



2024 – 2025 SUMMARY OF ACTIVITIES

Belaga HCS Recovery Site

December 2025

Glenealy Plantations Sdn Bhd

Kapit, Sarawak, Malaysia

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List of Abbreviations

ABP	PT. Abdi Borneo Plantation
BRP	Belaga Recovery Project
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CLC	Community Learning Centre
CR	Critically Endangered
DOA	Department of Agriculture
EN	Endangered
FMU	Forest Management Unit
FTL	Forest Timber License
GIS	Geographic Information System
GPSB	Glenealy Plantation Sdn Bhd
H'	Species Diversity Index
ha	Hectarage
HCS	High Carbon Stock
IUCN	The International Union for Conservation of Nature's - Red List of Threatened Species
IVI	Importance Value Index
MEC	Malaysian Environmental Consultants Sdn Bhd
MOH	Ministry of Health
MPOB	Malaysian Palm Oil Board
MSPO	Malaysian Sustainable Palm Oil
NDPE	No Deforestation, No Peat, No Exploitation
NREB	Natural Resources & Environment Board
Rh.	<i>Rumah</i>
RTE	Rare, Threatened, and Endangered
TBP	PT. Tunas Borneo Plantation
UPM	Universiti Putra Malaysia
UPMS	Universiti Putra Malaysia Sarawak
WPO	Wildlife Protection Ordinance

1 Introduction

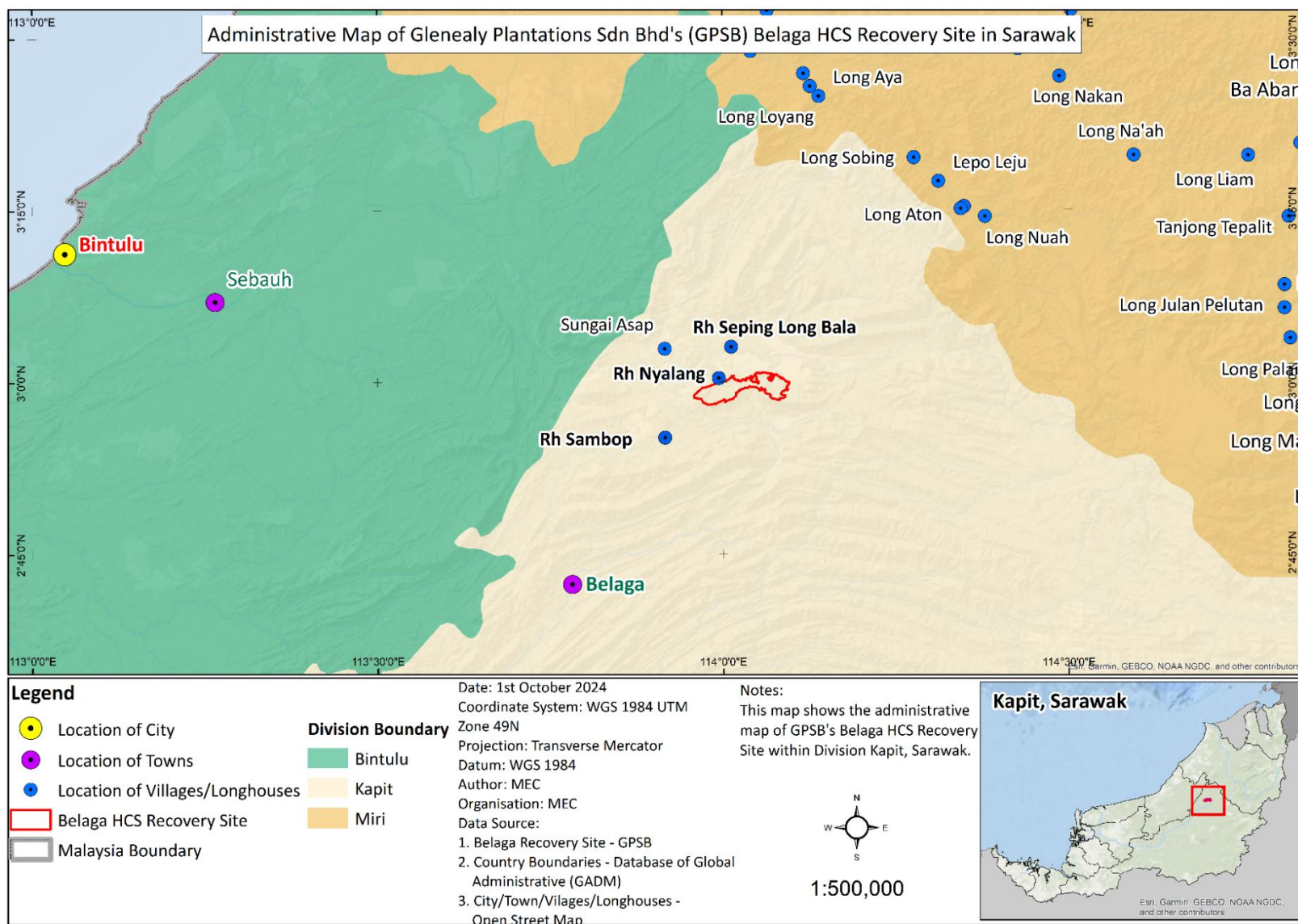
Glenealy Plantations Sdn Bhd (GPSB) is part of the Samling group (Samling Global, Ltd via subsidiary Lingui Development, Sdn Bhd), with current activities focused on managing oil palm plantations in Malaysia and Indonesia. GPSB has also published and committed to its No Deforestation, No Peat, No Exploitation (NDPE) policy on the 10th of April 2020. This commitment applies to all of their oil palm plantation concessions, namely the Lana Estate, Jelalong Estate, Belaga Estate (Sarawak, Malaysia); Sabah Timora Complex Estate (Sabah, Malaysia); PT. Abdi Borneo Plantation (PT. ABP) and the PT. Tunas Borneo Plantation (PT. TBP) (North Kalimantan, Indonesia). Glenealy Plantations Sdn Bhd (GPSB) has recognised the importance of committing to core sustainable values in its palm oil production operations. This commitment aims to transform the company into a responsible grower and miller in the palm oil industry, adhering to the following attributes: Transparency, No Deforestation, No Peat and No Exploitation.

To fulfil their NPDE commitment, GPSB independently calculated the loss of high carbon stock (HCS) areas within their concessions, resulting in a compensation liability of 1,853 ha. Once their liability was calculated, GPSB identified a compensation area as an initiative towards fulfilling their HCS obligations. The identified area is currently greater in size, in comparison with the compensation liability, with the compensation area, which is now referred to as the Belaga HCS Recovery Site, having an area of approximately 3,736.19 ha. GPSB is committed to covering the management costs for this area, as well as establishing a framework to support long-term conservation and rehabilitation activities.

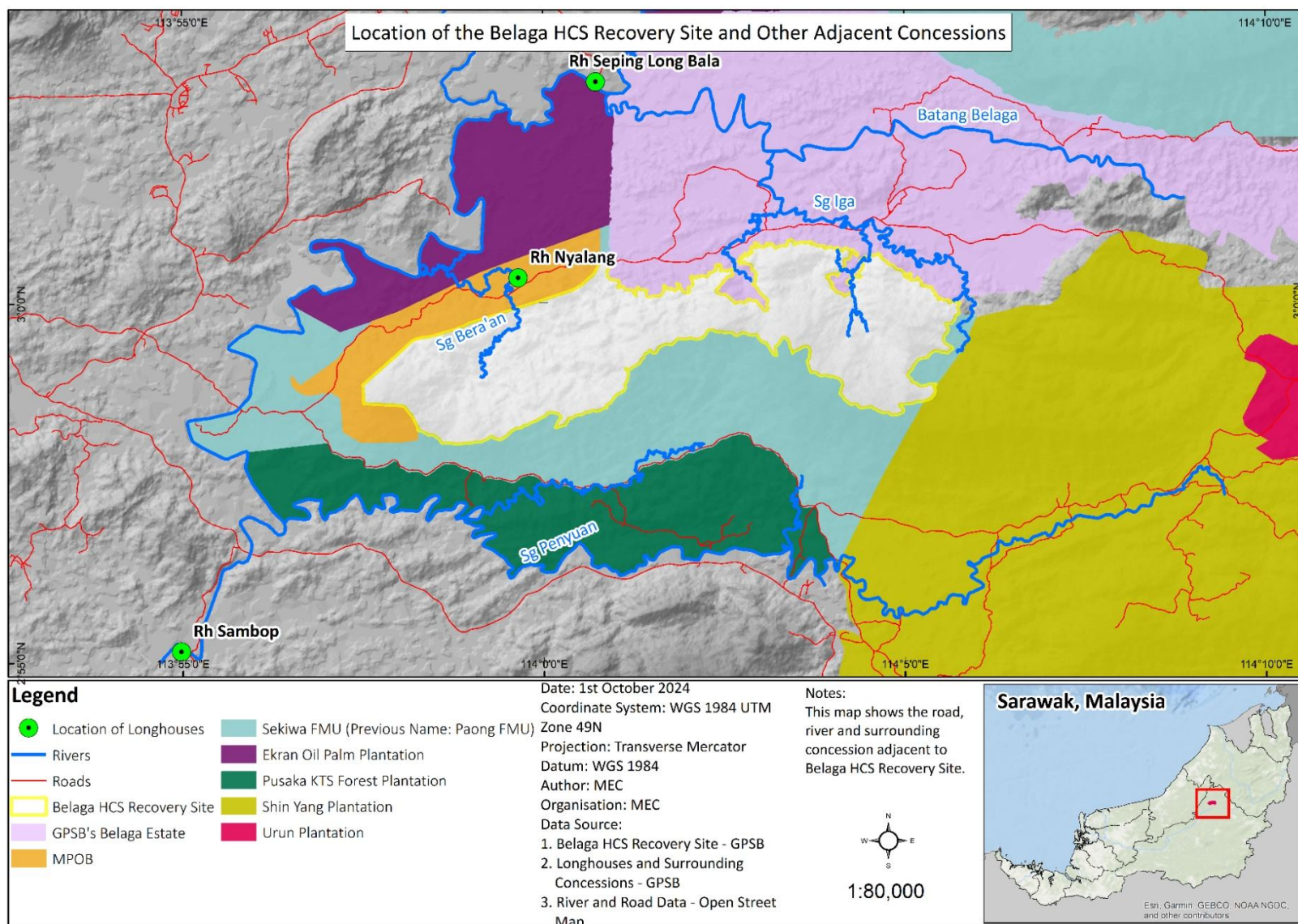
1.1 Description of the Belaga HCS Recovery Site

