



REHABILITATION OF PEAT SWAMP FOREST – SELANGOR EXPERIENCE

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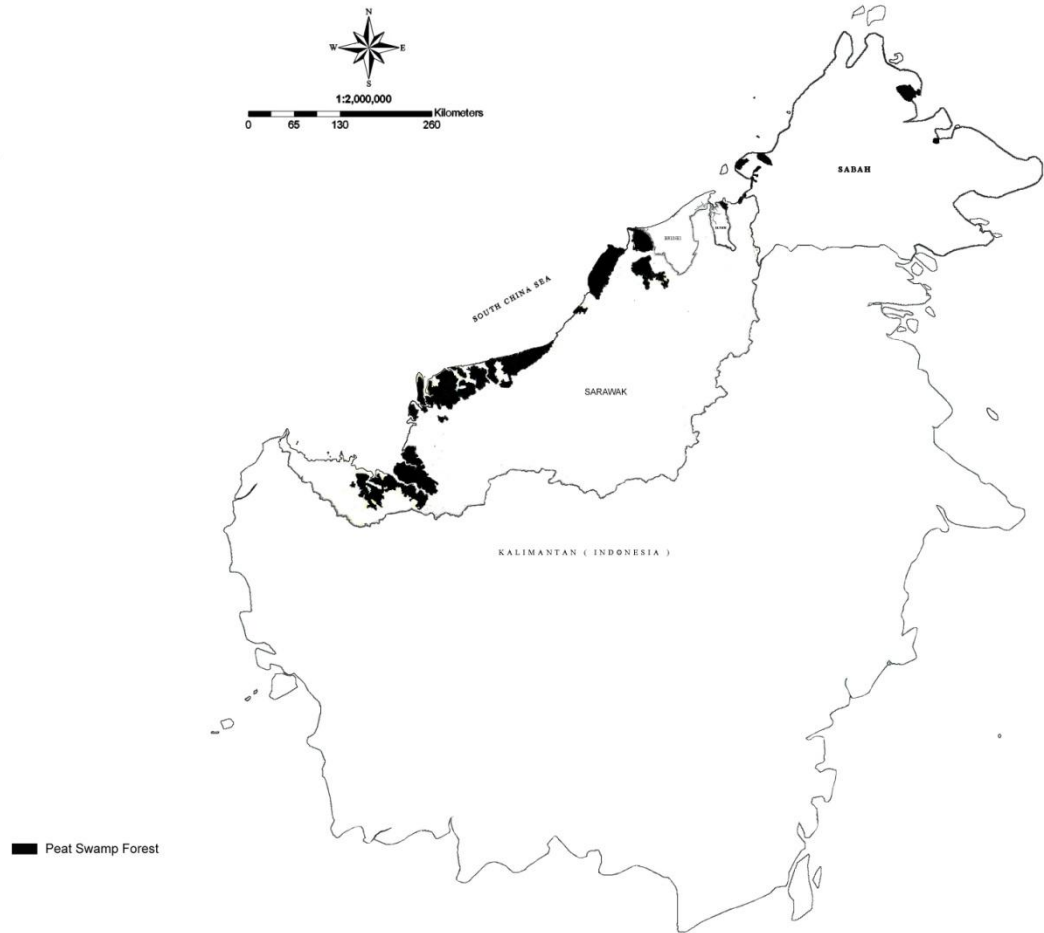
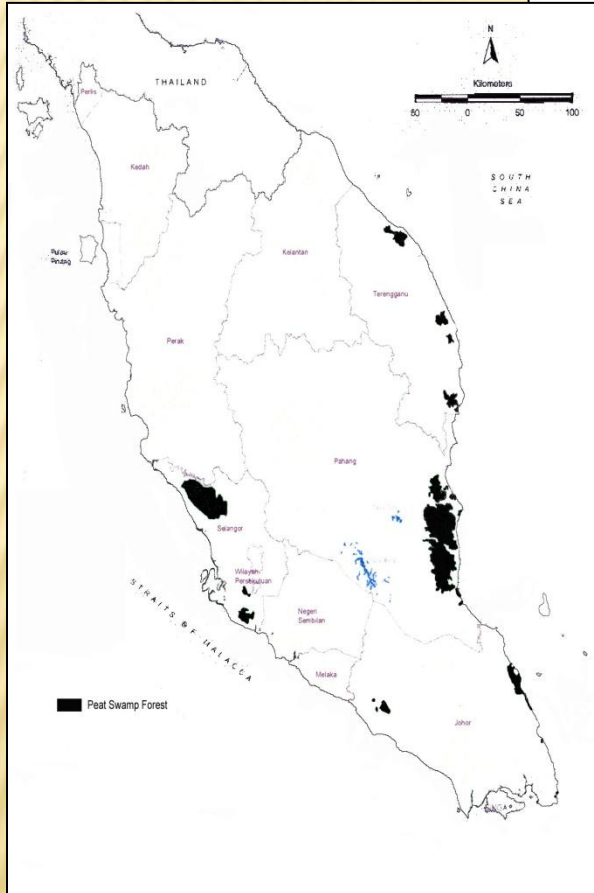
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1.0 INTRODUCTION

