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Traditional Forest-Related Ecological Knowledge and Biodiversity Preservation as Source of Science Learning Based Local Wisdom: The Case Study of Hutan Rumbio in Kampar, Indonesia

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Abstract

This study aims to identify indigenous malay's knowledge about a holistic understanding of forest management in Rumbio Kampar, Riau Province. Data was obtained from observation and interview methods. key informant interviews with the tribal chief or niniak mamak, village head, and indigenous farmer. We carried out a direct observation to measure plant diversity. The data were analyzed using the Milles and Huberman qualitative analysis design and the diversity index. The study found that the key traditional ecological knowledge used to conserve sacred forest in the study area includes customs for forest protection. The biodiversity index of the sacred forest shows a moderate category. The traditional practices impact the surrounding natural areas and rural communities. These finding confirmed that malay customary regarding rumbio forest have conservation values.

Keywords: local wisdom, traditional forest, ethnoscience, ethnoecology, Riau

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Introduction

Biodiversity is the variety of differences in the forms of living things. Indonesia is an archipelagic country with a wide scope of diverse flora, fauna, and microbes. Indonesian people are closely related to natural conditions in carrying out various activities. High biodiversity is a natural wealth that can benefit the Indonesian state (Anggraini, 2018). Saving biodiversity can protect its ecosystem functions has become a world agreement (UN) and then set it as one of the Sustainable Development Goals (SDG's) missions, to conserve and utilize natural resources sustainably (Khairina et al., 2020).

Indonesian people view natural resources as a lifestyle guide born in the form of customs and traditions (Salim, 2016). As a country with biodiversity, Indonesia has the potential to utilize and develop various kinds of traditional knowledge. Traditional knowledge is hereditary from the ancestors' time until now and is still maintained by the community (Hutabarat, 2015).

Riau is one of Indonesia's provinces that are rich in biodiversity. This area is inhabited by multiethnic with the majority of ethnic Malays. The Malay community has a high culture, moral and spiritual, which is the identity of the Malay tribe. The community also has values, beliefs, and socio-cultural heritage that reference behavior. Kampar Regency is one of the regencies in Riau province that utilizes forest conservation, such as the Rumbio customary prohibition forest.

The Rumbio customary prohibition forest has excellent environmental conditions from an ecological aspect because of a source of springs. The water source is at the foot of the hill of the customary prohibition forest. This customary forbidden forest is also a place to live for various living things. There is a diversity of flora and fauna still maintained today (azharo, 2020). Based on prior research conducted in the Rumbio forbidden forest, much biodiversity grows in the Rumbio forbidden forest. Many fruit-producing trees are found (fruit that can be consumed directly or must be processed first) (Hasugian, 2017); The number of types of flowering and fruiting plants is proportional to the number of flora that live in the forest, one of which is birds (family Columbidae, Cuculidae, Pycnonotidae, Nectariniidae, Cisticolidae, etc.) (Sabaruddin, 2017); and the diversity of rare plant species still exists in customary forests, such as kulim (Afif, 2016).

The potential diversity of flora and fauna in the customary prohibition forest indicates the community's concern for the forest. The community's traditional knowledge in maintaining and preserving customary prohibition forests is carried out so that the forest is not damaged and maintains its function in the form of prohibitions and invitations obeyed by the community (azharo, 2020). Based on the results of the initial study, it shows that the Rumbio customary prohibition has been cultivated, namely the prohibition of cutting down

trees, the prohibition of hunting for fauna, the invitation to enjoy water sources, and the prohibition of entering the customary forest without a ninik mamak permit.

Based on this background, the authors are interested in conducting research related to Traditional Forest-related ecological knowledge and biodiversity preservation: The Case of Rumbio Forest in Kampar, Indonesia.

