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Wild fruit trees in Pelangai Forest Reserve, Kuala Pilah, Negeri Sembilan

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Received 7 May 2026; Revised 26 June 2026; Accepted 27 June 2026
Available online 29 June 2026
DOI: 10.24191/bioenv.v4i2.157

ABSTRACT. A checklist of wild fruit trees in Pelangai Forest Reserve, Kuala Pilah, Negeri Sembilan was provided. Data collection was carried out around the forest trail randomly. A total of 19 species within 13 genera and 10 families of wild fruit trees were recorded. Three families, namely Clusiaceae, Fabaceae and Phyllanthaceae had the largest number of species, with three species each. The common species include *Artocarpus lanceifolius, Baccaurea parviflora, Lepisanthes senegalensis* and *Microcos fibrocarpa*. The total number of wild fruit tree species in this forest can be considered low for a lowland dipterocarp forest that had been logged. However, the maintenance and conservation of wild fruit trees are important as food resources for frugivores which inhabit this logged-over forest.

Key words: wild fruit trees, Pelangai Forest Reserve, Clusiaceae, Sapindaceae

1. INTRODUCTION

Wild fruit trees are trees that have fruit or edible seeds (Kochummen, 1990) and have long been recognized by local people since ancient times. Certain genera or species such as *Artocarpus, Baccaurea, Castanopsis, Durio zibethinus, Garcinia mangostana, Mangifera spp., Nephelium lappaceum* and *Parkia speciosa* have been long recognized and also cultivated for their fruits. In general, the wild fruits were collected from trees that grow wild in the forests or from trees that are grown on a small scale around their villages or homes. They may collect wild fruits for their own consumption or for sale on a small scale.

Nevertheless, studies on wild fruit trees mainly from the diversity of species found in the forests of Peninsular Malaysia are still lacking and restricted to the particular area. Several studies have been conducted to determine the composition and diversity of wild fruit trees including Kochummen (1990), Salma et al. (2000), Saw et al. (1991),

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Whitmore (1971) and Ahmad Fitri et al. (2014). Most of the study was conducted in the primary rainforest and only the study by Ahmad Fitri et al. (2014) was carried out in the logged-over forest. Therefore, the data of wild fruit trees species from logged-over forests is still inadequate. For this purpose, a study was conducted in the logged-over forest of Pelangai Forest Reserve to provide a checklist of wild fruit trees that occurred in this forest.

2. METHODOLOGY

2.1. Study Area

Pelangai Forest Reserve was gazetted as a forest reserve on 1 December 1936 and is located in the district of Kuala Pilah, Negeri Sembilan (Figure 1). The forest reserve covers an area of approximately 6,630 ha (Forestry Department of Negeri Sembilan, 2017). About 400 ha of the area were later allocated to UiTM, with some portions developed to accommodate infrastructure for the new campus and related facilities. Pelangai Forest Reserve has undergone selective logging in the past, as indicated by the presence of skid trails and the scarcity of large trees, particularly dipterocarps. Based on its current vegetation condition, the area can be classified as a regenerating lowland dipterocarp forest.

