

ULU SEGAMA-MALUA SUSTAINABLE FOREST MANAGEMENT PROJECT

The 2019 is the third-year implementation of the Ulu Segama-Malua Forest Management Project (USM) under the second Forest Management Plan (2nd FMP) guideline which provide update of the project description, and activities framework for the period of ten years (2018-2027). The USM administer eleven (11) contiguous protected forest reserves that cover an area about 242,884 hectares namely Sapagaya FR, Ulu Segama FR, Sungai Taliwas FR, Mount Louisa FR, Extension Danum Valley FR, Bukit Piton FR, Malua FR, Extension Mount Louisa FR, VJR Kawag Gibong, VJR Sepagaya and VJR Merisuli (Figure 1). The USM received its first Well Managed Forest Certification from the Forest Stewardship Council (FSC) in June 2011, and subsequently, was re-certified in June 2016 under the registration number SCS-FM/COC-00141N with an agreement of no commercial harvesting of timber until the 12th June 2021 and capitalizing the non-timber ecosystem services provided by the project area is encouraged.

The main objectives of the project are to ensure the maintenance and enhancement of the key ecosystem functions (conserve and rehabilitate wildlife habitats i.e. orangutan, pygmy elephants, tembadau, clouded leopard etc.), and to safeguard the environment quality, particularly soil and water resources.

Several intervention activities were carried out in 2019 to be highlighted in this report i.e. forest rehabilitation, wildlife monitoring, resource protection, forest road, community forestry and forest certification. The implementation of the mentioned activities was based on the approved Annual Work Plan (AWP) 2019 and mostly funded under the Sabah State Development Fund (D11) 11th Malaysian Plan (RMK11) amounting about RM3.2 million. Some rehabilitation activities were supported under the Heart of Borneo federal fund, Forestry Community Project (PPM) fund, WWF Malaysia, Yayasan Sabah and Malaysia Palm oil Council (MPOC). This report will also cover briefly on other stakeholder programs i.e. INFAPRO, Taliwas Forestry and Recreation Area, and Tropical Rainforest Living Collection.

1.0 Forest Rehabilitation

The forest rehabilitation cover two main activities i.e. silviculture treatment and tree planting. Silviculture treatment had covered about 4,963 hectares in 2019 at the Malua Forest Reserve (1,190 hectares) and Bukit Piton Forest Reserve (3,773 hectares) which was funded under the 11th Malaysian Plan Federal Fund (3,600 hectares), Forestry Community Project (148 hectares) and WWF-Malaysia (25 hectares) as shown in Figure 2. The silviculture treatment target on climbers with diameter less than 5 cm which give more harm on the natural forest regeneration and structure. No treatment was done on climbers and woody vines exceeding 5 cm diameter. This because few species of birds and other wildlife including orangutan depends on climbers for their diet. During non-fruiting season, orangutan will turn to feed mostly on young leaves and climbers as fall-back food, thus a careful selection of climber removal during silviculture treatment activities is required by leaving out some important climber food for orangutan.

