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Tropical Peat Forest Fire Management in Malaysia

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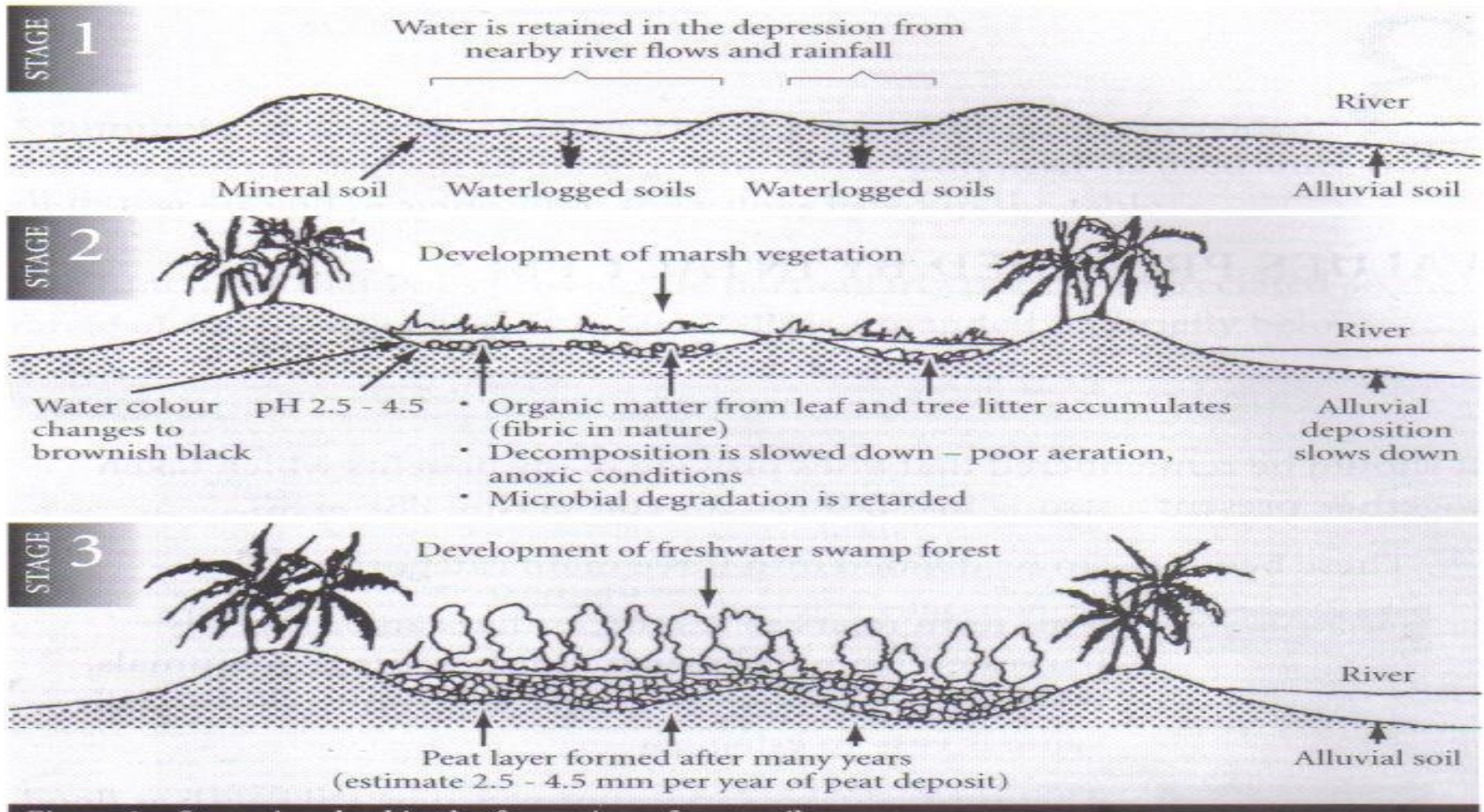
Malaysian Forest

Permanent Forest Reserve (million hectares)	Protected Land (million hectares)	Total Forested Land (million hectares)
14.55	1.86	18.27

