

Community Perception and Participation Towards the Conservation of Sowang Wood (*Xanthostemon Novaguineensis*) in the Nyei Toro Pasir 6 Educational and Training Forest, Revenirara District, Jayapura Regency

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One of the natural resources that is endemic to Papua and is very potential is sowang wood which has many functions and benefits, namely: ecological functions, economic and socio-cultural benefits. This study aims to determine the factors related to community perception and participation in the preservation of sowang wood. The study was conducted in the Nyei Toro Pasir 6 Educational Forest, Ravenirara District, Jayapura Regency. Samples were taken by means of . . Community perception in the preservation of sowang wood as an ecological function is very good. Community feeling safe from landslides, the breeding of various types of wild animals, the availability of water, and as a construction for making houses on the sea and lakes, especially for the people in Jayapura Regency. The level of community participation in planting sowang wood is low. From the results of interviews and questionnaires for (1) the number of dependents in the family is very a large relationship with perceptions of the ecological function in preserving sowang wood, while age, education and low income have a large relationship with community perception³. (2) The number of family dependents has a large relationship with participation in planting sowang wood, while age, education and low income have a small relationship. (3) The level of community perception does not have a large relationship with the level of participation in preserving sowang wood.

Keywords: Perception, participation, preservation of sowang wood

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1. Introduction

Forests are a natural resource whose functions and benefits are always needed by humans, both now and in the future, to support their lives and livelihoods. One of the functions of forests is for education, research, and development, which, if carried out sustainably, can support sustainable forest management efforts and increase the added value of forest products (Mendut Nirningsih, 2006).

As a user of wood, each type of which has different properties, it is necessary to know the properties of the wood so that in selecting or determining the type for a particular use, it must be truly in accordance with what we want. Sowang (*Xanthostemon novaguineensis*) or also called suwang wood is a plant endemic to Papua. Sowang wood can be found in the Cyclop Mountains, which stretch from Jayapura City to Jayapura Regency. The Papuan plant species with limited distribution that are most widely utilized by local communities are woody plant species, including the sowang plant (*Xanthostemon novaguineense*). Traditionally, sowang is used by the community for ritual activities, as a raw material for traditional weapons, household utensils, fence posts, house posts, as firewood, and as a raw material for making charcoal. For fishermen who live on the coast, sowang wood is used as house support pillars. Wood quality sowang included in the wood category Which stand against marine wood borers. This is in accordance

with the research results of Gunawan et al. (2005) that sowang wood is classified as wood Which stand against wood-destroying attacks namely subterranean termites, marine wood borers, fungi weathering white and brown rot fungi. Habitat area of the sowang plant in Jayapura is the Cycloop Mountains, but sowang grows unevenly in the Cycloop Mountains sowang only grows on the west and south sides to the east of the Cycloop Mountains.

Xanthostemon is a genus in the Myrtaceae family of plants found in both shrub and tree forms. Currently, 45-50 species of *Xanthostemon* are known to be found throughout Caledonia. New , Australia , Solomon Islands , Papua New Guinea, and Indonesia . Nyei Toro Pasir 6 Education and Training Forest, Ravenirara District, Jayapura Regency with an area of ± 144.9 Ha is one of the places where Sowang plants (*Xanthostemon novaguineensis*) grow , but now the existence of sowang plants in Nyei Toro Education and Training Forest is decreasing due to the increasing use as a material for house construction and for the restaurant industry.

2. Literature Review and Problem Statement

Sowang is a genus in the Myrtaceae plant family found in the form of shrubs and trees. To date, 45-50 species of *Xanthostemon* have been identified, spread across New Caledonia, Australia, the Solomon Islands, Papua New Guinea, Indonesia, and the Philippines, with a center of diversity in New Caledonia (Wilson 1990; Sosef et al. 1998);

The sowing plant has various benefits, including ecological benefits as a food source for several animals, particularly the nectar from the flowers, which attracts insects such as ants, bees, and butterflies. The socio-cultural benefits of this plant also indirectly represent the Sentani Tribe's culture, passed down through generations. This is because the wood from this plant has been traditionally used to symbolize the social status of traditional and village chiefs, as well as to make cutlery and house pillars or foundations for the Sentani people who live along the shores of Lake Sentani.