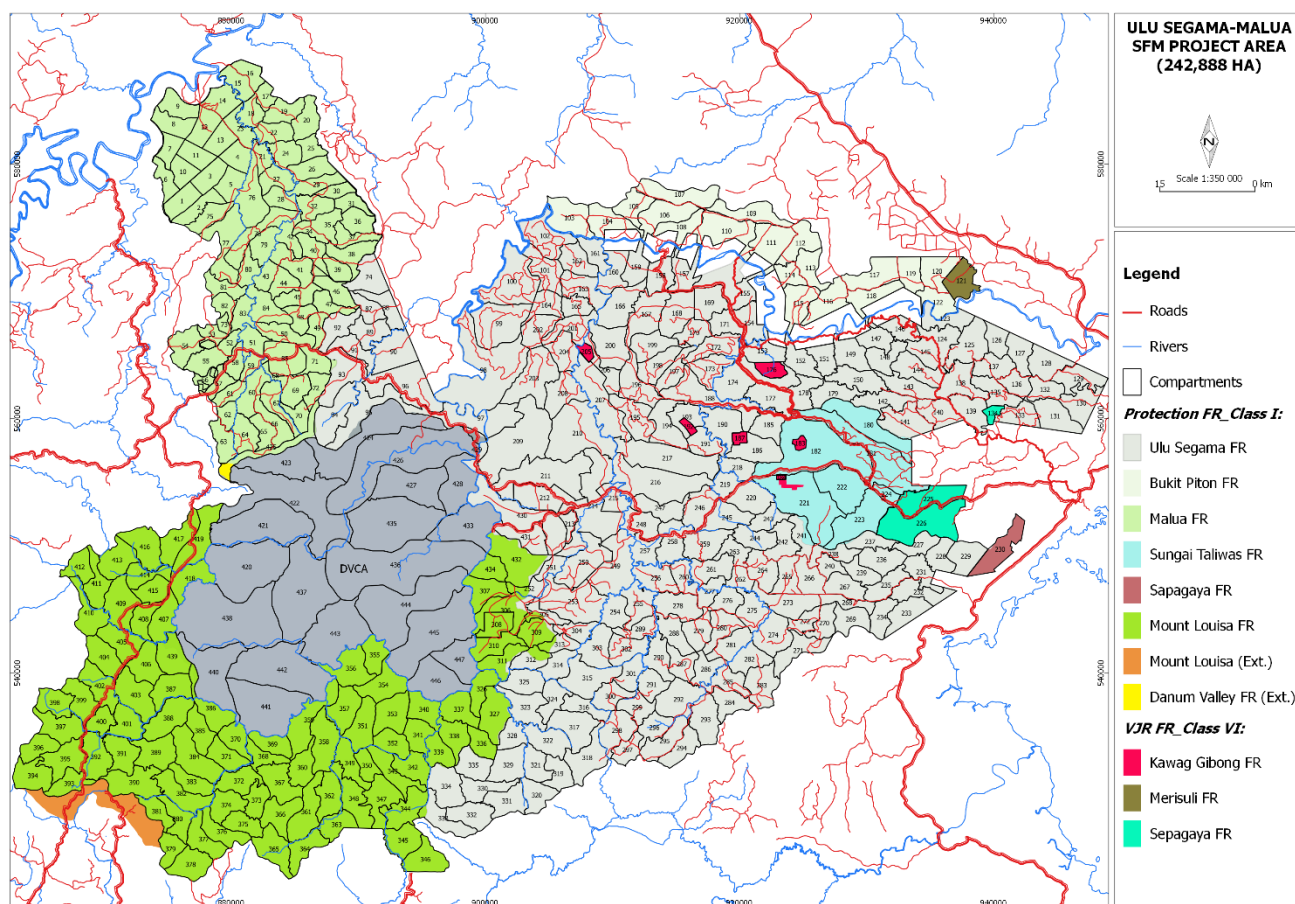


Figure 1: Forest Reserves within USM

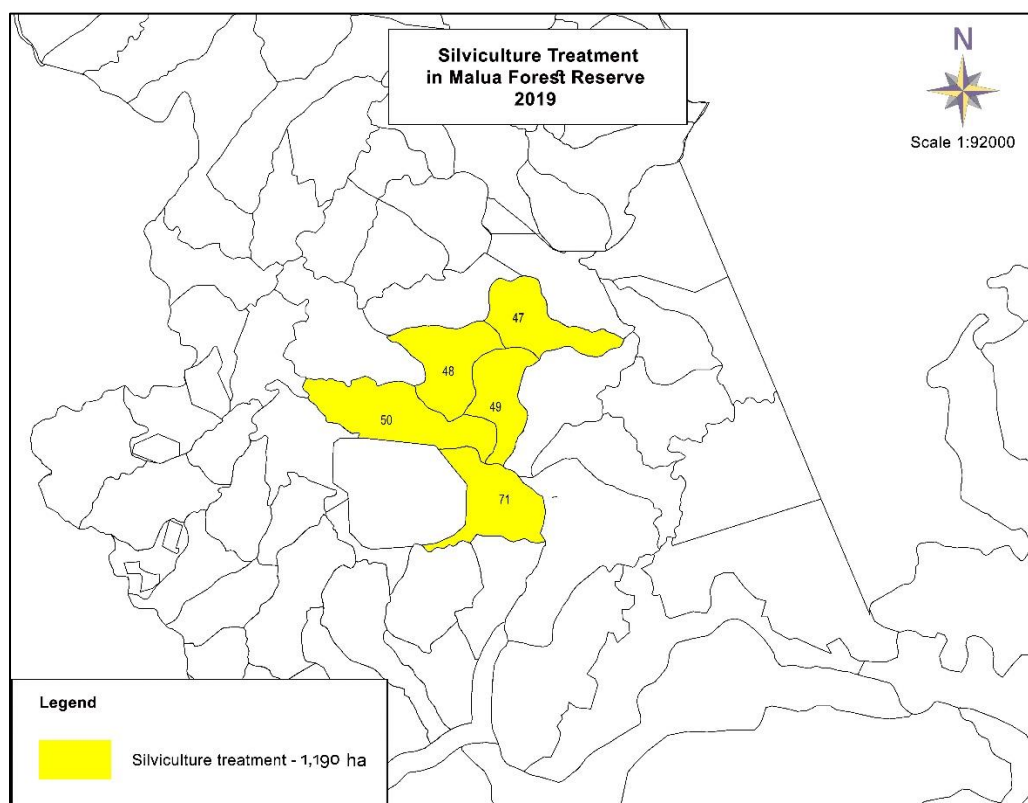


Figure 2a: Silviculture treatment at the Malua FR funded under the RMKe11 (Federal)

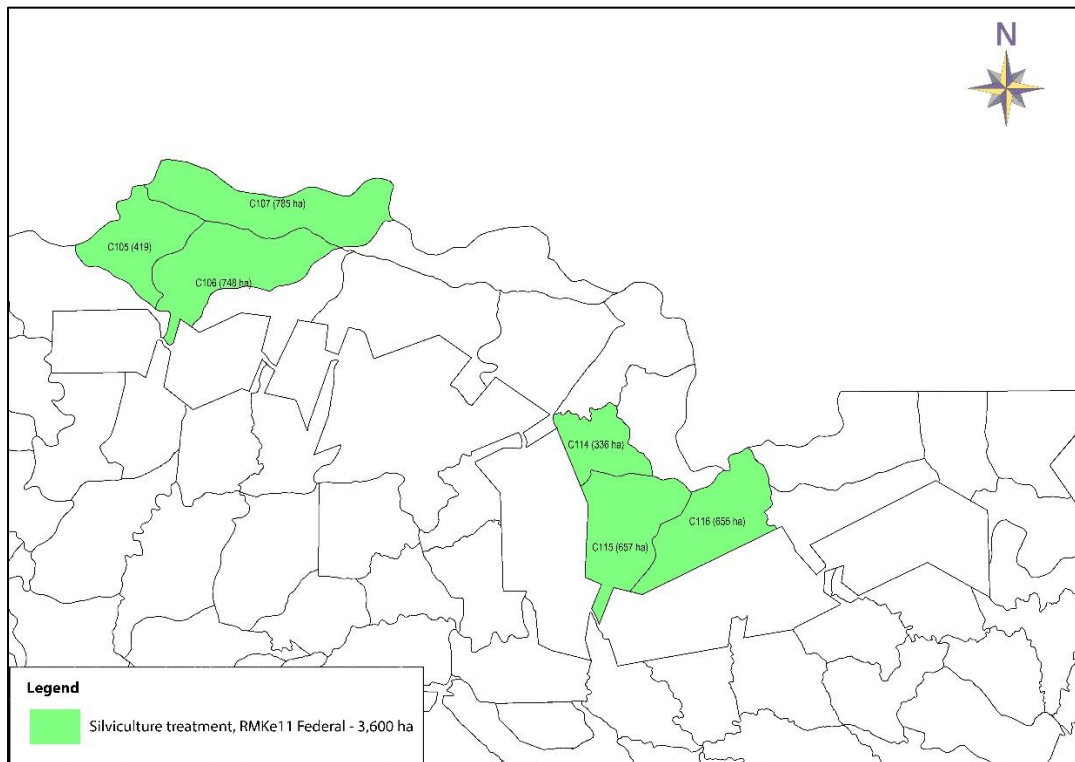


Figure 2b: Silviculture treatment at the Bukit Piton FR funded under the RMKe11 (Federal)