Method

The Rumbio customary prohibition forest is located in the Rumbio country, Kampar sub-district, Kampar district. This forest has a border area (1) in the north with Pulau Payung village, Rumbio Jaya sub-district, (2) in the south with Kebun Duria village, Gunung Sahilan sub-district, (3) in the east with Padang Mutung village, Kampar sub-district, (4) in the west with the village Sarak Island, Kampar sub-district. The Rumbio customary prohibition forest is a forest located in the village of Rumbio, Kampar sub-district. This forest has an area of 570 Ha. The Rumbio customary prohibition forest is geographically located between 00018 50 – 00019 05 North Latitude and 101007 30 – 101008 00 East Longitude. This protected forest is managed by the indigenous people of Rumbio village, who are in a unit led by ninik mamak (Afif, 2016). Rumbio's customary forbidden forest is not connected to other customary forbidden forests. Residents already occupy the surrounding forest and the people are fighting for rubber.

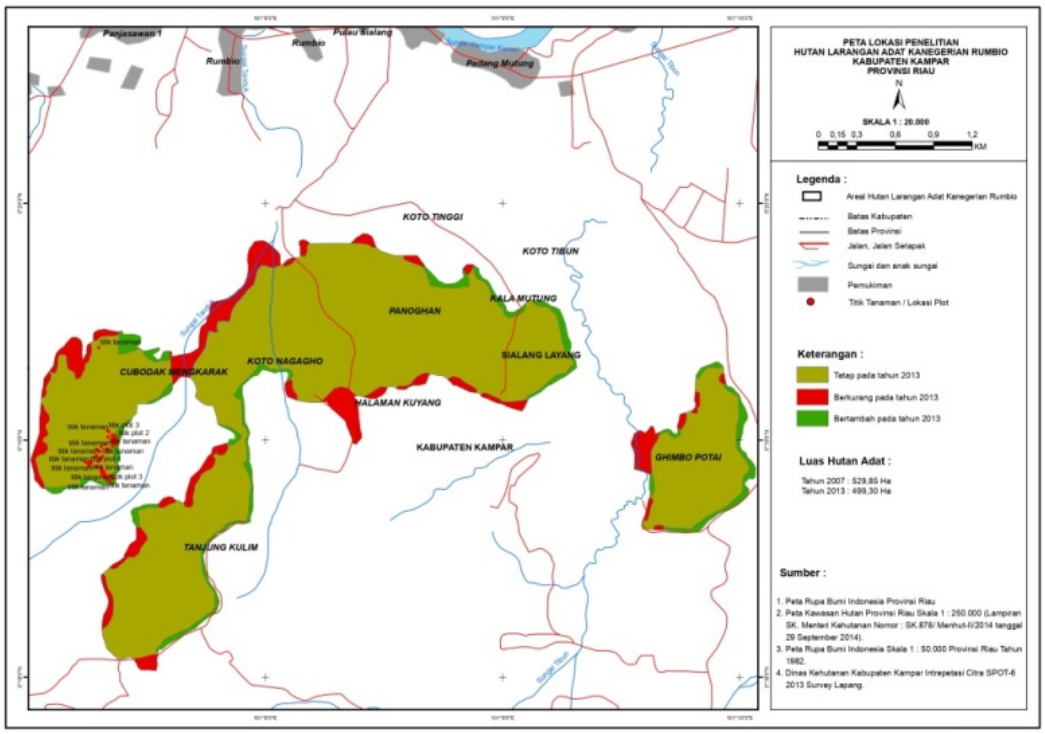

Figure 1. Map of the Rumbio Customary Prohibition Forest
Source: Kampar Provincial Forestry Service

This study uses a case study method to obtain a complete and in-depth description. Data was obtained from observations and interviews. The research location is in the customary prohibition forest area, Rumbio village, Kampar sub-district, Kampar district.

Observation activities were carried out by direct observation at the Rumbio customary prohibition forest location with the object of research on plant diversity. data analysis uses biodiversity index to determine the biodiversity in the Rumbio customary prohibition forest.

$$H' = -\sum pi \log pi$$ (Setiadi, 2005)

Note:
H' : diversity index
Pi : ni/N
NI : Number of individual types
N : Total number of individuals
Log : Calculator operating system

The interview aims to obtain information about the community's traditional knowledge in the Rumbio customary prohibition forest. The resource persons used were traditional leaders ninik mamak to obtain comprehensive information on the Rumbio customary prohibition forest management. The local knowledge reconstruction process focused on community beliefs and the rules enforced in the Rumbio customary prohibition forest.

