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Species Diversity and Food Potential of Orangutans in Genting Tanah Village Forest

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Abstract– The aim of the research is to determine the diversity of vegetation in the forests of Genting Tanah Village which has the potential to feed orangutans (*Pongo pygmaeus morio*). The research method is an inventory of sample plots. Data were analyzed quantitatively by calculating the Relative Density, Relative Frequency, Relative Dominance and Diversity Index values. The choice of orangutan food is determined by comparing it based on literature regarding orangutan food. The research identified 67 types of vegetation belonging to 44 families. At tree level there are 20 types of vegetation, with *Shorea teysmanniana* Dyer being the most important with an Importance Value Index of 78.06%. At pole level there are 32 species, with *Combretocarpus rotundatus* Miq. has the highest Important Value Index of 74.43%. Genting Tanah village forest also has 40 species of saplings and 41 species of undergrowth. *Mallotus muticus* Mull. has the highest Importance Value Index of 55.78% in the sapling group, while *Hypolytrum nemorum* Vahl has the highest Importance Value Index of 21.24% in the seedling and undergrowth group. The species diversity index at the seedling level of 3.24 is considered high, while the species richness index is low at the tree level and moderate at the pole level. Based on the 67 species identified, there are 34 species that have the potential to be a source of orangutan's food.

Keywords– Peat Forest, Genting Tanah, Village Forest, Orangutan Food, Vegetation Diversity

I. INTRODUCTION

There are 3 species of orangutans in Indonesia. Two species are found on Sumatra Island, namely the Sumatran orangutan (*Pongo obelii*) and the Tapanuli orangutan (*Pongo tapanuliensis*), then one more species is found on Borneo island (Kalimantan, Sabah and Sarawak). Bornean orangutans are divided into three sub-species morphologically and genetic variations, namely *Pongo pygmaeus pygmaeus* found in the northwestern part of Kalimantan and Sabah, *Pongo pygmaeus wurmbii* in the southwestern part of Kalimantan, and *Pongo pygmaeus morio* in the eastern part of Kalimantan and Sabah (Boreel et al., 2024; Soendjoto et al., 2023). Three sub-species of Bornean orangutans, *Pongo pygmaeus wurmbii* is the sub-species with the largest body size, while *Pongo pygmaeus morio* is the sub-species with the smallest one.

In 1973 the Bornean orangutan population was estimated at 288,500 individuals. Based on the PHVA (Population Habitat Viability Analysis), in 2016 it was estimated that there were only 57,350 individuals living in an area of 16,013,600 hectares. The largest population of *Pongo pygmeaus wurmbii* is 38,200 individuals (Saputra et al., 2017). Thus, there is a decline of 80% in less than 50 years (BOSF, 2024). Orangutan habitat is mostly found outside conservation areas, 88.1% and inside conservation areas, 11.9% (Atmoko, 2021). Orangutan population decline is caused by several factors, namely destruction, degradation, fragmentation of orangutan habitat and hunting. Repeated forest fires, especially in peat forests, trigger population decline every decade. Bornean orangutan numbers declined by more than 60% between 1950 and 2010, and a further decline of 22% is projected to occur between 2010 and 2025. Combined, this equates to a loss of more than 82% over 75 years, between 1950–2025 (Syahiib & Safe'i, 2024; Wich et al., 2012; Ancrenaz et al, 2016).

In Genting Tanah Village, Kembang Janggut Sub-District, there is a village forest on peat land as an orangutan habitat. It was surrounded by oil palm plantations, mining and agriculture spatially. Various efforts have been made to save village forests as orangutan habitat which have now been responded by the Ministry of Environment and Forestry. One of the important things for an orangutan habitat is the availability of sufficient food for the existence of a balanced number of orangutans (Nisfiatul, 2019; Salatalohy et al., 2023). This is also

confirmed by the opinions of several researchers. In this research, the presence of Genting Tanah village forests in supplying orangutan food was explored. Therefore, the most important thing to know is the availability of sufficient quantities of orangutan food, most of which comes from several types of natural plants. To strengthen these efforts, it is necessary to collect data on the types of vegetation that have the potential to be used as orangutan food. Several similar studies have been carried out such as those carried out by (Alzagi & Prayoga, 2018; Bani et al., 2018). However, in Genting Tanah Forest village, this has never been done and there has never been any research on the potential for orangutan food, so it can be considered as something new from this research and at the same time supports efforts to preserve the decreasing orangutan habitat. Considering that the Genting Tanah Village Forest is an orangutan habitat, it is very interesting to carry out research on the diversity of vegetation types and the potential for orangutan food. It is hoped that this research will provide sufficient information regarding the diversity of vegetation types and the potential for orangutan food in the peat forest ecosystem in Genting Tanah Village. What is new about this research is that at this research location research has never been carried out regarding the diversity of vegetation that has the potential to become orangutan food. Apart from that, this location is subject to habitat fragmentation due to mining, plantation and agricultural activities so it is very urgent to protect it from habitat conversion.