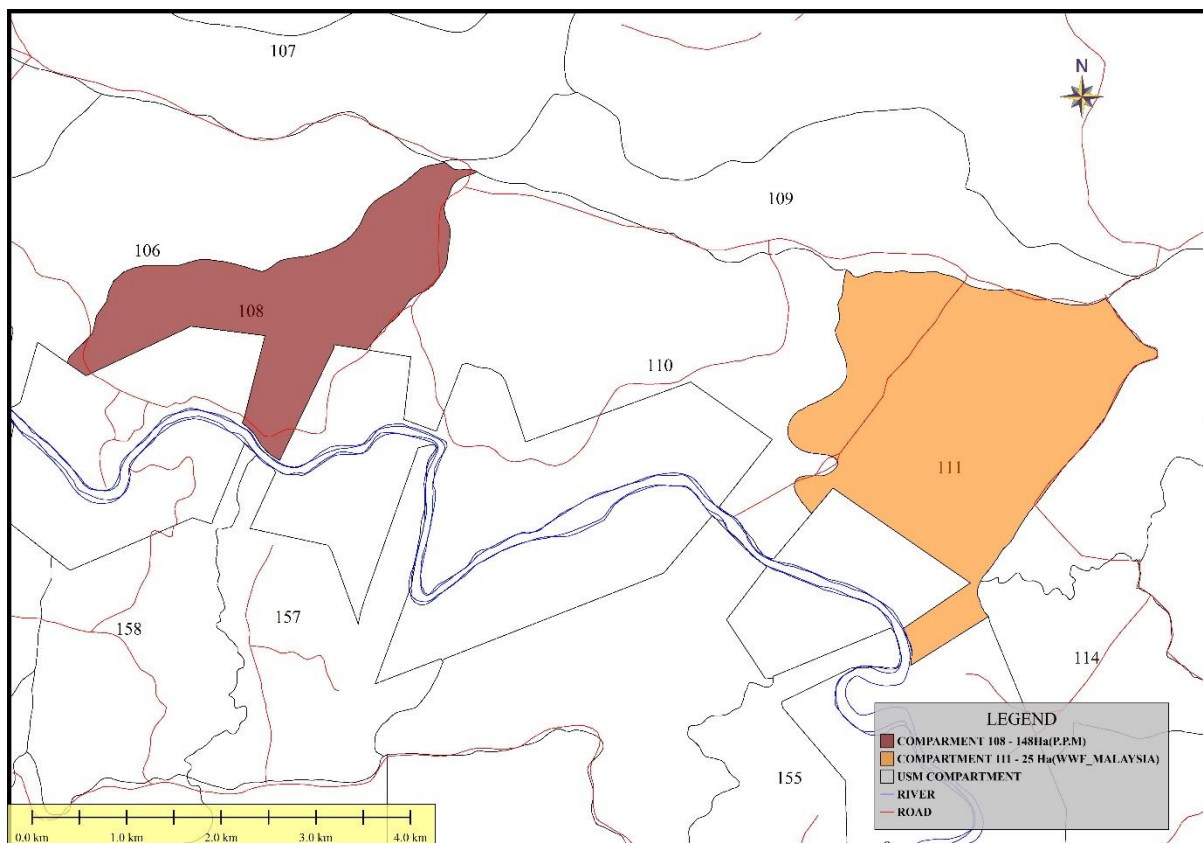


Figure 2b: Silviculture treatment at the Bukit Piton FR funded under the PPM (Cpt.108) and WWF-Malaysia (Cpt.111)



Silviculture treatment at Bukit Piton FR (Cpt.114) under the RMKe11 Federal Fund



Silviculture treatment at Bukit Piton (Cpt.108) funded under the Forestry Community Project



Climber cutting done by appointed contractor at the Malua FR (Cpt.50)

Tree planting on the other hand, now focused intervention at the degraded forest in Lower Kawag, Ulu Segama Forest Reserve. The activities were supported and funded under the Heart of Borneo (HoB) RMKe11 Federal Fund, and new engagement funder from Malaysian Palm Oil Council (MPOC) via Ministry of Primary Industries (MPI) initiative to rehabilitate degraded orangutan habitat at the Lower Kawag. The MPI initiative is also coincide with ‘Sayangi Sawitku’ campaign which was established in early 2019 as part of the efforts to counter negative perspective of oil palm industries in Malaysia by the European countries on the wildlife habitat loss issue. In 2019, a total about 163 hectares were successfully planted in Lower Kawag, whereby 150 hectares was planted by appointed contractor and 13 hectares by local communities funded under the HoB and MPOC respectively (Figure 3).

Maintenance works which is crucial part in tree planting were being carried out at certain planted area to ensure survival of planted seedlings from creepers and shrubs. The activity includes line and point clearance, and resupply of dead seedlings. A total about 1,319 hectares were maintained in several compartments in Bukit Piton Forest Reserve i.e. Compartments 111 (WWF-Malaysia), Compartment 106 and 108 (Yayasan Sabah), and newly planted in Lower Kawag, Ulu Segama Forest Reserve i.e. Compartment 156 and 155 (HoB).

