

ANALYSIS OF COMMUNITY CHARACTERISTICS USING BIODIVERSITY IN ECOSYSTEM AREAS NGAWI DISTRICT MANTINGAN FOREST

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Abstraction— This study aims to determine the characteristics of communities that take advantage of diversity life in the Ecosystem Forest free district Ngawi . Research location covering the villages of Jatimulyo, Kedungharjo, Mantingan, Pakah Pengkol, Sambirejo and Tambakboyo. Sixth village the is in the District free district Ngawi . Data analysis techniques used include descriptive analysis and analysis of strength of association. Research findings indicate that the characteristics of respondents in utilizing the forest include age, income, education, number of dependents, occupation and distance from house to forest. Respondents aged 25-30 years (35.8%) are the largest age group in taking forest resources. Most of the community income groups from using the forest ranged from Rp. 151,000 to Rp. 300,000 (42.6%). The largest respondent who took forest resources had family dependents of more than 6 people (29.6%). Farmers' groups make the most use of forest products, 48.1%. As many as 38.9% of respondents use the forest within a distance of 0.51-1 km from their homes. The largest extraction of forest resources is in the form of firewood with a proportion reaching 40.7%. Based on an analysis of the strength of the association shows that there are five independent variables that affect the composition of resource use biological forests, each with a Cramer's V value for variable age (0.409), education (0.247), income (0.333), number of dependents family (0.388), occupation (0.400) and distance from house to forest (0.434). The distance variable shows the most dominant strength for influencing respondents in utilizing resources forest, with a Cramer's V value of 0.434 .

Keyword : characteristics, community, diversity, biodiversity, friends, ecosystem, forest



INTRODUCTION

Forests are one of the state's assets in the framework of sustainable development. Uncontrolled forest use for more than three decades has resulted in enormous forest destruction. In 2004 forest destruction reached 3.8 million ha per year, or 7.2 ha per minute. In the same year. The World Research Institute states that Indonesia's forest cover area is 130 million ha, 72 percent of which has been lost. Forest damage also occurs in community forests (HKM), which are about 10 km from the edge of the forest area (Yusnawati, 2004).

Forests as renewable natural resources have various important benefits for the survival of living things. Good forest management must be able to provide optimal benefits for the community, forest managers and stakeholders as well as the surrounding environment. Not only that, good forest management must also pay attention to aspects of forest sustainability, such as ecological, production, as well as socio-economic and cultural aspects of forest communities (Purnawan, 2006). The existence of people living around forests who have direct or indirect access to forest areas and utilize forest resources is a reality that cannot be ignored. This condition will certainly have a positive or

negative impact on forest sustainability. Therefore, good forest management does not only pay attention to technical aspects of forest management, but also has to pay attention to social aspects (Nurrochmat, 2005).

The Mantingan forest area is located in Ngawi district, East Java province. This forest area consists of several forest areas, nature reserves, and natural tourism parks. The type of forest in most of this forest is tropical rain forest (upland) which is characterized by high rainfall, the condition of the area is always wet with a relatively high diversity of plant species . and *Litsea velutina* Boerl (Anonymous, 2004).

The condition of the forest in the Mantingan area is very important to maintain because it has a national and regional impact that becomes a buffer for tourism activities. Forest utilization by The surrounding community is very important because of the potential for biodiversity and its impact on other ecosystems. Factors that influence forest communities in exploiting forests are important to be known as an effort to maintain forest sustainability and increase the effectiveness of policy implementation forest sustainability management for target communities.

The Mantingan natural forest conservation area includes forest areas close to people's homes, which is very vulnerable to being used by the surrounding community excessively which ultimately results in damage slowly. This study aims to determine the factors that influence taking biological resources by the community around the forest and knowing the characteristics of the respondents. In addition, this research was conducted as a first step in managing forest resources, especially in the area around the Mantingan forest area.

MATERIALS AND METHODS

RESEARCH AREA

This research was conducted from October 2021 to December 20 21 . Location of sampling in view of characteristics The respondents who used forest resources were selected from six villages in

Mantingan District, Ngawi Regency, namely Jatimulyo Village, Kedungharjo, Mantingan, Pakah Pengkol, Sambirejo and Tambakboyo Villages. This selection was based on the proximity of the six villages to the Mantingan forest area, Ngawi Regency. The data used in this study is not the whole of the population, therefore sampling is done. The sampling method (samples) is carried out with a non-probability sampling approach with a purposive sampling method . this method be the only suitable alternative because there is no clear sample frame .