This research received support from community organizations that care about wildlife, namely the World Wide Fun (WWF) Indonesia Foundation, which is consistent in nature conservation activities.

II. Literature Review

Ecologically, orangutans are a type of animal that lives in lowland forests, rarely found at an altitude of more than 500 m above sea level (Ancrenaz et al, 2016). Further stated historically, Bornean Orangutans were most found in flooded and semi-flooded lowland Dipterocarp mosaic forests, where movement between different habitat types could protect them from lack of food availability in certain habitat types. The main diet of orangutans is fruit, but also includes leaves, bark, flowers, and insects.

Orangutans are protected animals in Indonesia based on regulations, namely Law Number 5 year of 1990 concerning the conservation of biological natural resources and their ecosystems and reinforced by the Minister of Forestry and Environment's regulation number P.20/MENLHK/SETJEN/KUM.1/6/2018 concerning species, protected plants and animals. In the IUCN Red List, orangutans are included in the critical list.

In Genting Tanah Village, Kembang Janggut District, Kutai Kartanegara Regency, there is a village forest designated by decree of the Minister of Environment and Forestry with number SK.0390/MENLHK-PSKL/PKPS/PSL.0/12/2019 with an area of 4,473 Ha. The village forest has a peat forest ecosystem and part of the orangutan (*Pongo pygmaues morio*) habitat in the Belayan Senyiur meta-population. The orangutan metapopulation in Belayan Senyiur has an area of ± 61,000 Ha with a population of 220 individuals (Atmoko et al 2017). The Morio orangutan population in the Genting Tanah village forest is around 4 individuals with a population range of 3-6 individuals, while the population density is 0.103 individuals/Km² (Suyitno, 2020; Suyitno, 2022).

III. Method

The research focused on the vegetation that grows in Genting Tanah village forest with a cover area of 4.473 ha, which is in Kembang Janggut sub-district within Kutai Kartanegara regency. The habitat type is peat swamp forest. The distance from the village administration or settlement to the village forest area is approximately 1 km.

A. Data collection methods

Field survey method plays a crucial role in research and helps in understanding the characteristics of a particular population of area (Groves et al, 2009). A total of 25 plots were determined purposively by size; for seedlings 2x2 m², saplings 5x5 m², poles 10x10 m² and trees 20x20 m². The layout of the research plots of seedlings, saplings, poles and trees are shown in Figure 1. Trees are vegetation that have a diameter at breast height of 20 cm or more. Usually measured at a height of 1.3 m above ground level. Poles are vegetation that have a diameter ranging from 10 cm to 20 cm. Saplings are vegetation with a height of 1.5 meters and a diameter of less than 10 centimeters. Seedlings begin when they germinate to a height of less than 1.5 m. The undergrowth consists of shrubs, herbs, and vines, in addition to tree seedlings.

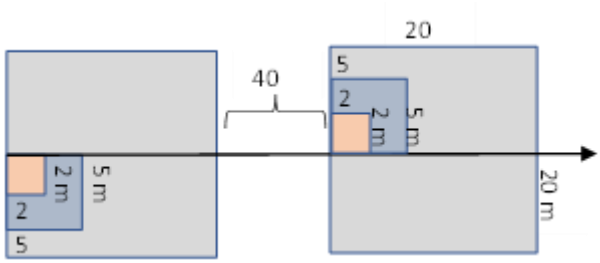


Figure 1 Experimental Plot Layout

B . Data processing and analysis

Data processing in forest ecology research involves various commonly used terms and formulations, such as the following (Suparjo et al., 2023; Wijana,2014; Indriyanto, 2005; Ellenberg, 1974):

$$DR = \frac{\Sigma\, b_i}{\Sigma\, B_n} \text{ x } 100\%. \quad (1)$$

$$KR = \frac{\Sigma\, n_i}{\Sigma\, N_i} \text{ x } 100\% \quad (2)$$

$$FR = \frac{\Sigma\, p_i}{\Sigma\, P_i} \text{x } 100\% \quad (3)$$

$$IVI = DR + KR + FR \quad (4)$$

Information (4) :
DR is Relative Dominance
KR is Relative Density
FR is Relative Frequency, and
IVI is Importance Value Index
The Species Richness Index (R) is calculated using the (Sofia, 2010) formulation (5):

