



“ MEMAHAMI HUTAN TROPIKA:
ANTARA KEKAYAAN DAN KERENTAAAN
KEPUNAHAN JENIS ”

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Introduction



1. tropical rain forests, rich tree species with very few individual trees/species (Whitmore 1983; Sakai et al. 1999; Sakai 2001).
2. The very low density of tree species more prevalent to the climax tree species than the pioneer ones (Susatya 2010)
3. Dioecy is common among tropical tree species. hermaphrodite species tend to be not self-compatible, and consequently have to do outcrossing (Bawa et al.1985).
4. In the tropical rainforest of Malaysia Peninsular, it requires 32 ha to find two trees of the same species (Poore 1968).
5. Polination depends on climate/microclimate, and endangers forest regeneration



metode

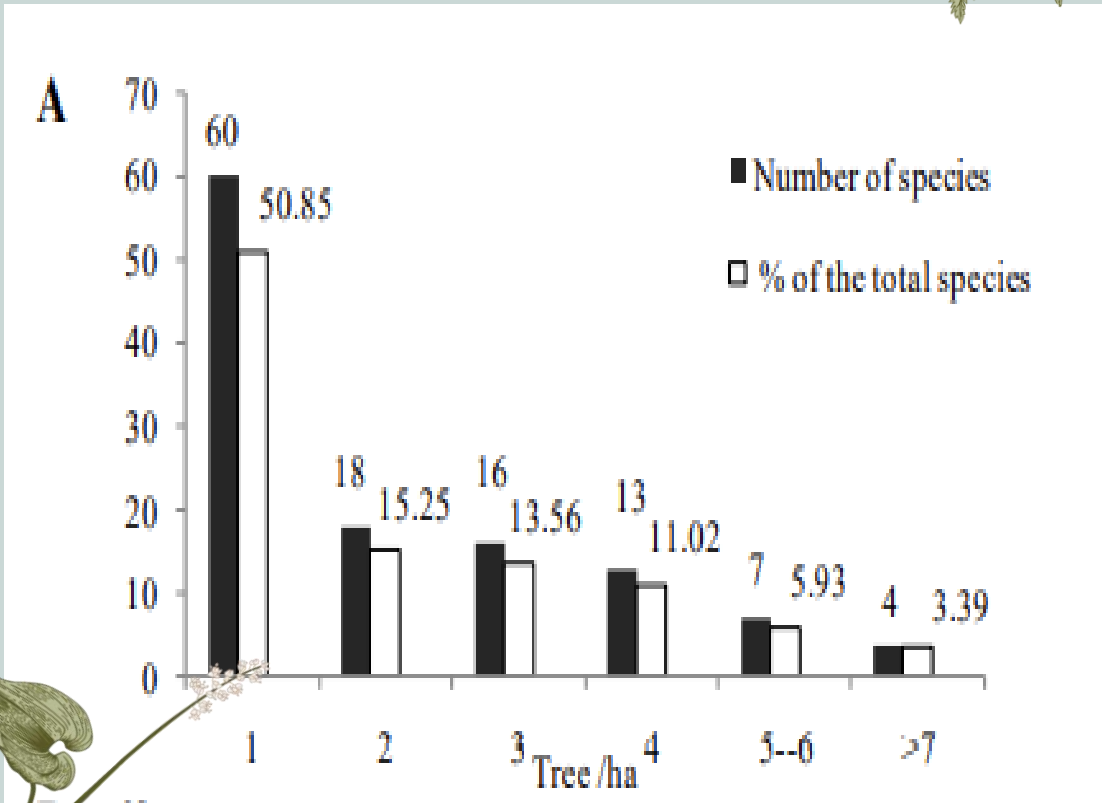


Plot dan survey	Sexualitas	Pembungaan	Kelangkaan (indv/jenis)	Ukuran biji
a. 1 ha b. > 5 cm c. Herbarium speciment	a. Hermaprodit b. Monoecious c. Dioecious	a. sekali/thn b. Dua kali/thn c. Sepanjang tahun d. Supra annual	a. 1 phn/jenis b. 2 phn/ jenis Sampai dengan > 7 pohon/jenis	a. very small (0-4 mm), b. small (4-8 mm) c. medium (8-12 mm), c. large (12-16 mm), d. very large (> 16 mm),

