

ANNUAL REPORT 2011

**TANGKULAP-SG. PINANGAH FOREST
RESERVE – FMU 17A**

1.0 FOREST CERTIFICATION

The Sabah Forestry Department's endeavour to have FMU 17A certified came to fruition after over 2 years of taxing preparation in documentation and groundwork. FMU 17A which covers Tangkulap Forest Reserve and part of Sungai Pinangah with a total land area of 50,070 hectares, was certified as "Well Managed" by Scientific Certification Systems (SCS) under the Forest Stewardship Council™ (FSC™ [SCS-FM/COC-00136N]) certification scheme on 01 June 2011. The certificate was awarded only after the 2 major non-conformance identified during the field audit in July 2010 were addressed. There were:

1. *The contractual agreement by the 2 SFMLA holder (Lebihasil S/B-1/2005 and Maxland S/B-12007) are not in compliance with the Labour Ordinance on a variety of matters, like, annual leave, sick leave, paid public holidays, etc.*
2. *Contract workers are not provided with the appropriate personal protective equipment (PPE). Training and dissemination of standards and requirement is inadequate. Realisation of Occupational Safety and Health Administration (OSHA) requirements on the ground is inadequate.*

The award of the certificate also coincided with the FSC General Assembly held in Kota Kinabalu on 25th June 2011.



FSC certificate of FMU 17A

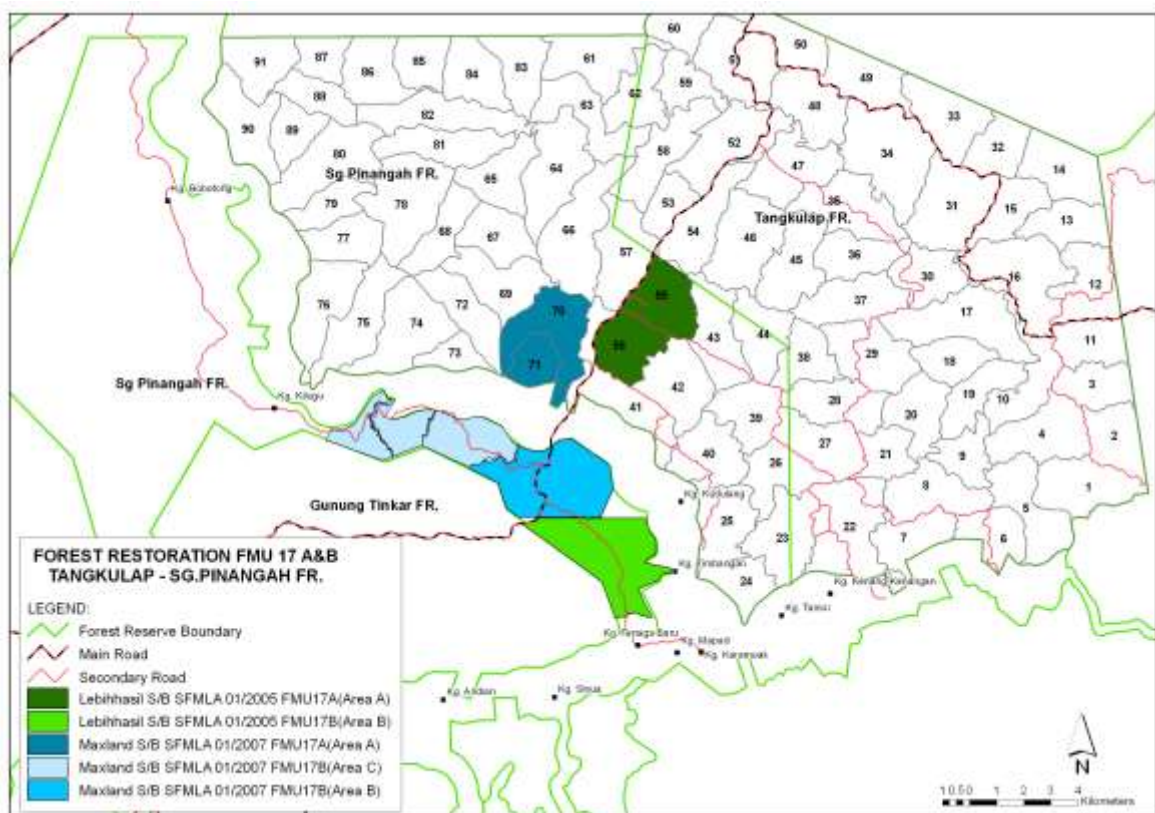
2.0 SIVICULTURAL PRESCRIPTIONS AND MANAGEMENT

Silvicultural operations in FMU 17A under the present management is divided into four main activities: 1) harvesting; 2) intensive forest restoration; 3) timber stand improvement; and, 4) enrichment planting. All these operations are carried out by private companies under the close supervision of the Forestry Department.

