



CERTIFICATE

We certify that **E. Sinaga**, has participated and presented a research papers entitled "Biology of Wild Local Fruits in West Kalimantan Indonesia " in The International Symposium on Tropical and Subtropical Fruits held in The Imperial Mai Ping Hotel, Chiang Mai, Thailand during 19-22 December 2011.

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Biodiversity of Edible Wild Fruits
in
Kalimantan Indonesia



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International Symposium on Tropical and Subtropical Fruit
The Imperial Mai Ping Hotel, Chiang Mai, Thailand, 19-22 December 2011



KALIMANTAN



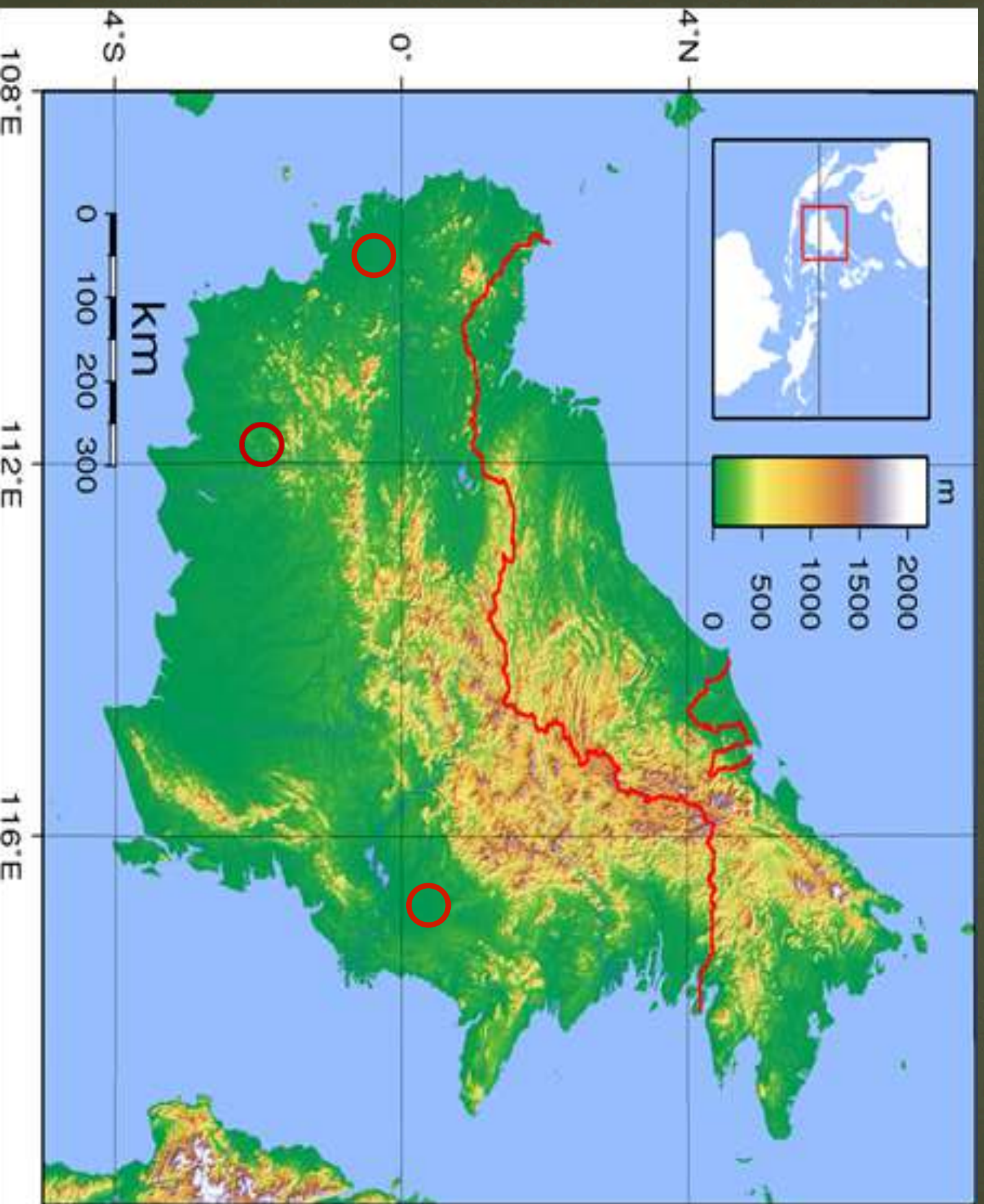
∞ Borneo island (Pulau Kalimantan) is the third largest island in the world: ca 287,000 square miles (743,330 square kilometers)