The Belaga HCS Recovery Site, known as Belaga Recovery Project (BRP) is located in the Belaga District, Kapit Division, Sarawak, Malaysia. It is approximately 83.3 km from Belaga town (Capital of Belaga District) and 161 km from Bintulu town (Capital of Bintulu District) (Refer to Map 1.1). This site has an area of approximately 3,736.19 ha (GIS area) and is located within the Paong Forest Management Unit (FMU), under Forest Timber License (FTL) No. T/0404 (see Map 1.2).

The Belaga HCS Recovery Site is an ex-forest logging concession area, which has undergone several logging rotations in the past. As of 2005, logging is no longer undertaken within the site. Surrounding the Belaga HCS Recovery Site, there are access roads connecting multiple logging companies, forest plantations and oil palm plantations. These access roads also link to the surrounding local communities, such as *Rh. Nyalang (Data Bera'an)*, *Rh. Sambop* and *Rh. Seping Long Bala*. As for the regional boundaries, the recovery site is bordered by the Malaysian Palm Oil Board's research centre (MPOB) in the west and northwest; Sekiwa Forest Management Unit (FMU) in the west and south; the Ekran Oil Palm Plantation and GPSB – Belaga estate in the north; a Shin Yang Plantation in the east; and a Pusaka KTS Forest Plantation further south.



Map 1.1: Administrative map of Belaga HCS Recovery Site



Map 1.2: Location of the Belaga HCS Recovery Site and other adjacent concessions

2 List of Activities Conducted in Belaga HCS Recovery Site

A total of 32 activities is presented in Table 2.1, as an indication that there is active management on the site. The activities range from field studies to education initiatives for local communities. Local community involvement in the management of the site is seen as being very important, and the prospect of co-management is currently being investigated.

Table 2.1: List of Activities Conducted in Belaga HCS Recovery Site

No.	Management Actions	Team	2021 - 2023	2024	2025
1	Pre-scoping Desktop Study of the Area	External & Internal			
2	Pre-scoping Field Survey	Internal			
3	Preliminary Drone Mapping	External			
4	Formulation of GPSB HCS Recovery Plan	External & Internal			
5	Publishing of the GPSB HCS Recovery Plan on its Website	Internal			
6	Establishment of Belaga HCS Recovery Site	External & Internal			
7	MOU signed between GPSB and Samling (Lawas) Plywood Sdn Bhd	Internal			
8	Drone Mapping (Phase 1)	External			
9	Stakeholder Identification and Consultation Planning	Internal			
10	Formation of the Steering Committee	Internal			
11	Initial Engagement with Stakeholders Identified	Internal			
12	Drone Mapping (Phase 1)	External			
13	Investigation and Documentation of Encroachment Activities	External & Internal			
14	Boundary Demarcation	Internal			
15	Stakeholder Consultation - Open Dialogue Session	External			
16	Social Study Baseline	External & Internal			
17	Local Community Consultation and Identification of Their Dependency on the Site	External			
18	Land Cover Mapping	External			
19	Biological Assessment (1st Assessment)	External			
20	Biological Assessment (2nd Assessment)	External			
21	River and Streams Mapping	External			

No.	Management Actions	Team	2021 - 2023	2024	2025
22	Impact Analysis of the Recovery Site	External			
23	Educational Excursion by SMK Bakun's Boy Scouts to Belaga HCS Recovery Site	Internal			
24	Belaga HCS Recovery Site's Project Community Outreach Program in Rh. Louis Lenjau, Uma Seping, Long Bala	Internal			
25	Establishment of Mini Nursery for Belaga HCS Recovery Site	Internal			
26	Belaga HCS Recovery Site's Project Community Outreach Program in Rh. Yus Bit, Data Bera'an	Internal			
27	Belaga HCS Recovery Site's Boundary Remapping	External			
28	Planting Of Ficus and Fruit Tree Species within the Belaga HCS Recovery Site's Restoration Zones	Internal			
29	Border Patrol of Belaga HCS Recovery Site	Internal			
30	Remote Camera Trap for Surveillance of Wildlife and Other Suspicious Activities	Internal			
31	Satellite Image Monitoring	External			
32	Consultancy with External Experts on the Conservation and Management Plan	External			

The site was managed using an interim management action plan that was developed in 2021. The next step is the development of the 5-year plan to guide GPSB and Belaga Estate in successfully managing the site. The management planning exercise will begin in January 2026, and a consultative management planning exercise will be undertaken over a period of 6 months. The integrated management plan for the site will be finalised in July 2026.

2.1 Biological Assessments by External Consultants

Biological Assessments were conducted by Malaysian Environmental Consultants (MEC) for the Belaga HCS Recovery Site in Sarawak, Malaysia. It details the findings from two field assessments conducted in 2022 and 2023, focusing on the flora and fauna species composition and conservation status within the 3,736.19 ha area, which is an ex-logging concession. The report, which was released in 2024, analyses the ecological indices, such as the Importance Value Index (IVI) for vegetation and species diversity indices (Dominance, Diversity, Richness, Evenness) for birds and mammals, to establish baseline biodiversity data. Furthermore, it identifies current threats to the site's integrity (e.g., illegal logging and land clearing) and provides a list of recommendations for management and rehabilitation to ensure long-term conservation and ecosystem restoration. The site is noted for its high species diversity and the presence of numerous rare, threatened, and endemic (RTE) species.

Current Vegetation

The assessments classified the current vegetation into five disturbed categories based on altitude and successional stage: Disturbed Shrub Areas, Disturbed Secondary Dry Lowland Forest, Disturbed Dry Lowland Forest, Disturbed Secondary Hill Forest, and Disturbed Hill Forests. Despite previous disturbances, the forests are naturally recovering, with steep and high hills providing refuge areas

Floral Biodiversity and Carbon Stock

The flora assessments identified a total of 641 species across 99 families. The dominant plant families observed are Dipterocarpaceae (11%), followed by Euphorbiaceae and Rubiaceae (5% each). The Dipterocarpaceae family is ecologically significant as its members typically dominate Borneo's lowland forests and are often used to denote forest types. Pioneer species in the Euphorbiaceae family (like *Macaranga* species) are essential for forest recovery by establishing shade necessary for climax species to germinate.

Analysis of vegetation indices indicates that the recovery site exhibits high species diversity (Shannon Diversity Index H' ranging from 4.65 to 5.12) and high species richness (R ranging from 32.16 to 42.07) across all growth stages. The high evenness index (E ranging from 0.81 to 0.94) suggests that species abundance is relatively equal, confirming the absence of highly dominant single species.

A critical finding concerns Rare, Threatened, and Endangered (RTE) species and endemism. The report documented 88 RTE plant species based on the IUCN Red List, CITES, and WPO 1998 criteria. This includes 2 Critically Endangered (CR) species (*Dipterocarpus cornutus* and *Rubroshorea dispar*) and 9 Endangered (EN) species. Furthermore, 108 species are endemic to Borneo.

The baseline carbon study categorised the assessment plots into five HCS classes:

1. Shrub (15–35 tonnes/ha).
2. Young Regenerating Forest (35–75 tonnes/ha).
3. Low-Density Forest (75–90 tonnes/ha).
4. Medium-Density Forest (90–150 tonnes/ha).
5. High-Density Forest (more than 150 tonnes/ha).