PEATSWAMP FOREST IN MALAYSIA

1.1 Malaysia's Peatland Areas

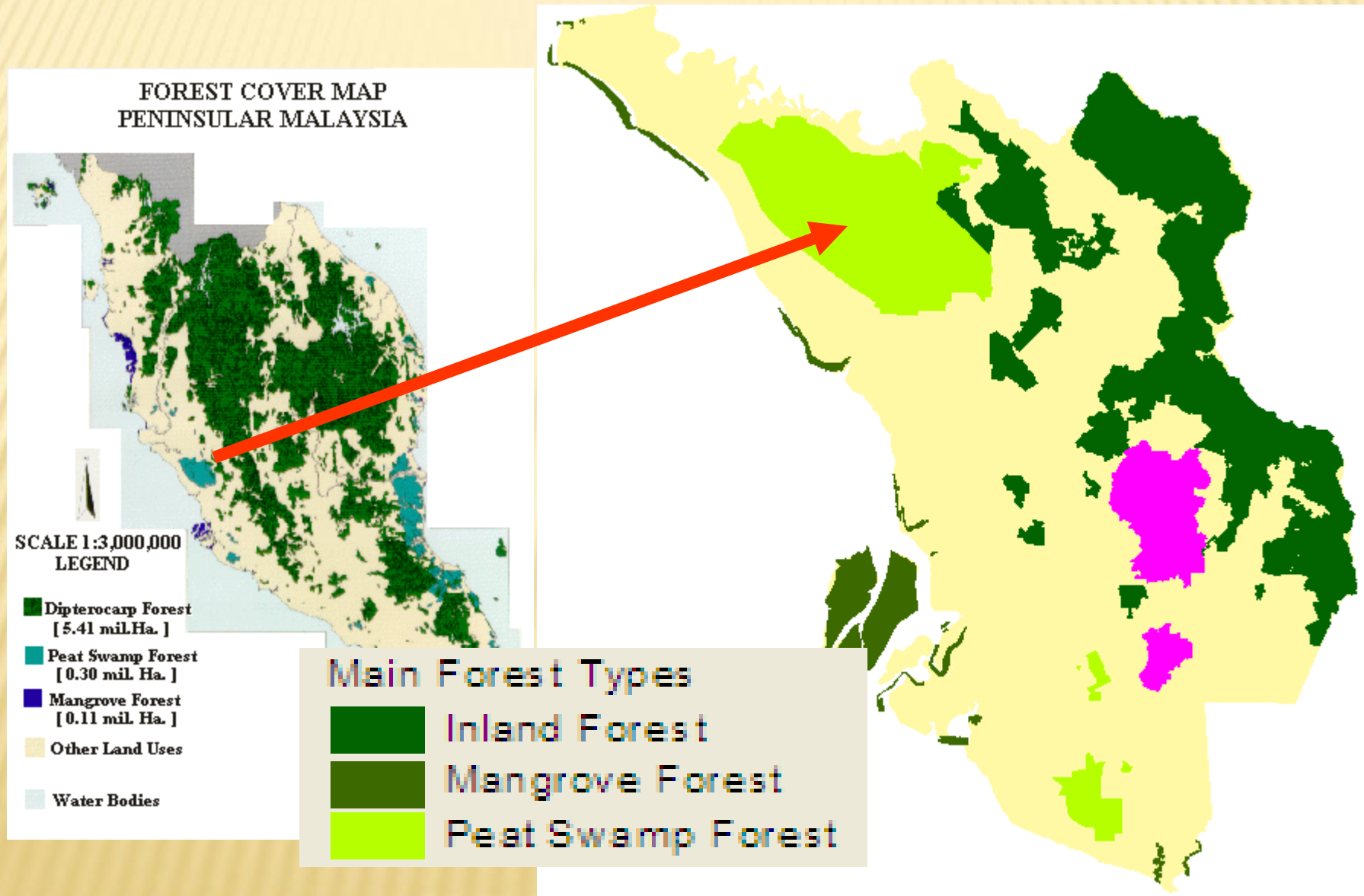


Estimated Extent of Peat Swamp Forest Cover in Malaysia

State	Total Area (Hectares)
Sarawak	1,120,000
Pahang	200,000
Sabah	120,000