Lestari (2004) stated that the minimum acceptable sample size based on the research design which uses the descriptive-correlational method, a minimum of 50 subjects. In this study, samples were taken or respondents as many as 50 people with consideration of the limitations of time and cost.

DATA ANALYSIS

The data analysis method used includes the analysis of descriptive analysis and strength of association analysis (strength of association) (Rangkuti, 2003). Descriptive analysis method aims to describe the nature of something that is taking place at the time the research was conducted and checking causes of a particular symptom. This method too aims to answer questions concerning something during the research process (Lestari, 2004). Primary data that has been collected through direct interviews with the community that utilize the forest, then tabulated in a frequency distribution table.

RESULTS AND DISCUSSION

Understanding the characteristics and behavior of people who use the forest, or people who take forest resources for daily life are very useful and important information for a policy-making institutions in formulating strategies forest management as an effort to create sustainability Forest. Lestari (2004), states that there are three approaches which can be used to identify characteristics, namely: geographic, sociographic, and psychographic approaches.

Based on this approach, primary data and analysis results were obtained which showed

that respondents which states the use of biological resources as many as 50 respondents, while 4 respondents stated not to take biological resources that are in the forest (missing). Respondents who do not utilize biological resources (SDH) in taking firewood and grass is generally not own livestock and the location of the house is far from the forest. In addition, the use of firewood is considered less economical and requires more time and process long.

DESCRIPTIVE ANALYSIS

The results of descriptive analysis of the number of respondents who use forest resources are shown in the following table below.

Table 1. Number of Respondents who use forest product resources and do not use forest products

		age	education	income	the number of dependents	profession	distance	Forest products
N	Valid	50	50	50	50	50	50	50
	missing	4	4	4	4	4	4	4

Graph of the number of respondents who use forest product resources and do not use forest products

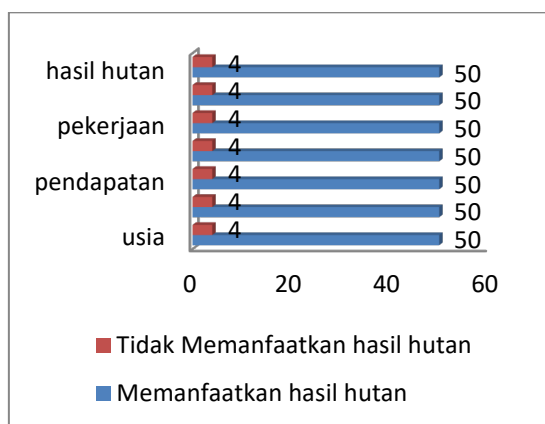


Figure 1. Number of Respondents who use resources

forest products and not using forest products

Based on table and graph 1 above, it can be seen that the respondents in the study were 54 people, consisting of 50 people using forest products while 4 people did not use forest products.

Table 2. Age of respondents who utilize forest product resources

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 25 years	13	24.1	26.0	26.0
26-30 years old	22	40.7	44.0	70.0
31-35 years old	12	22.2	24.0	94.0
36-40 years old	2	3.7	4.0	98.0
> 40 years	1	1.9	2.0	100.0
Total	50	92.6	100.0	
missing System	4	7.4		
Total	54	100.0		

While the graph of the age of respondents who utilize forest product resources can be seen in Figure 2 below.

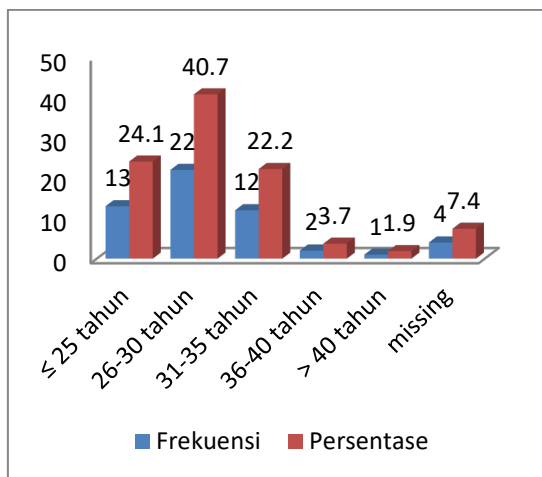


Figure 2. Age of respondents who use resources Forest products

Based on table 2 above, it can be seen that the age frequency analysis of respondents who utilize forest biological resources is the largest in the age range of 26-30 years which reaches 40.7%, and ages less than 25 years which reaches 24.1%, while the age range of 31-35 years is 22.2%, the age range of 36-40 years is 3.7%, while the age range over 40 is only 1.9%. This can be due to the fact that in extracting biological forest resources, the community needs to walk long distances and the burden that must be carried is quite heavy. This condition requires a relatively good body condition.

