



**Syarikat Samling Timber Sdn Bhd**  
A member of Samling Group of Companies

## **PUBLIC SUMMARY**

### **Forest Management Plan**

**For**

**Forest Management Unit (T/ 0294)**

**Ravenscourt Sdn Bhd**

**for the period**

**2016 to 2025**

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Approved by:

Yap Fui Fook  
Chief Operating Officer

**July 2024**  
**(Edition 10)**

## Introduction

The Forest Management Plan (FMP) is a comprehensive, integrated plan (FMP) for the long-term Forest Timber Licence (FTL) T/0294 which is issued to Ravenscourt Sdn. Bhd. The Forest Management Unit is known as Ravenscourt FMU.

This Revised FMP is for the period from 2016 to 2025. There will be a mid-term review in the fifth year to allow any policy changes and developments to be incorporated.

FMU obtained **MC&I (Natural Forest)** certification on 4 June 2018 and expires on 3 June 2021. Due to Covid 19 pandemic, FMU had undergone a **Re-Certification Audit** with the new standard of **MC&I SFM MTCS 1002:2021** on 8th - 13th November 2021 and certified on 13th May 2021 valid until 3rd June 2026.

The renewal of FTL No. T/0294 has been approved by Forest Department Sarawak (FDS) for the period of thirty (30) years effective from 14<sup>th</sup> February 2024 until 13<sup>th</sup> February 2054.

## Forest Management Plan Objectives

- Forest planning and operations based on **multi-functional concept** which consider the different usage of forest resources and needs of stakeholders involved.
- Forest management practices to maintain or even enhance the forest ecosystem functions as to enable its self-renewal capacity through **Reduced Impact Logging (RIL), rehabilitation** and **silviculture treatment**.
- **Detailed Harvesting Plans** aimed at production of high quality timber at optimum efficiency, reduced environmental impacts and minimise wastage of resources.
- Integration of climate adaption and mitigation plans which has a positive impact on long-term **carbon sequestration** capacity of forest vegetation.
- Multi-stakeholders' consultation through the **Community Representative Community (CRC)** or **Jawatankuasa Keselamatan Kampung (JKKK)**, **Forest Management Certification Liaison Committee (FMCLC)** and Forest Management Unit Representative **Committee (FMURC)** to address issues of common interests and to monitor the operational activities.
- **Continuous improvements** to forest management through certification, research, collaborative partnership, updating methodologies and standards.; and
- To take due and appropriate recognition of the FMU being in the **Heart of Borneo** corridor.

## The Resource

The FMU is in the Lawas District of Limbang Division, Sarawak. It lies about 113 km south of Lawas Town from where there is access for the main part using a logging road constructed and maintained by Samling. Ravenscourt Camp, with administrative office, quarters and workshop is at KM109 - as measured from the Lawas Log pond. ([Right click here to access Map 1: Location](#))

The total area is 117,784 hectares, more than 90% of which is forested, mainly with upland mixed dipterocarp forest, a forest type which more or less contiguously surrounds it.

Approximately 70% of the FMU is within the Limbang Protected Forest and 21% is inside the proposed Trusan-Kelalan Protected Forest. The remaining area of the FMU is occupied by local communities. ([Right click here to access Map 2: Legal status](#)).

The FMU shares a common boundary with the Pulong Tau National Park and International border with Kalimantan, Indonesia.

The elevation ranges from 600m to 1,500m amsl with 83.6% comprising Terrain Class III (20°-35° slopes), 11.5% Terrain Class I & II and a 4.9% in Terrain Class IV (>35°).

The Kapit soil series is dominant soil which covers approximately 80.0% of the FMU. It is followed by Merit (16.3%) which is mostly associated with rolling terrain. The other soil series i.e. Meluan, Bemang/Bekenu, Tutoh, Bekenu/Merit/Nyalau and Kapit/Silantek appeared to be minor with some of them covering less than 3.6% of the FMU.

The FMU has been zoned into: **Protection** (water catchment, fish conservation, K/MD1/IV, SA, River Buffer Zone, Border Zone and NP Buffer zone): 22,361 Ha (19.0%), **Production**: 86,674 Ha (73.6%) and **Community**: 8,749 Ha (7.4%). ([Right click here to access Map 3: Forest zoning](#)).

### Forest Management System

The production forest is managed on a polycyclic system based on prescribed cutting limits (Selective Felling System) with the next harvest, and all subsequent harvests, provided by the residual stems (potential crop trees) and continued recruitment from natural regeneration. Use of a Reduced Impact Logging system, with extraction by modified excavator wincher, minimizes damage to the residual stand. The FMU is divided into **27 coupes** of about **3,210 ha/coupe** with, nominally, one coupe harvested each year. The FORMIND growth simulation model used by Samling derives a sustainable annual cut (AAC) at an optimal cutting cycle based on the DBH cutting limits currently imposed by FDS of 45cm and 50 cm for non-dipterocarps and dipterocarps, respectively.

### Harvesting operation

The use of Reduced Impact Logging (RIL), with break out and extraction by modified excavator wincher, is intended to minimise damage to the residual stand and regeneration both of which will form the next or subsequent harvests. Only trees that have been tagged for harvesting and which are within 60m of the skid trail are felled. Sections of the tree number tags are attached to both ends of the log(s) which are then winched to the skid trail. From there they are skidded by tractor to the landing.

At the landing the logs are measured and the LPI and CB tags are affixed at both ends of every log together with the hammer imprint of the licensee's property mark. The details of logs extracted are recorded on the Daily Production Return form which must be submitted to the One-Stop Compliance Centre and Customer Service Centre of FDS.

The logs are then trucked to the official stumping area - Place of Royalty Measurement (PORM) - where the royalty assessment is undertaken by FDS. As part of the assessment the logs are hammer marked "FD" and tagged. A Removal Pass is then issued by FDS; this serves as a legal permit to transport the logs to the mill or export point. It is the last link in the FMU's chain-of-custody: standing tagged tree to the official log pond.

## Allowable Annual Cut

From the net production area of 86,317 ha in the FMU with an average of 3,210 ha per Annual Coupe at **25 m<sup>3</sup>/ha to 28 m<sup>3</sup>/ha**, the resulting preliminary Annual Allowable Cut (AAC) in the region of **79,900-89,500 m<sup>3</sup>** on a 25-30 years harvest cycle is sustainable indefinitely.

Yield control is primarily by area with one coupe harvested each year with the actual annual production not to exceed the AAC.

## Provisions for monitoring forest growth

The establishment of a network of Permanent Sample Plots (PSPs) is on-going. The PSPs are selected from the FRA sampling units so as to represent the variability of the forest condition over the productive forest area. It is planned that re-measurement will, initially, be at two year intervals. The final number of PSPs to be established will depend on the variability (coefficient of variance) of the FRA sampling units. [\(Right click here to access Map 4: PSP\)](#).

In compliance with DF Circular, a **tree nursery** has been established in the camp site and **restoration site** has been identified and planted with different species.

## Silviculture

Silviculture is the practice of managing and cultivating forests for timber production, as well as for other ecosystem services such as wildlife habitat, water conservation, and carbon sequestration. It involves the application of scientific and technical knowledge to guide the growth, development and regeneration of forest stands. Silviculture management of the production forest aims primarily to sustain and ideally enhance productivity – at an economically acceptable cost. The Silviculture Decision Support System (SDSS) for treatment of harvested natural forest is based on establishing the relationship between the actual commercial stocking situation and the number of big trees left behind. Enrichment planting (EP) will be considered after diagnostic sampling of the harvested blocks, relevant findings and the overall economics. Diagnostic survey is to determine, by sampling, the stocking and condition of the harvested forest, identify the areas which need silvicultural treatment and determine the type of silvicultural treatment required. Forest Landscape Restoration ensures the restoration of a forested ecosystem that is self-sustaining and that provides benefits to the people and to biodiversity. Overall, silviculture plays a crucial role in balancing the economic and ecological aspects of forest management, ensuring the sustainable use of forest resources for present and future generations.

## Environmental Safeguards

An **Environmental Impact Assessment (EIA)** was approved by Natural Resources and Environment Board (NREB) on **2<sup>nd</sup> April 2009**. With the implementation of the Natural Resources (Audit) Rules 2008 by NREB in 2019, the Licence Holder is required to submit an **Environmental Management Plan (EMP)** which was approved on **13<sup>th</sup> June 2019**.

The EIA report includes the study of environmental impact considerations, the conservation of the natural forest, water quality, waste disposal, use of pesticides and biological agents, mitigation measures for road construction and maintenance, tree felling and log skidding by

tractors, environmental quality control and non-organic waste disposal, silvicultural management, forest protection/fire prevention, wildlife protection, protection of scenic landscapes and those with recreational potential, and safety and health of workers.

All rivers and streams that flow year-round must have stream buffer reserve (SBR) established the width of which is determined according to NREB specification.

The FMU was selected by NREB to conduct a pilot project for the proposed replacement of the EMR - the Environmental Compliance Audit (ECA). The first cycle, comprising two internal audits and one external audit, was completed in 2019. Overall, it could be concluded that the water qualities of Sg. Likawan, Btg. Trusan and Sg. Kelalan in the locality of the project area were found to be moderately good with results mostly comparable to Classes I to II of the NWQS.

Appeal for approval of the postponement of the 2<sup>nd</sup> Cycle (Year 2020-2021) of ECA for Ravenscourt FMU had submitted to NREB on 22 October 2021. The reason was due to pandemic Covid-19 and the implementation of Movement Control Order. The NREB had approved the FMU request to postpone the ECA via their letter dated 14 November 2022.