The high-density forests, which are in the late-succession stage, had an average carbon stock value of 208.48 tonnes/ha.

Fauna Composition and Conservation Status

A total of 311 wildlife species from 100 families were identified, including 130 species of birds, 34 mammals, 26 reptiles, 18 amphibians, 13 fish, 33 dragonflies, and 57 butterflies.

- **Feeding Guilds:** The food web complexity is high, with insectivores being the most prevalent feeding guild (43.41%), followed by nectarivores (18.33%). The presence of predatory birds (like the Crested Serpent Eagle) indicates a healthy prey population.
- **Birds:** Bird species exhibited high diversity ($H' = 4.122$) and high richness ($R = 15.354$). Notable species found include eight hornbill species, such as the Rhinoceros Hornbill (*Buceros rhinoceros*).
- **Mammals:** Mammal species diversity was classified as moderate ($H' = 2.616$). Key species observed include the Southern Pig-tailed Macaque (*Macaca nemestrina*), Sambar Deer (*Rusa unicolor*), and large predators like the Sun Bear (*Helarctos malayanus*).
- **Conservation Status:** Fauna findings included 3 Critically Endangered (CR) species: the Helmeted Hornbill (*Rhinoplax vigil*), Bornean Orangutan (*Pongo pygmaeus*), and Sunda Pangolin (*Manis javanica*). In total, 3 CR, 6 EN, and 11 VU species were recorded. Additionally, 26 wildlife species are endemic to Borneo.

Threats and Management Recommendations

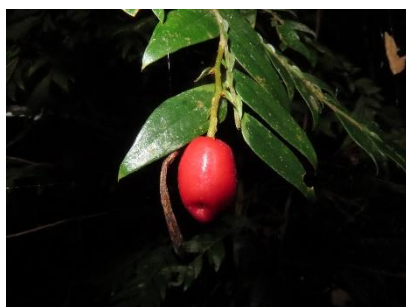
The integrity of the Belaga HCS Recovery Site faces several threats, including illegal logging, land clearing for agricultural purposes by local communities, forest and land fires, and wildlife poaching. Invasive species, such as *Mucuna bracteata*, were also noted to hinder natural vegetation growth.

Based on these findings, recommendations for management include establishing a coherent zone plan (Core Area, Core Extension, and Rehabilitation zones), implementing continuous monitoring and evaluation, and developing an effective security system to strengthen laws and enforcement. Crucially, the plan advocates empowering local communities through dialogue, involvement in management, and education on the importance of conservation. Supporting measures include establishing research stations, ecotourism facilities, and security posts.

Table 2.2: List of Species Identified in the Belaga HCS Recovery Site



Aglaia angustifolia
Vulnerable



Anisophyllea disticha
Least Concern



Anthoshorea cf. symingtonii
Vulnerable



Hypothymis azurea (Black-naped
Monarch)



Helarctos malayanus (Sun Bear),
Camera Trap



Aonyx cinereus (Asian Small-clawed
Otter) Camera Trap



Leptobrachella juliandringi (Dring's
Dwarf Litter Frog)



Cyrtodactylus malayanus (Borneo
Bow-fingered Gecko)



Aplopeltura boa (Blunt-headed Slug
Snake)



Troides brookiana (Rajah Brooke's
Birdwing)



Vestalis gracilis (Clear-winged forest
glory)



Cethosia hypsea (Malay Lacewing)

2.2 Educational Excursion by SMK Bakun's Boy Scouts to Belaga HCS Recovery Site

Belaga Recovery Project (BRP) organised an educational programme on the 13th of June 2024 for a group of 13 Boy Scouts and 2 teachers from SMK Bakun. The session was also attended by 23 staff and executives from Glenealy Plantations Sdn Bhd (GPSB). The programme aimed to raise awareness among youth about forest restoration, biodiversity conservation, and sustainable land management. The key components of the activity included:

- **Knot-Tying Techniques:**

GPSB Auxiliary Police Personnel conducted a session demonstrating five essential knot-tying techniques, equipping students with basic survival and safety skills relevant to forest environments.

- **Tree Planting Activity:**

Students participated in a reforestation effort by planting 50 Ficus seedlings within BRP's restoration zone, experiencing in tree planting and contributing to the ongoing riparian rehabilitation work.

- **Remote Camera Trap Briefing:**

An intern from *Universiti Putra Malaysia* (UPM) Serdang demonstrated the use of wildlife camera traps, explaining how the devices function and their importance in monitoring fauna within the recovery area.

- **BRP & Sustainability Awareness Session:**

At the Community Learning Centre (CLC) Belaga Complex, students attended an interactive session covering the Belaga HCS Recovery Site, restoration strategies, and GPSB's broader sustainability commitments.

This programme not only enhanced environmental awareness among local youth but also fostered a deeper appreciation for conservation efforts, encouraging long-term community engagement in forest and biodiversity protection.



Photo 2.1: Knot- tying methods



Photo 2.2: Introduction to BRP and Sustainability by GPSB Staff at CLC Belaga Complex

2.3 Establishment of Mini Nursery for Belaga HCS Recovery Site

The Belaga Recovery Mini Nursery, completed in July 2025, was established as a key component of the Belaga Recovery Project’s long-term forest restoration strategy. The nursery plays a vital role in restoring biodiversity and strengthening ecosystem resilience across the Belaga landscape. It ensures a sustainable, continuous supply of high-quality seedlings for planting within the Belaga Recovery Area.

The nursery can accommodate approximately 3,000 seedlings, allowing BRP to maintain a stable stock, generate a diverse range of native species, and respond efficiently to restoration needs across the area. Seven *Ficus* species are prioritised, such as *Ficus racemosa*, *Ficus subchordata*, *Ficus cucurbitina*, *Ficus lindsayana*, *Ficus variegata*, *Ficus pisocarpa*, and *Ficus nervosa*. These species provide year-round fruiting, serving as essential food sources for wildlife species. Fruit trees are also planted to enhance habitat complexity and support long-term forest recovery.

Seedlings for the *Ficus sp.* are collected within the Belaga Recovery Area. In the nursery, seeds are germinated under controlled conditions with careful management of soil, water, shade, and pest protection, leading to high survival rates.

The nursery also propagates *Ficus* trees from mother tree cuttings. This technique ensures genetic consistency, produces resilient seedlings, and allows rapid propagation of species with low seed germination success. Vegetative propagation complements seed-based methods, providing a reliable supply of high-quality plants for restoration activities.

Plans are underway to expand the nursery in early 2026, increasing its capacity and diversifying the species propagated. The expansion will support large-scale planting initiatives, provide seedlings for community agroforestry programs, and enhance research into propagation techniques, ensuring consistent monthly planting targets are met.



Photo 2.3: The Belaga Recovery Mini Nursery



Photo 2.4: *Ficus* seeds collection for germination

2.4 Belaga HCS Recovery Site's Project Community Outreach Program in Rh. Louis Lenjau, Uma Seping, Long Bala

This outreach program successfully gathered more than 50 participants from nearby longhouses, government agencies, and GPSB. The involvement of the Department of Agriculture (DOA) Bintulu and *Universiti Putra Malaysia Sarawak* (UPMS – Bintulu Branch) demonstrated strong multi-agency collaboration and reinforced the shared commitment to community development and sustainable land management. The programme comprised several key activities aimed at enhancing environmental awareness, improving agricultural practices, supporting rural livelihoods, and providing essential services to the local community.

One of the main activities was the planting of 100 Liberica coffee seedlings along with various fruit tree species. GPSB, DOA, and the Long Bala community participated together in the planting program, promoting both environmental restoration and future livelihood opportunities. The initiative helped strengthen agroforestry practices and improve soil stability.

The programme also featured a Bio-Compost demonstration led by the Department of Agriculture (DOA), where participants learned practical techniques of converting agricultural waste into organic fertiliser. This sustainable method reduces reliance on chemical inputs while improving long-term soil fertility, contributing to more resilient and environmentally friendly farming techniques. The knowledge shared during the session provided smallholders with cost-saving alternatives and promoted wider adoption of sustainable agricultural practices.

In addition, the DOA facilitated a pineapple jam-making workshop designed to empower rural women and families with value-added product skills. The hands-on activity encouraged income diversification, maximised the use of locally available fruit resources, and opened new opportunities for small-scale, home-based entrepreneurship.

An oil palm management awareness talk was led by GPSB's Mr. Sylvester Jepin, focusing on best management practices to support sustainable agriculture. The session highlighted key topics, including proper harvesting techniques, integrated pest management, soil conservation measures, and safe chemical handling. Through this training, participants gained practical knowledge to enhance their agricultural productivity while adopting environmentally responsible approaches.