Characteristics of respondents based on education level shows that the largest number of respondents who take forest biological resources is junior high school education (44.4%).

Table 3. Education of Respondents who utilize resources Forest products

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Not completed in primary school	3	5.6	6.0	6.0
SD	19	35.2	38.0	44.0
junior high school	24	44.4	48.0	92.0
High School Equivalent	4	7.4	8.0	100.0
Total	50	92.6	100.0	
missing	4	7.4		
System				
Total	54	100.0		

While the graph of the last education level of respondents who utilize forest product resources can be seen in Figure 3 below.

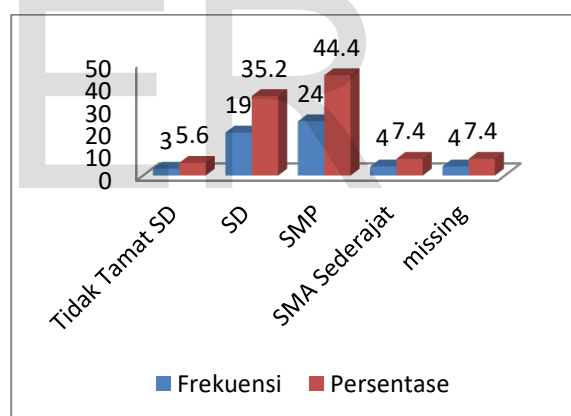


Figure 3. Education of Respondents who use resource Forest products

The results of the analysis show that at a low level of education (not completing elementary school and completing elementary school) as much as 40.8% utilize forest biological resources (table 3). The low level of education contributes to the low skills of the community. With most of them being in the productive age range, forest resource extraction activities are also used as a livelihood. The low level of education makes those in the productive age

group unable to be absorbed in formal employment.

Table 4. Income of respondents using resources Forest products

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid < IDR 100,000	20	37.0	40.0	40.0
IDR 101,000 - IDR 300,000	23	42.6	46.0	86.0
IDR 301,000 - IDR 500,000	7	13.0	14.0	100.0
Total	50	92.6	100.0	
Missing System	4	7.4		
Total	54	100.0		

The graph of the income of respondents who utilize forest product resources can be seen in Figure 4 below.

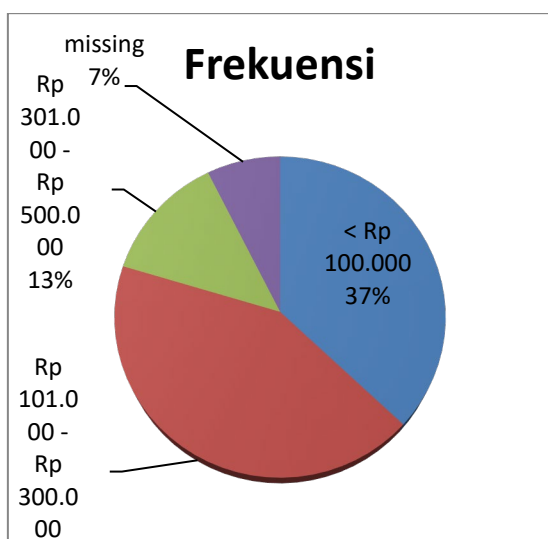


Figure 4. Income of respondents who take advantage of forest product resources

Based on primary data, income from respondents who utilize forest biological resources shows that the data is spread over the income range between Rp. 50,000.00 to Rp. 500,000.00. Most of the respondents earn income from utilizing forest biological resources between Rp. 101,000, 000 to Rp. 300,000.00. While the income range is less than IDR 100,000.00 there are 20 respondents or 37%. and the remaining 7 people (13%) earn income from utilizing forest products in the range of IDR 301,000.00 - IDR 500,000.00 as many as 7 people (13%).

The condition of low income is one of the reasons they take forest biological resources (especially firewood) as a means of cooking and reselling. This is exacerbated by the fluctuating and erratic increase in the increase in basic needs, so that many respondents are trying hard to increase their income to meet their daily needs .

Table 5. Total Dependent in one Respondent's family who take advantage of forest product resources

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 2 persons	10	18.5	20.0	20.0
3-4 people	12	22.2	24.0	44.0
5-6 people	12	22.2	24.0	68.0
> 6 people	16	29.6	32.0	100.0
Total	50	92.6	100.0	
Missing System	4	7.4		
Total	54	100.0		

While the graph about the amount dependents in one The respondent's family that utilizes forest product resources can be seen in Figure 5 below.