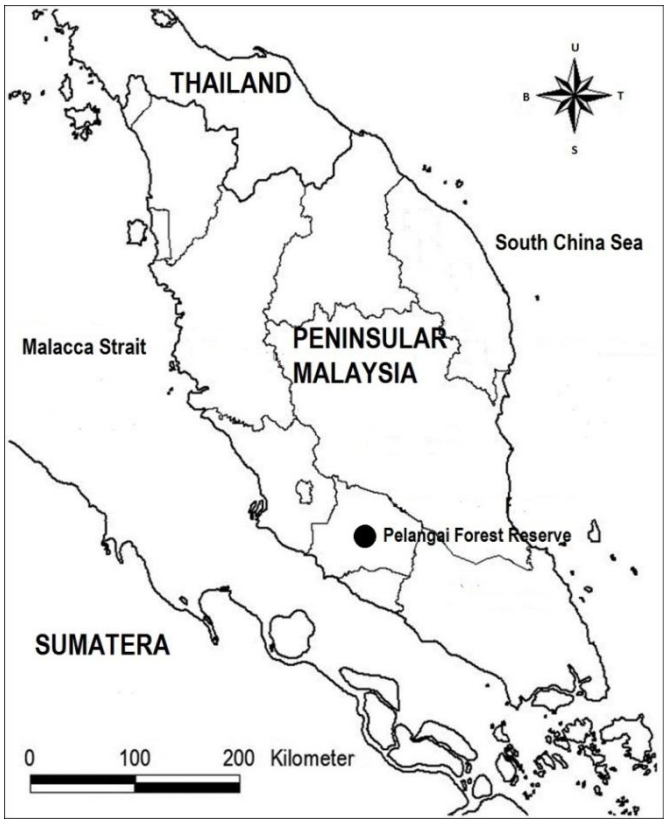

Figure 1. Geographical location of Pelangai Forest Reserve, Kuala Pilah, Negeri Sembilan, Malaysia.

2.2. Sample collections

Samples of wild fruit trees, mostly the leaf samples, were collected randomly within the UiTM area, around the forest trail, during the fieldwork. Samples from small trees were collected using a pole, while for the taller trees, a catapult or binoculars were used. Common specimens were recorded directly in the field without involving the collection of specimens. Then, the specimens were cured and processed by following the method of Bridson and Forman (1992) and kept in the oven for one week at 60 °C. Local flora books such as Tree Flora of Malaya (Ng, 1978, 1989;

Whitmore, 1972, 1973) were used for identification and to obtain information about the status of edible fruit trees. Selected publications related to wild fruit tree species were also reviewed (e.g. Saw et al., 1991; Whitmore, 1971).

2.3. Data analysis

The data were tabulated into species, genera and families. Information on the abundance and size of certain species were obtained from the ecological plot studies (two plots with dimensions of 25 m x 20 m with DBH of ≥ 5.0 cm).

3. RESULTS AND DISCUSSION

3.1. The floristic composition

A total of 19 species of wild fruit trees from 13 genera and 10 families was recorded (Table 1). Three families, namely Clusiaceae, Fabaceae and Phyllanthaceae had the largest number of species, with three species each.

Table 1. Total number of genus/genera and species for all families of wild fruit trees in Pelangai Forest Reserve, Kuala Pilah, Negeri Sembilan.

Family	Total number of genus/genera	Total number of species
Anacardiaceae	1	1
Burseraceae	1	1
Calophyllaceae	1	1
Euphorbiaceae	1	1
Malvaceae	2	2
Moraceae	1	2
Sapindaceae	1	2
Clusiaceae	1	3
Fabaceae	3	3
Phyllanthaceae	1	3
Total	13	19

Based on the data obtained, the number of species of wild fruit trees in Pelangai Forest Reserve was lower compared with other lowland dipterocarp forests in Peninsular Malaysia. For instance, the study by Ahmad Fitri et al. (2014) in the lowland dipterocarp forest at Gunung Tebu Forest Reserve, Terengganu, recorded a total of 34 species from 15 genera and 12 families. Similar results were also reported by Ahmad Fitri et al. (2016) in the lowland dipterocarp forest at Kledang Saiong Forest Reserve, Perak. They recorded as many as 31 species of wild fruit trees from 13 genera and 10 families. In Kuala Keniam, Taman Negara, Pahang, Nik Hazlan et al. (2022) reported 41 species of wild fruit trees from 19 genera and 11 families. Clusiaceae was listed as the highest, with 10 species (24.4%), while Garcinia recorded the highest total number of species, also with 10 species.

The low total number of wild fruit tree species was also reported in the primary lowland forest in Negeri Sembilan. A study by Ahmad Fitri et al. (2023) reported that a total of 22 species from 15 genera and 12 families of wild fruit trees had been recorded in Sungai Menyala Forest Reserve. Clusiaceae and Sapindaceae are the most speciose

families, with four taxa followed by Euphorbiaceae with three taxa.

In Pelangai Forest Reserve, the common species include *Artocarpus lanceifolius, Baccaurea parviflora, Lepisanthes senegalensis, Microcos fibrocarpa*. The largest stand was *Xerospermum laevigatum,* with a DBH of 105.0 cm and 35 m tall. One stand of *Parkia speciosa* has a DBH of 47.1 cm, while a stand of *Artocarpus lanceifolius* have a DBH of 37.7 cm. A full list of wild fruit trees species is shown in Table 2. A further detailed survey is needed to gather more information on the importance of wild fruit trees in this forest, including the data on mature and juvenile individuals.