Complementing the agricultural session, UPMS (Bintulu) conducted an Education Awareness Programme tailored for rural youth. The session provided information on available tertiary education pathways, scholarship opportunities, entry requirements, and career prospects. This initiative helped inspire students to further their studies and bridged the information gap commonly experienced by youth in remote communities.

To support the well-being of the community, GPSB's medical team provided basic health screening services, including blood pressure, BMI, and blood sugar checks, as well as general medical consultations. This component enabled early detection of potential health issues, especially for communities with limited access to regular healthcare facilities.

Overall, the outreach initiative successfully integrated environmental education, capacity-building activities, livelihood enhancement, and essential health services. By bringing together multiple stakeholders, the programme strengthened community resilience, promoted knowledge-sharing, and reinforced collaborative efforts towards sustainable rural development.



Photo 2.5: Planting of Liberica coffee and various fruit seedlings



Photo 2.6: Organic Fertilizer making demonstration by DOA

2.5 Belaga HCS Recovery Site's Project Community Outreach Program in Rh. Yus Bit, Data Bera'an

The community outreach programme at Rh. Yus Bit, Data Bera'an on 18th October 2025 gathered more than 100 participants, including representatives from the Natural Resources and Environment Board (NREB) and the Ministry of Health (MOH). The initiative combined environmental restoration efforts with targeted health and environmental education, aiming to strengthen community well-being and promote sustainable land stewardship.

As part of the project efforts, participants planted 100 fruit tree seedlings, including Musang King durian, Black Thorn durian, and Petai (*Parkia speciosa*). These high-value species were chosen to enhance ecological recovery while offering long-term livelihood opportunities for the community. In addition, 30 Ficus seedlings were planted within BRP's restoration zone to enrich wildlife food sources and support natural forest regeneration.

Educational activities formed a key component of the programme. NREB delivered engaging environmental awareness sessions on river care, water quality protection, proper domestic waste management, and the ecological impacts of pollution. These activities aimed to strengthen environmental responsibility and empower the community with practical knowledge for sustainable resource management. Complementing this, the Ministry of Health conducted health awareness briefings on rabies prevention, influenza variants, malaria, dengue, and basic communicable disease control by providing essential information to protect community health.

To further support well-being, MOH Belaga carried out basic health screenings, enabling early detection of potential health issues and encouraging participants to seek timely follow-up care.

Overall, the outreach initiative fostered strong collaboration between agencies and the local community, promoting environmental sustainability, improving public health awareness, and reinforcing collective efforts toward a healthier and more resilient landscape.



Photo 2.7: Community Outreach Program in RH. Yus Bit, Data Bera'an

2.6 Planting Of Ficus and Fruit Tree Species within the Belaga HCS Recovery Site's Restoration Zones

A total of 329 seedlings were planted within the 2025 timeframe as part of the ongoing restoration initiative, consisting of *Ficus* species and various fruit trees. Three *Ficus* species, such as *Ficus racemosa*, *Ficus nervosa*, and *Ficus variegata*, were selected primarily based on seedling availability and their ecological importance as key wildlife food sources.

Monthly maintenance activities were carried out to ensure the optimal growth of planted seedlings. This consistent maintenance, which included weeding, soil improvement, and monitoring, contributed to high survival rates and encouraged strong early development.

To maintain steady restoration progress, a minimum planting target of 10 seedlings per month was set within the designated restoration zones of the Belaga Recovery Area. This continuous effort has played a significant role in restoring essential ecosystem functions and enhancing habitat resilience across the landscape.



Photo 2.8: Planting of *Ficus* sp. and fruit seedlings by GPSB staff



Photo 2.9: Planting of *Ficus* sp. by the GPSB staff

2.7 Border Patrol of Belaga HCS Recovery Site

The BRP teams conducted weekly patrols, scheduled every Monday or Friday, depending on weather conditions and manpower availability. These patrols served as a proactive measure to safeguard the Belaga Recovery Area and protect the integrity of ongoing restoration efforts.

During each patrol, the team carried out several critical tasks, including detecting potential encroachment, checking for illegal oil palm cultivation, monitoring for illegal hunting or fishing, and preventing open burning. Patrols also focused on identifying illegal waste disposal, ensuring all signage remained intact and visible, and assessing the condition of planted seedlings throughout the restoration zones.

Collectively, these routine patrols played a crucial role in reducing risks and preventing activities that could undermine the success of the restoration programme.



Photo 2.10: BRP boundary patrol using drones

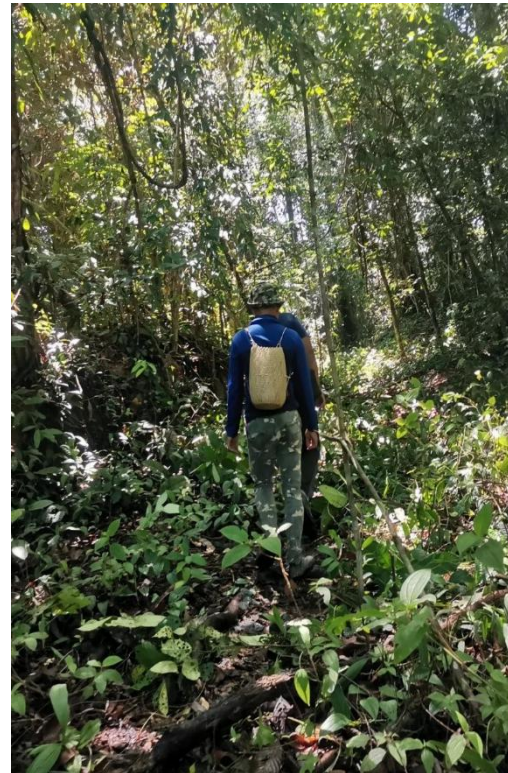


Photo 2.11: Weekly boundary patrol by GPSB staff

2.8 Remote Camera Trap for Surveillance of Wildlife and Other Suspicious Activities

To strengthen biodiversity monitoring and enhance protection of the Belaga Recovery Area, the Belaga Recovery Project (BRP) implemented a year-long Remote Camera Trap Surveillance Programme from September 2024 to September 2025. The team aims to better understand species presence, habitat use, and potential threats, information essential for long-term restoration planning and effective enforcement.

Camera trap installation was carried out progressively throughout the one-year period. This phased approach allowed the team to test various locations, optimise equipment settings, and determine the most strategic placement sites. By assessing different habitat types and identifying natural wildlife movement corridors, the team ensured comprehensive spatial coverage across the recovery area. A total of four heat-and-motion sensor cameras were used, designed to activate only when warm-bodied animals or humans moved within their detection range, allowing for efficient data collection.

Each camera was placed approximately 300 metres apart to maximise landscape coverage while avoiding excessive overlap in detection zones. To improve the detection of elusive species, all camera stations were enhanced with commercial pheromone lures sourced from Powder River, Utah, USA, commonly used in scientific monitoring to attract carnivores and omnivores, thereby improving species diversity records and behavioural observations.

Monthly inspections formed a crucial component of the programme. During each visit, the team checked battery life, cleaned lenses, adjusted camera positions when needed, reapplied pheromone attractants, and addressed any environmental factors such as fallen vegetation or moisture that could obstruct camera performance. This routine maintenance ensured continuous, high-quality data collection throughout the monitoring period.

Additional camera traps will be installed in ecologically significant hotspots, including natural salt licks and mud wallows. These areas attract a wide range of wildlife and offer valuable opportunities to capture behaviour, enhance species inventories, and strengthen detection of illegal activities in high-use zones.

Over the one-year monitoring period, the programme recorded approximately 15 species of medium- to large-sized mammals. One of the most significant findings was the detection of the Bornean Clouded Leopard (*Neofelis diardii borneensis*), classified as Vulnerable under the IUCN Red List. Its presence indicates healthy forest conditions and highlights the importance of the Belaga Recovery Area as a functional wildlife corridor.

Overall, the Remote Camera Trap Surveillance Programme has become a part of BRP's biodiversity conservation efforts. By generating scientific evidence of wildlife presence, supporting patrol teams in identifying illegal activities, and guiding habitat restoration decisions, the programme reinforces the ecological value of the Belaga Recovery Area. Its findings continue to inform conservation strategies and ensure the landscape remains a secure and thriving refuge for wildlife in the years to come.