In FMU 17A, 2 private companies (refer Map 1), Lebihhasil S/B (SFMLA 01/2005 – Compartments 55 and 56 or area 'A') and Maxland S/B (SFMLA 01/2007 – Compartments 70 and 71 or area 'A') have been awarded long term (50 years) licences to carry out Intensive Forest Restoration and 1 private company, Bumi Hijau S/B, a contract to do timber stand improvement (silviculture treatment) and enrichment planting.

Gauging on the good performance of the 2 long term licence holders, each licensee were given parcel of 1,000 hectares of highly degraded forest for intensive forest restoration within FMU 17B (Sungai Pinangah Forest Reserve) in 2010 and 2011 respectively (refer Map 1). The long term licence holders are:

1. Lebihhasil S/B (SFMLA 01/2005 – area 'B')
2. Maxland S/B (SFMLA 01/2007 – area 'B')
3. Maxland S/B (SFMLA 01/2007 – area 'C')



Map 1. SFMLAs issued in FMU 17A and 17B for intensive forest restoration

For timber stand improvement and enrichment planting, a one year contract was given to Bumi Hijau Sendirian Berhad with an acreage of 4,000 hectares and 250 hectares respectively.

2.1 HARVESTING

There will be no harvesting in FMU 17A as planned in the forest management plan (FMP) for the next 50 years. Since FMU 17A is a commercial forest reserve, 50 years is too long a wait for economic returns. In order for a highly degraded natural forest to become productive in the shortest time possible, intensive forest restoration (IFR) with fast growing native species (Laran, Binuang and Batai) is deemed necessary. IFR involves forest clearing or harvesting of degraded forest areas for site preparation, and at the same time maintaining the natural landscape such as riparian buffers, steep areas (conservation), wildlife corridors and specific wildlife habitat such as ponds.

This year IFR which involves harvesting for site preparation is concentrated in three highly degraded forest areas within FMU 17B (refer Map 1) where the Deramakot Forestry District is entrusted with overseeing and monitoring. There are:

1. Lebihasil S/B (SFMLA 01/2005 – area 'B') / 1,000 hectares / FMU 17B
2. Maxland S/B (SFMLA 01/2007 – area 'B') / 1,000 hectares / FMU 17B
3. Maxland S/B (SFMLA 01/2007 – area 'C') / 1,000 hectares / FMU 17B

Details of harvesting completed in 2011, and royalties collected are shown in Table 1.

Compartment / FMU	Licencee	Size (ha)	Area Harvested (ha) & Year	Volume (m ³)	Royalty (RM)
Area 'B' FMU 17B	Maxland S/B – SFMLA01/2007	1,000	179 ha (2010)	14,204.04	1,216,755.81
	Maxland S/B – SFMLA 01/2007	1,000	512 ha (2011)		
Area 'B' FMU 17B	Lebihasil S/B – SFMLA 01/2005	1,000	820 ha (2011)	28,112.63	2,182,061.60
Area 'C' FMU 17B	Maxland S/B – SFMLA 01/2007	1,000	No harvesting in 2011	Nil	Nil
TOTAL		3,000	1,511 ha	42,316.67	3,398,817.41

Table 1. Harvesting by SFMLA Licence Holders.