On 10 January 2024, the FMU has submitted their request to waive the 3<sup>rd</sup> Cycle (Year 2022-2023) of ECA for Ravenscourt FMU. The reason is, there is no environmental impact associated with forest operation as Ravenscourt FMU has not conducted any forest operations since February 2020. To monitor the FMU's environmental status since the operations were halted, the FMU has conducted the water quality monitoring as detailed in Chapter 5-Environmental Status Water Quality. The laboratory result concluded that the water qualities of Sg. Likawan, Btg. Trusan and Sg. Kelalan in the locality of the project area were found to be moderately good with results mostly comparable to Classes I to II of the NWQS.

For year 2024, the FMU also has conducted the water quality monitoring in July 2024, however the result of water analysis is yet to receive from the water laboratory consultant.

**Fire Management Plan** is an essential component for the prevention, suppression and management of fire within forests and adjacent lands. Fire management plan must be part of an overall land-use management plan, e.g. forestry. An effective fire management plan is highly dependent upon broad-based support from all stakeholders.

**Climate change** mitigation programs (e.g. REDD+) are emerging that can increase the stock of carbon in forests; and that can help the costs of actions (from Carbon Credits) to reduce GHG emissions due to deforestation and forest degradation. Forest management shall assess the cost-effectiveness of climate change adaption and mitigation options and identify the most feasible based on the available technical capacity and supportive policy.

### **Description of Stakeholder Engagement/Consultation**

Stakeholder engagement/consultation **involves the development of constructive, productive relationships over the long term**. It results in a relationship of mutual benefit; it enables us to identify trends and emerging challenges which are currently or will eventually occurs in the future which would have impact on the sustainable forest management.

Listed below the Neighbouring Stakeholders:

No.	Village	Village head	Ethnicity
<b>Within</b>			
1	Long Muda	Paran Padan	Lun Bawang
2	Long Kumap	Agung Tai	Lun Bawang
3	Talal Buda	Liau Selutan	Lun Bawang
4	Long Nawi	Padan Sultan	Lun Bawang
5	Long Ritan	Labu Tadam	Lun Bawang
6	Long Rusu	Labu Tadam	Lun Bawang
7	Long Lemutut	Langub Pengiran	Lun Bawang
8	Long Langai	Matius Pelanok @ Matius Padan	Lun Bawang
9	Puneng Kelalan	Gariso Dawat	Lun Bawang
10	Long Rangat	Joseph Sinau	Lun Bawang
11	Long Ubau	Joseph Sinau	Lun Bawang
12	Long Tanid	Padan Ukab	Lun Bawang
13	Long Beluyu	Padan Balang @ Awang Balang	Lun Bawang
14	Long Kerebangan	Ringib Gelawat	Lun Bawang
<b>Adjacent</b>			
15	Pa' Berunut	Micheal Piree	Lun Bawang
16	Long Semadoh Rayeh	Agong Baru	Lun Bawang
17	Long Semadoh Neseb	Tagko Gugkang	Lun Bawang
<b>Abandoned Village</b>			
18	Pa Tawing	Joseph Sinau	Lun Bawang

Listed below Stakeholders (Government/ NGO/ Research Agency, etc.):

No	Organisation Name & Contact Person	Type of Organisation
1	Forest Department Sarawak (FDS) Datu Hamden Hj Mohammad	Government
2	Regional Forest Office (RFO), Limbang Mr Phillcaine Ak Pilla	Government
3	Sarawak Forestry Corporation (SFC), Miri Mr Alfanso Mc Kenzie Simon	Corporation
4	Lands & Survey Department (L&S), Limbang Mr Bakeri bin Samsudin	Government
5	World Wildlife Fund (WWF)	NGO
6	Natural Resources & Environment Board (NREB), Limbang, Sarawak Mr Wilfred Johnny Ak Temaga	Corporation
7	Pejabat Kesihatan Limbang	Government
8	Pejabat Daerah Limbang	State Government
9	i). Pejabat Tenaga Kerja, Limbang ii) Pejabat Tenaga Kerja, Lawas	Government
10	University Putra Malaysia (UPM) Kampus Bintulu, Sarawak	Higher Learning Institution
11	Department of Agriculture, Limbang	State Government

## Sarawak-Sabah Link Road

The Sarawak-Sabah Link Road (SSLR) is network paved road that connect Sarawak and Sabah without passing through Brunei Darussalam. The SSLR project will improve road connectivity in the interior part of northern Sarawak (Miri and Limbang Division). Based on the alignment provided by Public Works Department, the proposed SSLR project will be traversing through several Samling Groups' Forest Timber Licence (FTL) and License Planted Forest (LPF) approximately 161.5 km

The conversion of land shall be finalised upon completion of the project and the conversion area shall be based on the road reserve as indicated in the "as-built drawing" of the project. The final road reserve shall be incorporated in the revised GP and to be submitted to FDS for approval.

## Carbon Project

SaraCarbon Sdn Bhd (SaraCarbon), a subsidiary of Samling Group intends to develop a carbon business within the boundaries of Samling Groups' FTL and LPF in Lawas region with the total area of 276,748 ha. Consent has been given by the respective licensees to SaraCarbon to undertake the Carbon Project. The final boundaries will be explicitly determined and mapped during the completion of project design document. Specifically, the project boundaries will include all areas within the licensed boundaries impacted by Reduced Emissions from Deforestation and Degradation (REDD) and Afforestation, Restoration and Reforestation (ARR) activities. Areas to be excluded are the river reserves; areas which are currently occupied and/or developed by community settlements; and water body land cover class. The application for the Lawas Conservation and Restoration Project's Forest Carbon Study Permit was submitted to FDS on 10 October 2023.

On 20 May 2024, FDS has approved a carbon study permit for Lawas Conservation and Restoration Project specific to the LPF area (66,685 ha) only. However, on 30 July 2024 SaraCarbon has resubmitted their appeal application to FDS to reconsider to approve the carbon study permit for the whole of area of Lawas Conservation and Restoration Project (276,748 ha).

## Collaboration on Research

On 26<sup>th</sup> September 2022, the Samling Group has signed a Memorandum of Understanding (MOU) with UPM Sarawak Bintulu Campus on collaborative research projects related to forest management certification.

## Rapid Assessment of Hornbills by Malaysian Nature Society (Kuching Branch)

The rapid assessment of hornbills was carried out in September and October 2022 with a total of five survey days. During the line transects and point counts, observation of birds were done based on sightings and calls. Eighty-six (86) species of birds were identified in the Ravenscourt FMU and thirty-four (34) species were recorded along the trail in Paya Maga. One of the notable findings was the Black Oriole *Oriolus hosii* which could be observed throughout the Ravenscourt FMU. Other wildlife sightings include the Hose's Langur *Presbytis hosei*, Bornean Striped Palm Civet *Arctogalidia trivirgata*, Yellow-throated Marten *Martes flavigula* and Gibbons which were frequently heard there. Reptile species seen opportunistically included the Oriental Vine Snake

*Ahaetulla prasina*, Speckle-headed Vine Snake *Ahaetulla fasciolata* and King Cobra *Ophiophagus hannah*.

## Wildlife

“A Master Plan for Wild Life in Sarawak” was approved by the Cabinet as official policy in January 1997. The Master Plan dealt with the immediate issue of stopping over-exploitation by hunting and the provision of more natural habitats in which wildlife could continue to live. The principal ordinance relevant to the protection, management and conservation of wildlife in Sarawak is the Wild Life Protection Ordinance 1998. Additional measures are the responsibility of the FMU holder, in line with SFC Circular No. 2/2021 dated 21 April 2021, toolbox talks given to staff and workers are designed to increase the level of awareness of the importance of all aspects of wildlife conservation. Posters are displayed at strategic location as visual aids for awareness programs.

The FMU shares a common boundary with Pulong Tau National Park, the proposed Batu Buli National Park and with the proposed Batu Iran National Park. The FMU plays a role in the Heart of Borneo (HoB) Corridor Project through provision of a wildlife corridor between Sabah to the north-east, Brunei to the west and Indonesian-Kalimantan to the south-east via the Mulu National Park and Buda National Park.

## Rainfall

The regional rainfall data (2016-2023) are from Long Semadoh (DID Station No. 4255006) and Ba Kelalan (DID Station No. 3956001).

The mean monthly rainfall is the highest (73.6 mm) at Long Semadoh in September to the lowest (39.3 mm) at Ba'Kelalan in December

The highest annual total rainfall was 3,649.5 mm recorded at Long Semadoh in 2017 whereas the lowest annual total rainfall is 1,689.0 mm recorded at Ba'Kelalan in 2021.

## High Conservation Value Areas

A High Conservation Value assessment was undertaken by external consultants in June/July 2016 and is the subject of a separate report. Some salient points are noted below.