Photo 2.12: Installation of the camera traps

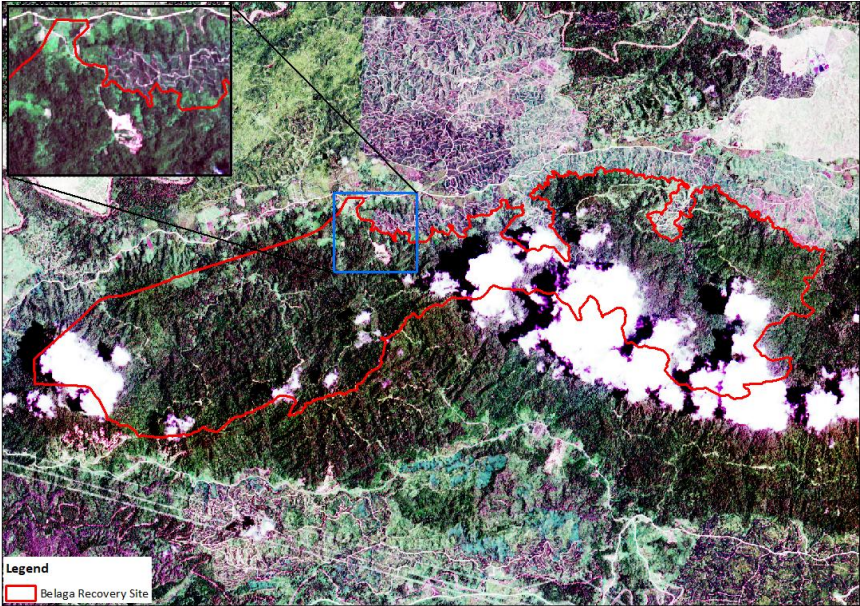


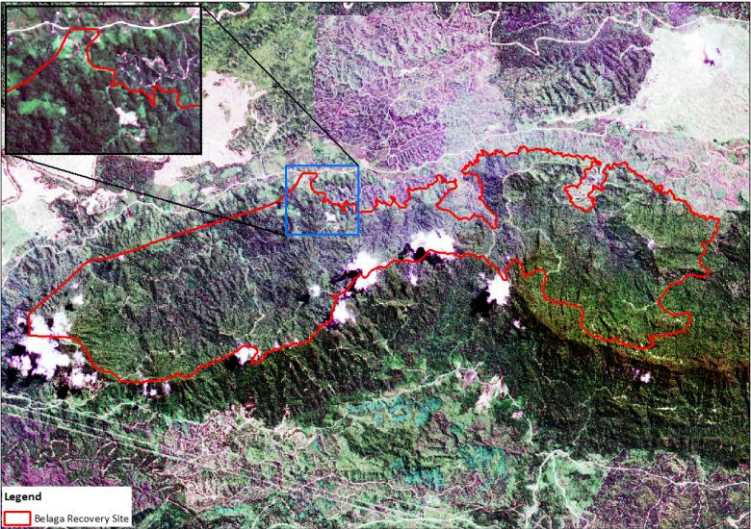
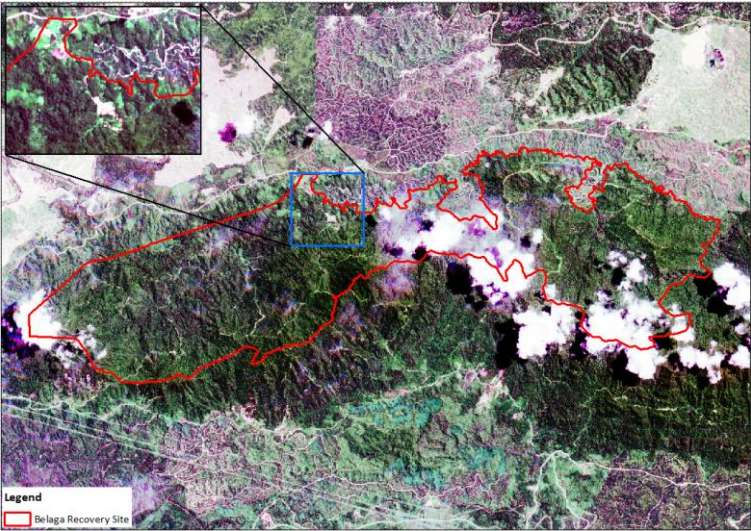
Photo 2.13: Vulnerable Bornean Clouded leopard was captured using the camera traps

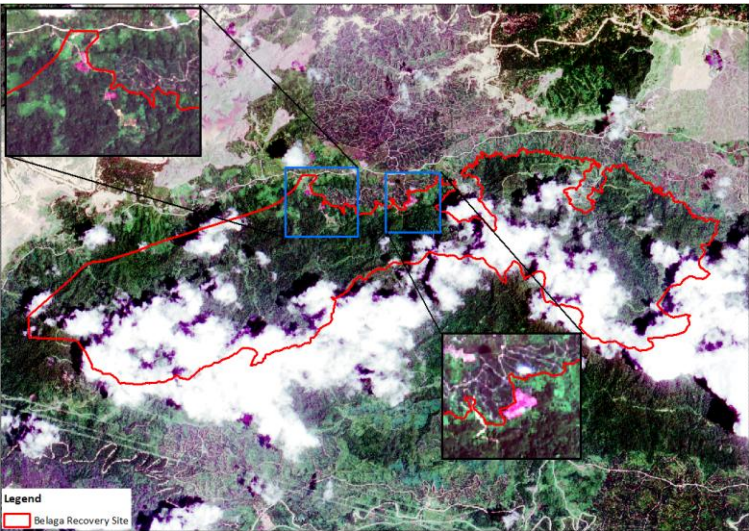
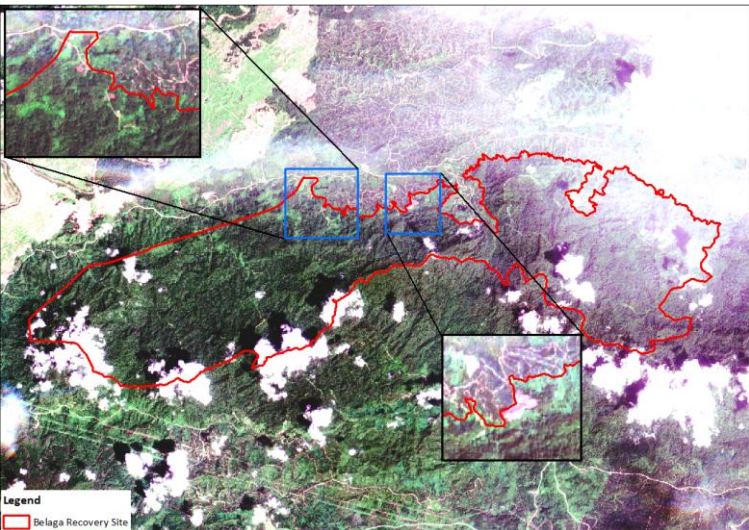
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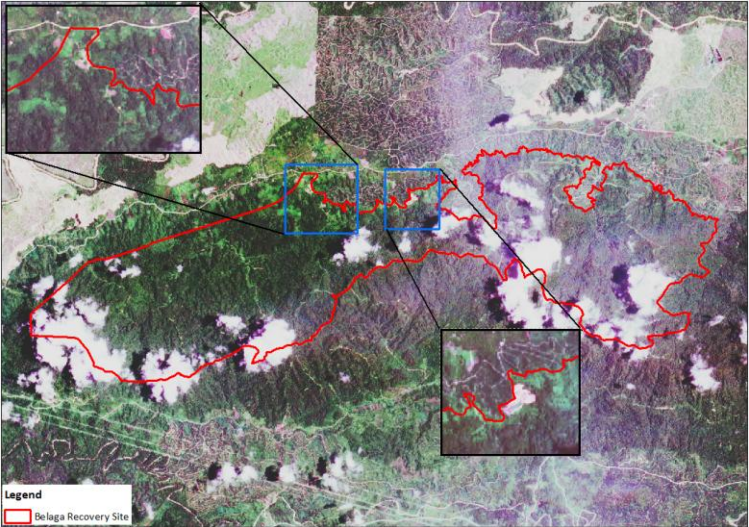
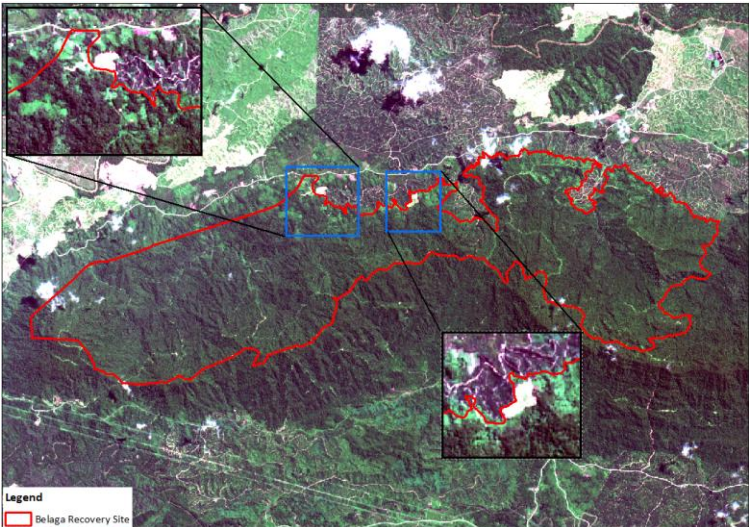
Table 3.1 presents the satellite imagery that was used to monitor land cover changes at the Belaga Recovery Site from 2022 to 2025. For monitoring purposes, four satellite images were selected for each year to provide a representative overview of site conditions and land use dynamics. The image sequence records the occurrence of land clearing in the early monitoring period, followed by site stabilisation and progressive vegetation recovery.