Findings and Discussion

The customary prohibition forest is a forest managed by the community that is in a customary unit led by ninik mamak. Kenegrian Rumbio has ten penghulu who each have three assistants. Penghulu is customary stakeholders responsible for various issues in the Rumbio customary prohibition forest on the principle of consensus. The traditional leadership structure in the country of Rumbio is run by most of the influential elders called penghulu nan sapuluah which means the leader of ten elder who are called the ninik mamak. These penghulu come from five tribes, namely the Domo, Patopang, Piliang, Kampai, and Chaniago tribes. Each tribe has a maid, so the total number of ninik mamak is fourty person (Nuralamin, 2015).

The community, government, religious scholars (ulama) has play role in forest sustainability. The management of the customary prohibition forest by the Rumbio village community forms a customary institution led by a leader and customary holder. As quoted from an interview with Datuk Syahrul said that:

"Because the principle used in this country is the principle of deliberation for consensus, namely our ninik mamak used to be in the country, in that country there were several tribes,

there were five tribes, the five tribes had 10 leaders, each tribe had two leaders, then there were also their respective assistants. 3 people each. So the total number of all 10 penghulu and their assistants is 30 to 40. So this person is the one who consults which results in a consensus to determine the existence of a forbidden forest." (Syahrul, 2021).

The inherent character of indigenous peoples is tradition. Indigenous peoples have a knowledge system, namely traditional knowledge that is preserved and enriched or developed according to the needs of sustainable living. There are several reasons for the need to develop protection for traditional knowledge concerning the surrounding indigenous communities, namely considerations of justice, conservation, cultural preservation, and traditional practices. The protection of traditional knowledge plays a positive role in providing support to these communities to preserve their traditions. Traditional knowledge also includes biological resources, animal strains, and a variety of local plants.

The Rumbio customary prohibition forest is a genetic heritage whose contribution during the struggle for Indonesian independence served as a hiding place and protection from attacks by the Dutch and Japanese invaders. Hiding places in the form of forts can still be found today and are in the middle of the forbidden forest (Azwar et al., 2021). The customary prohibition forest has existed for a long time. However, before it was not called a customary forest, no one knows for sure when the customary forbidden forest was formed. This was revealed by Datuk Khamaruzzaman:

"Don't know exactly when it was first called the customary prohibition forest" (Khamaruzzaman, 2021).

Based on the results of the interview with Datuk Khamaruzzaman, the forbidden forest has existed for a long time but has not yet been implemented as a customary forest. Because the people at that time followed customary rules, there were two rules regarding forests, forests that were allowed to be used for timber and those that were not. Until Datuk Khamaruzzaman was named Datuk Ulak Simano in 2004, he said that the forest was a forbidden forest.

The traditional knowledge of the Rumbio indigenous people has been passed down from generation to generation for decades. According to traditional knowledge, it embodies cultural values that are shared and not individually maintained and transmitted orally from one generation to the next. People have a wealthy knowledge of their environment developed over the centuries. This knowledge includes information about the behavior and benefits of the Rumbio customary prohibition forest. Indigenous people of Rumbio have applied traditional knowledge in the form of rules and prohibitions to maintain biodiversity. The protection of traditional knowledge related to biodiversity in Indonesia is essential, mainly to prevent confiscation by unauthorized parties. Customary law in the country of

Rumbio has stringent regulations regarding customary prohibition forests, especially forest products in the form of wood. They realized how significant the forest's potential was, and it was priceless. Datuk Khamaruzzaman said:

"taking our wood is not allowed at all" (Khamaruzzaman, 2021).

Based on an interview quote from Datuk Khamaruzzaman, known as Datuk Ulak Simano, the community is not allowed to cut down trees or take forest products in the form of wood. Logging of forest products is one of the impacts of forest destruction. Izzatul and Nawiyanto explain this in their research. There are at least five leading causes of forest damage: forest encroachment, timber theft, environmental destruction, area boundaries or access, and conversion of forest area functions (Kamilia Izzatul, 2015). While the principle of indigenous peoples is how to use the forest to be helpful for the whole community without disturbing or eliminating the existence of the forest (the aspect of preservation) (Simorangkir, 2000).