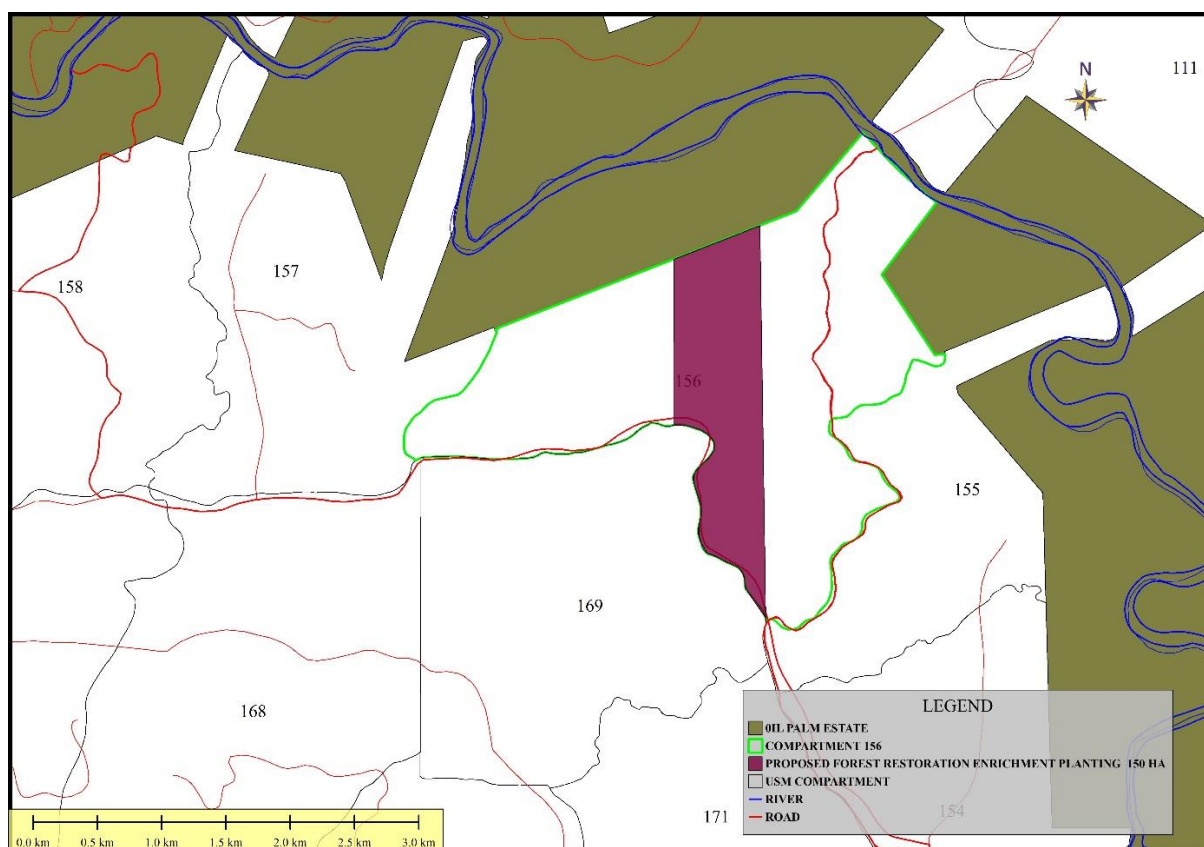


Figure 3a: Tree planting at Compartment 156, Lower Kawag funded under the Heart of Borneo (HoB) RMKe11 Federal Fund

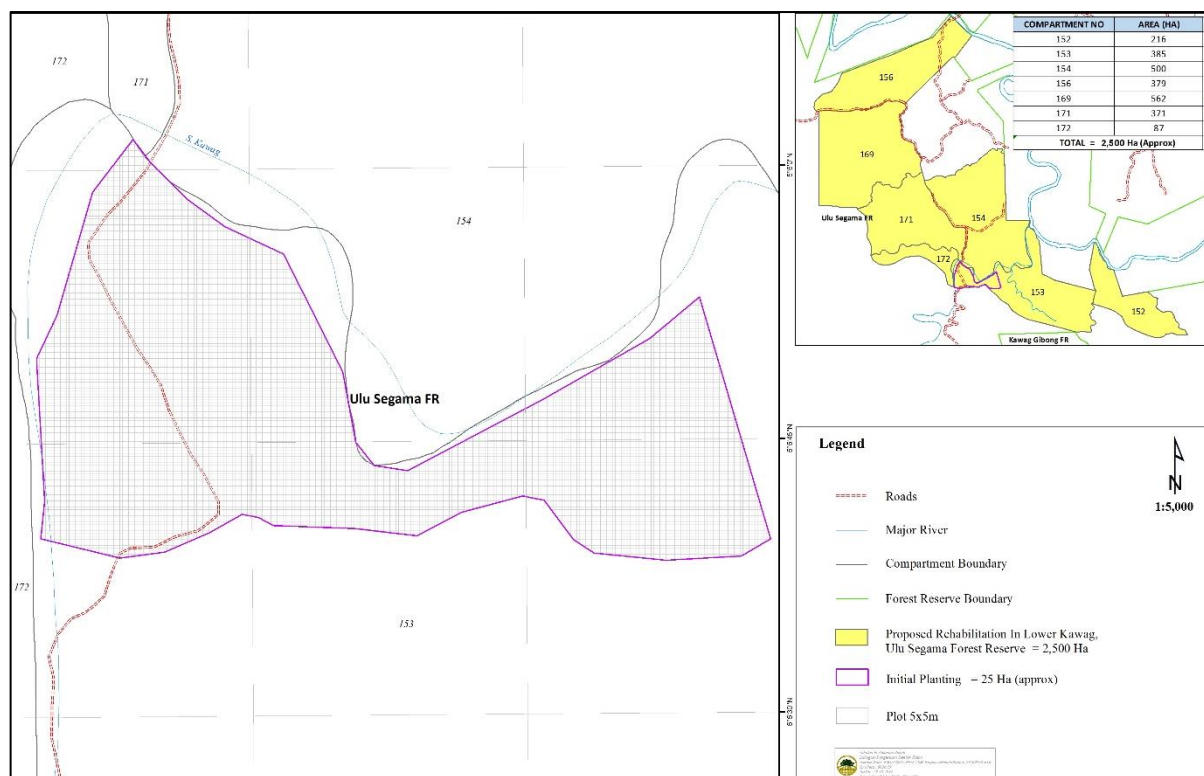


Figure 3b: Tree planting at Compartment 153, Lower Kawag funded under the MPOC



Planted seedlings at the Compartment 156, Lower Kawag. (Left) seraya, and (right) kapur.



Planting inspection at the Compartment 155, Lower Kawag funded under the Heart of Borneo (HoB) RMKe11 Federal Fund



Planted seedlings at the Compartment 153, Lower Kawag funded by the Malaysian Palm Oil Council (MPOC)



Planting line at the Compartment 153, Lower Kawag (Left); Pulau (middle); and Telisai (Right)



(Top) Planting inspection by the MPOC and MPI officials; and (Bottom) Site visit from the Project Steering Committee in November 2019

2.0 Wildlife Monitoring Activities

USM is home to the iconic orangutans (the Bornean endemic *Pongo pygmaeus morio*) and this is where the largest population of orangutans is found. They number some 5,000 individuals (Ancrenaz et al, 2005), which accounts to about half of the total orangutan population in Sabah. The USM constitute part of the largest remaining Malaysian unfragmented forests which play a major role in harbouring what may be the highest numbers of large Bornean mammals at present. This area is an important refuge for key wildlife species such as orangutan, Bornean pygmy elephant, clouded leopard, tembadau and rhinoceros. They are the emblems of the forest ecosystems and provide indirect indicative protection to other wildlife species.