Table 2. Full checklist of wild fruit tree species in Pelangai Forest Reserve, Kuala Pilah, Negeri Sembilan.

No.	Species	Family	Vernacular name
1	*Archidendron bubalinum* (Jack) I.C. Nielsen	Fabaceae	Kerdas
2	*Artocarpus lanceifolius* Roxb.	Moraceae	Terap hitam
3	*Artocarpus lamellosus* Blanco	Moraceae	Tampang
4	*Baccaurea brevipes* Hook.f.	Phyllanthaceae	Rambai tikus, rambai ayam, rambai hutan
5	*Baccaurea javanica* (Blume) Müll.Arg.	Phyllanthaceae	Tampoi
6	*Baccaurea parviflora* (Müll.Arg.) Müll.Arg.	Phyllanthaceae	Asam tambun
7	*Calophyllum macrocarpum* Hook.f.	Calophyllaceae	Bintangor bunut
8	*Canarium littorale* Blume	Burseraceae	Kedondong gergaji
9	*Dialium platysepalum* Baker	Fabaceae	Keranji kuning besar
10	*Elateriospermum tapos* Blume	Euphorbiaceae	Perah
11	*Garcinia mangostana* var. *malaccensis* (Hook.f.) Nazre	Clusiaceae	Manggis burung
12	*Garcinia parvifolia* (Miq.) Miq.	Clusiaceae	Kandis
13	*Garcinia prainiana* King	Clusiaceae	Kecupu
14	*Mangifera quadrifida* Jack	Anacardiaceae	Macang hutan
15	*Microcos fibrocarpa* (Mast.) Burret	Malvaceae	Cenderai
16	*Parkia speciosa* Hassk.	Fabaceae	Petai
17	*Scaphium macropodum* (Miq.) Beumée ex K.Heyne	Malvaceae	Kembang semangkok jantong
18	*Xerospermum laevigatum* Radlk.	Sapindaceae	Rambutan pacat
19	*Xerospermum noronhianum* (Blume) Blume	Sapindaceae	Rambutan pacat

CONCLUSION

Pelangai Forest Reserve harboured a low number of wild fruit trees species with less than 20 taxa. However, the presence of the large stand of *Xerospermum laevigatum*, with a DBH of more than 100 cm, was among the unique features and attractions of this forest.

ACKNOWLEDGMENTS

The authors would like to thank the management of UiTM Kuala Pilah Campus for their invitation and permission to carry out this study. Special thanks to Mrs. Sarah Shazwani Zakaria and Mr. Kairizan Zainal for their assistance during the fieldwork in June and December 2023.

AUTHOR CONTRIBUTIONS

Nik Hazlan Nik Hashim- supervision, writing – review & editing; Ahmad Fitri Zohari- conceptualization, data curation, supervision, writing – review & editing; Mohamad Sobre Zohari: data collection; Nur Syamimi Hamzah: writing, review and editing; Nik Norafida Nik Ali: conceptualization, data curation; Nur 'Aqilah Mustafa Bakray: writing, review and editing; Mohamad Khairul Faizi Zulkifli: data collection; Wan Norilani Wan Ismail: conceptualization, data curation; Mazlin Kusin: data collection; Engku Azlin Rahayu Engku Ariff: data collection; Khairunnisaa Abd Rasid: writing, review and editing; Mohd Nizam Mohd Said: writing, review and editing and A. Latiff: supervision, writing, review and editing.

FUNDING

This work was self-funded by the authors.

DECLARATION OF GENERATIVE AI IN THE WRITING PROCESS

The author(s) declared that no AI tool was used during the writing process.

DATA AVAILABILITY

Not applicable.

COMPETING INTEREST

The authors declare that there are no competing interests.

COMPLIANCE WITH ETHICAL STANDARDS

Not applicable.

SUPPLEMENTARY MATERIAL

No supplementary material is associated with this article.

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