$$R = \frac{S-1}{\ln(N)} \quad (5)$$

Information (5) :
R = Species Richness Index
S = Number of species
N= Total number of all species
ln= Natural logarithm
The Shannon-Wiener index was developed by Magurran (1988). The Diversity Index is calculated using the formulation (6)

$$H' = \sum_{i=1}^{n} (Pi \times \ln(Pi)) \quad (6)$$

H' = Species diversity index
n =The number of species comprising the community
Pi = The ratio between the number of individuals of a particular species i (ni) and the total number of individuals in the community (N)
Ln = Natural logarithm

C. Data interpretation

The categorization of IVI values includes three main categories - low, medium, and high. Those categories such as shown in Table 1.

Table 1. The Importance Value Index Criteria

Criteria	Importance Value Index (IVI)
High	IVI > 42.66
Medium	21.96 – 42.66
Low	IVI < 21.96

Source: (Fahrul, 2007).

The criteria based on the richness index can be seen in the Table 2.

Table 2. Species Richness Index Criteria

Criteria	Species Richness Index (R)
High	R > 5.0
Medium	3.5 – 5.0
Low	R < 3.5

Source: (Suparjo et al., 2023).

The Shannon-Wiener index criteria for the species diversity index are shown in Table 3.

Table 3. Species diversity index Criteria

Criteria	Species diversity index (H')
High	H' > 3
Medium	2 – 3
Low	0 – 2

Source: (Barbour et al, 1987)

D. Identify orangutan food

To find out which types of vegetation have the potential to be used as orangutan food by matching with existing literature, research results or orangutan food journals.

IV. Results And Discussion

The government of Genting Tanah Village, located in Kembang Janggut District, has taken important steps 256op reserve and protect the remaining forest areas. To achieve this, the Government has formed a management body and proposed that the existing forest area be designated as Village Forest. After a long struggle, the Minister of Forestry and Environment issued Decree number SK.10390/MENLHKPSKL/PKPS/PSL.0/12/2019 dated 26 December 2019 which designated 4,473.39 hectares of land as Genting Tanah Village Forest. The forest will be managed by the Village Forest Management Institute. Based on the information obtained, the home range of female orangutans is 259.6 hectares, while male orangutans have a range of 250 hectares per year in peatlands (Panda et al, 2023). This shows that the area is sufficient for orangutans to roam.

The Genting Tanah Village Forest is home to the orangutan, one of the most endangered primates in the world. Unfortunately, due to deforestation and forest conversion, the Orangutan population continues to decline rapidly. As a result, they have been classified as "critically endangered" on the International Union for Conservation of Nature (IUCN) Red List (IUCN, 2022). The degradation and reduction of forested areas, which serve as their habitat, is primarily caused by human activities, posing a significant threat to the existence of Orangutans. This situation has led to conflicts between humans and Orangutans, exacerbating the decline of the Orangutan population.

Ongoing efforts are being made to reduce conflicts by preserving existing forested areas and mitigating activities that could lead to forest degradation. Research is currently underway to identify the contents of the forested areas and evaluate the quality of the Orangutan habitat in the Genting Tanah Village Forest area. Thus, this research supports the efforts of the Genting Tanah village government in managing the village forest.

To determine the condition of the forest, 25 sampling plots were determined and the coordinates were measured at the center of each plot. The Genting Tanah Village Forest Area has specific conditions when it comes to the peat swamp forest ecosystem. This condition can be explained by the parameters as follows.

The ivi in Table 4 calculated using formula number (1); (2); (3); and (4) is a quantitative parameter that can be used to state the level of dominance of a species in a plant community. The dominant species in a plant community will have the greatest IVI (Indriyanto, 2006). Furthermore, Fahrul (2007) stated that the IVI value also describes the level of influence of a type of vegetation on ecosystem stability.