Analytic Hierarchy Process (AHP)
potential risks very high, high, medium, low, and very low

Results

A. Density (tree/species/ha)



a. Komposisi:

Species 118 species , 69 genera and 37 families

b. Only 4 species > 10 trees/ha

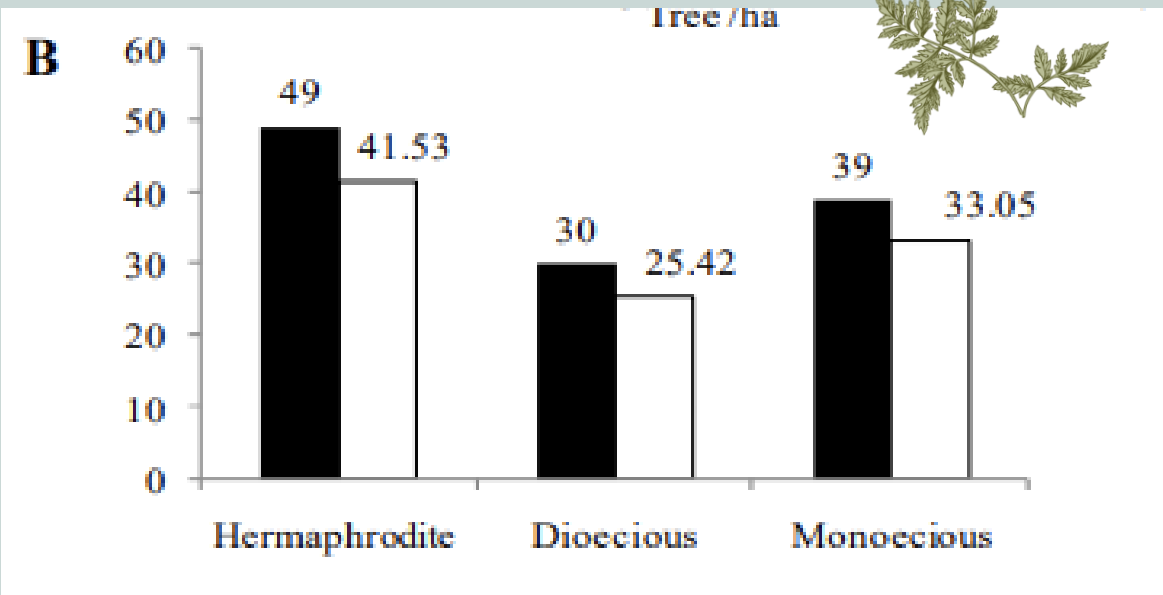
c. 8 families or 21.62% of the total families

20 genera or 28.98%

60 jenis atau 50.85%

HANYA PUNYA SATU POHON.

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Results

b. Flower sexuality

a. Total Dio (25.43 %) dan Mono (33.05)