Damage to forest areas can have an impact on the loss of flora and fauna habitat throughout the forest cover and the extinction of biodiversity cannot be avoided (Ardhana, 2016). Therefore, one of the functions of customary law in the Rumbio Prohibition Forest is to maintain biodiversity, so that based on the observations made, the biodiversity in the Rumbio Customary Ban Forest is classified as moderate. The local wisdom of the community in maintaining and preserving the Rumbio customary prohibition forest can be used as a source of learning. The habits that are applied can provide experience to understand and appreciate the knowledge of local wisdom, and contribute to the sustainability of the preservation of culture and nature. Local wisdom in customary forest management is carried out to maintain the function of the forest as a source of water and environmental sustainability. Based on the results of the study, the management of customary prohibition forests in the form of rules given to the community was carried out by the community from generation to generation.

Table 1. Results of the Reconstruction of Local Knowledge into Scientific Knowledge

No	Society Science	Scientific Science
1	*Can't cut trees*	Cutting down trees can cause damage to plants and loss of habitat and animals in the forest. This will have an impact on biodiversity
2	*No hunting animals*	Hunting for animals can create population imbalances, reducing varieties or species diversity.

No	Society Science	Scientific Science
3	*No use of forest products without Ninik Mamak's permission*	Excessive exploitation of natural resources due to human greed has also been the cause of various disasters that not only resulted in thousands of human lives, but also damaged the sustainability of ecosystems.
4	*You can't litter*	Human feces contain tens of billions of microbes, feces are also indigestible food waste. It can contain carbohydrates, proteins, enzymes, fats, microbes, and dead cells. One liter of feces contains organic matter equivalent to 200-300 mg BODS (Content of organic matter). Where the high BOD content can cause water pollution

The customary law in Rumbio Village has very strict regulations regarding the customary prohibition forest, especially forest products in the form of wood. The community realizes how big the potential of the forest is which is priceless. Because of this, ninik mamak and indigenous peoples have introduced their children to their children about the functions and benefits of the forest and the impact if the forest is damaged.

a. Can't Cut Trees
   Damage to forest areas can have an impact on the loss of flora and fauna habitat throughout the forest cover and the extinction of biodiversity cannot be avoided (Ardhana, 2016). Therefore, one of the functions of customary law in the Rumbio Prohibition Forest is to maintain biodiversity, so that based on the observations made, the biodiversity in the Rumbio Customary Ban Forest is classified as moderate.

b. Can't hunt animals
   Nature is a place where humans live and reproduce, with an environment that cannot be avoided, its influence on human culture. On the other hand, nature is also influenced by human culture. Indonesia is located in a tropical region which causes Indonesia to become a nation that is rich in natural resources. From these various natural resources, there are various kinds of animals or animals. Therefore, it is necessary to regulate and protect the diversity contained in Law Number 5 of 1990 concerning natural resources and their ecosystems (Aristides et al., 2016).
   The elements of living natural resources and their ecosystems are basically interdependent with each other and influence each other so that the damage and

extinction of one element will result in the disruption of the ecosystem. In order to maintain the utilization of natural resources in the best possible way, it is necessary to take conservation measures so that natural resources and their ecosystems are always maintained and able to create balance.

The Rumbio customary prohibition forest has customary rules to preserve the diversity in it. These rules become habits that are applied by the community from generation to generation. Therefore, this forbidden forest has a wealth of flora and fauna. The customary prohibition forest of Rumbio village has a diversity of bird species with a moderate category, this is because this forest supports as a place for bird life such as a source of food, shelter, area and climate factors (Sabaruddin, 2017).