Table 4. Results of Tree Level Vegetation Analysis

#	Species	Density (Individuals/Ha)	Basal Area (m^2/Ha)	Potency (m^3/ha)	KR (%)	FR (%)	DR (%)	IVI (%)
1.	*Shorea teysmanniana Dyer*	79	5.24	96.10	30.50	16.67	30.89	78.06
2.	*Combretocarpus rotundatus*	69	4.31	70.67	26.64	16.67	25.42	68.73
3.	Campnosperma coriaceium	34	2.21	36.6	13.13	13.54	13.00	39.67
4.	*Shorea balangeran* (Korth.)	25	1.90	39.62	9.65	13.54	11.21	34.41
5.	Syzygium leptostemon (Kort.)	11	0.66	7.43	4.25	4.17	3.88	12.30
6.	*Mezzettia parviflora* Becc.	6	0.51	9.01	2.32	4.17	2.99	9.48
7.	*Syzygium incarnatum* Merr.	7	0.36	4.41	2.70	4.17	2.13	9.00
8.	*Myristica lowiana* King	5	0.26	2.86	1.93	5.21	1.55	8.69
9.	*Cryptocarya ferrea* Blume	4	0.17	2.51	1.54	4.17	1.00	6.71
10.	*Cratoxylum glaucum* Korth.	4	0.33	6.58	1.54	3.13	1.96	6.63
11.	*Ternstroemia magnifica*	3	0.24	5.33	1.16	3.13	1.96	5.72
12.	*Ilex hypoglauca* Miq.	2	0.15	2.41	0.77	2.08	0.88	3.73
13.	*Magnolia bintuluensis*	2	0.14	2.20	0.77	2.08	0.81	3.66
14.	*Syzygium glaucum* (King)	2	0.15	1.93	0.77	1.04	0.90	2.71
15.	*Drepananthus biovulatus* (Boerl)	1	0.09	1.63	0.39	1.04	0.54	1.96
16.	*Austrobuxus nitidus* Miq.	1	0.06	1.10	0.39	1.04	0.38	1.81
17.	*Lithocarpus bancanus* (Scheff.)	1	0.05	0.64	0.39	1.04	0.32	1.75
18.	*Stemonurus scorpioides* Becc.	1	0.05	0.63	0.39	1.04	0.29	1.72
19.	*Madhuca motleyana* (de Vriese)	1	0.04	0.29	0.39	1.04	0.21	1.64
20.	*Cratoxylum arborescens* (Vahl)	1	0.03	0.37	0.39	1.04	0.19	1.62
	Total:	259	16.96	291.80	100	100	100	300

The tree-level vegetation in Genting Tanah Village Forest's peat swamp forest ecosystem has been surveyed and the findings show that there are 20 species present, belonging to 16 genera and 15 families. The density of the vegetation is 259 individuals per hectare, with a basal area of 16.96 square meters per hectare and a potential of 291.80 cubic meters per hectare.

According to the calculation of the species importance value calculated using formula (4), *Shorea teysmanniana* Dyer has the highest importance value index at 78.06%. It has a density of 79 individuals per hectare, a basal area of 5.24 square meters per hectare, and a potential of 96.10 cubic meters per hectare. According to the data provided, the second most common species is *Combretocarpus rotundatus* (Miq.) with a percentage of 68.73% in the Importance Value Index. The density of this species is 69 individuals per hectare, with a basal area of 4.31 square meters per hectare, and a potential of 70.67 cubic meters per hectare. The third-highest species in the IVI ranking is *Campnosperma coriaceum* (Jack) with an IVI of 39.67%. It has a density of 34 Individuals per hectare, a basal area of 2.21 square meters per hectare, and a potential of 36.06 cubic meters per hectare. According to Fachrul (2007), two species – *Shorea teysmanniana* Dyer (Dipterocarpaceae) and *Combretocarpus rotundatus* (Miq.) (Anisophylleaceae) – were classified as High with an IVI greater than 42.66%. On the other hand, *Campnosperma coriaceum* (Jack) (*Anacardiaceae*) and *Shorea balangeran* (Korth) fall under the Moderate category with an IVI ranging from 21.96% to 42.66%.

The tree canopy in the peat swamp forest ecosystem of Genting Tanah Village was surveyed and the results showed that there were a total of 32 species classified into 26 genera and 23 families. The vegetation density is 833 individuals per hectare, the basal area is 13.37 square meters per hectare, and the potential is 156.63 cubic meters per hectare.