Selangor	76,000
Terengganu	13,000
Johor	13,000
Total	1,542,000

Sources: Malaysia's Peat Swamp Forest Conservation and Sustainable Use (Apr 2006- UNDP)

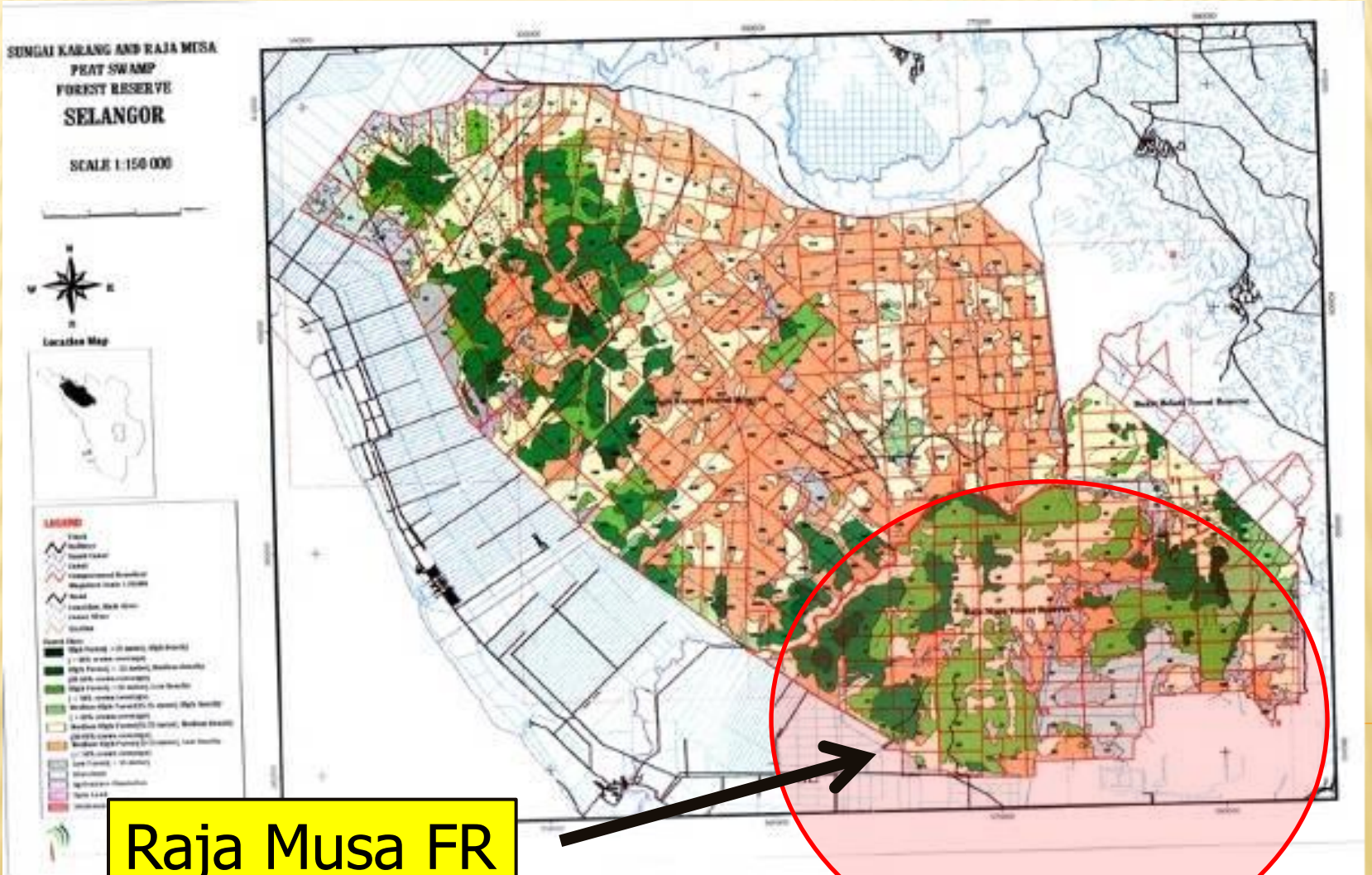
North Selangor PSF (NSPSF)