HCV	Findings	Management Recommendations	Monitoring Recommendations
<p><b>1.1 Protected Areas</b> <a href="#">Map HCV 1.1</a></p>	<p><b>Present</b> FMU is adjacent to Pulong Tau NP, proposed Batu Iran NP, proposed Batu Buli NP and proposed Sg. Persek Wildlife Sanctuary.</p>	<p>1. Existing buffer zone of one (1) km along the common Malaysian / Indonesian International Boundary should be maintained.</p> <p>2. Existing buffer zone of 500 m along the common boundary of Pulong Tau NP should be maintained.</p> <p>Buffer zones of 500 m should be established along the common</p>	<p>Buffer zones should be periodically or regularly monitored. Records of patrols are to be kept and made available.</p>



HCV	Findings	Management Recommendations	Monitoring Recommendations
		boundary of proposed BINP, proposed BBNP and proposed Sg. Peresek WS.	
<p><b>1.2 Threatened and Endangered Species</b></p>	<p><b>Present</b></p> <p><b>Fauna:</b> A total of 98 species of fauna consisting of 25 mammals (20 mammals and 5 primates), 72 avifauna and one (1) invertebrate are recorded. 18 mammals (including 13 mammals and 5 primates), 15 avifauna and one (1) invertebrate are found to be ERT species and listed either under IUCN, CITES or Wild Life Protection Ordinance 1998. The list of ERT fauna is shown in Table attached.</p> <p><b>Flora:</b> Ensurai (<i>Dipterocarpus oblongifolius</i>) is the only Totally Protected Plant under WLPO 1998 recorded in FMU. There are 24 Protected Plants, 12 species of which is not protected under WLPO 1998 but threatened plant categorised as CR, EN or VU in the IUCN. They are listed as ERT because of the loss of their habitats and populations.</p>	<p><b>Fauna:</b></p> <ol style="list-style-type: none"> <li>1. No hunting policy should be developed and gradually enforced.</li> <li>2. DF Circular 6/99 should be made available and strictly followed.</li> <li>3. Workers and adjacent local communities are to be informed of “No Hunting” policy.</li> <li>4. New wildlife posters and written instruction from the Management should be made available on site.</li> <li>5. Regular day and night patrol should be conducted to discourage and apprehend offenders.</li> <li>6. Signage and fencing can be erected at certain areas especially at the entry points to inform and stop illegal entries.</li> <li>7. Community Education, Participation and Awareness (CEPA) program by the management is highly recommended.</li> </ol> <p><b>Flora:</b></p> <ol style="list-style-type: none"> <li>1. Tag plants and trees during pre-harvesting inventory.</li> <li>2. The survey data (from 1) should be incorporated into harvesting plan. High concentration of these species should be left alone.</li> <li>3. Totally Protected Plants should be tagged.</li> </ol> <p>Adhere strictly to RIL during harvesting.</p>	<p><b>Fauna:</b></p> <ol style="list-style-type: none"> <li>1. Record of entry by outsiders and incidents of hunting should be kept and made available.</li> <li>2. Database on wildlife found in the area should be kept for reference and made available.</li> </ol> <p><b>Flora:</b></p> <ol style="list-style-type: none"> <li>1. A long-term monitoring of all Totally Protected Plants and ERT species is recommended in order to understand their survival and regeneration. The data shall be made available for inspection.</li> <li>2. Internal auditing is to be conducted on the RIL implementation. Measures in RIL Guidelines are (a) Do not damage or push nest trees used by birds and bees and (c) Only tagged trees for felling are allowed to be cut.</li> </ol>
<p><b>1.3 Endemism</b></p>	<p><b>Present</b></p> <p><b>Fauna:</b> A total of 21 endemic fauna species consisting of 7 mammals and 14 avifauna were recorded.</p> <p><b>Flora:</b> There are 54 species endemic to Borneo and one species</p>	<p><b>Fauna:</b></p> <ol style="list-style-type: none"> <li>1. Measures to ensure the existence and survival of the endemic species is in place.</li> <li>2. Protect the feeding areas where the fruiting trees e.g. Ficus, Macaranga and <i>Arthocarpus</i>, are found.</li> </ol>	<p><b>Fauna:</b></p> <ol style="list-style-type: none"> <li>1. Long-term monitoring of the species including the identification, recording of sighting and mapping is undertaken with</li> </ol>

HCV	Findings	Management Recommendations	Monitoring Recommendations
	<p>endemic to Sarawak. Among these species, 8 species are accorded protection under WLPO 1998 and 11 species are under IUCN Red List.</p>	<p>3. Hunting of the animals and over-harvesting of their food sources should be controlled and frequently monitored.</p> <p><b>Flora:</b></p> <p>1. For protected plants under WLPO 1998,</p> <ul style="list-style-type: none"> <li>• Tag plants during pre-harvesting inventory.</li> <li>• Adhere strictly to RIL Guidelines during harvesting.</li> </ul> <p>Mother trees, follow the criteria specified under guidelines for mother trees.</p>	<p>assistance from the relevant agency or organisation.</p> <p>2. The data shall be made available.</p> <p><b>Flora:</b></p> <p>1. For protected plants under WLPO 1998, proper documentation of tagged plants and monitoring during RIL operation.</p> <p>Ensure guidelines on mother trees are adhered to.</p>
<p><b>1.4</b> <b>Critical Temporal Use</b> <a href="#">Map HCV 1.4</a></p>	<p><b>Present</b></p> <p>1. <b>Critical Temporal Use:</b> ERT avifauna namely Rhinoceros hornbill (<i>Buceros rhinoceros</i>), Wreathed hornbill (<i>Rhyticeros undulates</i>) and Helmeted hornbill (<i>Buceros vigil</i>) were sighted at Coupe 08A where hollow trees and food trees are abundant. Rare and endemic Bornean Black oriole (<i>Oriolus hosii</i>) was also sighted at Coupe 08A.</p> <p><b>Saltlick:</b> One saltlick is purportedly located in either C/17A or C/19A based on secondary data. No accessibility at present.</p>	<p>1. <b>Critical Temporal Use:</b></p> <ul style="list-style-type: none"> <li>• Sites of potential nesting, roosting and fruiting trees should be protected and excluded from logging blocks.</li> <li>• These sites should be properly zoned and marked on map, and demarcated with buffer zone on the ground.</li> <li>• No hunting policy and frequent monitoring are adhered to.</li> </ul> <p>2. <b>Saltlicks:</b> Will survey, demarcate and protect the saltlicks when accessibility is possible.</p>	<p>1. <b>Critical Temporal Use:</b></p> <ul style="list-style-type: none"> <li>• Critical sites for feeding, nesting and roosting should be monitored and updated on frequent basis.</li> <li>• Data and record are kept and made available.</li> </ul> <p>2. <b>Saltlicks:</b></p> <ul style="list-style-type: none"> <li>• Saltlicks would be monitored and protected.</li> </ul> <p>Data and record are kept and made available.</p>
<p><b>2</b> <b>Landscape Level Forest</b> <a href="#">Map HCV 2</a></p>	<p><b>Present:</b></p> <p>Under the HOB Initiative Sarawak, the entire FMU is included in the HOB wildlife corridor network with HOB Sabah, Brunei and Kalimantan. Being adjacent to Pulong Tau NP which shares common boundary with Kayan Mentarang NP and about less than 20 km away from Mulu NP, the FMU becomes a critical wildlife corridor for seed dispersal and wildlife to move</p>	<p>1. <b>Multi-region Initiatives:</b></p> <p>An adequate size of wildlife corridors linking the TPA networks and HOB areas should be established. The connectivity should follow the natural contours according to the river system linking the networks of protected areas outside of the FMU. The river buffers along the main rivers as well as selected forested area</p>	

HCV	Findings	Management Recommendations	Monitoring Recommendations
	<p>from one area to another bigger landscape in either side of Sarawak, Sabah or Indonesia.</p>	<p>linking the rivers such as water catchment area can provide this connectivity. The protected zone or wildlife corridor should be documented in the FMP and marked in the GP/DP before any logging operation takes place.</p> <p><b>2. River Buffer Zone:</b> Buffer zone of 50 m is recommended along the major rivers i.e. Sg. Limbang and Btg. Trusan and their tributaries serving as coupe boundary i.e. Sg. Adang, Sg. Rutoh, Sg. Kelalan and Sg. B'or. Apart from that, head waters and creeks should be demarcated and no machinery shall work near or cross the water bodies.</p> <p><b>3. Reduced Impact Logging (RIL):</b> Adopt and adhere strictly RIL method to maintain the biodiversity environment of the area which is sufficient to sustain the ecosystem without adverse disturbance. The prescribed and prohibited activities inside the protection zone under RIL Guidelines are:</p> <ul style="list-style-type: none"> <li>• Skid trails are not allowed inside the buffer zone.</li> <li>• Felling of trees is not allowed inside the buffer zone.</li> <li>• Felling of harvestable trees should be away from the buffer zone.</li> <li>• Strictly, no heavy machinery is allowed within the buffer zone.</li> </ul> <p><b>4. Inter-state and international boundary:</b> A buffer zone of 50 m for inter-state boundary and that of one km for international one are demarcated which can serve as important wildlife corridor</p>	

HCV	Findings	Management Recommendations	Monitoring Recommendations
		connecting the FMU with HOB sites and other TPA networks in Sarawak, Sabah, Brunei and Kalimantan, Indonesia.	
<p><b>3</b> <b>Ecosystem</b> <a href="#">Map HCV 3</a></p>	<p><b>Present</b></p> <p>Most of the Kerangas forest can be found on the ridges and sandy terraces. The two most common plant family found in the Kerangas forest are Myrtaceae and Clusiaceae with lacking of undergrowth due to poor nutrient. Lower montane forest is an extension of hill dipterocarp forest where the predominant dipterocarp species include montane dipterocarp such as Meranti bukit (<i>Shorea platyclados</i>). Above 1,200 m to 1,500 m, the forest changes drastically where the trees are generally shorter with presence of mosses on forest floors and tree trunk. The dominant species is from family Fagaceae. Mossy montane forests are found mostly on the high elevation area, summit of hills and terrain IV. Common plants found here are pine tree (<i>Rhu bukit</i>), tree fern (<i>Cyathea sp.</i>) and montane fern such as <i>Dipteris conjugate</i>. Riparian forest is accorded the lowest priority according to the Toolkit.</p>	<p>1. Different forest types are mapped and be included in the FMP for better management.</p> <p>2. RIL method is strictly adhered to in order to reduce the impact of logging activities on ecosystem.</p> <p>3. No logging activities shall be carried out in Kerangas forest as most of the trees are pole-size and are not suitable to be harvested for timber.</p> <p>No logging activities are carried out inside buffer zone along the main rivers and streams.</p>	<p>Monitoring the changes of the forests in the area through latest satellite imagery.</p>
<p><b>4.1</b> <b>Watershed Protection</b> <a href="#">Map HCV 4</a></p>	<p><b>Present:</b></p> <p>1. Two major rivers, Btg. Trusan and Sg. Limbang, and their main tributaries form the natural watercourses in the FMU which drain directly into Brunei Bay. Sg. Limbang catchment covers the north-west and western area of the FMU whereas Btg. Trusan catchment is over the north-east and eastern area. The raw water intake point of the Lawas Water Treatment Plant (WTP) at the northern side is outside the FMU whereas that of Trusan WTP</p>	<ul style="list-style-type: none"> <li>• River buffer zones are conserved along the major rivers and tributaries in the FMU.</li> <li>• Terrain Class IV areas are mapped and be included in DP.</li> <li>• No logging operation is allowed.</li> </ul> <p>These areas are preserved for biodiversity conservation and erosion control.</p>	<p>Class IV terrain areas and buffer zones are mapped on DP before submission and application for Permit to Enter Coupe.</p>