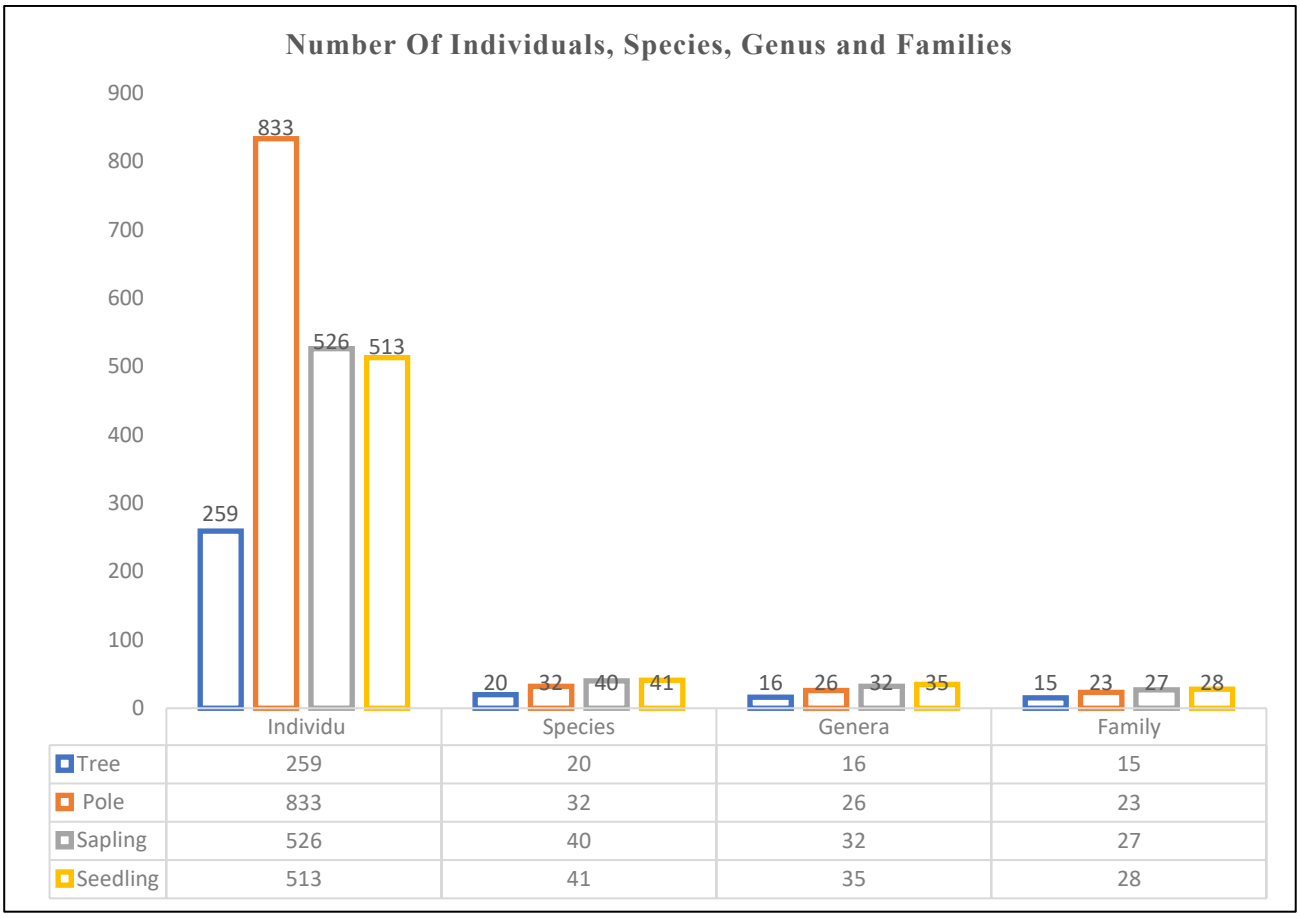
According to the vegetation analysis, it seems that the species with the highest IVI is *Combretocarpus rotundatus* Miq. (*Anisophylleaceae*) with an IVI of 74.43%, a density of 260 individuals per hectare, a basal area of 4.60 square meters per hectare, and a potential volume of 56.05 cubic meters per hectare. The second species with the highest IVI is *Shorea balangeran* Korth. (Dipterocarpaceae) with an IVI of 47.26%, a density of 168 individuals per hectare, a basal area of 2.37 square meters per hectare, and a potential volume of 29.13 cubic meters per hectare. While the third species with the highest IVI is *Campnosperma coriaceum* Jack (Anacardiaceae) with an IVI of 34,39%, a density 100 individuals per hectare, basal area 1,74 square meters per hectare, and potential volume 20,07 cubic meters per hectare. According to Fachrul (2007), it has been determined that two species, *Combretocarpus rotundatus* Miq. And *Shorea balangeran* Korth. (both from the Dipterocarpaceae family), have a High IVI greater than 42.66%. Three species seem to have a moderate IVI, with values ranging between 21.96% to 42.66%: *Campnosperma coriace*um (Jack) (*Anacardiaceae*), *Shorea teysmanniana* Dyer (*Dipterocarpaceae*), and *Ternstroemia magnifica* Stapf (*Pentaphylacaceae*). The remaining species have an IVI of less than 21.96% and are categorized as Low.