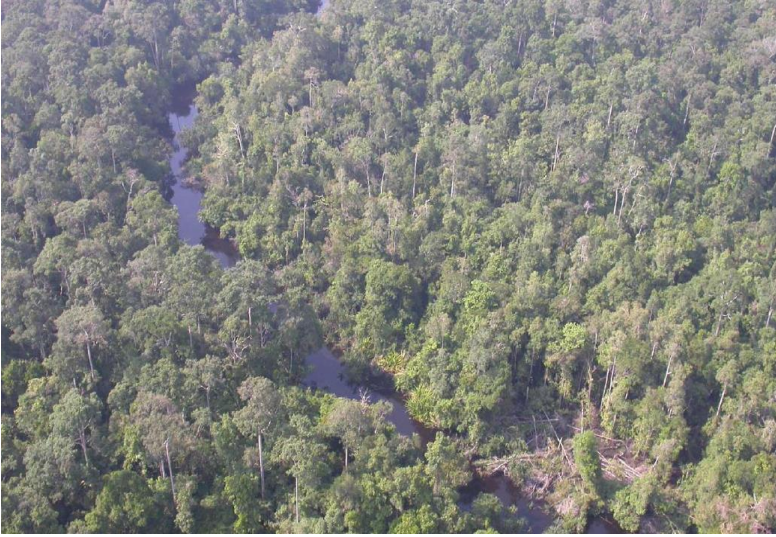
Peat Swamp Forest in Malaysia (Hectares)

Peninsular Malaysia	Sabah	Sarawak	Total
254,976	26,011	750,00	1,030,987

Formation of Tropical Peat Swamp Forest



Source: UNDP/GEF Peat Swamp Forest Project, 2004



An overview of forest fires in PRF of Peninsular Malaysia

- Prior to 1990, no major incidence of forest fire reported within the PRF in Peninsular Malaysia. Some isolated cases occurred in small scale pine forest plantation in 1970s and *Acacia mangium* plantations in 1980s
- Between 2010 to 2016, a total of 119 reported cases of forest fire covering a total of 5,347.19 ha of the PRF in Peninsular Malaysia. Throughout the period, 2014 is the worst year for forest fire hazards in Peninsular Malaysia (56 cases, 2682.6 ha of PRF affected, 70% on peat swamp forest) due to the prolonged dry and hot period.
- Mostly happened on secondary forests, peat swamp forest, and forest plantation.

Forest Fire in Malaysia – Number of incidences and extent of forest affected by forest fire in PRF in P.Malaysia (2010 – 2016) according to forest type.

Area	2010		2011		2012		2013		2014		2015		2016	
	No. of Incidences	Area (ha)	No. of Incidences	Area (ha)	No. of Incidences	Area (ha)	No. of Incidences	Area (ha)	No. of Incidences	Area (ha)	No. of Incidences	Area (ha)	No. of Incidences	Area (ha)
Dry Inland Forest	2	2.1	2	9	4	14.6	3	40	36	672.45	0	0	16	136.69
Peat Swamp Forest	0	0	0	0	5	436.5	18	1381.7	15	1878.8	1	180	6	383
Forest Plantation	1	45	0	0	0	0	3	14	5	131.35	0	0	2	22
total	3	47.1	2	9	9	451.1	24	1435.7	56	2682.6	1	180	24	541.69

Source: Protection and extension Section, Forest Plantation and Protection Division, FDPM

Total no. of forest fire incidences* : 119

Total area of PRF affected by forest fire* : 5347.19 hectares

*Peninsular Malaysia (2010-2016)

Fire in Tropical Peat Swamp Forest



- * penetrate into the peat horizon
- * burning out funnel-shaped pits
- * uprooted & tree crown toppling
- * constant tendency of self-penetration
- * flameless (smouldering)
- * slow rate (<math>< 1.5 \text{ gr/m}^2/\text{hr}</math> or 0.025 cm depth/hr)

CLASSES (→ burning depth)

- * WEAK: <math>< 25 \text{ cm}</math>
- * MEDIUM: 25 - 50 cm
- * INTENSE: > 50 cm

Fire Suppression in Peat Swamp Forest

- Early fire detection using Malaysia FDRS
- Blocking of canals to maintain water level
- Total flooding to douse the fire



Community involvement in fire management at North Selangor Peat Swamp Forest (NSPSF), Selangor

- Local community involvement in fire monitoring and prevention in buffer zone areas of the forest reserve on daily basis during drought season.
- Main responsibility: taken own initiative to patrol, control and extinguished potential fire in buffer zone
- Local community involvement has helped to reduce the workload of forestry department, especially forest fire in Raja Musa Forest Reserve
- They has taken some action to prevent forests fires in buffer zone, such as repair or build new canal block at the forest buffer area to raise up the water level and to be a fire prevention measures.
- This approach has had some successes and is expected to become increasingly effective with time and with more experience.

Small fire has been extinguished by hand pump

Canal blocking at buffer zone and forest reserve



Monitoring activity



Fire fighting work carried out by the local community

Photo: Selangor Forestry Department & Global Environment Centre (GEC)

Education and Awareness



Source: gigagorgeous.blogspot.com



m. azman pictures



Source: www.wetlands.org

Issues and Challenges

- Conversion of peat swamp to agriculture land
- Access to forest fire areas
- Recurrent forest fire
- Forest restoration

Thank You

Terima Kasih