2.2 INTENSIVE FOREST RESTORATION

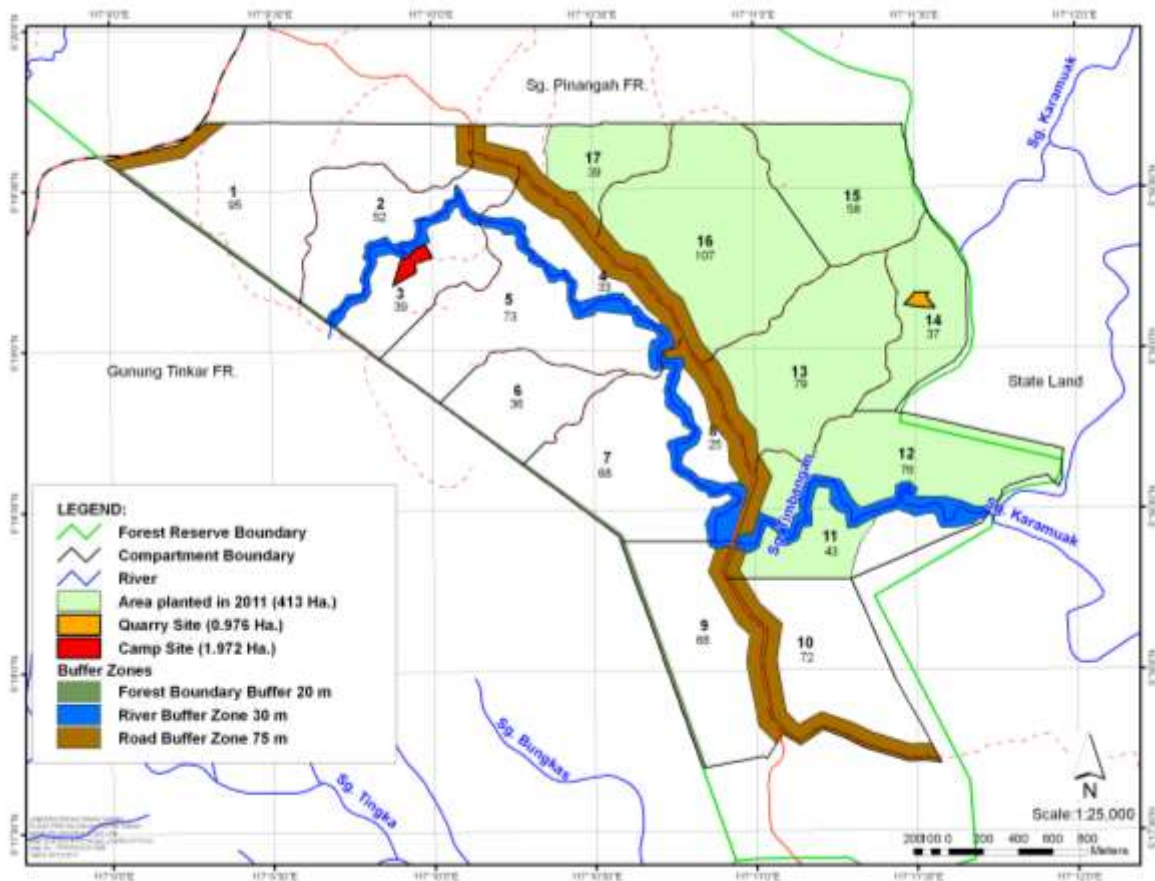
The idea of planting trees as crops is as old as agriculture. To sustain economic growth and generate employment, intensive forest restoration with fast growing native tree species for shorter rotation in highly degraded natural forest landscape of the Tangkulap and Sungai Pinangah Forest Reserves is crucial.

In 2011, 2 new areas for forest restoration of about 2,000 hectares of poor forest within Sg. Pinangah Forest Reserve (FMU 17B), was given to Maxland S/B and Lebihasil S/B respectively. Except for SFMLA 01/2005 (Lebihasil S/B – area 'B') and SFMLA 01/2007 (Maxland S/B – area 'C'), all licence areas awarded in the previous years have been virtually planted with fast growing indigenous tree species (refer Map 1). Land uses of the 5 SFMLA licence areas for intensive forest restoration to date is summarised in Table 2.

SFMLA Licence Holder	Compt. # & FMU#	Gross Area (ha)	Planted Area (ha)	Natural Forest (ha)	High Conservation Values (HCVs)			Roads (ha)	Buildings & Campsites (ha)
					Riparian (ha)	Steep area (ha)	Ponds (ha)		
Lebihasil S/B - SFMLA 01/2005	55 & 56 FMU 17A (area 'A')	1,172	731	Nil	210	Nil	16	40	15
Maxland S/B - SFMLA 01/2007	70 & 71 FMU 17A (area 'A')	977	512.54	384.44	2.51	79.56	Nil	30	2.4
Maxland S/B - SFMLA 01/2007	Area 'B' FMU 17B	964	691	141	46.50	25	9.15	21	30.50
Lebihasil S/B - SFMLA 01/2005	Area 'B' FMU 17B	1,000	413	Nil	46.02	Nil	6.37	13	1.97
Maxland S/B - SFMLA 01/2007	Area 'C' FMU 17B	1,000	Nil	Nil	113	50	Nil	14	Nil