The stake-level vegetation in the peat swamp forest ecosystem of the Genting Tanah Village Forest was documented with a total of 40 species belonging to 32 genera and 27 families, with a density reaching 8,416 individuals per hectare. According to the vegetation analysis, it seems that the species with the highest IVI is *Mallotus muticus* Müll. (Euphorbiaceae) with an IVI of 55.78%, a density of 3.680 individuals per hectare. The second species with the highest IVI is *Syzygium leptostemon* Korth. (Dipterocarpaceae) with an IVI of 11.10%, a density of 576 individuals per hectare. It appears that according to the criteria established by Fachrul in

2007, there is one species that falls under the high IVI category with an IVI greater than 42.66%. This species is Mallotus muticus (Müll.Arg.) Airy Shaw (Euphorbiaceae). On the other hand, the remaining species are categorized as Low with an IVI less than 21.96%.

The seedling and understory vegetation In the peat swamp forest ecosystem of Genting Tanah Village Forest were noted with a total of 41 species belonging to 35 genera and 28 families, with a density reaching 51,300 individuals per hectare. According to data recorded, *Hypolytrum nemorum* Vahl (Cyperaceae) has the highest IVI of 21.24% and a density of 5,800 individuals per hectare. The second and third species with the highest IVI are *Uncaria gambir* Roxb. (Rubiaceae) and *Stenochlaena palustris* Bedd. (Aspleniaceae) respectively, with IVI values of 20.11% and 16.49% and densities of 4,000 individuals per hectare. According to the criteria set by Fachrul (2007), it appears that all of the species that were encountered fall into the Low category, as they have an IVI of less than 21.96%.

Based on vegetation surveys conducted on 25 peat swamp forest ecosystem plots in Genting Tanah Village, vegetation richness was calculated using the Margalef Richness Index approach. Tree-level vegetation has a total of 259 individuals belonging to 20 species, 16 genera, and 15 families. The sapling level vegetation has a total of 833 individuals belonging to 32 species, 26 genera, and 23 families. Seedlings and ground surface vegetation totaled 526 individuals belonging to 40 species, 32 genera and 27 families. Finally, seeds and understory vegetation totaled 513 individuals belonging to 41 species, 35 genera and 28 families. The richness index, which is a measure that relies on a direct relationship between the number of species and the logarithm of the sample area, is directly proportional to the number of species identified. The main conditions for these parameters are carried out in Figure 2.



	Individu	Species	Genera	Family
Tree	259	20	16	15
Pole	833	32	26	23
Sapling	526	40	32	27
Seedling	513	41	35	28

Figure 2. Number of Individuals, Species, Genus, and Families

After analyzing the vegetation data in the peat swamp forest ecosystem of Genting Tanah Village Forest, the Margalef Richness Index was calculated.

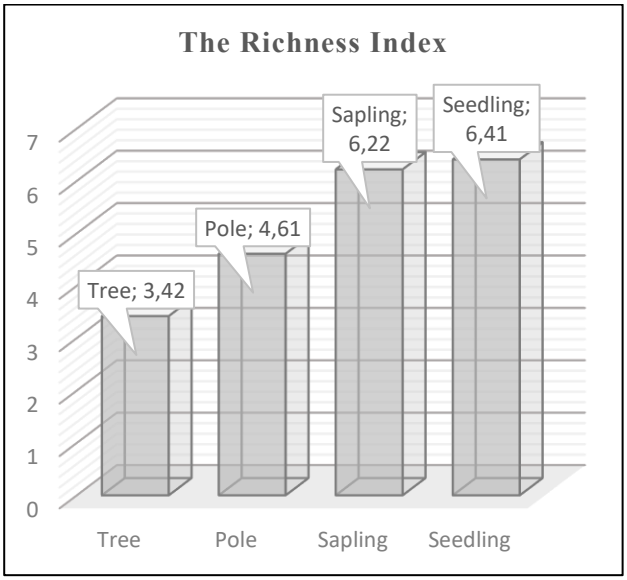


Figure 3. The Richness Index Values

It appears that (Suparjo et al., 2023; Yuni et al., 2022) has concluded, based on the criteria in table 2, that the richness of vegetation types at the seedling and understory growth level and sapling growth level is classified as High. At the pole growth level, it is classified as Medium, whereas at the tree level, it is classified as Low. The richness of vegetation types at tree and pole levels is lower than at sapling level and seedling and understory levels. This condition is in accordance with the statement written by Lestari (2013) that this is due to the vegetation in peat swamp forests becoming increasingly sparse and stunted as one moves further from a river or approaches the center of a peat dome, since the nutrients contained in the peat itself are getting smaller. This is related to extreme edaphic and environmental conditions in peat ecosystems such as acidic conditions, waterlogging and limited nutrient availability, which makes it difficult for many species to adapt.