BACKGROUND

- North Selangor Peatswamp Forest (NSPSF) is located in the north western part of the State of Selangor
- It consists of Raja Musa Forest Reserve (23,486 hectares) and Sungai Karang Forest Reserve (50,106 hectares). Together it covers an area slightly bigger than Singapore.
- NSPSF has global importance for its role in maintaining endangered and endemic species (biodiversity conservation) and as huge carbon sink.
- Locally plays an important role in supplying water for domestic (Tg. Karang & Sekinchan) and agricultural (Sg. Karang rice fields) uses, plus supporting local wood industry.

RAJA MUSA FOREST RESERVE (RMFR)



RAJA MUSA FOREST RESERVE (RMFR)

- × The FR supports tree species with small to medium sized crowns, typically 30 meters tall emergent trees are scattered throughout the area.
- × *Koompassia malaccensis* (Kempas), *Shorea uliginosa* (Meranti Bakau), *Santiria* spp. (Kedondong), *Eugenia* spp. (Kelat) and *Durio carinatus* (Durian) are the dominant tree species.
- × *Gonystylus bancanus* (Ramin) which is a common species in peat swamp forest is now rarely found in this forest.
- × RMFR was intensively logged since 1950s with very little control and supervision from Forestry Department and only gazetted as a forest reserve in 1990.

HISTORY ON FOREST REHABILITATION AT RMFR

- ✘ Pre 1990 (prior to gazettement as forest reserve) – as state land is considered as land to be developed for other purposes at a later stage; the early logging operations were carry out with little control and supervision on the area
- ✘ 1990 to 2000 - problems with initial demarcation of forest reserve; saw community activities (agriculture, etc.) within FR; inter-mitten forest fires
- ✘ 1997-98 – period of big forest fires ; 630 hectares within forest reserve effected, plus equally sized area outside of FR
- ✘ 2001 to 2010 – problems with illegal encroachment into forest reserve; resulted from illegal land clearing for settlement and agriculture in the previously burnt area outside of FR; problem escalated in 2008
- ✘ After series of actions by SFD, present Selangor State Government acknowledged the seriousness of the problem and decided to take action; 470 individuals were forcefully removed/ evacuated from the affected site in June 2008 and these areas have now been subjected to forest rehabilitation activities.