HCV	Findings	Management Recommendations	Monitoring Recommendations												
	<p>is downriver of Btg. Trusan. Under the Sarawak Water Ordinance 1994, all logging activities are prohibited within 8 km radius from the water intake point. Hence, the critical point for protection is far beyond the FMU. Nevertheless, any activity beyond the 8 km radius no-logging activity zone that results in river pollution will affect the quality of downriver water supply.</p> <p>About 18,586 ha of the FMU is designated as Terrain Class IV. These areas are considered as inoperable area. Surrounding the FMU is mountainous range rising over 1,500 m which is more prominent towards the south-west and along Gunung Murud range. The prominent peaks are Gunung Murud (2,422 m) being the highest, Batu Buli, Batu Lawi and Batu Iran.</p>														
<p><b>4.2 Erosion Control</b></p>	<p><b>Present</b></p> <p>1. Riparian area is any land adjacent to streams and rivers. The width of the rivers and streams influence riparian vegetation. Different species composition and other forest type such as mixed Dipterocarp forest clearly define the riparian zones. Three major rivers are Btg. Trusan, Sg. Limbang and Sg. Kubaan. Btg. Trusan is a fairly large river which flows east-west towards the northern part of the FMU. Its major tributaries are Sg. Kelalan, Sg. B'or, Sg. Ribut and Sg. Tawing which are generally smaller, less than 20 m wide, and shallow during normal flow. The river water is generally fast-flowing due to high difference between land</p>	<p>To control erosion, buffer zone should be set up along all major rivers and streams. The Guidelines for Rivers and River Reserves produced by DID specifies the following:</p> <table border="1" data-bbox="794 1458 1158 1771"> <thead> <tr> <th>River Width (m)</th> <th>River Reserve Width/Buffer (m)</th> </tr> </thead> <tbody> <tr> <td>&gt;40</td> <td>50</td> </tr> <tr> <td>20-40</td> <td>40</td> </tr> <tr> <td>10-20</td> <td>20</td> </tr> <tr> <td>5-10</td> <td>10</td> </tr> <tr> <td>&lt;5</td> <td>5</td> </tr> </tbody> </table> <p>As almost all the rivers and streams is rather small, less than 20 m width, a buffer zone of 20 m on both banks of the rivers and streams is sufficient. No tractor shall be allowed to operate inside the buffer zones.</p>	River Width (m)	River Reserve Width/Buffer (m)	>40	50	20-40	40	10-20	20	5-10	10	<5	5	<p>1. Periodical and random auditing of the buffer zones should be done as to ensure compliance with the regulations. Water analysis is done to monitor the health of the rivers before and after the harvesting operation to ensure the buffer zone is functioning and properly set up.</p>
River Width (m)	River Reserve Width/Buffer (m)														
>40	50														
20-40	40														
10-20	20														
5-10	10														
<5	5														

HCV	Findings	Management Recommendations	Monitoring Recommendations
	<p>gradient. The major tributaries of Sg. Limbang are Sg. Adang, Sg. Rutoh, Sg. Tabun and Sg. Madihit. There are other relatively small rivers and streams, measuring less than 10 m wide flowing from the highland and mountainous range of Gunung Murud, Batu Lawi, Batu Buli and Batu Iran. Besides, there are smaller streams and creeks. The flowing water is influenced by the amount of rain received. During dry season, no water flow into this area. The vegetation along the smaller creeks is not clearly defined with other forest type. Extremely steep slopes at upriver will form fast-flowing waterfall. The undulating steep slopes and ridges, forming fast-flowing rivers and steep terrains, are prone to erosion, especially during high pouring raining season.</p> <p>Terrain Class IV is discussed in details in HCV 4.1. The vegetation found near the steep slopes is critical to hold the loose soils from eroding downhill during heavy downpour. The loose soils no longer supported by the roots of emergent trees, and the rest of other vegetation, which used to act like a sponge that absorb rain water during rainy down pour. Landslide or erosion can occur on skid trails and logging roads that were built along steep slopes, even with slight rain.</p>	<p>Additional function of the buffer zone is to maintain its forest function for survival of wildlife in HCV 2.</p>	
<p><b>4.3</b> <b>Barriers to Destructive Fire</b></p>	<p><b>POTENTIALLY PRESENT</b></p> <p>There is no wild forest fire recorded inside FMU or surrounding area before. However, the part of the 500 km Sabah-Sarawak Gas Pipeline</p>	<p>The buffer zones along the rivers and streams are to be maintained as these buffer zones are natural barrier for any fire outbreak.</p>	<p>Periodic auditing is conducted to ensure the integrity of the buffer zones and the emergency response</p>

HCV	Findings	Management Recommendations	Monitoring Recommendations
	<p>(SSGP) cut through the FMU. On 11 June 2014, there was an explosion which ripped apart section of the gas pipeline located between Lawas Town and Long Sukang. Hence, future incident of malfunction of the gas pipeline system may cause serious fire outbreak and therefore, the FMU is potentially prone to fire.</p>	<p>Furthermore, it is important to set up buffer zone of 50 m along the SSGP to serve as natural barrier for incident of fire caused by pipeline explosion. An emergency response plan is recommended to be in place in case of explosion of the pipeline. This plan is critical to immediately shut down the pipeline system to avoid spreading of fire.</p>	<p>team to be alert and on standby all the time.</p>
<p><b>5 Basic Needs of Local Communities</b>  <a href="#">Map HCV Summary</a></p>	<p>There are (19) settlements located within and adjacent to the FMU with estimated population of 2,990. Twelve (12) settlements are situated in Ba Kelalan, six (6) in Long Semadoh and one (1) in P' Brunot. The people of the main communities are Lun Bawang and most of them are Christians.</p> <p>Five (5) Penan settlements are outside the FMU. However, Penans of Long Adang and Long Gita are considered relevant since their hunting ground and collection of forest produce extended to the FMU.</p>	<p>Building trust and fostering a good relationship through the KK, JKKK or CRC and FMCLC. FMCLC should comprise of multi-stakeholders including government agencies and the District Office, FMU, CRC and other relevant stakeholders. Both committees act as a platform for future consultation among the local communities and for discussing related matters to SFM and community participation and development.</p>	<p>Annual monitoring of the surrounding water catchment areas is conducted to ensure no illegal felling or encroachment. Monitoring should be carried out together with the JKKK or CRC and other local communities.</p>
	<p><b>PRESENT</b></p> <p><b>Collection of Jungle Produce:</b>  The locals are still collecting raw materials such as timber for minor construction of their house; rattan, bamboo and palm root for making handicraft such as floor mat, basket, tray and hat. These activities are mainly carried out for their own use. Nevertheless, some of them are making handicrafts for sale but the demand is very limited. Apart from collecting jungle produce for raw materials, the locals also collect wild fruits and vegetables for their own consumption whenever the need arise. Most of the households are having their small vegetable garden to meet their daily needs.</p>	<ol style="list-style-type: none"> <li>1. FMU is to carry out the proper demarcation of water catchment areas identified as the source of water supply for min-hydropower generation and irrigation system for wet paddy farming.</li> <li>2. The boundary issue is to be resolved as soon as possible in order to avoid confusion in the future. The FMU and FORMADAT (on which the local communities have put their trust) are to consult each other on the mapping of common boundary.</li> </ol>	

HCV	Findings	Management Recommendations	Monitoring Recommendations
	<p><b>Hunting and Fishing:</b> Both activities are carried out mainly for self-consumption and do not contribute to their household income. Game animals usually caught are wild boar, muntjak deer and other small animals. The locals also rear fee ranch poultry and pig to reduce too much reliance on wild meat. Fishing is carried out occasionally to supplement their protein needs. The species of fish caught are mainly Baung, Keli (catfish) and sometimes Semah along Sg. Trusan and Sg. Kelalan and their tributaries. However, the locals claim that the sources are decreasing.</p> <p><b>Water Source:</b> The river systems of Btg. Trusan and Sg. Kelalan and their tributaries plays a significant role to the livelihood of the local communities. The rivers are the heart of the agriculture activity as they provide irrigation water for wet paddy planting and grazing area of the buffaloes. Most importantly, the rivers are also the main source for their daily water supply and for energy generation from the mini-hydro power station installed at some of the rivers.</p> <p><b>Issues of Concern:</b> The perception of the local communities within the FMU either in Ba Kelalan or Long Semadoh region are still grounded on their past history with the FMU. Firstly, their primary concern is that their water source would be badly affected if logging activities are carried out again by the FMU. The sentiment is felt more by the local communities of Long Semadoh region. The local communities of Ba Kelalan region have no major issues as long as the</p>		