The wildlife monitoring activities were carried out at two types of habitat, namely less disturbed forest at the Malua Forest Reserve and heavily disturbed forest at the Bukit Piton Forest Reserve (Figure 4). Both areas recorded sighting of rare, threatened and endangered (RTE) species under the Malaysian National Interpretation which is fall under HCV 1 (Species Diversity). Amongst activities that were carried out i.e. ground orangutan nest census, opportunistic sightings, night and morning drive, and bird survey.

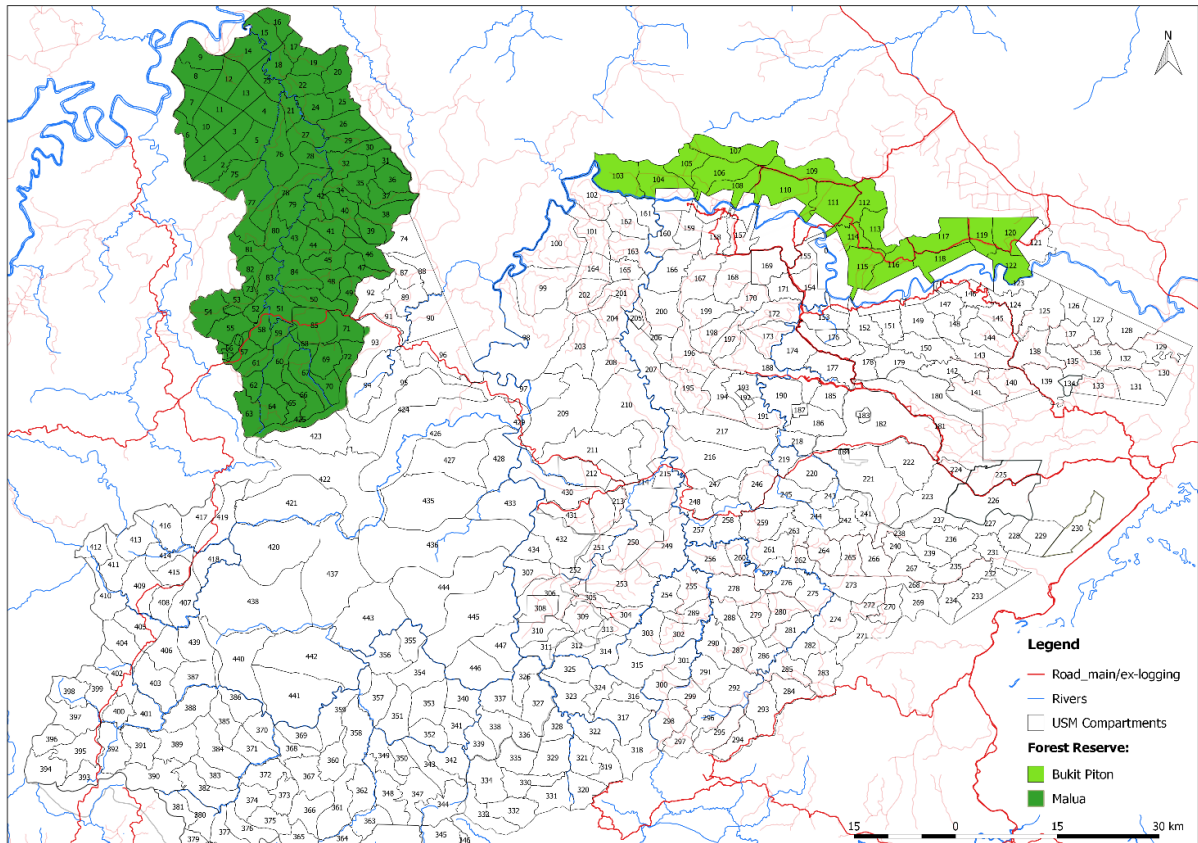


Figure 4: Wildlife monitoring activities

Orangutan Nest Census

Census findings in 2019 recorded that the Bornean Orangutan (*Pongo pygmaeus morio*) densities ranges between 1.15 – 4.50 individual/km² in Malua Forest Reserve, and 3.49 individual/km² in Bukit Piton Forest Reserve (Figure 5 and Figure 6). The orangutan nest abundantly detected at the medium size trees and lower crowns of dominant trees i.e. pioneers species (*Neolamarckia cadamba*, *Pterospermum spp.*). Data shows higher densities in less disturb forest in Malua Forest Reserve compare to heavily disturbed forest at the Bukit Piton Forest Reserve. However, ground census in Bukit Piton Forest Reserve shows an increment number of nests since 2017. The results indicated population of orangutan is slowly grew as most planted trees began to mature and provide suitable canopy for orangutan nest and foods.