1.3 ISSUE AND PROBLEMS

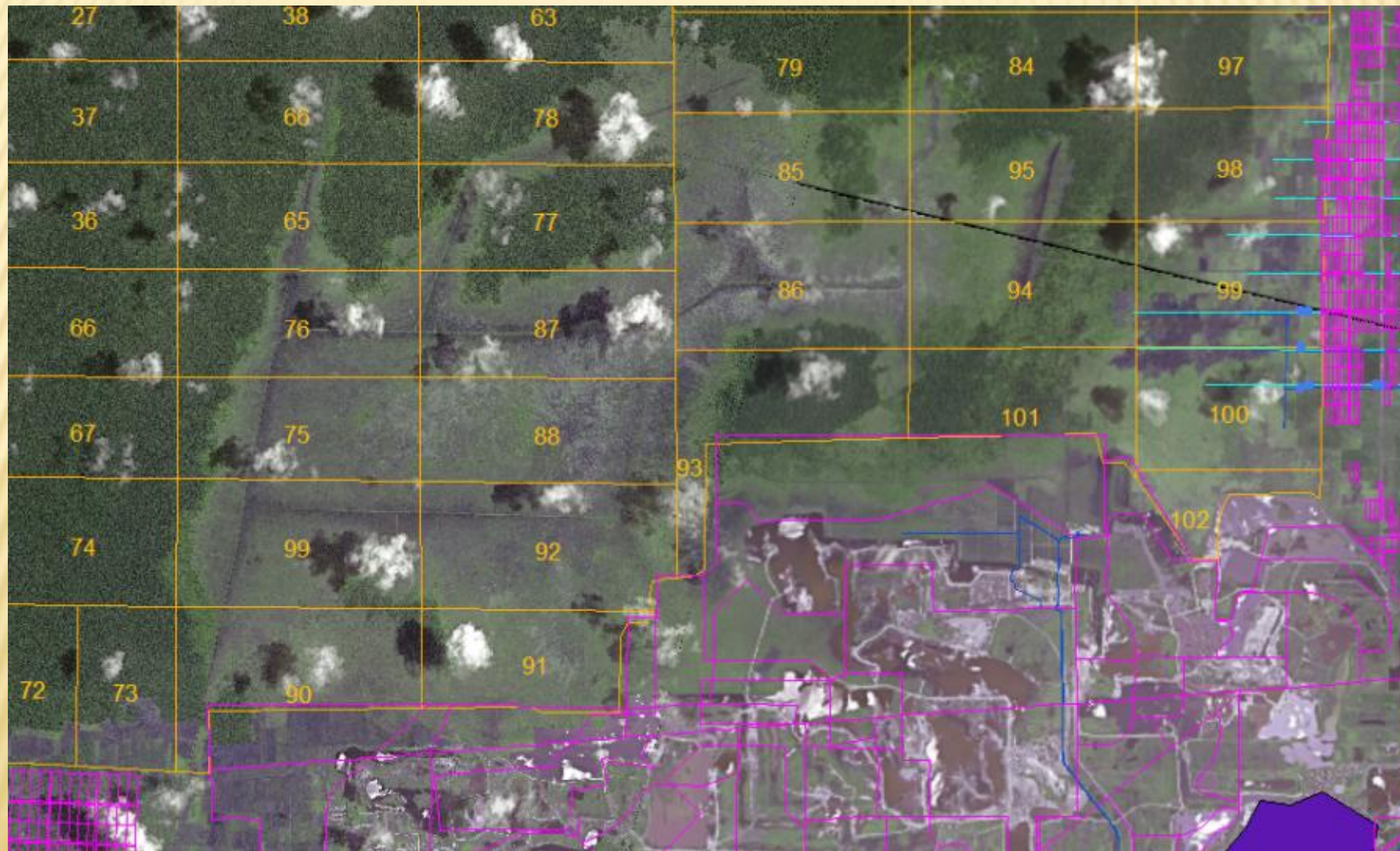
-FOREST FIRES AT RMFR

- ✘ There is a positive correlation between heavily drained and degraded forest areas and incidence of fires within Raja Musa FR.**
- ✘ Forest fires are norm during prolonged dry spells months of February-March and June – August every year.**
- ✘ The south-west of RMFR is a fire prone area, including the adjoining land immediately outside of the forest reserve boundary**
- ✘ Ca. about 6,500 ha is involved; directly affected by drainage and has since been subjected to repeated forest fires.**
- ✘ These areas are severely degraded and mostly of grassland.**



DEGRADED PEATSWAMP FOREST OF RMFR

(LANDSAT IMAGE 2001)