Menjadi rentan dengan perubahan iklim

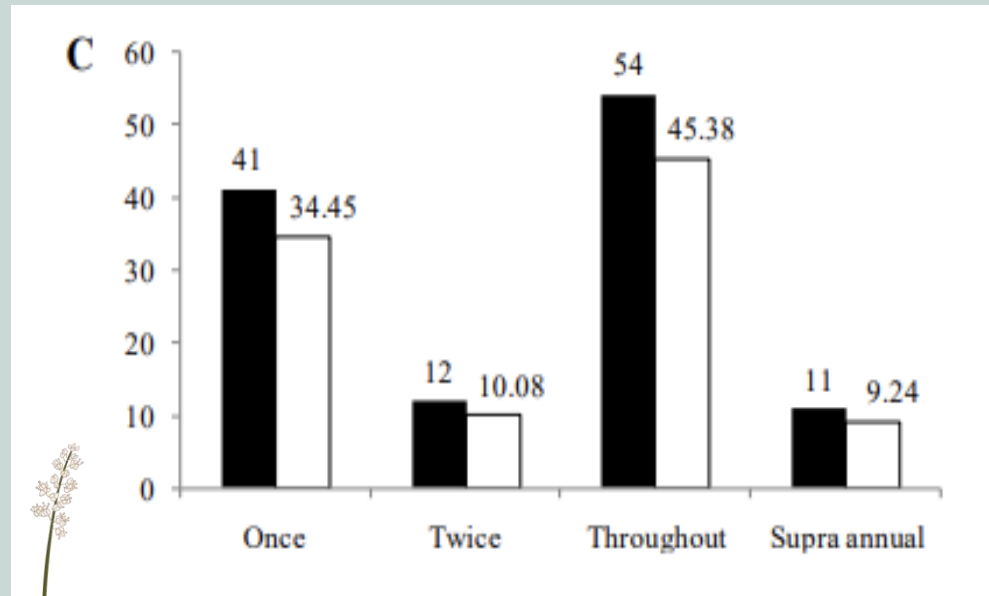
b. Komposisi Mono dan dioecious lebih tinggi dari Hutan hujan Costa Rica (Breanne 2017), dan Kalimantan Tengah (Brearley et al. 2007).

c. Special to dioecious species sama jumlah dengan both Sarawak (Ashton 1969) and Pasoh forests (Kochummen et al. 1991).

Results

c. Flowering patterns

- a. Furthermore, the role of environments becomes a pivot point in **tree regeneration** because the flowering phenology shows a strong correlation with climate, rainfall, and humidity, drought and temperature (Kushwaha et al. 2011; Sulistyawati et al. 2012).