The calculation of the species diversity index involves the use of the Shanon-Wiener Index formula which is symbolized by H' (Zach, 2021). According to the data analysis the Shanon-Wiener Index of all vegetation growth stage is as state in Figure 4.

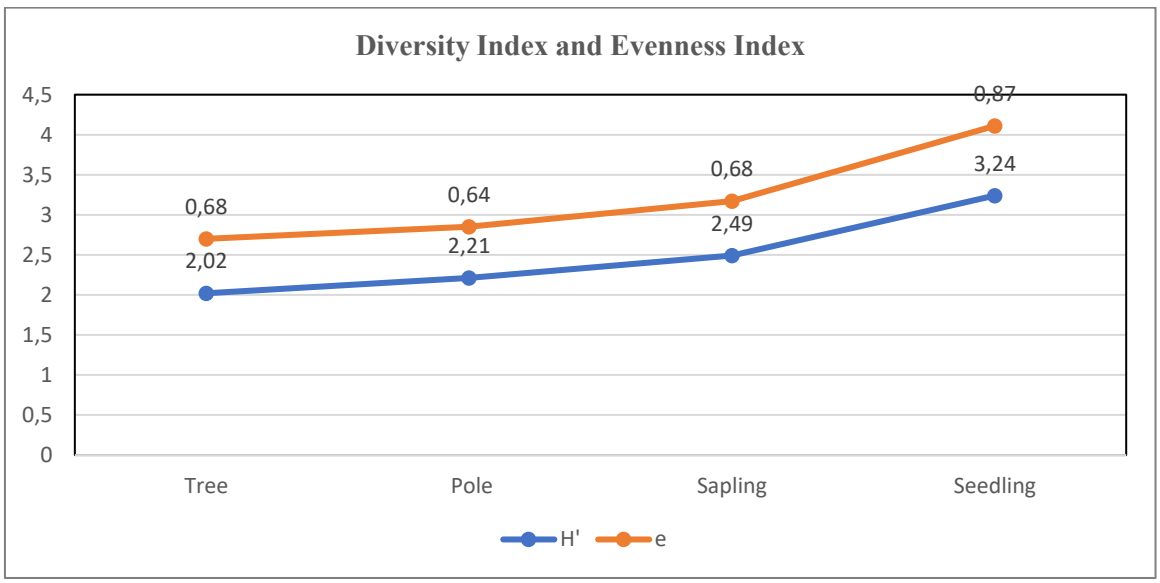


Figure 4. Diversity Index (H') and Evenness Index (e)

Based on the information in table 3, it can be observed that Figure 5 illustrates high diversity index values (H') for vegetation at the seedling level and undergrowth in the peat swamp forest ecosystem in the Genting Tanah Village Forest area, with a value of H' > 3. On the other hand, the diversity index values (H') for the growth rate of saplings, poles, and tree levels are classified as medium, with an H' value between 2-3. According to the information provided, the evenness index value (e) in the peat swamp forest ecosystem in the Genting Tanah Village Forest area shows that vegetation at the seedling level and undergrowth have an almost even distribution, with an e value ranging between 0.76-0.95. Meanwhile, the evenness index value for the growth level of saplings, poles, and trees has a fairly even distribution, with an e value ranging between 0.51 - 0.75.

Based on the available information, there are several species in the Genting Tanah village forest area. These include tropical rainforest trees, various types of shrubs, and ground cover plants. Additionally, there are also some types of vines and epiphytes that can be found in the forest area. Overall, the Genting Tanah village forest area is home to a diverse range of vegetation that is important for maintaining the health and biodiversity of the ecosystem. It is interesting to note that the peat swamp forest ecosystem in the Genting Tanah Village Forest area is home of 67 species, which belong to 55 different genera and 44 families. Out of the recorded species, 21 of them are included in the IUCN red list, and one of them, *Shorea*

teysmanniana Dyer (Dipterocarpaceae), is classified as Endangered (EN). Additionally, there are two species with Vulnerable (VU) status, four species with Near Threatened (NT) status, and 14 species with Low Risk or Least Concern (LC) status (IUCN, 2016). It is worth noting that three types of vegetation in the area are included in CITES Appendices II, which are *Nepenthes ampullaria* Jack, *Nepenthes gracilis* Korth. (Nepenthaceae), and *Gonystylus maingayi* Hook.f. (Thymelaeaceae).