HCV	Findings	Management Recommendations	Monitoring Recommendations
	<p>current forest areas within their region are maintained at status quo. Of concern to Ba Kelalan communities was the preservation of their historical sites in relation to the early settlement of their ancestors which FORMADAT has recorded some of the information. Secondly, the local communities are not well informed on the FMU boundary. Ba Kelalan region is excluded from the operational area but inside the FMU area. At the same time, FORMADAT, together with the local communities and WWF, has mapped out the boundary particularly that of the water catchment area and historical sites. The FMU map shows that the Ba Kelalan settlements, Long Tanid, Long Beluyu and Long Kerebangan are inside it whereas Long Semadoh is considered adjacent to it.</p>		
<p><b>6</b> <b>Cultural Identity of Local Communities</b> <a href="#">Map HCV Summary</a></p>	<p><b>Present</b></p> <p>Existence of burial grounds and historical sites are reported by local communities. Some of old burial sites are no longer accessible whereas recent burial sites are mostly located near to their settlements. For Pa Brunot, the village burial site is situated within Coupe 3A. For Long Semadoh region, Bukit Balud is considered as a very important site and is known as “Bukit Doa” where spiritual activity is held. Other important sites are “<i>buaya tanah</i>” and salt spring. In the old days, <i>buaya tanah</i> at Buduk Nur and Long Tanid was used as a site to celebrate the achievement and victory whenever an enemy was captured and its head proclaimed. Salt springs can be found at Ba Kelalan region and Pa Brunot.</p>	<ol style="list-style-type: none"> <li>1. To demarcate an agreeable boundary for burial site, salt spring and <i>buaya tanah</i> of Pa Brunot.</li> <li>2. For Ba Kelalan and Long Semadoh, FMU and FORMADAT are to work closely with regards to identification and locations of the cultural, historical and spiritual sites.</li> <li>3. Based on the data gathered, FMU and FORMADAT are to consult the locals on the agreed boundary and to map it for future reference.</li> </ol> <p>FMU shall adopt the Conflict Resolution Guidelines for SFM for community consultation and in the event of that any conflict or disagreement arises.</p>	

## Social Impact Assessment

The social impact assessment was conducted by Universiti Putra Malaysia Kampus Bintulu (UPMKB), Sarawak on **2 – 7 March 2023**. Based on records, there are 14 villages within, and 3 villages are adjacent to the Ravenscourt FMU. ([Map 5-Location of Settlements](#)).

No.	Village	Ethnicity	Establishment year
	<b>Within FMU</b>		
1	Long Muda	Lun Bawang	1930
2	Long Kumap	Lun Bawang	1923
3	Talal Buda	Lun Bawang	1956
4	Long Nawi	Lun Bawang	1973
5	Long Ritan	Lun Bawang	1920
6	Long Rusu	Lun Bawang	1920
7	Long Lemutut	Lun Bawang	1962
8	Long Langai	Lun Bawang	Before 1970
9	Puneng Kelalan	Lun Bawang	1900
10	Long Rangat	Lun Bawang	1990
11	Long Ubau	Lun Bawang	1970
12	Long Tanid	Lun Bawang	1945
13	Long Beluyu	Lun Bawang	1973
14	Long Kerebangan	Lun Bawang	1957
	<b>Adjacent FMU</b>		
15	Pa' Berunut	Lun Bawang	1987
16	Long Semadoh Rayeh	Lun Bawang	Before 1900
17	Long Semadoh Neseb	Lun Bawang	Before 1940
	<b>Abandoned Village</b>		
18	Pa Tawing	Lun Bawang	-

During the field survey, one village within the FMU, Pa Tawing, has been found to be abandoned as the occupants have migrated to other villages.

The following villages i.e. Long Adang, Long Pusit, Long Gita, Long Nyakit and Long Keneng were not in the assessment due to:

- (i) The villages are well inside STIDC's forest timber licence T/9161, operated by Lee Ling Sdn Bhd;
- (ii) They are situated on the upper reaches of the Batang Limbang which, together with two of its tributaries, Sungai Adang and Sungai Rutoh, drains part of the FMU and then flows down past Limbang Town before finally reaching Brunei Bay. Prior to suspension in February 2020, the harvesting operation was in Coupes 01A and 02A both of which drain into the Batang Trusan, an entirely different drainage to that of the Batang Limbang. This has meant that, even prior to the suspension in 2020, the FMU's forest operations in no way directly affected the communities of the Pa Adang cluster;
- (iii) No rights are recorded in the Gazette Notification as being granted to these five communities.
- (iv) These five communities have no user rights within Ravenscourt FMU [as per the High Court judgment delivered on the Writ of Summons dated 22 July 2011]. Similarly, though 24 other communities have been granted rights within the Limbang Protected Forest,

which covers the greater part of the FMU, no rights are recorded in the Gazette Notification as being granted to these five.

- (v) Extracted from social impact monitoring report, the communities within Pa' Adang area comprise of Long Adang, Long Pusit, Long Gita, Long Nyakit and Long Keneng have expressed their reluctance to engage with the FMU and form the CRC.

The social impact assessment also did not conduct for the local Penan community of Long Peresek which is adjacent to the FMU:

Village	Village head	GPS Coordinate	Associated Coupe	Coupe Year
Long Peresek	Selai Sigai	N03°59'42.67" E115°16'53.09"	Adjacent to C25A	2046

Information provided by FMU to UPMKB that the nomadic Penan group known as Peng Megut nomadic group (PMng) consists of several families under the leadership of Peng Megut. The group has several temporary shelters (sulaps) in STIDC's FTL that lies immediately to the north of the FMU. The four sulaps as mentioned in SIA Report was found in year 2023. In January 2024 the FMU's SIM team managed to locate another PMng sulap (name as PMng #6) also inside STIDC's FTL. All the five sulaps are shown in [Map 5](#). The GPS coordinate are given below:

Village	Village head	GPS Coordinate	Associated Coupe	Coupe Year
PMng #1 (Sulap)	Peng Megut	N04°0'50.31" E115°12'2.88"	FTL T/9161 Sarawak Timber Industry Development Corporation(STIDC)	
PMng #2 (Sulap)	Peng Megut	N04°0'5.89" E115°10'43.70"		
PMng #4 (Sulap)	Peng Megut	N04°3'26.90" E115°15'42.79"		
PMng #5 (Sulap)	Peng Megut	N04°2'44.96" E115°16'33.06"		
PMng #6 (Sulap)	Peng Megut	N04°01'22.92" E115°10'14.86"		

Also shown on [Map 5](#) is the location of Long Tevenga #3 which Samling's investigations in early 2023 showed to be abandoned (GPS N04°00'05.90" E115°10'43.70"). This abandoned cluster of houses was said by the FMU to be associated with the Long Tevenga Penan group who had then abandoned the location and resumed their nomadic life style.

The assessments of Long Peresek and Long Tevenga were not conducted due to the following reasons:

- (i) Long Peresek lies to north of the FMU's forest timber licence boundary that is mutual with STIDC's T/9161, operated by Lee Ling Sdn Bhd (see Figure 1). Four of the known temporary shelters (sulaps) of the nomadic Penan group of Long Tevenga are also within this STIDC licence area. Based on information provided by the FMU, there have been no forest operations directly or indirectly affecting these communities for the past 20 years (2002: Coupe 11 and Coupe 12). Moreover, the FMU only plans to start forest operations in Coupe 25A in 2046 (adjacent to Long Peresek) and in 2048 at Coupe 26A where the abandoned Long Tevenga 3# is located;

- (ii) During the March 2023 SIA field visit villagers from Long Peresek were encountered on the road leading to their village but the SIA team was not allowed to enter the village to conduct SIA interviews. Although at this encounter the community did not express any specific concerns to the SIA team they clearly did not want to be interviewed;
- (iii) The additional information supplied by the FMU that supported the impression of a community that did not want to engage with the FMU (see [Appendix 1](#) point no. 11 and [Appendix 2](#) – evidence that *Long Peresek did not want to form a CRC or being any part of the company*);
- (iv) Clearly in the case of Long Peresek, the community does not wish to engage with the FMU and furthermore none of the FMU's forest operations directly or indirectly affect this community;
- (v) The Long Peresek community does not have any user rights within the FMU [as per the High Court judgment delivered on the Writ of Summons dated 22 July 2011]. Although 22 other communities have been granted rights within the Limbang Protected Forest, which covers the greater part of the FMU; and
- (vi) No rights are recorded in the Gazette Notification as being granted to Long Peresek.

During the March 2023 SIA field visit attempts were made to engage with the Long Tevenga group by visiting their temporary shelters (sulaps) as shown in [Map 5](#). Unfortunately, every sulap visited was unoccupied.

Notwithstanding that the Long Peresek community and Long Tevenga nomadic group were not included in this FMP (2016-2025), it is recommended that this community and the nomadic group should be monitored regularly when the FMU started their harvesting operation in future i.e. Coupe 25A (Year 2046) which is adjacent to Long Peresek and Coupe 27A (Year 2048) which the abandoned Long Tevenga well inside this coupe. The social impact monitoring will be carried out at that particular of time in order to assess the FMU's forest operations whether or not will directly affected them.

In conclusion, forest management operations have positively impacted the local communities. These are through job employment which eventually improve household incomes and economic status of families, where local communities have yet to fully take the opportunity while timber roads provide access to nearby township or urban areas.

One detrimental effect due to road access is competition for forest resources between locals and outsiders such as hunting for game animals, which generally promoted a decline in the forest resource. Easy access also contributed to migration out from rural areas and into the urban areas. However, there is generally a mixed perception on the benefits of the road access towards the community. Another detrimental effect is the decline in water supply and quality.