Note: Roads and riparian buffer not deducted from planted area

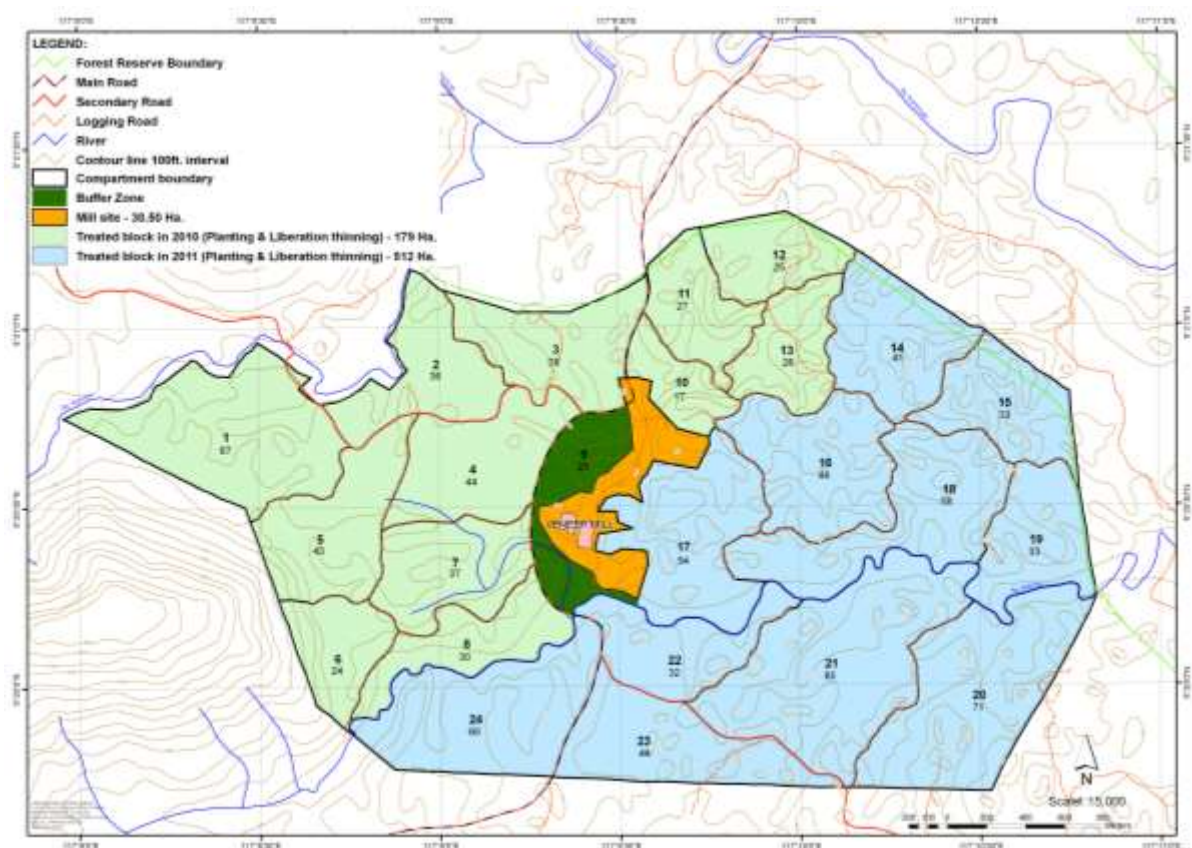
Table 2. Land uses of the 5 SFMLA licence areas awarded to Lebihasil S/B and Maxland S/B respectively



Map 2. Lebihasil S/B - SFMLA 01/2005 (area 'B'-1,000 hectares-FMU 17B)



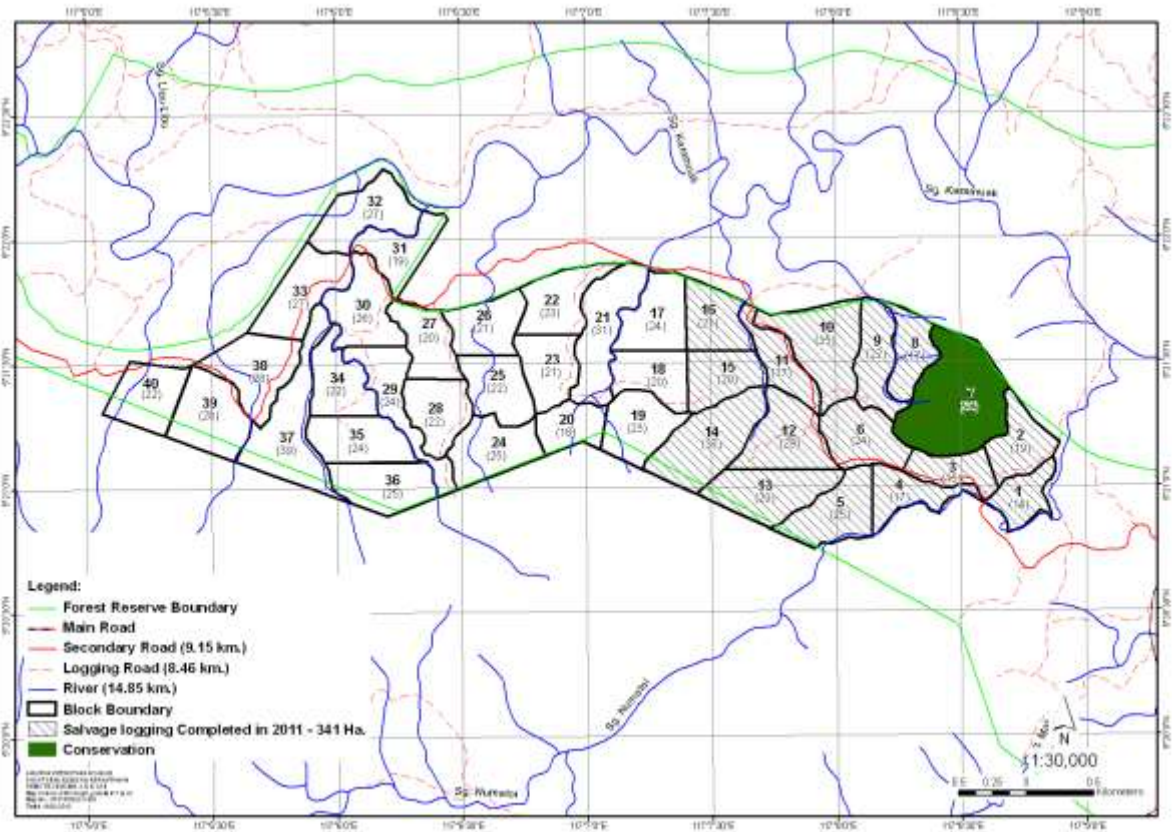
Aerial view of land clearing for IFR (Lebihasil S/B, SFMLA 01/2005 – area 'B', FMU 17B)