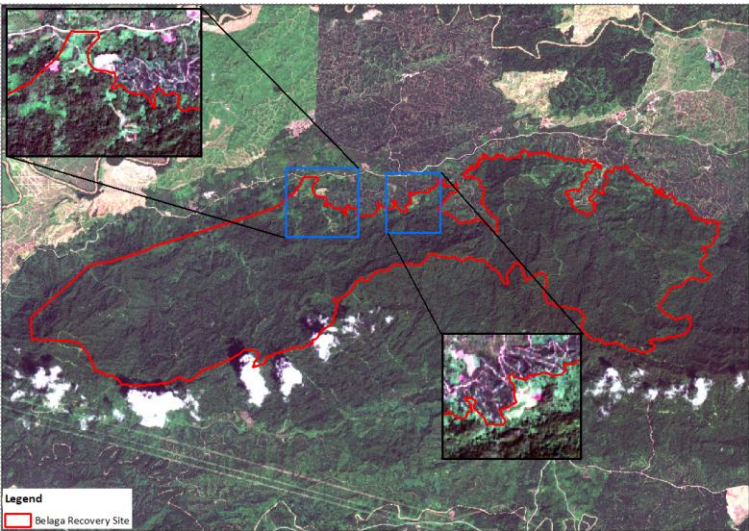
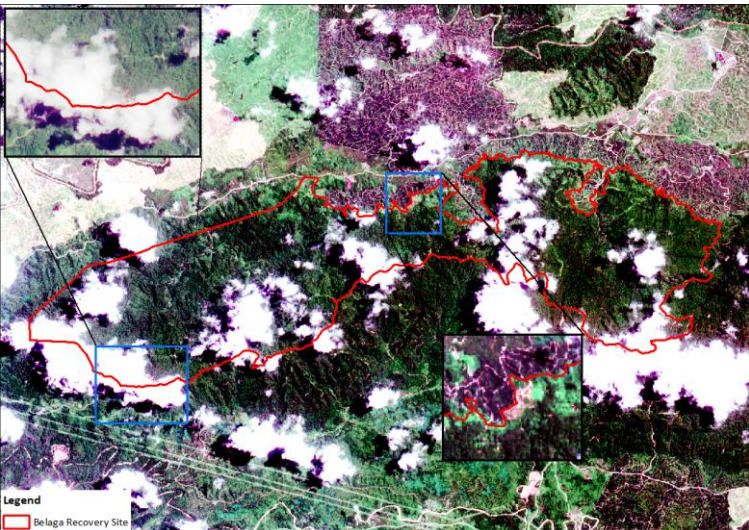
Table 3.1: Satellite Image Chronosequence of Year 2022 to 2025

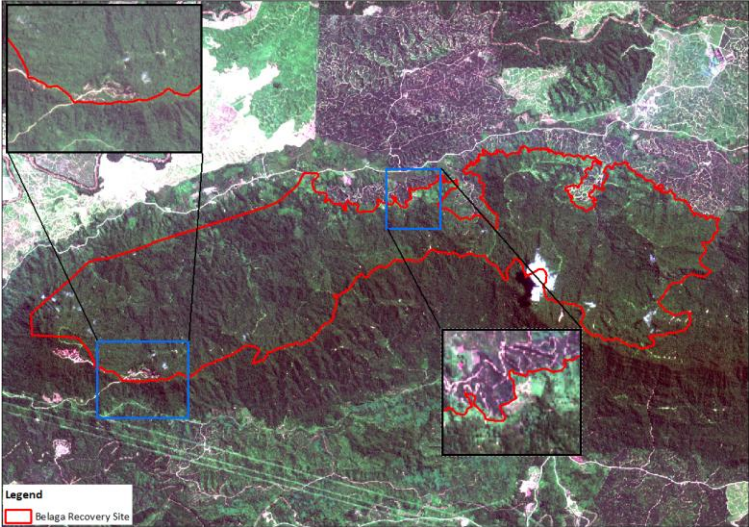
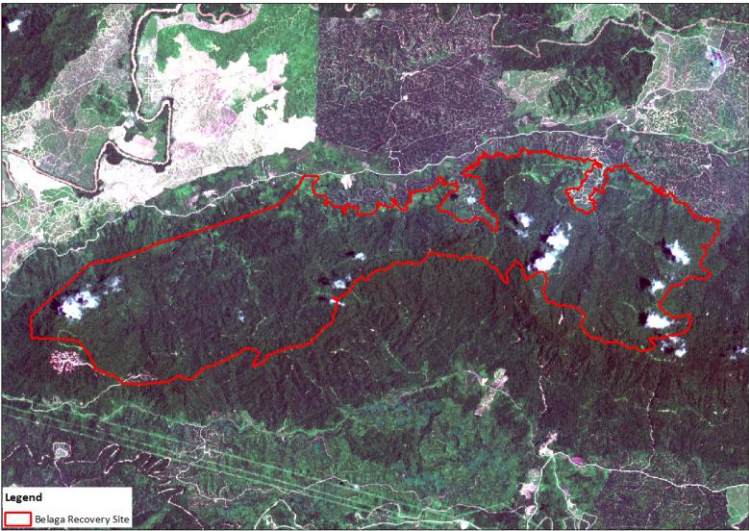
Chrono-Sequence	Description
<p>14th March 2022</p> 	<p>The satellite image dated 14th March 2022 shows the initial phase of land clearing occurring in the northern portion of the Belaga HCS Recovery Site. Visible changes include exposed soil and reduced vegetation cover, indicating recent clearing activities. This marks the earliest observable disturbance within the site boundary.</p>

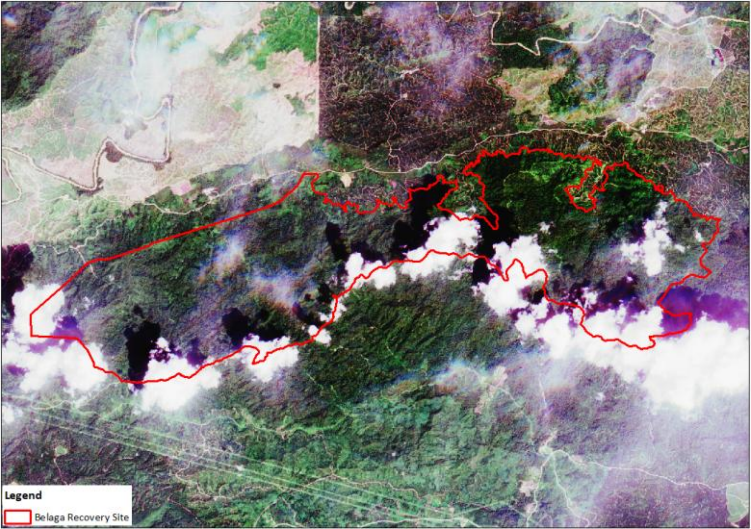
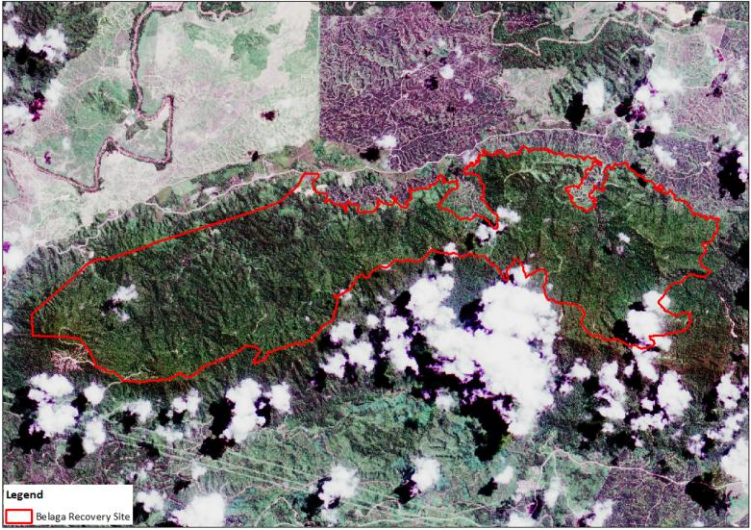
Chrono-Sequence	Description
<p>2nd July 2022</p> 	<p>By 2nd July 2022, the cleared area in the northern section appears more defined and expanded, with clearer boundaries between disturbed and undisturbed forest. Vegetation loss is more pronounced, indicating continued clearing or ground preparation activities during this period.</p>
<p>11th August 2022</p> 	<p>The August 2022 image indicates further consolidation of the cleared area, with minimal signs of regrowth. The disturbed land remains largely exposed, reflecting an ongoing land-use transition rather than temporary clearing.</p>