FMU has contributed in their own way to assist and elevate the socio-economy of local communities. However, past experiences of the respondents seem to overwhelm them where they have mixed perception on the forest management operations. Various co-joint programs with CRC or JKKK and government agencies can be proposed and implemented to enhance and to maximize the benefits of forest management operations.

The Conflict Resolution Guidelines for SFM are used for resolution of any conflict that might arise between a community and the FMU management that cannot be resolved informally at FMU camp level. Conflict Resolution Guidelines is available @:

[https://samling.com/sites/default/files/2023-08/FLOWCHART\\_13072022-new2-1\\_0.jpg](https://samling.com/sites/default/files/2023-08/FLOWCHART_13072022-new2-1_0.jpg)

A **Forest Management Certification Liaison Committee (FMCLC) meeting** was held annually on **26<sup>th</sup> January 2022, 27<sup>th</sup> June 2023** and **7<sup>th</sup> August 2024**. The FMCLC meeting conducted involving all three CRCs from the whole Lawas Region, Forest Department of Sarawak, Land and Survey Department, District Office Lawas and Syarikat Samling Timber Sdn Bhd. This leads to a fruitful conclusion and better understanding of the role of CRC and various department plays in village development. However, no Ketua Kaum or representatives from Long Persek and Long Tevenga attended the FMCLC meeting even though they were invited to attend by the FDS.

The decision to form a CRC is entirely voluntary. It should be formed only at the wishes of the community in question. However, when a community decides to form a CRC then the FMU shall accommodate and agree to such a decision.

The use of the Borang Aduan/Complaint Form, is a fundamental mechanism for resolving conflict. It allows individuals or groups to formally express their dissatisfaction or grievance regarding a particular issue or situation. The form also serves as a means to ensure that the complaints are properly documented, investigated and resolved in a fair and timely manner. The “Borang Aduan/Complaint Form” is available @ <https://samling.com/node/207> or by using the QR code located at the bottom of the home page of Samling’s website after which it may be completed and submitted on line.

The invitation letter to stakeholders for the consultation of the Ravenscourt FMU’s SIA Report (January 2024) were issued on 8<sup>th</sup> May 2024. Their comments are as below:

**(i) Sarawak Forestry Corporation**

As mentioned in Section 4.2(ii) in page 42 of SIA report, it is highly recommended that Environmental & Wildlife Conservation Awareness Program to be implemented frequently, coordinated by HWR with the assistance from SFC and CRC/JKKK. FMU is also recommended to get community adjacent to their area to join HWR under FMU/HWR.

**FMU response**

The Environmental & Wildlife Conservation Awareness Program was organised annually concurrently with the Community Awareness Engagement Program (CAEP). The communities and the CRC/JKKK from respective villages were invited to participate in the CAEP. The FMU’s HWR also participate in the CAEP. FMU take note with the recommendation that in future the FMU will invite SFC to participate in the CAEP.

**(ii) Land and Survey (L&S) Limbang**

L&S Limbang has no comment on the Ravenscourt FMU’s SIA Report (January 2024).

Other stakeholders have yet to response on the Ravenscourt FMU’s SIA Report (January 2024).

**Community Development**

The community development projects, the “help for self-help” principle is applied. Local communities shall participate and be responsible for those functions and activities of development measures that they can provide by their own means. Facilitators for the community development project will come from FDS, the FMU holder and any agency (whether government or non-government organization) who shall provide know-how and/or funds that are not available at the community level. The objective of community development under social forestry to:

- Involve local people in forest management, i.e. community-based forestry.
- Promote growth of forest products, resource protection and conservation.
- Encourage development of skills in resource use and management of food, fuel, timber and cash incomes.
- Enhance self-reliance which leads to reduced dependence on forests by providing food security and regular incomes.

### Local Economic Activities

The main occupation of the most people staying around the FMU is farming (80%). The others especially the more educated and younger members of the communities are engaged in daily-paid jobs as workers in the nearby timber camps, forest plantations or government sector. Some individuals operate village shops or other small businesses. Those who are in working age group would work on part-time basis in their own farms if they are not gainfully employed elsewhere.

- **Wet Paddy Cultivation**

Farming is the most widely practised economic activity carried out by the villagers. Wet paddy is popular in the region especially along the alluvial plain of Btg. Trusan and Sg. Kelalan. Their wet paddy well known as *pade adan* (adan rice) is one of the most sought after and costly varieties of rice produced in Sarawak. The communities have practiced *lati' ba'*, a permanent irrigated / inundated wet rice farming. It is a one-season annual crop which is cultivated on a rain-fed basis or under an irrigation system.

The water irrigation system is part of the Paddy Infrastructure Improvement Project by Department of Agriculture (DOA), Lawas. Some of the streams in the vicinity of Long Semadoh and Ba Kelalan areas are dammed up and the water collected behind the dam is channelled down to the paddy fields with the use of PVC pipes. The coverage of these water irrigation systems and the villages involved are listed in table below.

Village	No. of Participants	River	Type of Irrigation
<b>Long Semadoh</b>			
Long Karabangan	28	Sg. Karabangan	Dam and piping
Long Beluyu	32	Sg. Beluyu	Dam and piping
Long Tanid	32	Sg. Lebaluh	Dam and piping
Long Semadoh Naseb	35	Sg. Rebatu	Dam and piping
Long Semadoh Rayeh	46	Sg. Belaban / Sg. Trusan	Dam and piping, river diversion and channel
<b>Ba Kelalan</b>			
Long Komap	35	Sg. Komap	Dam and piping
Long Muda	28	Sg. Muda and Sg. Saroi	Dam and piping
Punang Kelalan	20	Sg. Kelalan	Dam and piping
Long Talal Buda	14	Sg. Tanid	Dam and piping
Long Nawi	14	Sg. Talal	Dam and piping
Long Langai	30	Sg. Langai and Sg. Gelateh	Dam and piping

Village	No. of Participants	River	Type of Irrigation
Long Ritan / Long Rusu	18	Sg. Ritan and Sg. Dukung	Dam and piping

Source: Department of Agriculture, Lawas

*Pade adan* is cultivated mainly on a subsistence basis. However, the surpluses are sold as when there is a need for cash arises during the year. Hill paddy is also planted on lands which may be newly cleared or on old secondary forest with fairly large trees. Other crops planted for subsistence purposes include maize and tapioca.

- **Salt Making**

The area of Ba Kelalan is endowed with a few good salt springs known locally as *lubang main*. The making of salt is not restricted to anybody though people from neighbouring villages need to seek permission from the village chief first. The salt crystals are formed from the brine by continuous boiling of the spring water in big pans (*kawa*). The finished products are kept in bamboo tube for later use in cooking.

- **Cash Crops**

Coffee is one of the main cash crops cultivated on a smallholder basis. Fruit trees producing *dusun* quality fruits such as rambutan, durian, langsung, duku, pineapple, coconut, etc. are grown for own consumption and to supplement the household income. Some locals especially those from Long Semadoh Rayeh and Ba Kelalan areas have planted some Diamond Longan and apple in their gardens. Vegetables are mostly grown near the settlements for own consumption.

- **Livestock Rearing**

Rearing of livestock on free-ranging is practised around the settlements. The villagers rear livestock such as buffalo, cattle and pig to supplement their income and also for their protein intake. In particular, buffaloes are very important because they form an important cultural element in Lun Bawang's way of cultivating wet paddy. They are also used as payment of dowries. Rearing of poultry such as chicken and ducks are common at most of the settlements. This is usually done on very small scale for food supplement.

- **Hunting**

Hunting is no longer important for the villagers as presently, there is more or less a dearth of large wildlife in the nearby forest. The enforcement of the Wildlife Protection Ordinance coupled with the control of fire arms have further curtailed the hunting activity in the village. Game meat, if any, is for the hunter's own consumption and prohibited for sale.

- **Fishing**

Fishing in inland rivers has declined in importance due to the reduction in the fishery resources. The villagers have reared tilapia, ikan sultan and ikan merah in their own small-scaled earthen fish ponds near their houses. This practice is mainly found along Long Tanid, Long Semadoh Rayeh and Long Semadoh Naseb.

The villagers occasionally fish in Btg. Trusan and its tributaries not as economic activity but just to supplement their diet. The fish species caught are mainly eels, catfish, semah, haluan and baung. Only excess catch, which is rare, is sold for extra cash.

- **Collection of Jungle Produce**

The practice of collecting jungle produce from the adjacent forest to supply the daily needs is common. The jungle produce includes timber, wild fruits and wild vegetables are for own use and consumption. Natural materials such as rattan, bamboo and palm roots are gathered and made into handicrafts such as floor mat, tray, basket and hat for own use and not for commercial purposes. The introduction of modern household utensils has further reduced the dependence of the forest produce to serve these household needs.

Samling has continued the community development by provision of machinery for construction of agriculture infrastructure; engaged and trained the local communities as field assistants in seed collection; planting and maintenance of the forest areas under rehabilitation; promoting the spring salt; handicrafts and homestay. Samling also encouraging the local communities to plant indigenous fruits (e.g. petai, dabai, mata Kuching, etc.) and other non-timber forest products (NTFP) (e.g. rattan, gaharu, herbs, etc.). Samling also provide accommodation at Merarap Camp as a rest house *en route* to Lawas Town, and the use of Samling's radio repeater station for radio communication.

Forum Masyarakat Adat Dataran Tinggi Borneo (FORMADAT) is a trans-boundary, grassroots initiative by the indigenous peoples of the Highlands of Borneo. FORMADAT comprises the sub-districts of Bario, Ba Kelalan and Long Semadoh in Sarawak; Long Pa Sia in Sabah; and Krayan Induk and South Krayan in Indonesia.