RECORDED FIRE INCIDENCES WITHIN RMFR

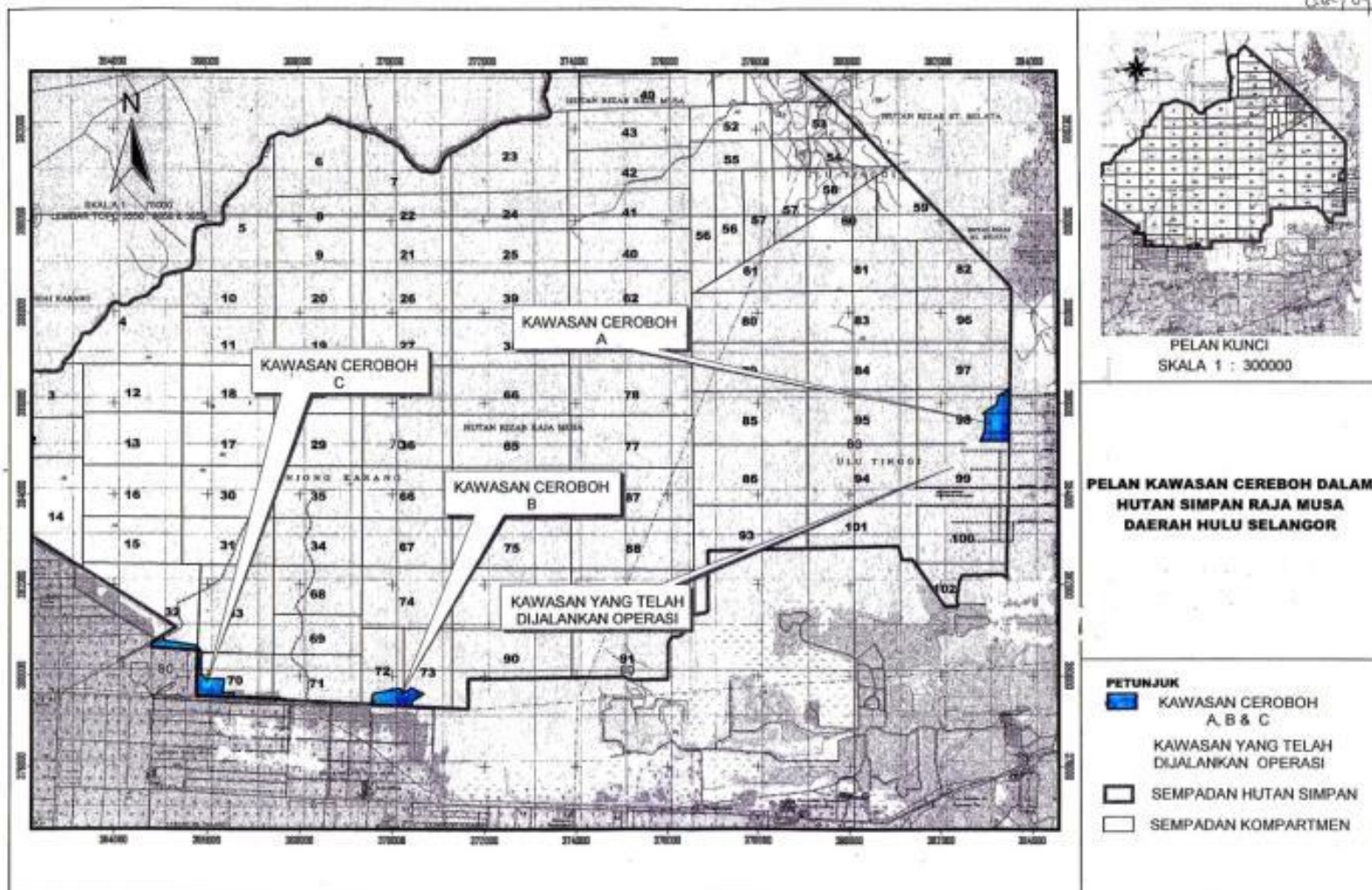


Year	Area (ha)
2002	161
2003	-
2004	10
2005	400
2006	-
2007	12
2008	-
2009	9
2010	-
2011	-
Total	592

- Detected since 1998 - about 710 hectares in total.
- Area of occurrence within RMFR - bordering areas to settlements & villages; usually caused by slash and burn agriculture practices.