Map 3. Maxland S/B - SFMLA 01/2007 (area 'B')-1,000 hectares-FMU 17B)



Aerial view of IFR (Maxland S/B, SFMLA 01/2007 – area 'B', FMU 17B)



Map 4. Maxland S/B - SFMLA 01/2007 (area 'C'-1,000 hectares-FMU 17B)



Aerial view of land clearing for IFR (Maxland S/B, SFMLA 01/2007 – area 'C', FMU 17B)



1-year old *P. falcataria* (Batai) – Maxland S/B – SFMLA 1/2007 area 'B', FMU 17B,



3-year old *P. falcataria* (Batai) – SFMLA 1/2005, Lebihasil S/B, area 'A' (compartment 55, FMU 17A)



Aerial view of IFR (Maxland S/B, SFMLA 01/2007 – compartment 71 or area 'A', FMU 17A)



Aerial view of IFR (Lebihasil S/B, SFMLA 01/2005 – compartment 55 or area 'A', FMU 17A)

2.3 TIMBER STAND IMPROVEMENT (SILVICULTURE)

Leaving heavily logged forests with a high proportion of pioneers, vine tangles, creeping bamboos untreated allows sub-optimal growing conditions to persist, thereby limiting the future wood production capacity of the forest. Furthermore, because seeding in a degraded forests with few mother trees is uncertain and unreliable, every effort to secure the survival of the natural regeneration and to promote their growth by silvicultural treatments would be beneficial. If timber production continues to be a primary goal of NFM, then silviculture invariably becomes a central aspect of forest management.

Timber stand improvement refers to the cutting and/or removal of climbing bamboos and woody vines in order to promote growth of seedlings and pole size trees of commercial value.

As of 2011, **24,746 hectares** have been treated at a cost of **RM8,661,050**. This year, the targeted 4,000 hectares for tending was not achieved because the appointed contractor (Bumi Hijau S/B) was presented with the difficulty of procuring workers.

Year	Compartment No	Area Treated (ha)	Contract Fee (RM)
2004	12	143	50,000
2005	12,13,14,15	2,000	700,000
2006	1,2,3,16,32,33,49	4,000	1,400,000
2007	32,33,49,50,60,51,48,52 (AWP 2007)	4,000	1,400,000
	52,36,46 (addition)	1,295	453,250
2008	36,46,45,44,7,22,23,37	4,000	1,400,000
2009	5,6,8,9,24,25,26,40	4,000	1,400,000
2010	18,19,20,21,34,43,53,57,58	4,000	1,400,000
2011	61,62,29	1,308	457,800
TOTAL		24,746	8,661,050

Table 3. Silviculture tending by Bumi Hijau S/B

2.4 ENRICHMENT PLANTING

The management plan specifies a target of 2,400 hectares of enrichment planting to be carried out over a period of 10 years in areas that have been determined to be poorly regenerated. Enrichment planting involves the planting of commercial indigenous species, mainly dipterocarps, as single trees along corridors cut through the forest.

As of 2011, a total area of 830 hectares have been planted (Table 4) with mixed Dipterocarps, fruit trees and fast growing indigenous tree species. The targeted 250 hectares for enrichment planting this year was not achieved because of the dismal performance of the appointed contractor (Bumi Hijau S/B).