The plant vegetation in the Rumbio customary prohibition forest is used by birds to roost. The species of birds identified in the Rumbio customary forbidden forest are ground squirrels, large lathes, reed lathes, bear lizards, ketupa outskirts, forest lizards, swamp perenjak, kehicap twigs and so on (Sabaruddin, 2017).

c. No use of forest products without Ninik Mamak permission

Ninik mamak provide rules for the community to ask for permission when they want to use forest products. This relates to exploitation that causes forest destruction. Even though nature was created to be used by humans for their survival. However, humans are required to be wise in managing nature, not to overdo it and to act arbitrarily in utilizing it, resulting in damage and destruction.

Excessive use of nature has caused a large negative impact on humans and nature itself. Such as forest destruction, water, soil and air pollution. Excessive exploitation of natural resources due to human greed has also been the cause of various disasters that not only resulted in thousands of human lives, but also damaged the sustainability of ecosystems (Reflita, 2015). From an environmental perspective, overexploitation of natural resources can cause global warming, loss of biodiversity, erosion, air and water pollution (Siswoko, 2008). Overexploitation of natural resources can also affect ecosystems, there will be continuous destruction of ecosystems caused by various human interests (Siswoko, 2008).

Ecosystem is an element of life which is a unity that is interrelated and affects one another. The destruction of ecosystems also affects other elements such as habitat loss and pollution. Habitat loss from agriculture and unsustainable forest management is the biggest cause of biodiversity loss. The destruction and extinction that occurs in biodiversity can damage ecosystem functions, so this is actually an obstacle for nature to provide its services to human life (Zairin, 2017).

d. You can't defecate carelessly in the forest where there is no Rumbio

Forests play an important role in providing water through their ability to regulate water systems. This process starts from the canopy to the root process in the soil which is

synergistic in storing water. One of the remaining forests with its ecosystem maintained, so that it is beneficial for the community around the forest, such as the Rumbio customary prohibition forest. This forest area has several springs scattered in several villages around the customary prohibition forest. The springs are managed commercially and used by the community in their daily life.

The customary prohibition forest has a rule not to defecate in the forbidden forest. Hajat here means to urinate (urine) and defecate (faeces). Human feces or feces is a medium for breeding infectious disease seeds such as germs, viruses and worms. If the feces are disposed of in any place, the seeds of disease will spread widely to the environment and eventually risk causing disease in someone and even becoming a disease outbreak for the wider community.

Human feces contain tens of billions of microbes, including faecal-coli bacteria, which include pathogenic microbes, such as salmonella typhi that causes viral fever, vibro cholerae bacteria that cause cholera, viruses that cause hepatitis A and viruses that cause polio (Anwar et al., 2017). Feces are also indigestible food waste. It can act on carbohydrates, proteins, enzymes, fats, microbes, and dead cells. One liter of feces contains organic matter equivalent to 200-300 mg BODS (Content of organic matter). Where a high BOD content can cause river water to emit an unpleasant odor and black in color (Anwar et al., 2017).

Based on observations, the river in the Rumbio customary prohibition forest is very clear and does not contain odors. This shows that customary rules can function in preserving the forest environment. So that river water can be useful in agriculture and fisheries. And based on observations, the water source of the Rumbio forbidden forest is very clear and can be consumed in daily life.

The Rumbio customary prohibition forest also has benefits in water management, so that the water source from the Rumbio customary prohibition forest can be used by the community for drinking. Based on observations, the water source owned by the Rumbio customary prohibition forest has a pH of 7. The degree of acidity (pH) is closely related to the content of heavy metals in the river, the more pollutants in the river, the lower the value (pH). which makes water hardness acidic. Water is classified as acidic because it is bicarbonate in water. The degree of acidity (pH) of a waters is also influenced by natural factors from humans (Asrini et al., 2017). The Rumbio customary prohibition forest has a water pH of 7 for river water and spring water. Thus the water in the Rumbio customary prohibition forest is declared uncontaminated. Because unpolluted water has a neutral pH (pH 7) and fulfills the life of almost all organisms (Asrini et al., 2017).

Based on the observations made with the plot method, it was carried out to determine the type of diversity found in the Rumbio Customary Ban Forest. The position of the plots is

carried out in the field with a size of 10 m x 10 m (the pole level), and 20 mx20 m (the tree level).