ILLEGALLY ENCROACHED AREAS WITHIN RMFR



Illegal encroachment

(= degraded land expanding into FR boundary)





Situation on the ground (2008)
(= new clearing of forest)



Slash and burn agriculture

(= fire is used as a tool to prepare land for cultivation)



Cultivated land with crop in RMFR

Areas bordering to RMFR

(= severely degraded by extensive use of fire in local farming and/or agriculture practices)





2.0

SHARING THE

SELANGOR EXPERIENCE

REHABILITATION OF RMFR



2.1 REMEDIAL/MITIGATION ACTIONS



- ✘ On 2008, The state government given an authorisation to Selangor Forestry Department to evacuate the illegal settlers, dismantle the houses and destroy the agriculture crops.
- ✘ Blocking of drainage canals and/or ditches; 850 in all but requires proper and systematic maintenance
- ✘ Replanting and/or reforestation of degraded areas within the FR boundary
- ✘ Increase patrolling and enforcement activities in the FR Boundary - at least 3 times/week on the ground and through aerial surveillance
- ✘ Establish and maintain clear signpost/signages all along the the forest boundary



Enforcement Activities

- Briefing given before starting the enforcement





**Dismantling of houses/dwelling huts erected
inside RMFR**



Destroying and removing of agriculture crops
(e g :palm oil, pineapples, cash crops;yam,tapioca, chili, lemon-grass and banana)