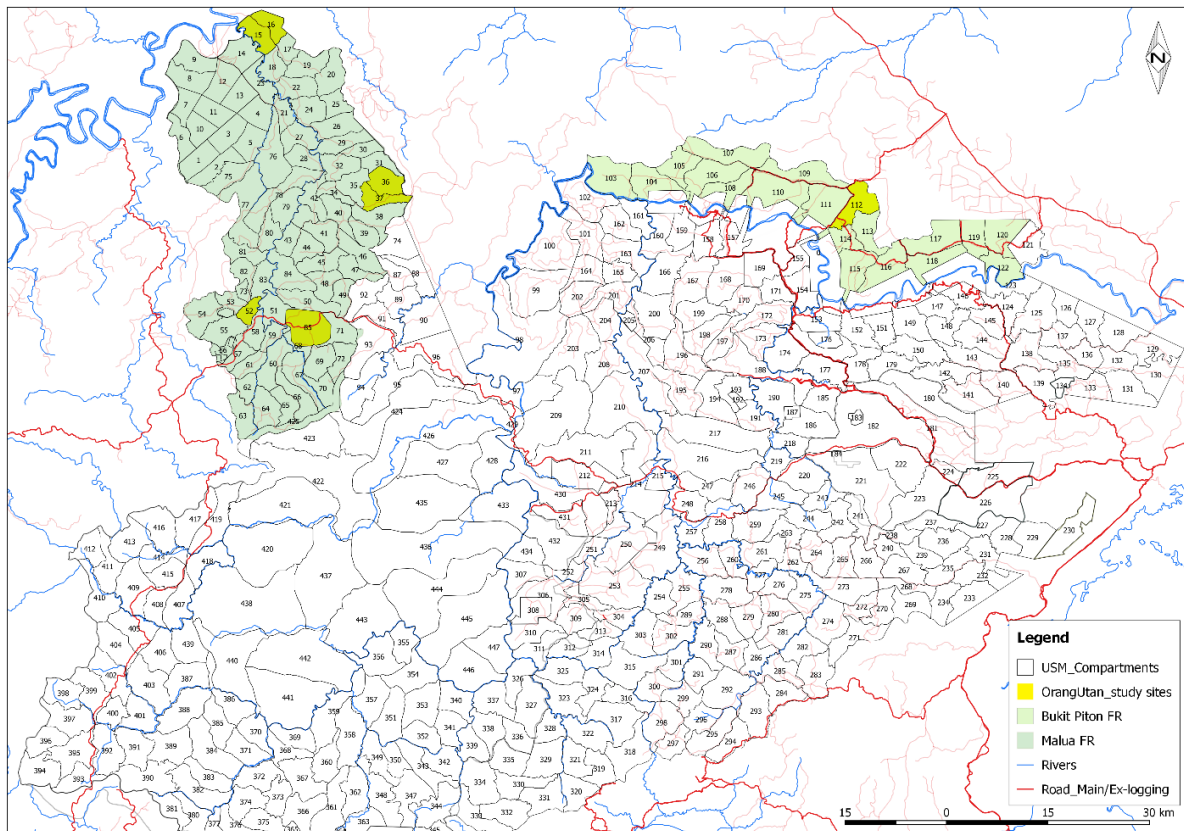


Figure 5: Locations of 5 orangutan nest census in Malua FR and Bukit Piton FR

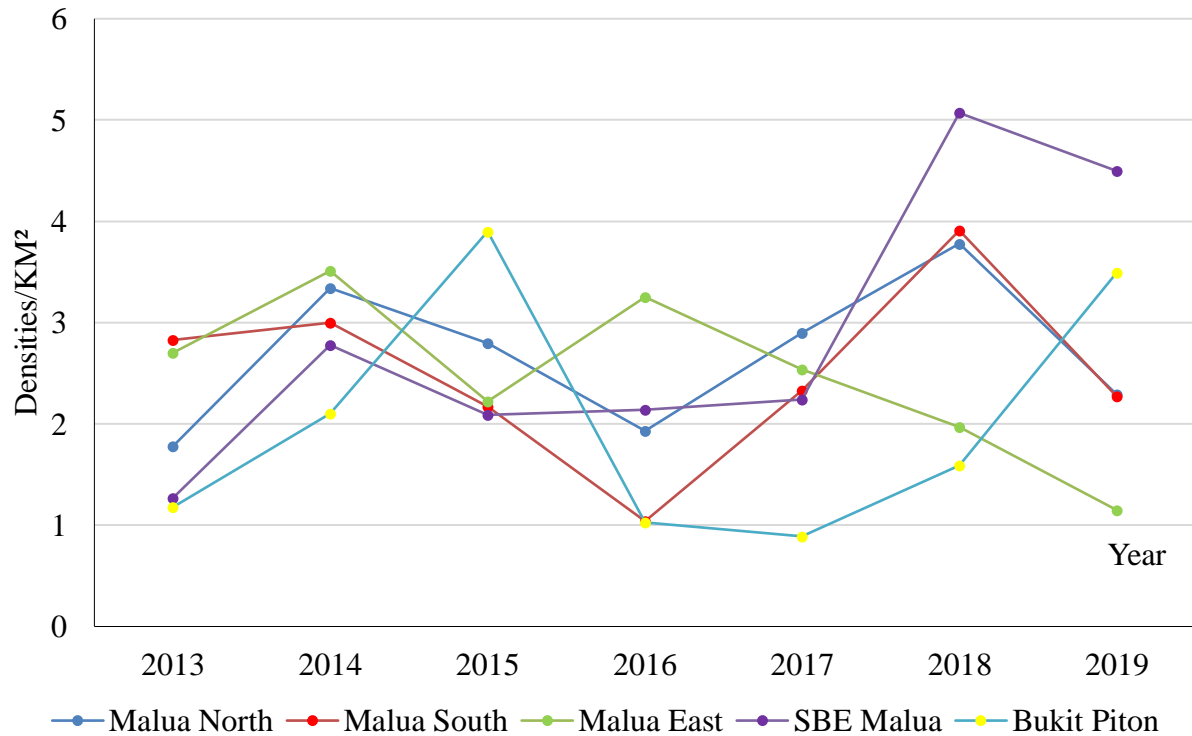


Figure 6: Graph of annual orangutan densities in five different study sites within Malua FR and Bukit Piton FR



Orangutan grounds census in Malua FR



Bornean orangutan in Bukit Piton FR

Opportunistic Wildlife Sightings (Adhoc)

At least five large terrestrial mammals were frequently sighted in 2019 and classified as threatened under IUCN red list criteria such as Bornean Orangutan, North Bornean gibbon, Bornean sun bear, Sunda pangolin and Sambar deer (Figure 7). Sambar deer is the most common and frequently sighted at 0.12-0.57 sighting/day, follow by Bearded pig (0.07-0.29 sighting/day), Bornean Orangutan (0.13-0.29 sighting/day) and Bornean pygmy elephant (0.12-0.28 sighting/day). In addition, some large bird species were sighted i.e. four (4) hornbill species (Helmeted, Asian black, Rhinoceros and Bushy crested) and one storm's stork. Both, Helmeted hornbill and Storm's stork known as threatened species under IUCN red list criteria.

As of to date, 58 species of large terrestrial mammals with 24 families were recorded within USM area since the previous FMP. Eight (8) species are classified as totally protected based on the Wildlife Conservation Enactment 1997 i.e. *Bos javanicus*, *Helarctos malayanus*, *Nasalis larvatus*, *Neofelis nebulosa*, *Pongo pygmaeus mario*, *Dicerorhinus sumatrensis*, *Elephas maximus* and *Sunda pangolin*, and more than 40 species classified under schedule II (protected species-limited hunting with license) and eight (8) species recorded under schedule III (protected species hunting with license).