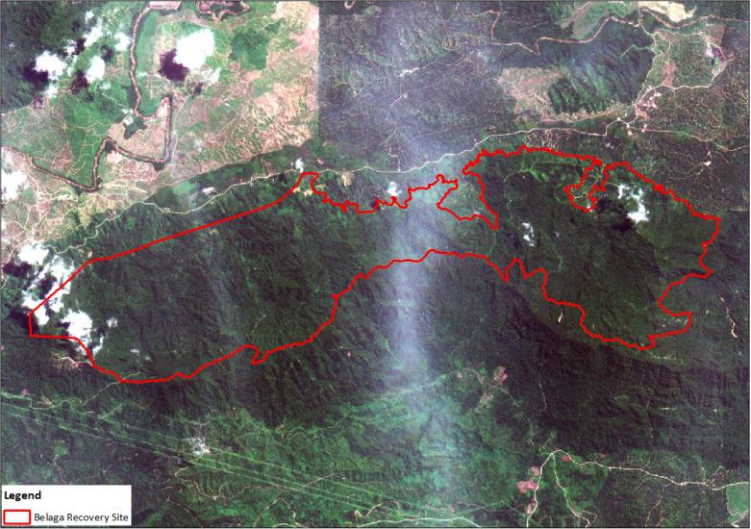
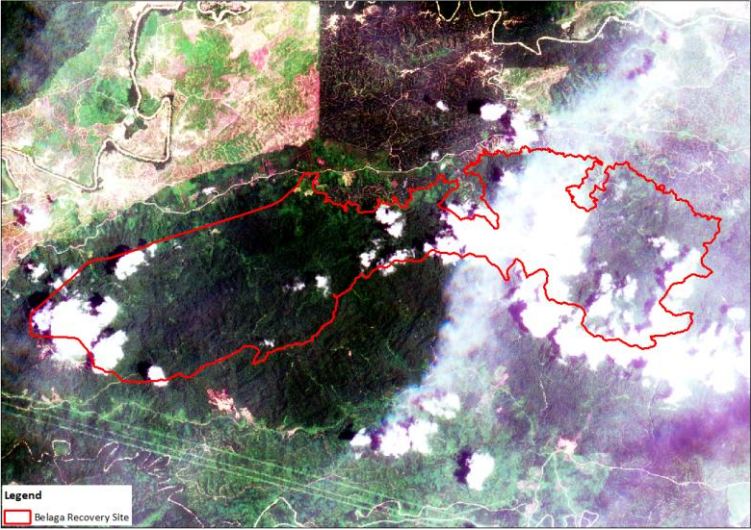
Chrono-Sequence	Description
<p data-bbox="651 240 846 268">10th October 2022</p> 	<p data-bbox="1234 240 1946 379">As of 10th October 2022, the cleared land remains visible, with more land being opened in the northern part of the Recovery Site. Surrounding forested areas remain intact, highlighting that clearing is localised rather than widespread.</p>
<p data-bbox="651 815 846 842">13th January 2023</p> 	<p data-bbox="1234 815 1946 954">On 13th January 2023, the site condition remains largely unchanged. The previously cleared northern section is still evident, with limited natural regeneration visible, suggesting that the area has not yet entered an active restoration phase.</p>

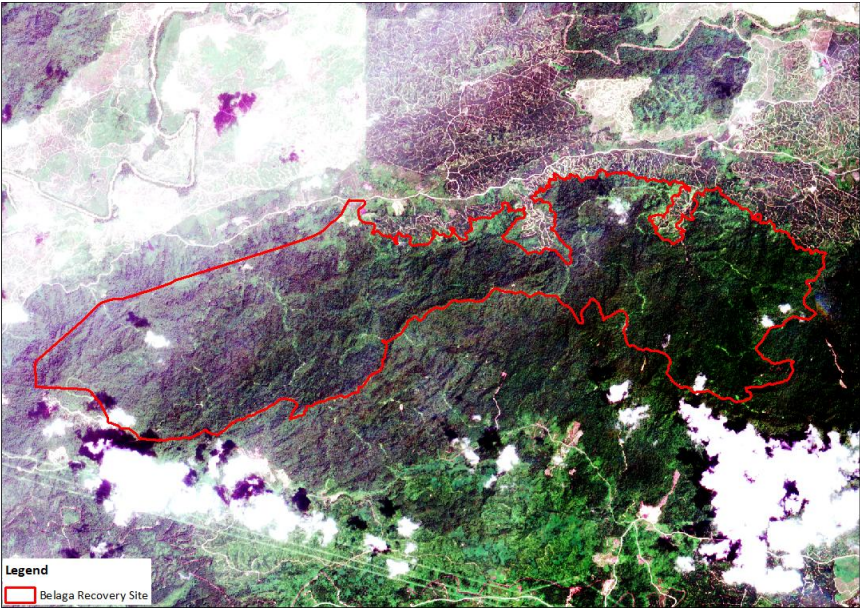
Chrono-Sequence	Description
<p data-bbox="658 240 837 268">29th March 2023</p> 	<p data-bbox="1234 240 1946 344">By 29th March 2023, early signs of vegetation regrowth can be observed along the edges of the cleared area. This indicates the beginning of natural regeneration within the site.</p>
<p data-bbox="674 815 822 842">17th July 2023</p> 	<p data-bbox="1234 815 1946 959">The 17th July 2023 image shows incremental vegetation recovery, particularly along previously exposed zones. The cleared footprint remains identifiable, but green cover appears to be gradually increasing.</p>

Chrono-Sequence	Description
<p data-bbox="638 240 862 268">29th November 2023</p> 	<p data-bbox="1232 240 1946 344">The 29th November 2023 image indicates continued stabilisation of the site, with increased vegetation density relative to earlier periods. No new land clearing is evident.</p>
<p data-bbox="667 815 833 842">27th April 2024</p> 	<p data-bbox="1232 815 1946 999">By April 2024, the site shows clear signs of recovery, with increased green cover and reduced exposed soil. The previously cleared northern section is becoming less distinct from the surrounding areas. The image also shows the initial phase of land clearing occurring in the Southwest portion of the Belaga Recovery Site.</p>

Chrono-Sequence	Description
<p data-bbox="674 240 824 268">26th July 2024</p> 	<p data-bbox="1234 240 1944 459">On 26th July 2024, vegetation cover continues to improve, with more uniform greenness across the site. The land clearing footprint remains visible but is increasingly subdued. However, the cleared area in the southwest section appears more extensive and clearly delineated. Vegetation clearance is more evident, suggesting ongoing land clearing during this period.</p>
<p data-bbox="636 815 862 842">24th September 2024</p> 	<p data-bbox="1234 815 1944 1034">The September 2024 image shows consistent vegetation recovery, with no evidence of new land clearing. The site appears stable and progressing towards secondary forest conditions. The southwest part indicates gradual vegetation regrowth, especially in areas that were previously exposed. While the cleared area is still visible, there is a noticeable increase in green cover over time.</p>

Chrono-Sequence	Description
<p>8th December 2024</p> 	<p>By December 2024, the recovered area demonstrates dense regrowth, significantly reducing contrast with adjacent forested zones. This reflects successful ecological recovery trends.</p>
<p>22nd May 2025</p> 	<p>The 22nd May 2025 image shows continued canopy development, indicating medium-term regeneration. The earlier cleared area is now largely integrated into the surrounding landscape.</p>

Chrono-Sequence	Description
<p>11th July 2025</p> 	<p>As of 11th July 2025, vegetation structure appears more established, with minimal bare patches remaining. The site shows a positive recovery trajectory consistent with restoration objectives.</p>
<p>4th October 2025</p> 	<p>The October 2025 image indicates stable, sustained vegetation cover, with no visible signs of recent land clearing.</p>

Chrono-Sequence	Description
<p data-bbox="645 240 853 268">8th November 2025</p>  <p data-bbox="322 836 472 884">Legend Belaga Recovery Site</p>	<p data-bbox="1234 240 1944 419">By 8th November 2025, the Belaga Recovery Site demonstrates a progress in regeneration, with the previously cleared northern and southwest area largely rehabilitated. The satellite imagery confirms the absence of further land clearing and highlights successful landscape recovery over time.</p>

4 2026 Activities

4.1 Remapping of Belaga HCS Recovery Site

A remapping of the Belaga HCS Recovery Site was undertaken due to the Belaga Estate's boundary consolidation. Belaga Estate, located to the north of the Recovery Site, has recently finalised its boundary consolidation for Malaysian Sustainable Palm Oil (MSPO) certification.

As a result of this exercise, the gaps and overlapping boundaries between Belaga Estate and the Belaga HCS Recovery Site have been closed. The total extent of the updated Recovery Site boundary is now 3,733.62 ha (See Map 4.1), 2.57 ha less than the original set aside. The difference is minimal and does not impact the compensation effort.