Compt. #	Planting Block	Size (ha)	Species	Date Planted
22		12	BInuang, Laran & Sepat	Nov., 2006
15		4	Sentul, Bako-bako, Keranji, Obah, Mata kucing, Kayu malam, Kerudung dan Sengkuang	Nov., 2006
47	A	37	Mixed (Dipterocarps & fast growing indigenous)	Feb., 2007
47		241.16	Mixed (Dipterocarps & fast growing indigenous)	Feb., 2008
35		258.84	Mixed (Dipterocarps & fast growing indigenous)	Dec., 2008 & Feb., 2009
35		250	Mixed (Dipterocarps & fast growing indigenous)	Feb., 2010
17		27	Mixed (Dipterocarps & fast growing indigenous)	May, 2011
TOTAL		830		

Table 4. Enrichment planting by Bumi Hijau S/B

3. OCCUPATION PERMITS (OP)

24 occupation permits were issued for the year 2011. The occupation permits issued for the year consist of roads for timber and oil palm produce extraction, log yards for temporary log storage, campsites, nursery, saw mills and rock quarry. A total fee of **555,164.08** has been collected from 2005 to 2011.

Year	Fees (RM)
2005	86,914.08
2006	81,500.00
2007	91,750.00
2008	63,500.00
2009	75,750.00
2010	80,000.00
2011	75,750.00
Total	555,164.08

Table 5. Revenue collected from "Occupation Permit"



"Occupation Permit" for campsite and nursery in FMU 17A

No.	OP #	OP OWNER	EFFECTIVE PERIOD	PURPOSE	AREA (ha)
1.	JP(DFR) OP 01/2004	Rakyat Berjaya Sdn. Bhd.	12.03.2009-11.03.2010	Log extraction	37
2.	JP(DFR) OP 02/2004	Rakyat Berjaya Sdn. Bhd.	19.08.2009-18.08.2010	Log yard	3.54
3.	JP(DFR) OP 01/2005	Rakyat Berjaya Sdn. Bhd.	01.01.2010-31.12.2010	Log extraction	79.5
4.	JP(DFR) OP 02/2005	Kontraktor Malaysia	01.04.2009-31.03.2010	Saw mill/log yard	2.177
5.	JP(DFR) OP 03/2005	Wajakaya Sdn. Bhd.	04.03.2009-03.03.2010	Extraction of oil palm produce	24
6.	JP(DFR) OP 04/2005	Rakyat Berjaya Sdn. Bhd.	01.09.2009-31.08.2010	Camp Site	0.436
7.	JP(DFR) OP 05/2005	Rakyat Berjaya Sdn. Bhd.	01.09.2009-31.08.2010	Log yard	1.197
8.	JP(DFR) OP 08/2005	Rakyat Berjaya Sdn. Bhd.	01.09.2009-31.08.2010	Log yard	1.01
9.	JP(DFR) OP 01/2006	Kontraktor Malaysia	21.03.2009-20.03.2010	Nursery	1.26
10.	JP(DFR) OP 02/2006	Bumi Hijau	23.03.2009-22.03.2010	Office/Nursery	2.0
11.	JP(DFR) OP 03/2006	Rakyat Berjaya Sdn. Bhd.	20.04.2009-19.04.2010	Workshop/Camp	1.7
12.	JP(DFR) OP 04/2006	Rakyat Berjaya Sdn. Bhd.	23.03.2009-22.03.2010	G/keeper's house	1.08
13.	JP(DFR) OP 01/2007	Lebihasil S/B	11.04.2009-10.04.2010	Saw mill/Camp/Log yard	1.99
14.	JP(DFR) OP 02/2007	Lebihasil S/B	11.04.2009-10.04.2010	Nursery	0.99
15.	JP(DFR) OP 03/2007	Rakyat Berjaya Sdn. Bhd.	22.05.2009-21.05.2010	Log yard	1.80
16.	JP(DFR) OP 04/2007	Maxland S/B	28.05.2009-27.05.2010	Camp/Nursery	2.4
17.	JP(DFR) OP 02/2009	Maxland S/B	01.09.2010-31.08.2011	Quarry	1.0
18.	JP(DFR) OP 02/2010	Usaha Teliti S/B	19.02.2011-18.02.2012	Extraction of oil palm produce	7.0
19.	JP(DFR) OP 03/2010	Lebihasil S/B	07.05.2011-06.05.2012	Camp/Office/Gate/Oil Tank	1.691
20.	JP(DFR) OP 01/2011	Lebihasil S/B	03.01.2011-02.01.2012	Camp/Office/Others	1.972
21.	JP(DFR) OP 02/2011	Lebihasil S/B	03.01.2011-02.01.2012	Quarry	0.976
22.	JP(DFR) OP 03/2011	Lebihasil S/B	01.01.2011-31.12.2011	Stumping	1.859
23.	JP(DFR) OP 04/2011	Maxland S/B	08.10.2010-07.10.2011	Log extraction	17.47
24.	JP(DFR) OP 05/2011	Tropical Wood Enterprise	08.09.3011-07.10.2011	Log extraction	1.875
				TOTAL	195.92

Table 6. "Occupation Permit" issued (2011)

4.0 BUILDINGS AND OTHER FACILITIES

There is a need to further develop appropriate accommodation for field personnel to cater to the ever increasing workload of enforcement and monitoring activities in FMU 17A. Although the management of FMU 17A comes directly under the District Forestry Office of Deramakot, it is necessary for a forestry range office to be established to facilitate the various management activities there.