Table 2. Biodiversity Value at Pole Level (10 m x 10 m)

No	Local Name	Scientific name	Quantity	Pi	Pi logs	H'
1	Darah-darah	Myristica sp	8	0,4	-0,4	-0,16
2	Meranti	Shorea sp	6	0,3	-0,52	-0,16
	Total		**51**	**2,55**	**-0,20**	**2**

Table 1 shows the diversity at the pile level. The dominant plants can be seen with a diversity value of 0.16, namely *meranti* (Shorea sp) and *Darah-darah* (Myristica sp). Tree-level diversity data can be seen in the following table.

Table 3. Tree Level Biodiversity Value (20 m x 20 m)

No	Local Name	Scientific name	Quantity	Pi	Pi logs	H'
1	Darah-darah	Myristica sp	12	0,4	-0,4	-0,16
2	Kelat	Syzygium garcinifolia king	7	0,23	-0,63	-0,15
	Total		**90**	**3**	**-33,04**	**2,69**

Table 2 shows the diversity values at the Tree level. The dominating plants can be seen with a diversity value of -0.16, namely Blood-Blood (Myristica sp), and with a diversity value of -0.15, namely Kelat (Syzygium garcinifolia king). Biodiversity is a term that includes genes, species of plants, animals, and microorganisms, and ecosystems and ecological processes. Biodiversity is the number of species that can be viewed from three levels as follows (Jufrida et al., 2018):

1. Genes and chromosomes carry hereditary traits.
2. At the species level, various groups of creatures have a specific gene arrangement.
3. At the ecosystem or ecology level, where species live and interact with biotic and abiotic factors.

For environmental conservation, diversity is a natural biological resource because it is part of the chain of environmental arrangements or ecosystems, capable of assembling one element with other environmental arrangements, supporting the environmental order

(Jufrida et al., 2018). Research and observation of biodiversity results in the Rumbio Customary Prohibition Forest showed a moderate category with H' values of 2 for the pole level and 2.69 for the tree level. Tables 1 and 2 show that the darah-darah (Myristica sp) and meranti (Shorea sp) are planted with a superior classification in the Rumbio Customary Prohibition Forest. Darah-darah is a classification of plants with the Myristicaceae family, while meranti is a classification of the Dipterocarpaceae family. The results of the research conducted, the customary prohibition forest has 22 types of families and 26 genera found in the observation path studied in the following table:

Table 3 Classification of Plants in the Rumbio Customary Ban Forest

No	Family	Genus	Scientific name	Local name
1	Sapotaceae	Palaquium	Palaquim hexandrum	Balam
			palaquium stellatum	balam merah
2	Calophyllaceae		callophyllum pulcherimun	Bintangur
3	Moraceae	Artocarpus	Arcarpus integer	cempedak hutan
			arctocarpus elasticus reinw	terap
			arctocarpus rigidus Bl	Tempunik
4	Burseraceae	Santiria	Santiria tomentosa Blume	Kedondong hutan
			santiria laevegata BL	Lalan
5	Lauraceae	Litsea	Litsea firma Bl	Medang
6	Dipterocarpaceae	Shorea	Shorea sp	Meranti
			shorea roxburghii	Meranti kuning
			shorea leprosula miq	meranti merah
			shorea singkawang miq	meranti singkawang
7		Dipterocarpus	dipterocarpus gracilis blume	keruih buluh
8	Fabaceae	Parkia	parkia speciosa	Petai
		Koompassia	koompassia malaccensis maingay	Kempas
9	Simaroubaceae	Eurycoma	eurycoma longifolia	pasak bumi
10	Ixonanthaceae	Ixonanthes icosandra	ixonanthes icosandra	pagar anak merah
11	Fagaceae Dumort.	Lithocarpus	Lithocopus lucidus roxb	mempening
12	Annonaceae	Goniothalamus	goniothalamus majestatis	Mempisang
		Maasia	Polyalthiahypoleuca	Tepis