The FORMADAT committee has set up a committee for Long Semadoh Rivers Conservation Project. The intention is that selected riverbanks in the vicinity of Long Semadoh will be protected from further erosion by local community activities using a "Local Tree and Bamboo Planting on Riverbank Programme" and "River Adoption and Protection Programme". The FORMADAT/WWF's project is completed. ([Map 6 River Remediation](#))

Puneng Trusan Landslide Remediation Project also being initiated by the FORMADAT/WWF/Samling. The remediation work has been extended to cover a new Upper Section at Punang Trusan where landslide has occurred. The project is completed.

Community development projects (CDP) under the ITTO and the FDS with support from the FMU were implemented for the benefit of Lun Bawang community at Ba Kelalan and Penan community at Sg. Adang such as nature jungle trails at SK Ba Kelalan, Long Langai; nature facility at Botanical Garden, Long Langai; rehabilitation of logged-over forests in Batu Lawi area; buffer zone management of Pulong Tau National Park; housing at Penan Medamot; and suspension bridge crossing Sg. Adang.

**Status Update for Litigation Cases:** Miri High Court Suit No. MR-21-4-2011 / Court of Appeal Civil Appeal No. Q-01-122-03/2012 / Federal Court Civil Appeal No. 01 (0-39-06/2015(Q))

- |            |  |
|------------|--|
| Plaintiffs | <ol style="list-style-type: none"> <li>1. Racha Ak Urud @ Peter Racha Urud (Kelabit)</li> <li>2. Edison John Urud (Kelabit)</li> <li>3. Jalung Jok (Penan)</li> <li>4. Menit Along (Penan)</li> <li>5. Agung Taie (Lun Bawang)</li> <li>6. Wilfred S. Lasong (Lun Bawang)</li> </ol> |
|------------|--|



All representing (Long Napir, Abpa/Fa Merit, Fa Rupu, Abpa/Fa Adang, Ba peresek, Ba Nyakit, Long Gita, Long Adang, Long Sulung, Long Raya, Long Tevenga (Ba' Meli'it), Long Sebayang, Long Keneng and Long Tegan)

- |            |   |
|------------|---|
| Defendents | 1. Ravenscourt Sdn Bhd (FTL No. T/0294) |
|            | 2. Billion Venture Sdn Bhd              |
|            | 3. Limba Jaya Timber Sdn Bhd            |
|            | 4. Kubang Sri Jaya Sdn Bhd              |
|            | 5. Director of Forests Sarawak          |
|            | 6. State Government of Sarawak          |

At the hearing, the Federal Court granted leave to appeal with the following 2 questions:

- (i) whether natives of Sarawak, who have been re-settled, can proceed with a claim based upon violation of their constitutional rights to land, property or to livelihood: -
  - a) in respect of land in their previous settlement which they no longer possess or have, accordingly to native customary law, been abandoned by them;
  - b) if the answer to (i) is in the affirmative, whether legal action in pursuit such a claim may be defeated if the same is commenced outside the limitation period prescribed by the Public Authorities Protection Act, 1948 or the Sarawak Limitation Ordinance or unexplained undue delay.

Ravenscourt won the appeal to the Federal Court, the case is now struck out. The Federal Court affirmed the finding of the High Court that the Plaintiffs have no user rights within Ravenscourt FMU (the Penans, Kelabits and Lun Bawang) as they have not used and have abandoned the claimed NCR lands as they have moved away in the 1960s and 1970s.

### **Health, Safety and Environment**

The FMU operates under Samling's Health, Safety and Environment Policy and compliance with the Occupational Safety and Health Act 1994 and the relevant legislative regulations and guidelines that are applicable to the respective work places. Forest Management to ensure all risk related to forest activities to be documented and reviewed periodically. In addition to their work instructions and toolbox talks, the workers are either sent for training courses, or trained within the FMU in the prescribed activities (directional felling, the proper usage of chainsaws and safety aspects, log extraction and log loading) by designated trainers. This is periodically reviewed. There is in-house training of occupational safety and health practices for the workers. A Safety and Health Committee currently suspended as the number of workers and staff is well below the threshold required for the committee.

### **Monitoring**

**RIL compliance assessment** was conducted in 2020 for a total of 23 blocks of Coupe 01A and the scores are **92.5%** compliance with RIL Guideline.

**HCV monitoring:** Based on the results of the HCV monitoring conducted in 2022, 2023 and 2024; it was found that all sites are still intact and the buffer zones are adequate. There is no encroachment or disturbance has occurred and seen during the visit in year 2024.

**Social impact monitoring (SIM):** The Social Impact Monitoring (SIM) was conducted in 17 villages inside and adjacent to Ravenscourt FMU as detail below:

No.	Date of SIM Interview	Village	Headman	Household	No. of Respondents		Percentage (%)
					Male	Female	
1	16 April 2024	Long Rangat	Joseph Sinau	20	1	1	10
2		Long Ubau	Joseph Sinau	4	1	0	25
3		Long Nawi	Padan Sultan	23	2	0	9
4		Talal Buda	Liau Selutan	23	3	1	17
5		Long Ritan	Labu Tadam	23	1	0	4
6		Long Rusu	Labu Tadam		1	0	4
7		Long Lemutut	Langub Pengiran	4	1	0	25
8		Long Langai	Matius Pelanok @ Matius Padan	35	4	0	11
9	17 April 2024	Long Muda	Paran Padan	29	2	1	10
10		Long Kumap	Agung Tai	30	1	0	3
11		Punang Kelalan	Jackson Labu	25	3	1	16
12	20 May 2024	Pa' Berunut	Michael Piree	11	4	2	55
13	21 May 2024	Long Kerebangan	Ringib Gelawat	16	5	2	44
14		Long Beluyu	Awang Balang @ Padan Balang	48	6	2	17
15		Long Tanid	Padan Ukab	54	4	2	11
16	22 May 2023	Long Semadoh Naseb	Tagko Gugkang	32	2	3	16
17		Long Semadoh Rayeh	Agong Baru	50	3	3	12
<b>Grand Total</b>				<b>427</b>	<b>62</b>		<b>15</b>

Based on the results of the monitoring, in conclusion that all of the villagers are still very dependent on the forest nearby their villages to support their livelihood.

Nevertheless, there are some advantages of logging operations to the communities that should be taken into consideration. This includes the benefits received by the communities after logging operations started in Ravenscourt FMU. Some of the benefits received by the communities are, easily accessed logging road, incentives and donations, government and non-government development projects, and job opportunities to local communities.

On the matter of public awareness, most of the communities are aware of the SFM, FMU, FMC, RIL, HCV, CRC, as well as FMCLC. Pertaining to the matter, the communities are aware of the CRC and its function as a platform to resolve conflicts between the community and the company.

Overall, logging operations have very low negative impacts to the livelihood of the villagers since the FMU has ceased their harvesting operation officially in February 2020.

Specifically addressing Item (d) of Criterion 8.2 are:

- **Yield:** The volume timber harvested from Ravenscourt Coupe 01A is 32,851 m<sup>3</sup>. The area of 28 harvested blocks out of 30 blocks are 1,905 ha. Therefore, the density of harvested

timber is 17.25m<sup>3</sup>/ha. Currently, the FMU has no intention to harvest the non-timber forest products.

- **Composition and Observed Changes in the Flora and Fauna**

**Wildlife monitoring:** On the 3th February 2024, SEU team has conducted a new line transect along the trail to Lepo’Batu in Coupe 1A, Block 20. The line transects encompassed 51 stations (20m apart), which equals to 1km distance. This location is chosen because the team want to find out the animals’ condition at the harvested area. The area is also not logged-over for quite a long time, which makes the condition of the area almost similar to a pristine forest area. In addition, there also a saltlick which might attract more animals to the area.

Table below shows the comparison of findings from year 2020 to year 2024:

Description	2020	2021	2022	2023	2024
Sightings per kilometre	21	10	2	9	32
Species Richness, S	12	5	2	2	7
Species Diversity, H	2.13	1.30	0.69	0.35	1.21
Species Evenness, E	0.86	0.81	1.00	0.50	0.63

The above results show that 7 species recorded during the latest line transect monitoring. Species richness (S=7) as well as species diversity (H=1.21) is considered higher than the findings last year of 2023. Meanwhile, it shows fair species evenness or distribution (E=0.63) in coupe 1A, block 20, which means that no species dominating the population.

It shows increase in trend probably due to no disturbance or encroachment within the area. In addition, it might be due to active saltlick in the area that attract more mammals to visit the area. Therefore, more species was found in the area than the last year monitoring.

- **Environmental:** To monitor the FMU’s environmental status since the operations were halted, the FMU has conducted the water quality monitoring as detailed in Chapter 5- Environmental Status Water Quality. Water quality monitoring conducted in 1<sup>st</sup> Quarter 2023 concluded that the water qualities of Sg. Likawan, Btg. Trusan and Sg. Kelalan in the locality of the project area were found to be moderately good with results mostly comparable to Classes I to II of the NWQS.
- **Costs and Productivity of Forest Management**  
**Costs, Productivity and Forest management efficiency:** Harvesting operation has been officially suspended since February 2020.
- **Growth Rates, Regeneration and Condition of the Forest**  
**PSPs 2022 monitoring data analysis and results:** The MAI for Class A dipterocarp >30cm is 1.6 cm dbh, higher than that of non-dipterocarp of the same class size (MAI=0.8cm dbh). In Class B, the MAI for dipterocarp and non-dipterocarp having the same dbh of 0.6cm. The same cannot be said regarding Class C dipterocarp, where its MAI =0.1cm dbh is lower than MAI=0.3cm dbh of non-dipterocarps. This initial data shows that growth spurts of

dipterocarp species begins when it reaches 10.0cm dbh. The overall recruitment in the dipterocarp for Class A and Class B were significantly lower at 8% as compared to non-dipterocarp for both class at 92%. In conclusion, the FMU should implement habitat restoration and conservation, silvicultural practices, promote seed dispersal and collaboration with local communities.