In addition to the office cum living quarter that was constructed in 2009, a new staff quarter that houses 8 field personnel was built this year at a cost of about RM250,000.



Newly constructed staff quarter at site of FMU 17A forest range office

The forest range office of FMU 17A which is currently under the jurisdiction of DFO Deramakot is equipped with:

- Generator sheds with 2 Yanmar (20KW and 35KW) diesel powered generators.
- Water tank (7,000 litres).
- Pump house with 15 HP electrical pump.
- 20,000 litres holding tank for diesel.
- 1 Single Cabin Toyota Vigo pick-up, 1 Toyota Hilux Double Cabin pick-up and 1 Toyota Land Cruiser pick-up.
- 1 Fibreglass boat fitted with 35hp Yamaha outboard engine.
- Telekom Malaysia Satellite phone with Internet.

Maxland Sendirian Berhad, a private company that was awarded a long term licence to carry out intensive forest restoration in FMU 17A and 17B, donated 1 brand new Toyota Vigo single cabin truck to the Forestry Department. This is to demonstrate smart

partnership where government and the private sector can work together in harmony to achieve a common goal.



A brand new Toyota Vigo single cabin truck donated by Maxland S/B

5.0 WILDLIFE CONSERVATION

Wildlife conservation is an integral part of responsible forest management. This concerns the conservation of the biological diversity in production forests through mitigating the impacts of forest management. Although the forest structure of FMU 17A is highly disturbed and of poor quality it harbours remarkable wildlife diversity, including significant populations of highly endangered species such as the orangutan, tembadau and the Borneon pygmy elephant.

Even if harvesting is to be carried out in FMU 17A, the impacts to wildlife is minimal. We have proven this in the adjacent Deramakot Forest Reserve that harvesting employing the reduced impact logging technique is compatible with wildlife conservation. Furthermore, the planned forest operation (timber stand improvement, enrichment planting and intensive forest restoration) serves to enhance and improve the forest ecosystem and wildlife habitat.

Wildlife monitoring form a significant part of a forest manager's duty. In FMU 17A, there are two methods being use to monitor wildlife and there are:

- Opportunistic sightings
- Orangutan nest census using helicopter

5.1 Opportunistic Sightings

Recordings of accidental sightings by field personnel was started in 2009. Since then, 54 wildlife species were identified, and 16 of these species are either listed as endangered or threatened by the International Union for the Conservation of Nature (IUCN). A new addition to the list is the Blyth's Hawk-eagle (*Spizaetus alboniger*) spotted in Tangkulap Forest Reserve. This year, (refer to Table 7, Opportunistic Sightings 2011), 5 out of the 53, wildlife species that were previously identified in FMU 17A were not sighted or seen. There are:

- Proboscis Monkey (*Nasalis larvatus*)
- Small-toothed palm civet (*Arctogalidia trivirgata*)
- Collared mongoose (*Herpestes semitorquatus*)
- Short-tailed mongoose (*Herpestes brachyurus*)
- Long-tailed porcupine (*Trichys fasciculata*)



Blyth's Hawk-eagle (*Spizaetus alboniger*) – compartment 16, FMU 17A

SPECIES AND FREQUENCY OF SIGHTINGS/ENCOUNTERS	
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LOCALLY THREATENED	
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1. Orangutan (<i>Pongo pygmaeus</i>)	21
2. Pygmy Elephant	105
3. Tembadau / Banteng (<i>Bos javanicus</i>)	7
4. Clouded Leopard (<i>Neofelis diardi</i>)	1
5. Proboscis Monkey (<i>Nasalis larvatus</i>)	
6. Borneon Gibbon (<i>Hylobates muelleri</i>)	16
7. Red Leaf Monkey (<i>Presbytis rubicunda</i>)	2
8. Helmeted Hornbill (<i>Rhinoplax vigil</i>)	22
9. Flat-headed cat (<i>Prionailurus planiceps</i>)	1
10. Otter civet (<i>Cynogale bennettii</i>)	12
11. Binturong or Bearcat (<i>Artictis binturong</i>)	3
12. Sun bear (<i>Helarctos malayanus</i>)	1
13. Smooth-coated otter (<i>Lutrogale perspicillata</i>)	1
14. Marbled cat (<i>Pardofelis marmorata</i>)	2
15. Moonrat (<i>Echinosorex gymnura</i>)	18
16. Great Argus (<i>Argysianus argus</i>)	25