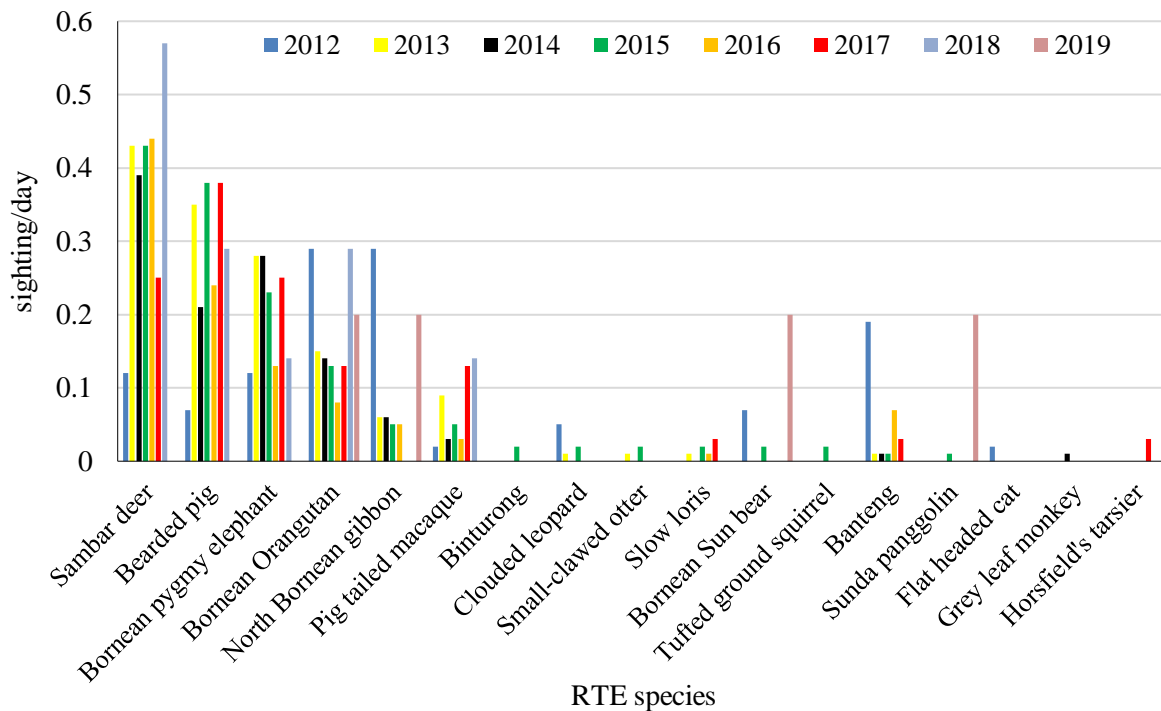


Figure 7: Annual sightings of RTE wildlife within USM

Night and Morning Survey

The survey in 2019 recorded low detection of threatened wildlife species ranging between 0.002-0.019 sighting/day/km for night drive, and 0.006-0.042 sighting/day/km for morning drive. The morning drive recorded Sambar deer, Bearded pig and North Borneo gibbon frequently sighted within Malua Forest Reserve, while Bornean orangutan frequently sighted within Bukit Piton Forest Reserve. The night drive indicates a different result whereby Bornean pygmy elephant, sambar deer and Slow loris were frequently sighted in Malua and Bukit Piton Forest Reserves.

Bird Survey

No additional of new bird species surveyed in 2019. Record for both areas maintain at 177 bird species whereby 6.21% or 11 of bird species were classified as threatened under the IUCN red list i.e. Helmeted hornbill, Storm's stork, Black crowned pitta, Blue headed pitta, Bornean wren babbler, Scaly-breasted Partridge, Great slaty woodpecker, Large billed blue flycatcher, Large green pigeon, Short toed coucal and Wallace's hawk eagle. Whereas, 93.79% or 166 of bird species classified as low risk.

3.0 Forest Protection

USM is a huge complex area and almost half of its boundaries (mainly on the eastern parts) are bordering with private lands. However, USM is well protected in the west where it shares a common boundary with other forest reserves i.e. Kuamut FR, Gunung Rara FR, Mt. Magdalena FR and Kalabakan FR. Nevertheless, the project area is very accessible with so many existing roads which poses poaching threat to USM. Therefore, forest protection is crucial activities to prevent illegal activities such as illegal felling, illegal cultivation, illegal occupation, forest fire and poaching. Thus far, patrolling activities are the effective way to monitor and detect especially poaching issues via ground patrol, river patrol and aerial surveillance.

A total of about 100 days of ground patrolling (day and night) were carried out throughout 2019 which include boundary checking at the border of oil palm plantations. The efforts were also jointly collaborated Sabah Wildlife Department, Yayasan Sabah Group and WWF(Malaysia) through Anti-Poaching Lahad Datu Task Force. A special force i.e. PROTECT team which is engagement from many districts were deployed under the K(SPP) based on severity of case. A total of 9 poaching signs (spotted nonregistered vehicles via direct sighting and/or camera trapping mostly at Sg Taliwas FR and Lower Kawag) were detected in 1st and 3rd quarters.

Aerial surveillance was also conducted twice in first and third quarters of the year. From the aerial observation, a tree clearing was suspiciously spotted near forest boundary at the Compartment 363, Mt. Louisa Forest Reserve in April 2019. Ground inspection was carried out by USM Patrolling Unit and reported the findings to FRM for further verification and Investigation. Two (2) possibly entry points for motorbike were spotted at the Compartment 395 (Mt Louisa Forest Reserve) and Compartment 271 (Ulu Segama Forest Reserve). Patrolling Unit was deployed on site for ground inspection and destroyed the illegal entries.

River surveillance was carried out mainly at two major rivers i.e. Segama-Bole and Malua, as these were identified as entry hotspot and frequently used by poachers. A total distance of about 284 km and 240 km were covered throughout the year at Segama-Bole River and Malua River respectively. The surveillance observations show no detection of illegal activities or poachers.