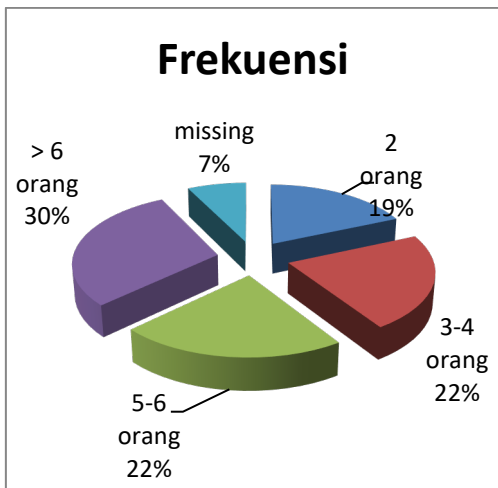


Figure 5 Quantity Dependent in one Respondent's family Utilizing forest product resources

Based on the table above, it can be seen that the number of dependents in one family shows that a family with more than 6 dependents (29.6%) has the largest proportion of taking forest resources. It can be assumed that the greater the number of dependents in the family, the greater the respondent's motivation to utilize biological forest products.

Table 6. Respondents' occupations using resources Forest products

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid farmer	26	48.1	52.0	52.0
farmer	18	33.3	36.0	88.0
trader	3	5.6	6.0	94.0
other	3	5.6	6.0	100.0
Total	50	92.6	100.0	
missi System ng m	4	7.4		
Total	54	100.0		

While the graph about the work of respondents who utilize forest product resources can be seen in Figure 6 below.

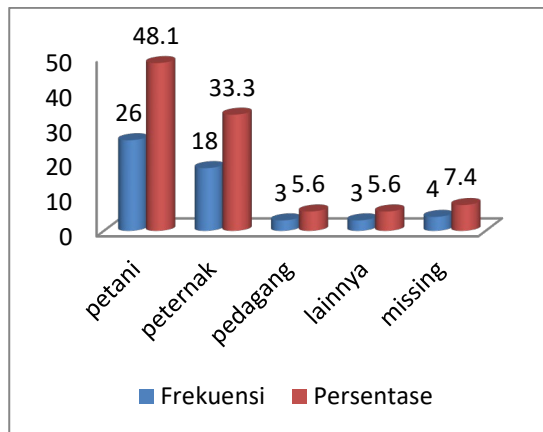


Figure 6. Respondents' occupations using resources Forest products

Based on the table above, it can be seen that most of the respondent who take forest resources have main job as a farmer (48.1%). Interview result show that their tendency to take forest resources is also due to the location of agriculture which close to the forest, so it's easier to take forest resources.

Table 7 . The distance of the respondent's residence using forest product resources

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid < 0.5 km	19	35.2	38.0	38.0
0.6 km - 1 km	21	38.9	42.0	80.0
1.1 km - 1.5 km	10	18.5	20.0	100.0
Total	50	92.6	100.0	
missi System ng	4	7.4		
Total	54	100.0		

Meanwhile, the graph of the distance between respondents who use forest product resources can be seen in Figure 7 below.

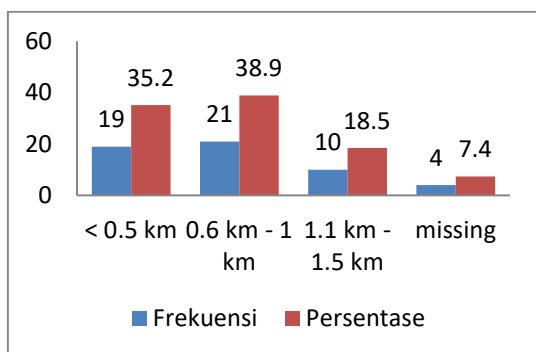


Figure 7 . The distance of the respondent's residence using forest product resources

Based on the table above, it can be seen that most of the respondents who took biological forest resources had a distance between their homes and the forest between 0.6 kilometers to 1 kilometer (38.9%). The results of the interview show that their tendency to take forest resources is also due to the location of their agricultural land (rice fields and fields) which are close to the forest, making it easier to extract forest resources. When viewed from a geographical point of view between the six villages as examples, the results of the analysis show that residents will look for biodiversity in the forest adjacent to their village and not seek in other forests far from their village.