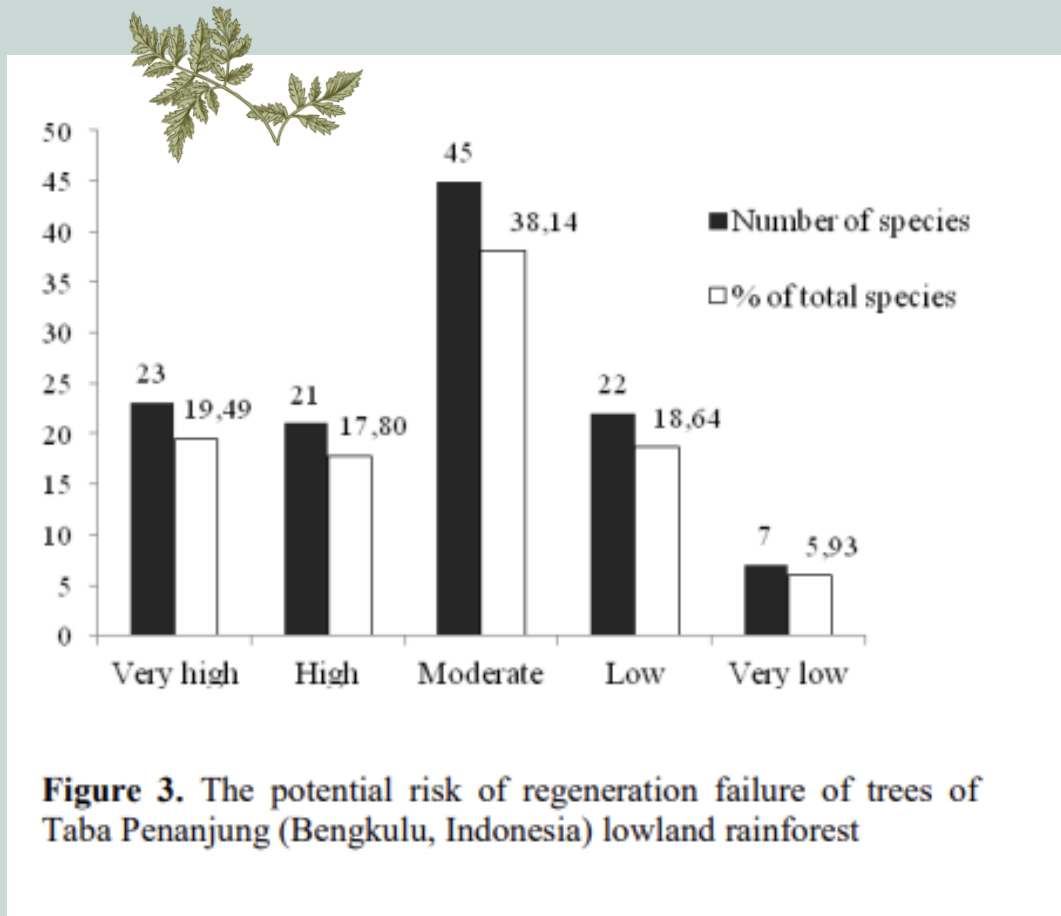


Results

d. Potensi Kegagalan Regenerasi

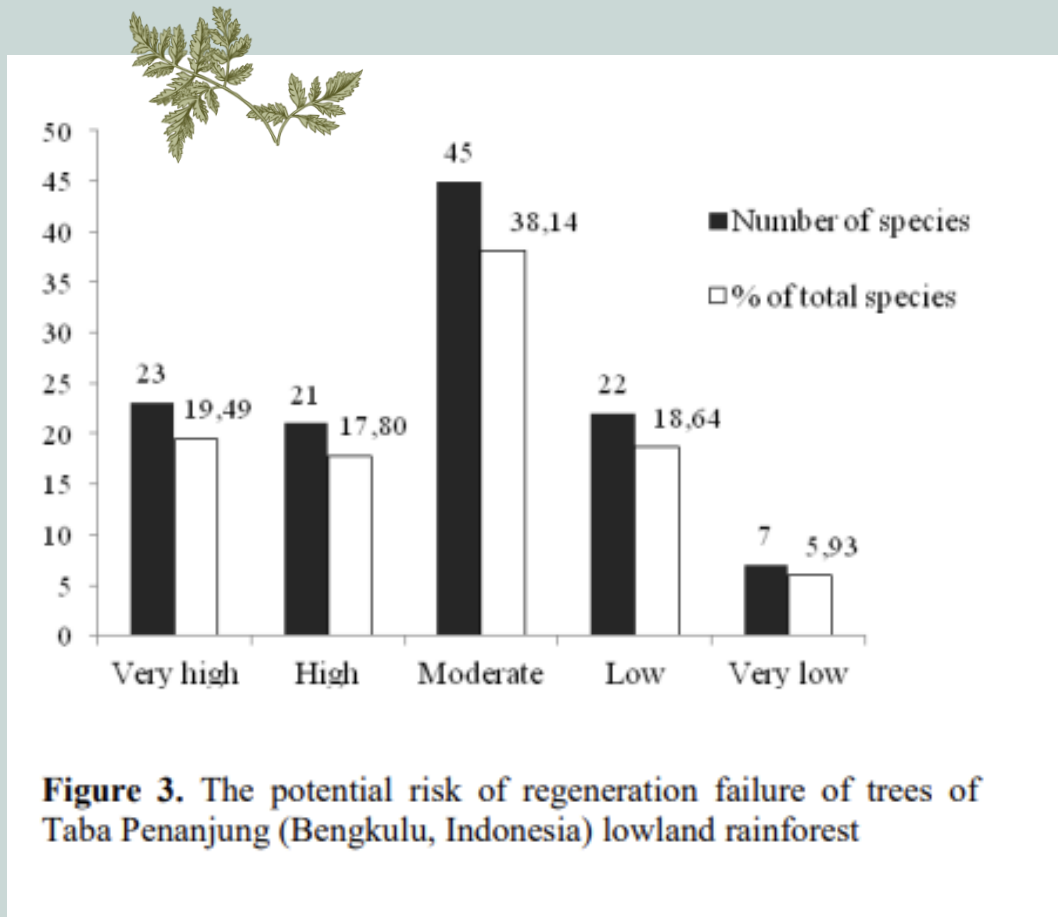
a. Very high dan high risk 37.39% jenis

a. very high-risk category : Euphorbiaceae (12 sp), Myristicaceae (5 sp), Lauraceae (3sp), Flacourticeae, Moraceae, and Rubiaceae. all species of Myristicaceae, namely *Knema globularia*, *Knema glauca*, *Horsfieldia polyspherula*, *Horsfieldia costulata*, and *Gymnacranthera forbesii*, The very highrisk category was dominated by dioecious species (22 of 23 species).