2.2 Blocking of drainage canals and ditches (= part of hydrological restoration)



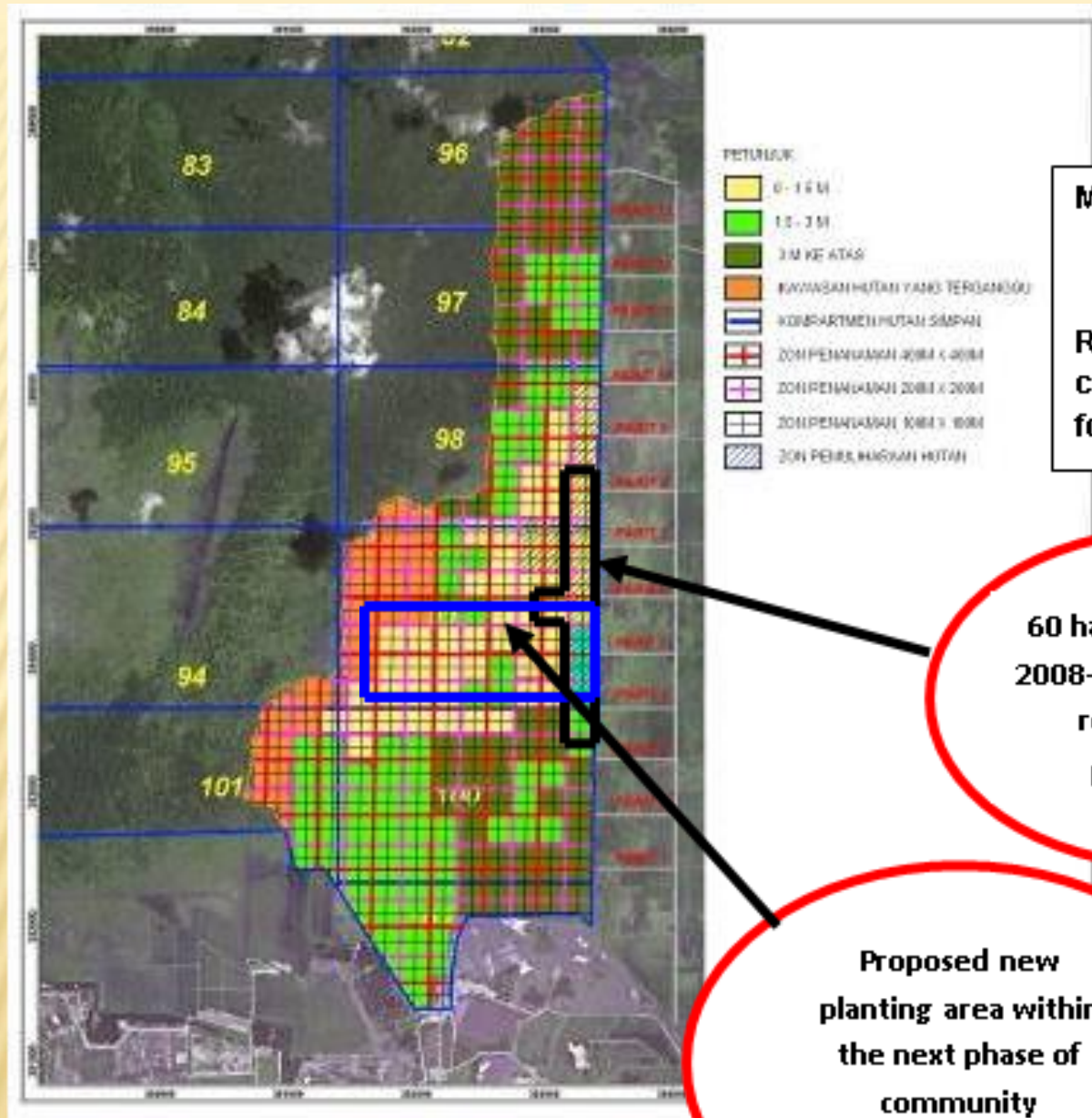


Forest rehabilitation activities at RMFR



- Rehabilitation programme initiated with local community participation in November 2008 – Forest Department and GEC
- 10,000 trees planted by more than 2000 volunteers (community members) by December 2008
- To date about 60 ha of degraded peatland area been rehabilitated with planting of more than 80,000 trees.





Awareness Programme

Talk on Importance of Conservation and Sustainable Use of Peatlands)
Kg. Bestari Jaya Community Hall, Kuala Selangor on 22nd September,
2011



Tree Planting Programme for State Government Agencies at Parit 6, Compartment 100, Raja Musa Forest Reserve, Bestari Jaya on 6th October, 2011



Demarcation & Monitoring Activities



Boundary marking & maintenance



Signages at access points



Periodical ground & aerial patrolling



Fire Risk Index signage



CHALLENGES AND LESSONS LEARNED



- ✗ Natural or artificial regeneration?
- ✗ Building and maintenance of bunds/blockages
- ✗ Prevention of new encroachment
- ✗ Weed infestation – Lalang (*Cylindrica imperata*)
- ✗ Species selection for replanting and availability
- ✗ Community-based approach?
- ✗ Sufficient funding & trained human resources



3. Next plan of action:

3.1. PROCUREMENT OF PLANTING STOCK

Realizing the need to procure a large number of planting stock, the department plans to aggressively raise them in the two (2) existing nurseries. The facilities in these nurseries will be upgraded to increase their capacity.

3.2. ENHANCING COLLABORATION WITH PRIVATE SECTOR, NGO's AND PUBLIC

NGO's are important partners in the rehabilitation programmes. Besides helping in the promotion of public awareness on the importance of conserving peat swamp forest, they also make available some amount of fund and human resource in term of volunteers. The department intends to further strengthen the existing collaboration by involving them in both the planning and implementation of the programmes.

3.3. PREVENTION OF NEW ENCROACHMENT

Encroachment of new areas and re-encroachment of the existing areas have to be prevented. Enforcement efforts will be increased. External boundaries of the permanent reserved forest will be clearly marked and more signage will be displayed.

4. Link to APFP/ SEApeat Project - Component Malaysia

- **National: policy and capacity, sharing experience and lessons learned**
- **Pilot area: Raja Musa Forest Reserve**
- **Demonstrating rehabilitation and partnership with multiple stakeholders including private sector**



5.0 CONCLUSION

The forest rehabilitation conducted at RMFR is a success story mainly because:-

- Incidences of wild forest fire reduced**
- No new cases of encroachment detected along the FR boundary**
- Natural regeneration taking place in areas where hydrological restoration was conducted**
- Increase of above ground carbon content as result of active tree planting programme and elimination of peat fires.**

An aerial photograph of a vast, dense tropical forest. The canopy is a thick, textured layer of green, with varying shades indicating different tree species and heights. The perspective is from a high altitude, looking down on the forest floor.

THANK YOU

TERIMA KASIH