No	Family	Genus	Scientific name	Local name
13	Myrtaceae	Syzygium	Syzygium garcinifolia king	Kelat
			Syzygium abulugense Merr	kelat putih
			Spesies Syzygium cumini.	kelat merah
14	Myristicaceae	Myristica	Myristica sp	darah-darah
15	Leguminosae	Dialium	Dialium platysephalum baker	Keranji
16	Ebenaceae	Diospyros	diospyros styraciformis	arang-arang
17	Clusiaceae	Garcinia	garcinia parfivolia	asam kandis
18	Platanaceae	Platanus	platanus orientalis	Berangan
19	Olacaceae	Ochanostachys	ochanostachys amentacea mast	Petatal
20	Lecythidaceae	Barringtonia	barringtonia scortechinii king	putat
21	Euphorbiaceae	Endospermum Benth.	endosspermum nalaccense	sendok-sendok
22	Gentianaceae	Fagraea	fagraea gigantean ridley	tembesu hutan

Based on Table 3, the Dipterocarpaceae family is a species that most superior in the Rumbio customary prohibition forest, including the meranti kuning (Shorea roxburghii), meranti merah (Shorea leprosula miq), singkawang meranti (Shorea singkawang miq), and keruih buluh (Dipterocarpus gracilis blume). The Dipterocarpaceae family has the characteristics of cracked bark, grooved, resinous, and has stipules. There is a characteristic swelling on the petiole. The tertiary spines generally form like a ladder and five-winged fruit (Ripin et al., 2017).

Dipterocarpaceae is a superior timber-producing tribe in the Asia tropical forest. One of the only types of the Dipterocarpaceae family is meranti (Shorea spp) (Panjaitan et al., 2010). Meranti is one of the commercial woods well known in Asian countries, especially the type of red meranti. The vital component for meranti plants is light (Pamoengkas & Prayogi, 2011). Optimum growth of Shorea spp. At 55%-75% shade and at 25-30^{o}C (Sukendro & Sugiarto, 2012).

Other tree species also make up the expanse of the Rumbio customary prohibition forest that can be seen along with the research site, such as from the Myrtaceae family, namely kelat putih (Syzygium abulugense Merr) and kelat merah (Species Syzygium cumini). Kelat is a plant with a single seed and a stem that, from base to tip,, can be said to be no different.

The shape of the stem on the chelate plant is round with many branches and has riding roots, while the crown at the base of the stem is rough and dark gray, while the upper part is clear and light gray (Naim & Hisani, 2018).

The results showed that the Rumbio customary prohibition forest had fruit-producing plants such as cempedah hutan (Arcarpus integer), petai (Parkia speciosa) and kedondong hutan (Santiria tomentosa Blume). Kedondong hutan is a single-rooted plant. It has a woody stem that is strong and hard. The shape of the kedondong stem is cylindrical and grows upright. The surface of the kedondong stem is smooth with a greenish-white color. Kedondong hutan includes plants with compound leaves. The leaves are oblong and oval where the base of the leaf is pointed. The color of the leaves is green with pinnate spines.

Figure 2. Kedondong Forest Stems and Leaves
Source: Research Documentation

Conclussion and Suggestion

This research highlights the significance of the Rumbio customary prohibition forest, diligently protected by the Rumbio community. The steadfast prohibition against tree felling upheld by this community contributes to biodiversity conservation. The biodiversity index reached an intriguing value of 2 for the pole level and 2.69 for the tree level, signifying a moderate level of diversity. This forest encompasses 22 families and 26 diverse plant genera, underscoring the value of a sustainable ecosystem. These findings affirm the harmony between traditional values and environmental preservation. The Rumbio community staunchly preserves this customary prohibition forest, playing a role in maintaining ecosystem balance and preventing the extinction of vital species. The fusion of local knowledge and scientific methods solidifies the foundation of nature protection.

However, further exploration potential also emerges. Engaging in genetic analysis could provide deeper insights into inter-species relationships within this forest. Empowering communities in customary forest management also holds valuable research potential. Overall, this research portrays the role of customary restrictions in environmental

conservation. It serves as a tangible example of how traditional values can yield tangible actions that support biodiversity and sustainable ecosystems, inspiring conservation approaches on a global scale.

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