Results

d. Potensi Kegagalan Regenerasi



high-risk category :

21 species of 10 families (Figure 3), of which family of Meliaceae contributed most with 7 species, while the other nine families only contributed from one to four species.

Results

d. Potensi Kegagalan Regenerasi

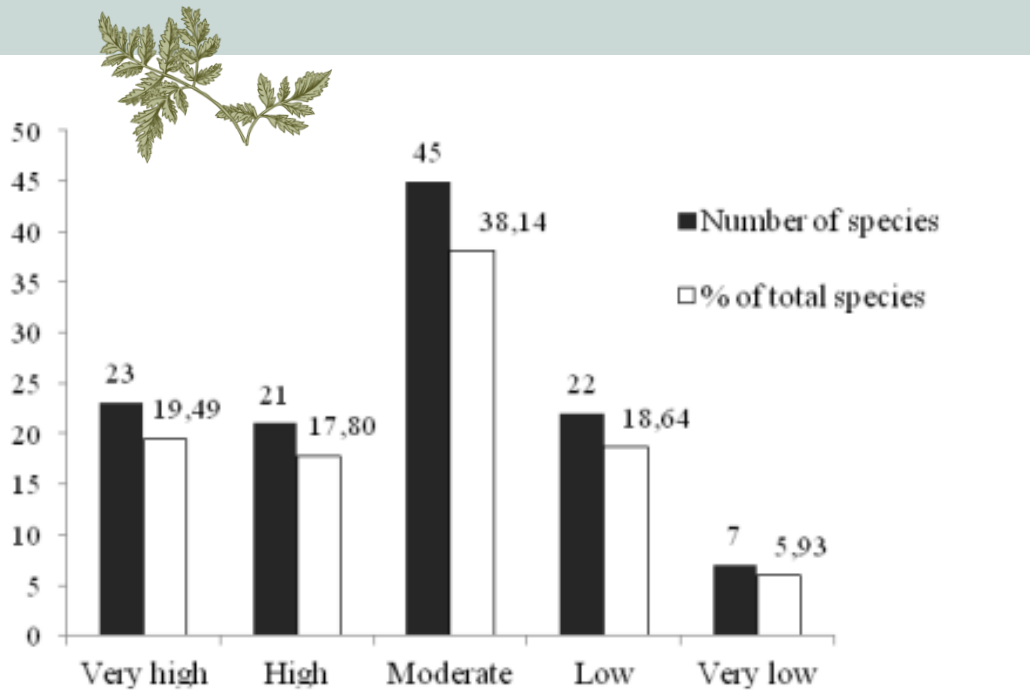


Figure 3. The potential risk of regeneration failure of trees of Tabu Penanjung (Bengkulu, Indonesia) lowland rainforest

a. Very high dan high risk 37.39% jenis

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Results

d. Potensi Kegagalan Regenerasi

- a. Very high risk: Dioecy dan large seed, Recalcitrant.
- b. the closest distance between the same tree species could reach up to 131 m, and the distance between female and male trees could be even farther (Abebbe, 2008).



Implikasi konservasi



IUCN

- 118 tree species, only 21 species (17.79%) are listed in 2017's IUCN red list.
- Sisanya not assessed species

Very high risk

- the 23 species with very high-risk category,
- IUCN least concern:
- *Litsea spathacea*, *Knema glauca*, *K. globularia*.

High risk

- 21 species
- 15 jenis least concern IUCN *K. glauca*, *K. globularia*, *Litsea spathacea*, *Aglaia tomentosa*, *Sterculia parviflora*, *Archidendron ellipticum*, *Magnolia sumatrana*, *Microcos laurifolia*, *Alstonia angustiloba*, *Bhesa paniculata*, *Euonymus javanicus*, *Payena maingayi*, *P. lanceolata*, *Polyalthia hookeriana*, and *Prunus arborea*



Thank you



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