∞ The biggest island in Indonesia

KALIMANTAN



- ☞ Located in the equatorial region of the Pacific Ocean
- ☞ Tropical climate, high humidity, full sunshine, temp. 25-35° C, curah hujan > 720 mm per year (ever wet zone) up to 7000 mm/year (Gn. Mulu National Park)
- ☞ Low land (50% ≤ 150 meter) with many rivers, and mountainous area in the center of the island



KALIMANTAN



☞ Has several distinct ecosystems:

☞ Mangroves

☞ Peat swamp forest

☞ Heath or kerangas forest

☞ Montane forest

Biodiversity



∞ Flora: ca 15,000 plant species, 6,000 are endemic (WWF, McKinnon et al, 1997)

∞ Fauna: more than 1400 amphibians, birds, fish, mammals, and reptiles, insects

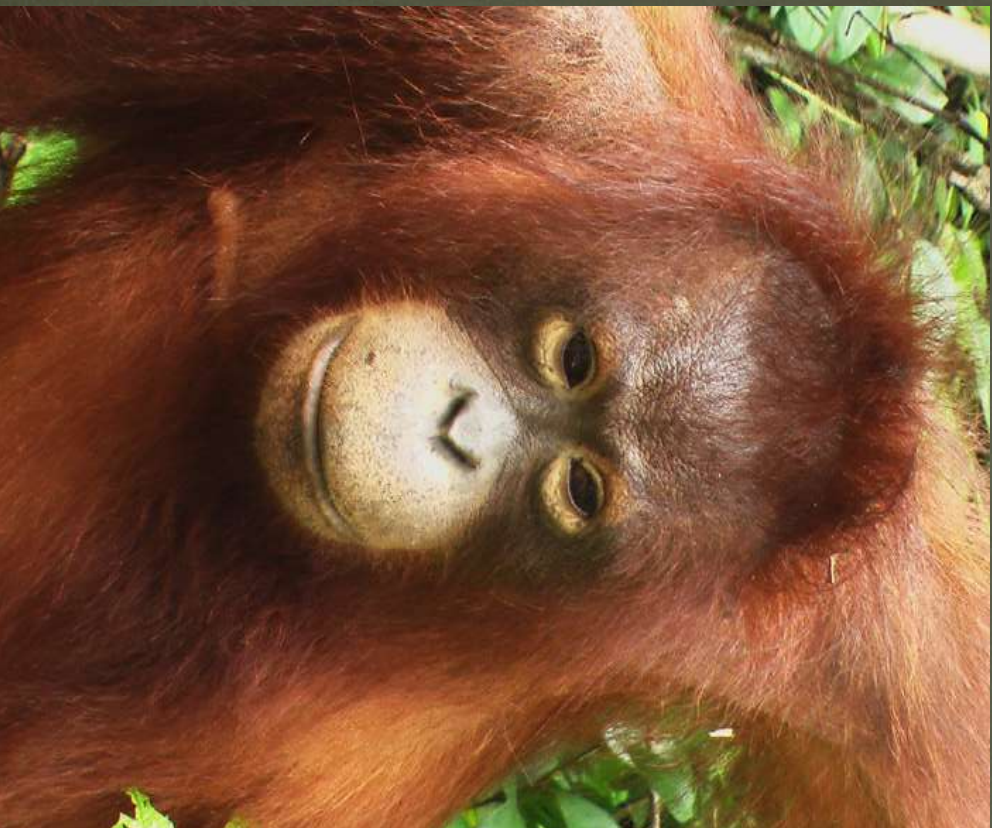
∞ Fungi:

Fauna



- ∞ Mammals: 222 species (44 endemic)
- ∞ Birds: 420 resident species (37 endemic)
- ∞ Fish: 394 species (19 endemic)
- ∞ Reptils & Amphibians: 150 species
- ∞ Primates: 13 species of primates

Endemic Fauna



Pongo pygmaeus



Nasalis larvatus

Threats



- Deforestation
 - large-scale land conversion to plantations
 - Logging: legal & illegal
 - forest fires
- Climate change
- Underutilized → no intensive culture

WWF, 2005



Forest Cover in Borneo



Forest Cover in Borneo, past and projected



Deforestation



∞ Deforestation Rate: 3.9 percent
(2000-2005)

∞ Causes of Deforestation:

∞ Land conversion to oil palm cultivation

∞ Logging

∞ Fires

∞ Other agriculture practices

∞ SS









Biodiversity of Edible Wild Fruits in Kalimantan



- More than 100 species
- More than 30 families
- Many potential species to develop
 - As food sources
 - As sources for medicine
- Others

Biodiversity of Edible Wild Fruits in Kalimantan



Families	Identified	Unidentified	Total
Anacardiaceae	11 species	9 specimen	20
Sapindaceae	5 species	13 specimen	18
Phyllanthaceae	6 species	6 specimen	12
Bombacaceae	10 species	1 specimen	11
Moraceae	6 species	3 specimen	9
Cluciaceae	6 species	3 specimen	9

Biodiversity of Edible Wild Fruits in Kalimantan



Families	Identified	Unidentified	Total
Meliaceae	4 species	-	4
Myrtaceae	3 species	-	3
Amnonaceae	3 species	-	3
Apocynaceae	2 species	-	2
Lauraceae	2 species	-	2
Arecaeae	2 species	-	2
Burseraceae	2 species	-	2

Biodiversity of Edible Wild Fruit in Kalimantan



- ❧ Combretaceae
- ❧ Ebenaceae
- ❧ Elaeocarpaceae
- ❧ Euphorbiaceae
- ❧ Fagaceae
- ❧ Flacourtiaceae
- ❧ Leguminosaceae
- ❧ Malvaceae
- ❧ Melastomataceae
- ❧ Muntingiaceae
- ❧ Musaceae
- ❧ Olacaceae
- ❧ Passifloraceae
- ❧ Polygalaceae
- ❧ Rosaceae
- ❧ Sapotaceae
- ❧ Solanaceae
- ❧ Zingiberaceae

Anacardiaceae

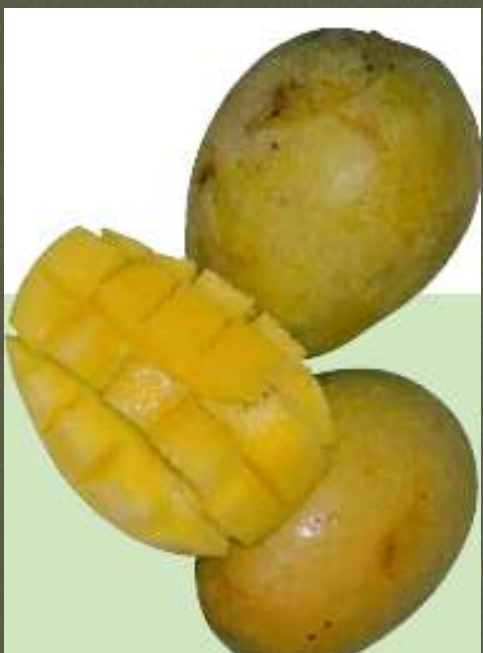


- œ *Mangifera applanata*
- œ *M. caesia*
- œ *M. casturi*
- œ *M. decandra*
- œ *M. foetida*
- œ *M. indica*
- œ *M. odorata*
- œ *M. pajang*
- œ *M. torquenda*
- œ *Anacardium occidentale*
- œ *Bouea macrophylla*
- œ *Mangifera* sp. (8)
- œ *Spondias* sp. (1)