The peat swamp forest ecosystem in Genting Tanah Village is home to several types of vegetation that have the potential to serve as orangutan food. These include various species of trees such as Meranti (*Shorea sp*.), Kapur (*Dryobalanops sp*.), and Keruing (*Dipterocarpus cornutus*), as well as several types of flowering plants and vines. The abundance of such vegetation in the area is a testament to the rich biodiversity of the peat swamp forest ecosystem and its importance in supporting the survival of various wildlife species, including the endangered orangutan. After matching the species recorded as being present in the observation plots with the references and journals that had been collected, 34 species were identified that had the potential to be used as orangutan food. The complete list of species is presented in Table 5.

The parts of plants eaten by orangutans include fruit, flowers, leaves, bark and roots. But in general it is fruit. Of the 34 types of vegetation that have the potential to be used as food for orangutans, *Shorea teysmaniana* Dyer and *Mallotus muticus* are known to be the most dominant ((Alzagi & Prayoga, 2018; Bani et al., 2018).

Table 5. The potential species as orangutan food

#	Family	Species	Num	Family	Species
1.	Anacardiaceae	*Campnosperma coriaceum* (Jack) Hallier f.	18.	Menispermaceae	*Fibraurea tinctorial* Lour.
2.	Annonaceae	*Mezzettia parviflora* Becc.	19.	Moraceae	*Ficus sp*.
3.	Aspleniaceae	*Stenochlaena palustris*	20.	Myristicaceae	*Myristica lowiana* King
4.	Burseraceae	*Santiria rubiginosa* Blume	21.	Myrtaceae	*Syzygium antisepticum* Merr.
5.	Chrysobalanaceae	*Parastemon urophyllus*	22.	Myrtaceae	*Syzygium cerasiforme* Merr.
6.	Clusiaceae	*Garcinia sp*	23.	Myrtaceae	*Syzygium glaucum* King.
7.	Clusiaceae	*Garcinia bancana* Miq.	24.	Myrtaceae	*Syzygium incarnatum* Merr.
8.	Dipterocarpaceae	*Shorea balangeran*	25.	Pandanaceae	*Freycinetia javanica* Blume
9.	Dipterocarpaceae	*Shorea teysmanniana* Dyer	26.	Pandanaceae	*Pandanus yvanii* Solms
10.	Ebenaceae	*Diospiros arealata* King	27.	Phyllanthaceae	*Antidesma coriaceum* Tul.
11.	Ebenaceae	*Diospiros siamang* Bakh.	28.	Phyllanthaceae	*Baccaurea bracteata*
12.	Euphorbiaceae	*Mallotus muticus*	29.	Polypodiaceae	*Nephrolepis biserrata* (Sw.)
13.	Fagaceae	*Lithocarpus bancanus*	30.	Rhizophoraceae	*Carallia brachiata* (Lour.)
14.	Hypericaceae	*Cratoxylum arborescens* Blume	31.	Rubiaceae	*Uncaria gambir*
15.	Magnoliaceae	*Magnolia bintuluensis* Noot.	32.	Sapotaceae	*Madhuca motleyana*
16.	Melastomataceae	*Ptenandra coerulescens*	33.	Stemonuraceae	*Stemonurus scorpioides* Becc.
17.	Meliaceae	*Aglaia silvestris* Merr.	34.	Thymelaeaceae	*Gonystylus maingayi* Hook.f.

V. CONCLUSION

This study identified 67 vegetation species in the peat swamp forest ecosystem of Genting Tanah Village, comprising various growth levels from seedlings to trees, originating from 55 genera and 44 families. Among these, 34 species were identified as potential orangutan food sources, including *Shorea teysmanniana* and *Mallotus muticus*, which demonstrated the highest ecological importance values. The analysis also revealed a high species diversity index (H' > 3) at the seedling level, while the sapling, pole, and tree levels exhibited moderate diversity (H' 2–3). However, the species richness index at the tree level was low, reflecting the nutrient limitations and environmental pressures characteristic of peat swamp ecosystems. These findings highlight the critical importance of the Genting Tanah Village Forest as a strategic habitat for orangutans, especially due to the presence of vegetation that supports their dietary needs. Despite pressures from human activities such as mining, agriculture, and oil palm plantations, this forest has retained significant biodiversity, underscoring the urgency for sustainable protection and management efforts.

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