



Peter Jabat showed a picture of his villager separating paddy and rice through traditional methods.



Usik Reba proudly holds an image of a fish (*Bagroides sp*) that she took at nearby stream at her village.



Photo: © Usik Reba / Panda CLICK / WWF-Malaysia

A school of *kepiat* swimming in Nanga Kain.



Photo: © Peter Jabat / Panda CLICK / WWF-Malaysia

Peter Jabat gave us a glimpse of his passengers while cruising through Sungai Katibas.



Photo: © Usik Reba / Panda CLICK / WWF-Malaysia

The clear water of Sungai Kain enables Usik Reba to take a photo of the giant freshwater prawn.



Photo: © Peter Jabat / Panda CLICK / WWF-Malaysia

Peter took a photo of this plant while he was walking in the forest.





Monthly assessment and monitoring which include measuring tree height and stem diameter.



# Collaboration on Orangutan Habitats and Community Livelihood Through Gaharu

By Ailyn Nau Sidu, Sarawak Conservation Programme Protected Areas Officer

WWF-Malaysia is working with multiple stakeholders in Ulu Sungai Menyang to ensure communities' livelihood as well as orangutan's habitat remains protected.

## How is the monthly monitoring of gaharu trees conducted?

Rumah Manggat is in a unique position to the gateway of the orangutan habitat as it is the first longhouse adjacent to the orangutan habitat in Batang Ai National Park and the nearest community from the jetty. The orangutans are known to occasionally venture into Manggat's lands!

As the gatekeeper, the community has taken the role to conserve the orangutan and its habitat by committing to the gaharu project from the beginning. Monthly assessment of tree growth since April 2019 is carried out through joint efforts with the local

community. We divided the work into different management regimes (slope, weed, and fertiliser application) and conducted monthly set of observations on the stem diameter (dbh) and heights for the 222 trees within the study plot.

The growth performance of gaharu will be monitored through continuous data collection for 12 months to see whether the slope location, fertilisation rate and the frequency and weed management regime have a direct impact towards the growth rate. This exercise would help us to understand the factors that determine a healthy growing gaharu and assist us to minimise the cost of maintaining the trees.

From our monthly observation, the tree growth increased rapidly but some trees were reduced in stem diameter because of accidental trimming and caterpillar attacks.



The data collected will guide us in developing future similar projects so that we can execute them much better as this is part of our learning process.

### Collaborating with local gaharu supplier

Good growth of the trees will ensure a viable production of gaharu leaves. According to Dr. Lim Chan Khoon from Aquilaria Plantation, gaharu leaves are able to eradicate insomnia, decrease blood sugar and cholesterol level. Due to that, the demand for gaharu leaves is high, particularly from China.

Aquilaria Plantation supplied the gaharu seedlings and has also signed a buy-back guarantee with WWF-Malaysia to warrant continuity of community livelihood. During the initial harvest at Rumah Manggat gaharu farm, the local communities were able to harvest about 100 kilograms of gaharu leaves, sold at RM 6/kg and the revenue is predicted to increase once the trees reach their mature state.

In addition to the income generated from the sale of gaharu leaves, the project also benefited the local communities who obtained extra income through volunteer tourism such as providing boat transfer and homestay services for visitors coming to visit the farms. ■



Gold medal awards for Gaharu Project in Ulu Sungai Menyang.

### Gold Medal for multi-stakeholders' effort

Effective collaboration between government agencies, local communities, private sectors and NGOs resulted in the project receiving special awards. The gaharu project in Ulu Sungai Menyang won Gold Medal for the Sarawak State Civil Service Quality Awards in the High-Performance Team (HPT) category. The award was presented in conjunction with Civil Service Day on 4 December 2019.



View of the gaharu trees taken in February 2020.



# Sustainable Pepper Farming for Better Tomorrow

By Diana Chendai, Community Engagement & Education Officer



## What is sustainable pepper farming?

System that promotes farming practices which are environmentally-friendly, economically viable and protect public health.

## How can we practice sustainable pepper farming?



Pepper farming is done at fallow lands, without the need of clearing new area.



Practicing intercropping, so as to build healthy soil and improve pest control. It also provides shade and shelter to protect plants and animals, thus promoting biodiversity. It also contributes additional income to the farmers.



Planting cover crops or shrubs between pepper trees will reduce soil erosion, improve soil fertility and quality, control diseases and pests.



Using less chemical pesticides and fertilisers so that in the long term, it will build and maintain soil fertility, thus improving agricultural productivity.



Using crop waste or animal manure, in replacement of chemical fertilisers. This helps enrich the soil.



Supporting and developing partnership between farmers and retailers or cooperatives. This helps create market for their pepper produce, which improves livelihood of small-scale farmers and the economy.

## Why sustainable pepper farming?



Ensure food security for human well-being.



Promote farming that maintains healthy soil.



Minimise air, water and climate pollution as well as promote biodiversity for future generations.