**PSPs monitoring data analysis and results:** A total of 1,161 trees were assessed and identified for PSP No. 4, 7, 9, 10, 11, 12, 13 and 14 in Ravenscourt FMU. From 1,161 trees, 35 trees are dead. Dipterocarp tree species makes up 5% of overall tree species, which makes 95% of other trees are non-dipterocarp tree species. Most of the dipterocarp trees and non-dipterocarp trees are in Group B, followed by Group A and Group C. Mean Annual Increment (MAI) for PSP No. 4, 7, 9, 10, 11 and 12 is 0.48 cm. In conclusion, the FMU should implement the measures to improve the recruitment of dipterocarp species, such as habitat restoration and conservation, silvicultural practices, promote seed dispersal and collaboration with local communities.

**PSPs 2024 monitoring data analysis and results:** A total of 1,319 trees were assessed and identified for PSP No. 4, 7, 9, 10, 11, 12, 13, 14 and 15 in Ravenscourt FMU. PSP No. 13, 14 and 15 were established during the year 2023 to 2024. From 1,319 trees, 58 trees are dead. Dipterocarp tree species makes up 5% of overall tree species, which makes 95% of other trees are non-dipterocarp tree species. Mean Annual Increment (MAI) for PSP No. 4, 7, 9, 10, 11 and 12 is 0.48 cm shown in table below:

PSP No.	MAI (cm) (in 2 years)	MAI (cm) (in 1 year)
4	0.44	0.22
7	0.97	0.49
9	0.29	0.15
10	0.70	0.35
11	0.52	0.26
12	0.61	0.31
13	N.A.	N.A.
14	N.A.	N.A.
15	N.A.	N.A.

In conclusion, the FMU should implement the measures to improve the recruitment of dipterocarp species, such as habitat restoration and conservation, silvicultural practices, promote seed dispersal and collaboration with local communities.

#### **PHI Assessment for Coupe 01A Block 14 and Block 15:**

The result of PHI data analysis for **Block 14** is as shown below:

Group	DBH (cm)	No. of trees per Ha (Actual)	No. of trees per Ha (Standard)
Tree A	≥30.0	96	32
Tree B	10.0-29.9	506	400
Tree C	5.0-9.9	>100%	>50% of plots
Seedling	Height >1.5m	>100%	>30% of plots

Since **all criteria are met**, it concluded that Block 14 has **no priority** for enrichment planting program.

The result of PHI data analysis for **Block 15** is as shown below:

Group	DBH (cm)	No. of trees per Ha (Actual)	No. of trees per Ha (Standard)
Tree A	≥30.0	99	32
Tree B	10.0-29.9	418	400
Tree C	5.0-9.9	>100%	>50% of plots
Seedling	Height >1.5m	0%	>30% of plots

For Block 15, **1 criterion is not met**, therefore Block 15 has **low priority** for enrichment planting program. Enrichment planting program may be conducted at own consideration.

#### PHI Assessment for Coupe 01A Block 16:

According to the criteria, Block 16 PHI result exceed all the set criteria. Therefore, Block 16 shall be considered None Priority for enrichment planting and shall be left for regeneration.

No	Tree class	PHI Result	Criteria
1	Trees above 30cm DBH	83.75	32
2	Trees between 10-29.9cm DBH	440	400
3	Trees between 5-9.9cm DBH	Present in 100% of plots	Present in 50% of plots
4	Seedling	Present in 100% of plots	Present in 30% of plots

#### PHI Assessment for Coupe 02A Block 05

According to the criteria, Block 5 PHI result does not meet one of the criteria. This was because the number of plots containing seedling is less than 30%. This is in contrast with the volume per ha data analysis which shows that the forest area regenerates better when left naturally. This can be explained by the small size of seedling sub-plot which was 2m x 2m. Therefore, Block 5 shall be considered Low Priority for enrichment planting and Enrichment Planting shall be done at FMU's own consideration.

No	Tree class	PHI Result	Criteria
1	Trees above 30cm DBH	115.71	32
2	Trees between 10-29.9cm DBH	605.71	400
3	Trees between 5-9.9cm DBH	Present in 100% of plots	Present in 50% of plots
4	Seedling	Present in 14% of plots	Present in 30% of plots

#### **Rafflesia (*Rafflesia pricei*)**

The first **Rafflesia (*Rafflesia pricei*)** assessment for Ravenscourt FMU was done during the establishment of PSP No.7 on January 2016 by FMCU team. The flower bud on the root of host plant takes 8-9 months to full bloom. In January 2020, a cluster of Rafflesia flowers (*Rafflesia spp.*)

was spotted adjacent to PSP No. 7 in Coupe 12A. The cluster was considered unique because it only had four petals or perigones, with the possibility of it being a new species. However, subsequent flowering exhibited the normal five petals, thus the cluster was then identified as *Rafflesia pricei*. This species occurs at 800-1,300 m amsl which is consistent with the altitude the cluster was found. A stakeholder consultation on the Rafflesia was done with the community of Pa' Berunut village on 9<sup>th</sup> March 2020. In year 2020, the monitoring on this Rafflesia site was done seven times from May 2020 to September 2020. On 12<sup>th</sup> January 2021, a 15m x 21m plot was established to determine the range of the Rafflesia and its host plant (*Tetrastigma leucostaphylum*). Eleven monitoring on the Rafflesia had been done from January to November 2021. There was no monitoring done in year 2022. The monitoring done on 15<sup>th</sup> May 2023, all buds sighted are dead and no new bud or flower bloom were found. The latest visit on **6<sup>th</sup> February 2024** found that most of the buds sighted are dead and only two buds are found alive. The plot signage is still intact and in good condition.

The *in-situ* conservation plot involves monitoring the cluster population of **Bindang (*Agathis* spp.)**. This cluster of Bindang can potentially be used as a source of seedlings for forest landscape restoration program, as a form of *ex-situ* conservation. The latest remeasurement was carried out on **7<sup>th</sup> February 2024**. Most of the *Agathis* sp. trees in Ravenscourt FMU had shown significant increase in diameter from the last years (2023) record and only four of the trees remain the same. The *Agathis* sp. tree that has highest increase in diameter within the one year is the tree of BA-09 from BP-02. The biggest diameter of *Agathis* sp. tree is 61.6cm (BA-01 from BP-03) meanwhile, the smallest tree diameter is 24.4cm (BB-01 from BP-03). The MAI for the *Agathis* sp. trees in Ravenscourt FMU was 0.24cm.

### **Collaboration with FDS on Species Verification and Assessment of Bindang Trees and Rafflesia**

A team of officers from Forest Department Sarawak (FDS) lead by Mrs Vilma Anak Bodos with her crew members of Mr Nungah Anak Liang and Mrs Relin Anak Jim, had carried out the field trip to Ravenscourt on **22 to 27 March 2024** for two main objectives;

- (i) To verify and assess Bindang plot of Ravenscourt FMU; and
- (ii) To assess other rare, threatened, and endangered flora of the FMU.

- **Bindang (*Agathis* Tree)**

Two out of three Bindang plots were assessed on this trip. Two species of *Agathis* were verified on this trip and the leaf specimens were collected for further identification at the Sarawak Herbarium. The results are as follows:

- (i) *Agathis borneensis*;  
This species is listed as Endangered A4cd in the IUCN Red List of Threatened Species. The occurrence of this species in Sabah and Sarawak is widespread throughout but localized to its habitat preference.
- (ii) *Agathis lenticular*:  
This species is endemic to Borneo where it is recorded from Sabah (Crocker Range to Mt. Kinabalu) and Sarawak (Gunung Murud).

The growth and yield of the *Agathis* have been monitored by the FMU since 2021. Results of assessment for 3 years show that the mean annual increment (MAI) value is decreasing as shown below:

Year	MAI (cm)
2022	0.54
2023	0.27
2024	0.24

- **Rafflesia pricei**

*Rafflesia pricei* is endemic to Borneo and was first discovered on Mount Kinabalu. This species has been reported from Sabah, Sarawak, Brunei Darussalam, and Kalimantan (East and North). A review of reports from the year 2020 to 2024 reveals that *Rafflesia* had its best time in 2020 when the blooming activities were active.

Year	Findings	Remarks
2020	First assessment of <i>Rafflesia pricei</i> . Two blooming of <i>Rafflesia</i> occurred. Matured cabbage to blooming stage took about 7-9 days to fully bloom. Monitoring has been done three times on the same month to record the behaviour of blooming pattern (20, 26 and 29 May 2020). 5 buds were recorded.	Most active blooming
2021	No record of blooming. 9 buds with cabbage size were recorded but remain dormant and rotten.	Only up to cabbage size
2022	No report	Not monitored
2023	No record of blooming. 10 buds were recorded but remain dormant and rotten.	
2024	Monitoring conducted in Feb. 9 buds were recorded but all dead and rotten.	

According to Akhriadi (2010), since the *Rafflesia* is a parasitic plant, the condition of the host plants, forest, and the availability of water resources are the important keys to the survival of *Rafflesia* in their natural habitat.

In conclusion, the FDS team recommended that:

- (i) the FMU to maintain the annual assessment for growth and yield of the **Agathis**.
- (ii) As the biological behaviour of ***Rafflesia pricei*** in Ravenscourt is still poorly understood, it is recommended that monitoring of this plant remain to continue and be done yearly.

Progress of **forest landscape restoration** as at 31 July 2024, approximately 3.1 hectare have been planted at the degraded area in Ravenscourt FMU.

July 2024