Anacardiaceae



Anacardiaceae



Mangifera sp.
(Asam Tungku)



Mangifera sp.
(Kasturi Cuban)



- Almost globular shape
- Smaller than other casturi, 40-75 grams
- Fruit flesh is soft, agak berserat, yellow-orange
- Sweet, a little bit nice soury taste

Sapindaceae



∞ *Lepisanthes alata*

∞ *Nephelium lappaceum*

∞ *N. malaiense*

∞ *N. maingayi*

∞ *N. mutabile*

∞ *Nephelium* sp. (11)

∞ *X* sp. (2)

Sapindaceae



Sapindaceae



Nephelium sp.
(Buah Dara)



Nephelium sp.
(Bangkul)



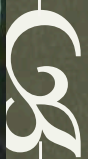


Nephelium sp.
(Sahnui)
☞

Nephelium sp.
(Benyalung)



Nephelium sp.
(Semalén)



X sp.
(Melinng)



Phyllanthaceae



1. *Baccaurea angulata*  *Baccaurea* sp. (6)
2. *B. lanceolata*
3. *B. macrocarpa*
4. *B. membranacea*
5. *B. motleyana*
6. *B. pyriformis*

Phyllanthaceae



Phyllanthaceae



Baccaurea macrocarpa
(Pasi, Kapul)



Baccaurea lanceolata
(Belimbing darah)



Baccaurea sp.
(Kekali Cuncung)



Baccaurea sp.
(Keliwetn)

Fermented to
produce alcoholic
beverage called
tuak keliwetn



Bombacaceae



- œ *Durio dulcis*
- œ *D. excelsus*
- œ *D. grandiflorus*
- œ *D. graveolens*
- œ *D. kutejensis*
- œ *D. lowianus*
- œ *D. macranthus*
- œ *D. oxleyanus*
- œ *D. testudinarius*
- œ *D. zibethinus*
- œ *Durio* sp. (*mantuala*)

Bombacaceae



Durio testudinarium



Moraceae



- ❧ *Artocarpus altilis*
- ❧ *A. anisophyllus*
- ❧ *A. heterophyllus*
- ❧ *A. integra*
- ❧ *A. lancifolius*
- ❧ *A. odoratissimus*
- ❧ *Artocarpus* sp. (3)

Moraceae



Moraceae





Moraceae

33

Clusiaceae



- œ *Garcinia atroviridis*
- œ *G. dulcis*
- œ *G. forbesii*
- œ *G. mangostana*
- œ *G. parvifolia*

Clusiaceae

3



Clusiaceae



Garcinia sp. (Sabeek bora)





Kelampai



Manawuruhan (*Antidesma* sp. ,
Euphorbiaceae)

Potential Fruit

Willughbeia angustifolia
(Limat, Gitaañ)



Potential Fruit



Litsea garciae
(Kalangkala)



Potential Fruit



Nephelium sp.
(Bangkul)



Potential Fruit



Artocarpus sp.
(Mentawak)



Potential Fruit



Garcinia forbesii
Sapindaceae

- The white flesh almost like mangosteen
- Sweet and juicy
- The

Potential Fruit



Garcinia sp. -
Sapindaceae
(Sabek bora)

- Fruit round-elongate
- The white flesh almost like mangosteen
- Sweet and juicy

Potential Fruit



Rollinia sp.
(Srikaya ganjal)

Potential Fruit



X sp.
(Meliokng)

- The flesh almost like rambutan
- Mango-like taste

Potential Fruit



Mangifera pajang
(Asam Pajang, Mehawang)



Potential Fruit

IUCN Red List, Threatened species



Dacryodes sp.
(Kembayau)



Conclusion



- ∞ Kalimantan have huge diversity of edible wild fruits
- ∞ Most of the edible wild fruits are underutilized
- ∞ Some of those edible wild fruits have good prospect to be develop further as commercial fruit crops.



Thank you