4.2 Establishing Corridor Activity

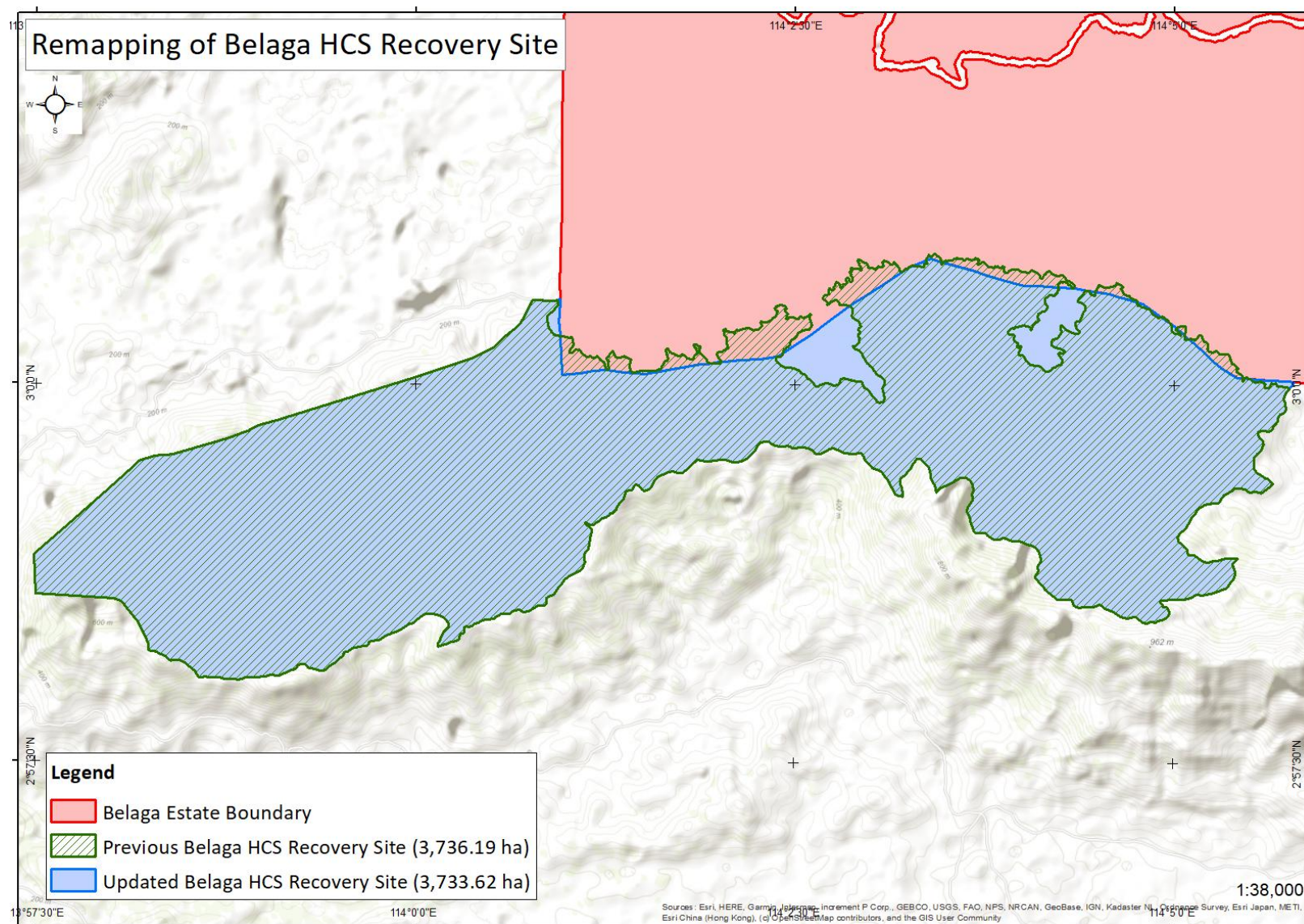
There are potential forest areas within Belaga Estate that can be linked to the Recovery Site. This can increase the conservation potential by the creation of the corridor, and increasing the conservation value of both sites (Refer to Map 4.2). Currently, a field HCV assessment is being undertaken at Belaga Estate by Malaysian Environmental Consultants (MEC). Once the HCV is finalised, the corridor will be established and will be included in the Management Plan.

4.3 Management Plan

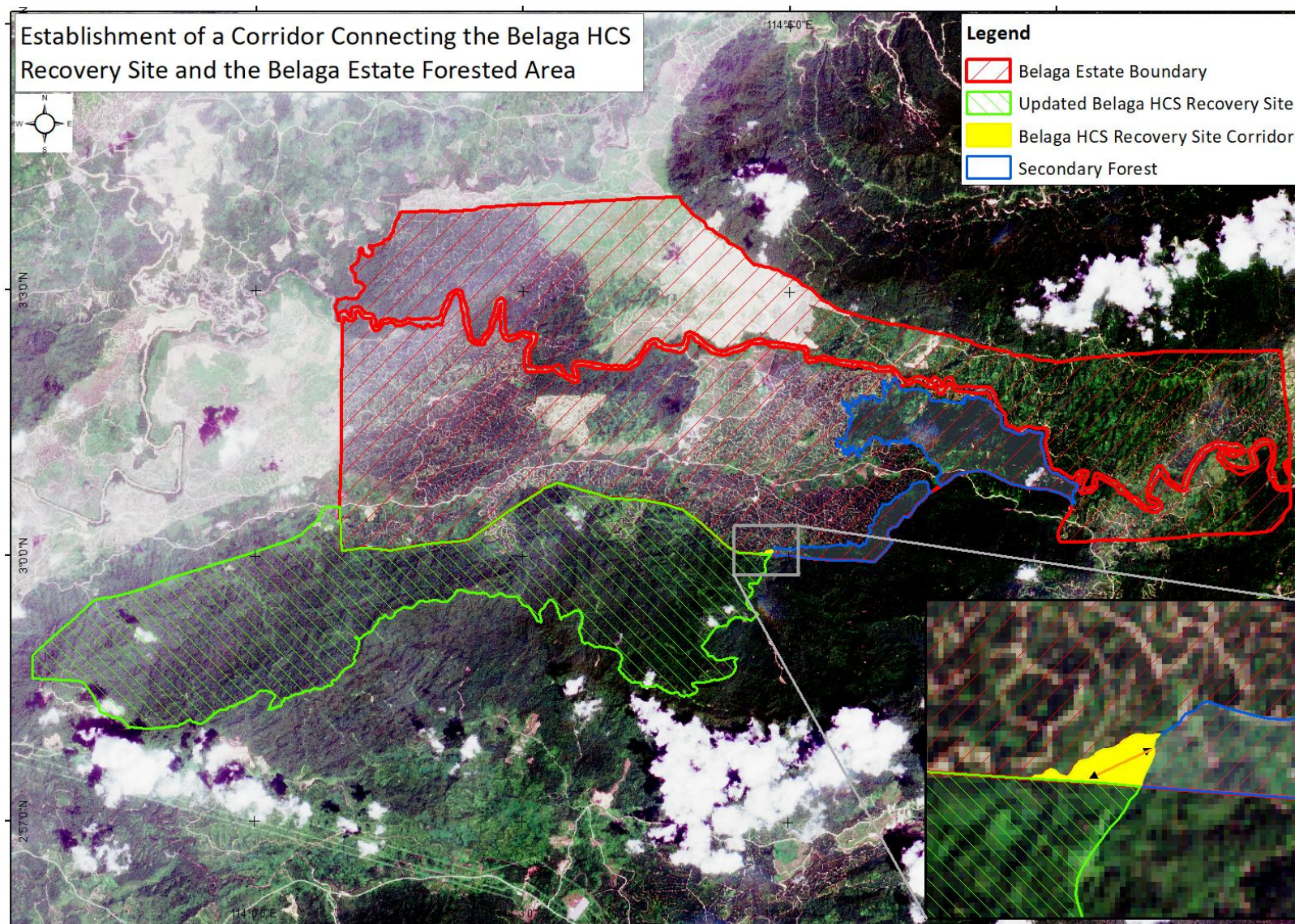
Interim management has been in place for the past 4 years. A precautionary approach has been taken to establish the site and gain recognition as an important conservation area. Biological surveys have been undertaken twice, and interaction with the local community and other relevant stakeholders has been initiated and is currently ongoing.

GPSB's commitment is such that a 5-year management plan needs to be developed beginning January 2026. The planning will involve all stakeholders through a series of consultative workshops, and the best approach will be formulated. This will allow GPSB to successfully manage and monitor the site and enhance its conservation capacity.

The plan is designed to be an integrated plan, taking into consideration core conservation, education and research, rehabilitation, tourism and economic productivity for the local community. The components of the action plan are shown in Figure 4.1.



Map 4.1: Remapping of Belaga HCS Recovery Site



Map 4.2: Establishment of Corridor between Belaga HCS Recovery Site and Belaga Estate



Figure 4.1: List of action plans for Belaga HCS Recovery Site's Management Plan