COMMON	
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17. Sambar deer (<i>Cervus unicolor</i>)	155
18. Bornean yellow muntjac (<i>Muntiacus atherodes</i>)	15
19. Bearded pig (<i>Sus barbatus</i>)	105
20. Lesser mouse-deer (<i>Traulus javanicus</i>)	35
21. Greater mouse-deer (<i>Tragulus napu</i>)	15
22. Southern red muntjac (<i>Muntiacus muntjac</i>)	11
23. Leopard cat (<i>Felis bengalensis</i>)	55
24. Banded civet (<i>Hemigalus derbyanus</i>)	5
25. Malay civet (<i>Viverra zangalunga</i>)	60
26. Common palm civet (<i>Paradoxurus hermaphroditus</i>)	33
27. Malay badger (<i>Mydaus javanensis</i>)	44
28. Oriental small-clawed otter (<i>Aonyx (Amblonyx) cinerea</i>)	17
29. Long-tailed macaque (<i>Macaca fascicularis</i>)	55
30. Pig-tailed macaque (<i>Macaca nemestrina</i>)	46

31. Small-toothed palm civet (<i>Arctogalidia trivirgata</i>)	
32. Thick-spined porcupine (<i>Thecurus crassispinis</i>)	5
33. Pangolin (<i>Manis javanica</i>)	17
34. Rhinoceros Hornbill (<i>Buceros rhinoceros</i>)	63
35. Giant (Red) flying squirrel (<i>Petaurista petaurista</i>)	1
36. Yellow-throated marten (<i>Martes flavigula</i>)	1
37. Reticulated Python	7
38. Flying Lemur/Colugo (<i>Galeopterus variegates</i>)	1
39. Crested Serpent-Eagle (<i>Spirionis cheela</i>)	23
40. Black Eagle (<i>Ictinaetus malayensis</i>)	1
41. Brown wood owl (<i>Strix leptogrammica</i>)	3
42. Oriental darter	32
43. Large flying fox (<i>Pteropus vampyrus</i>)	2
44. Slow loris (<i>Nycticebus coucang</i>)	9
45. Crested Fireback	19
46. Black cobra	1
47. Monitor lizard	36
48. Collared mongoose (<i>Herpestes semitorquatus</i>)	
49. Short-tailed mongoose (<i>Herpestes brachyurus</i>)	
50. Common porcupine (<i>Hystrix brachyuran</i>)	17
51. Long-tailed porcupine (<i>Trichys fasciculate</i>)	
52. Western tarsier (<i>Tarsius bancanus</i>)	9
53. Banded linsang (<i>Prionodon linsang</i>)	1
54. Blyth's Hawk-eagle (<i>Spizaetus alboniger</i>)	1

Table 7. Opportunistic Sightings (2011)

4.3 Orangutan

The biggest threat to the Orangutan is habitat fragmentation and habitat loss. For example, large water bodies or rivers devoid of riverine vegetation and big trees that acts as natural bridges for crossing are potential barriers for dispersal. Therefore it is crucial to maintain large tracts of contiguous forest to ensure gene flow and the long-term survival of the Orangutan.

The aerial census methodology by counting Orangutan nests from a helicopter along permanent transects allows for accurate estimation of their distribution and population density over large areas. This exercise is carried out twice a year and the results are shown in **Table 8**.

Date of Census	# of Individuals/km ²	# of Orang-utan in Tangkulap FR
June '05	0.84	189
November '05	0.93	210
June '06	1.01	228
November '06	0.9	203
August '07	0.83	187
November '07	1.16	262
May '08	1.48	334
November '08	2.07	467
May '09	1.65	372

November '09	2.00	451
June '10	0.95	214
October '10	2.48	559
July '11	0.58	131
December '11	1.10	248

Table 8. Orangutan population (Aerial Orang Utan Nest Census)

Statistic indicates that the orangutan population has been relatively stable over this 7-year period. Orangutan densities were higher in Tangkulap Forest Reserve than in the Pinangah Forest Reserve. The Karamuak River and the active Maxland logging road, represent a barrier to orangutan dispersal, which accounts for the lower nest abundance in the Sg. Pinangah Forest Reserve.

5. COST AND PROFIT

The government allocated budget for the year is **RM 1.99 million** which is also the actual costs of maintaining all forest management activities in FMU 17A (refer **Pie Chart**). Revenue from Occupation Permit fees and royalties is **RM 2,257,811.60**.