Table 8 . Forest product resources used by respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid firewood	22	40.7	44.0	44.0
grass	18	33.3	36.0	80.0
firewood and grass	10	18.5	20.0	100.0
Total	50	92.6	100.0	
missin System g	4	7.4		
Total	54	100.0		

While the graph of forest product resources used by respondents can be seen in Figure 8 below

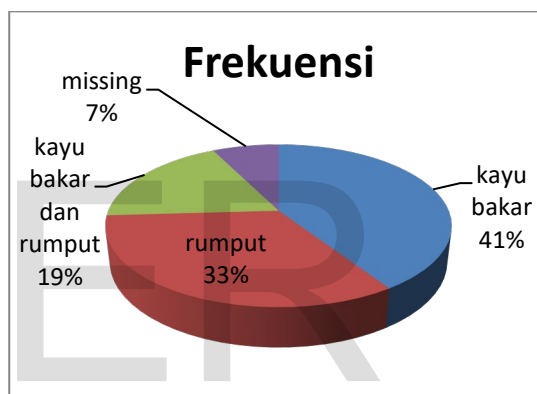


Figure 8 . Utilized forest product resources by respondent

Based on the table above, it is known that the types of forest resources that are mostly taken by the community around the forest are firewood at 40.7%, followed by grass at 33.3%. This condition is due to the increase in the price of fuel oil which causes an increase in the need for firewood due to the shift in consumption of kerosene to firewood. Firewood from forest resources is also sold by respondents to increase family income. Meanwhile, the high search for grass in the forest (33.3%) is due to the fact that most of the respondents own livestock.

STRENGTH OF ASSOCIATION ANALYSIS

Analysis of the strength of this association is used to see relationship or strength between two variables. Linkages between the dependent variables that are influenced by the independent

variables were analyzed by Cramer's V analysis . This analysis assess whether the independent variable will affect variables are not significantly independent, or taking forest resources by the community are only influenced by cultural factors that have been the pattern, so that the independent variables have no effect in encouraging people to take advantage of or take forest resources. The dependent variable in This research is in the form of forest resources taken by society, while the independent variables are age, education, income level, number of dependents in family and the distance from where they live to the forest.

The results of Cramer's V analysis are shown in table 9 . Based on the analysis, it is known that the level of education does not have a real relationship in encouraging respondents to take forest resources. Meanwhile, income has a real relationship in encouraging respondents to take forest resources. Other variables that play a role in encouraging respondents to take forest resources are age, number of family dependents and distance. The age frequency table shows that the age range of 26-30 years uses the forest the most, so that based on Cramer's V analysis there is a strong relationship between the forest resources taken by the respondents and the age group of 26-30 years. This condition is also related to the large number of dependents of the respondent's family.

Table 9 . Relationship of forest resources taken with independent variable

No.	Independent Variable	Cramer's V	Approx. Sig.
1.	Age	0.409	0.033
2.	Education	0.247	0.414
3.	Income	0.333	0.026
4.	Number of dependents in the family	0.388	0.020
5.	Work	0.400	0.014
6.	Distance	0.434	0.001

The distance variable also shows the most dominant strength for influencing respondents

in utilizing resources forest, with a Cramer's V value of 0.434 . This indicates that there is a relationship between distance and taking forest resources, if the distance from the house to the forest is getting further away, then the taking of forest resources will decrease. reduce. Forest resource extraction rate most are located at a distance of 0.6 kilometers to 1 kilometer from the respondent's residence.

CONCLUSION

Analysis of the frequency distribution table shows that respondents aged 26-30 years (40.7%) are the largest age group in taking forest resources. Meanwhile, the majority of respondents who took forest resources had junior high school education (44.4%). The income range of the people who use the forest the most is around Rp 101,000-Rp 300,000 (42.6%). The largest respondents who take resources forest has family dependents in the range of more than 6 people (29.6%). The pattern of behavior of respondents in taking forest resources shows that taking the largest forest resource in the form of firewood with the proportion reaching 40.7%. A total of 38.9% of respondents take advantage of the forest within a distance of 0.6 - 1.5 km from the house. This condition shows that the community take forest resources around the village area. Most forest resource extraction in the form of firewood reached 40.7% while grass is 33.3%.

The analysis of the strength of the association shows that there are five independent variables that affect the composition of resource use biological forests, each with a Cramer's . value V is age (0.409), education (0.247), income (0.333), number of dependents family (0.388), occupation (0.400) and distance from house to forest (0.434). The distance variable also shows the most dominant strength for influencing respondents in utilizing resources forest, with a Cramer's V value of 0.434 .

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