Joint night surveillance with WWF-Malaysia and DaMaI



Regular night surveillance by Kawag Patrolling Unit



Boundary inspection and installation of Forest Reserve signboard at Bukit Piton



Destroying poachers' illegal entry at Compartment 271



(Left) New gate was installed at KM4.5, Compartment 182; and (Right) upgrading of the existing gate at the Forest Checking Station 225

4.0 Forest Roads

Maintenance of forest main roads is very essential to ensure activities such as forest rehabilitation, wildlife monitoring and patrolling can be implemented and achieved as stipulated according to Annual Work Plan (AWP). Forest road is also served to accommodate access and safety for stakeholders to carry out various field operations i.e. INFAPRO, Danum Valley Conservation Area, Borneo Rainforest Lodge, Taliwas Forestry and Recreation Area, Kawag Danum Riverside Lodge, Tropical Rainforest Conservation and Research Centre, WWF rehabilitation project, and Sabah Biodiversity Experiment. There are four forest main roads in USM that are still being maintained by the Sabah Forestry Department and Yayasan Sabah. The department had maintained with aggregate road distances about 20 km in Bukit Piton FR from compartment 121 to compartment 112, about 17 km at main Line North from Taliwas to Kawag Complex, and partly in Malua FR which cover about 15 km. Whereas, Yayasan Sabah had maintained with aggregate road distances about 163 km in main Line West from Silam up to Borneo Rainforest Lodge. All road maintenances were monitored and implemented in accordance to Environmental Impact Assessment (EIA) requirements i.e. no maintenance works carry out during wet season, and no loose soils dump towards river banks.



Road maintenance at the Malua Forest Reserve executed by SFD

5.0 Community Forestry

There is no community residing within USM area. However, there are several villages located adjacent to the project area i.e. Kg. Opak, Kg. Tawayari, Kg. Bukit Balacon and Kg. Litok Pulau of Segama Zone, and Kg. Tampenau, Kg. Lamak, Kg. Bumiputera, Kg Dewata and Kg. Batu 21 of Silam Zone. In 2019, Segama and Silam community were given series of consultations and trainings to establish seedlings nursery. The consultancy efforts purposely to give awareness on USM conservation and protection efforts. The Segama and Silam community were also given the opportunity to get involve in the forest rehabilitation project at the Lower Kawag which was funded by the Malaysia Palm Oil Council (MPOC) through the Ministry of Primary Industries (MPI) initiative at that time. Stages of training was carried out for Segama and Silam community to establish nursery and raise seedlings on their backyards.

There is no specific basic need required by communities residing directly outside of project area, except for Kg. Bumiputera and Kg. Silam depend on water derived from Mt. Silam catchments. An old burial site in Tampadung Cave within the VJR Merisuli was claimed by the communities of Kg. Opak, Segama and has been identified as HCV 6 (cultural value). Occasionally the communities seek permission from the management team to visit and clean the burial site. Due to this cultural claim, the management team establish boundary surrounding the burial area and periodically carried out maintenance of the boundary to protect and monitor the important community cultural site.



Consultation with Segama community



(Top left) Nursery training for Segama and Silam Community at TRCRC; (top right) Establishment of nursery at Kg Tempenau, Silam; (below) Training on seedling collection and wildling at Taliwas Recreation Centre

6.0 Forest Certification

USM received its first Well Managed Forest Certification from Forest Stewardship Council (FSC) in June 2011, and subsequently, was re-certified in June 2016 under the registration number SCS-FM/COC-00141N with an agreement of no commercial harvesting of timber until the 12th June 2021 and capitalizing the non-timber ecosystem services provided by the project area is encouraged. The certification areas are annually monitored and evaluated by the third-party auditor, Scientific Certification Systems (SCS) Global to ensure management of the ongoing projects comply with requirements and standards of the FSC. In 2019, the third surveillance of the second FSC certification cycle in USM was carried out in October. The department had successfully closed all five Minors of Corrective Action Requests (CARs) that were raised in 2018. However, five new minors and one observation of CARs had been raised for rectification before the next surveillance audit in 2020.



Inspection of Forest Checking Station Haranky (Left) and Bukit Piton FR boundary to estate (Right) by Dr Yap, SCS Global



Inspection at Tropical Rainforest Conservation and Research Centre (TRCRC) site in VJR Merisuli



Taking opportunity to meet up with community of Kg. Bukit Belacon, Segama Zone



Meetings with staff at Forest Checking Station 96 and Sabah Biodiversity Experiment in Malua Forest Reserve



Boundary inspection at the northern part Ulu Segama Forest Reserve



Meetings with community of Silam Zone



Boundary inspection at the southern part of Ulu Segama Forest Reserve

7.0 Other Programs

Several other programs that are still being carried out by stakeholders such as INFAPRO, Taliwas Forestry and Recreation Area (TFRA), and Tropical Rainforest Living Collection (TRLIC) in VJR Merisuli. The INFAPRO is the largest project on offsetting CO₂ in Ulu Segama Forest Reserve and the tropics, which was initiated since 1992 by the Yayasan Sabah Group and Face the Future Foundation. Not much work was done in 2019 except for road maintenance in Contract 1, 2, 4 and 9. The Yayasan Sabah Group also managed the TFRA since 1992 and had hosted quite a number of recreational activities for local and international students. Aside from hosting recreational activities, TFRA had carried out series of maintenance and upgrading of forest trails, main gate, removal of hazardous trees nearby infrastructures, and construction of a cellular telecommunication.

Tropical Rainforest Conservation and Research Centre (TRCRC) has established a 224-hectare of ex-situ conservation site known as Tropical Rainforest Living Collection (TRLIC) in VJR Merisuli since 2014, where seeds from threatened plants are collected, germinated, planted and eventually re-introduced into their native habitats in the future. To date, the project has nurtured about 28,000 seedlings, with about 5,400 trees planted out in the wider site and has an overall mortality rate of 67%. Since its establishment, TRLIC has rescued 72 species of trees, of which

24 are Critically Endangered, 13 are endangered, 6 are Vulnerable, and 29 species that are not threatened. In 2019, TRCRC had successfully completed two new infrastructures i.e. a volunteer dormitory, and an educational and environmental gallery whereby both buildings could accommodate at least 50 people. Aside from that, TRCRC had organized three environmental education program and a Raleigh Sabah Society volunteer program as part of the awareness.