Traditionally, sowing wood is used by local communities for rituals, as a raw material for traditional weapons, household utensils, fence posts, house pillars, firewood, and as a raw material for charcoal. For coastal communities, sowing wood is used as house support pillars. The quality of sowang wood is classified as resistant to marine wood borers. This is consistent with research by Gunawan et al. (2005), which found that sowang wood is resistant to attacks by subterranean termites, marine wood borers, white rot fungi, and brown rot fungi. The habitat of sowang in Jayapura is the Cycloop Mountains. However, sowang grows unevenly in the Cycloop Mountains, growing only on the west, south, and east sides of the Cycloop Mountains.

3. Method

This study uses a descriptive research method because its implementation includes data collection, calculations, and interpretation of the meaning of the data obtained. This study is structured as an inductive study, namely seeking and collecting data and information in the field regarding community perceptions and participation with the aim of understanding the factors, elements, forms, and characteristics of phenomena in society. The number of residents living around the Nyei Toro Education and Training Forest is 242 people using the Slovin formula. $n = \frac{N}{1+N.e^2}$ Finally, the number of samples that had to be used as respondents in this study was 70 people.

The method for sampling is Stratified Random Sampling, which is a sampling process method by dividing the population into strata and selecting samples randomly. The sample strata are Ondoafi and Masyarakat. The stages of processing the data from this research are: Checking for completeness of answers. At this stage, the data obtained is re-examined to identify incomplete answers to the questionnaire. Tally sheet, which is calculating the number or frequency of each answer in the questionnaire. Calculating the percentage of respondents' answers in the form of a single table through frequency and percentage distribution. using the formula (Warsito, 1992) : $P = \frac{f}{N \times 100\%}$

The measurement scale for perception and participation variables is divided into several categories: very good perception category > 75%, good perception 60% - 74%, poor perception < 60%, and very good participation category > 75%, moderate participation 60 - 74%, low participation < 60%.

4. Results and Discussion

In this study, the characteristics of respondents consist of age, education, income, number of family dependents of 70 respondents are grouped into 3 age groups, namely 22-41 years as many as 37 people (52.86), quite productive age as many as 42-56 years as many as 25 people (37.71%), less productive age 57-78 years as many as 8 people. Respondents' education is grouped into 3 groups, namely elementary/junior high school 23 people (32.86%), high school 32 people (45.71%), college 15 people (21.43%), Respondents' income is grouped into 3 groups, namely low income 28 people (40%), medium income 32 people (45.71%), high income 10 people (14.29%), the number of family dependents is grouped into 3 groups, namely the number of low family dependents 32 people (45.71%), medium family dependents 29 people (41.43%) number of dependents in high-income families 9 people (12.86%)

The relationship between people's perceptions of the ecological function of sowang wood

Public perception of the ecological function of sowang wood from the results of interviews and questionnaires with 70 respondents with six questions, namely: (1) sowang prevents landslides, (2) sowang can store water, (3) sowang is a habitat for various types of wild animals, (4) sowang is a renewable natural resource, (5) sowang wood has strong roots so it can prevent landslides. (6) sowang land can be compressed into settlements or plantations. Of the six questions, the respondents' answers to the first 5 questions are in the very good category, while for the 6th question it is in the less good category. The distribution of respondents' answers can be seen in (Figure 1). Public perception of the existence of sowang wood as an ecological function in the Nyei Toro educational forest is 6 people (8.58) respondents with less good perception, 11 people (15.71) respondents with good perception and 53 people (75.71) respondents with very good perception towards the preservation of sowang wood

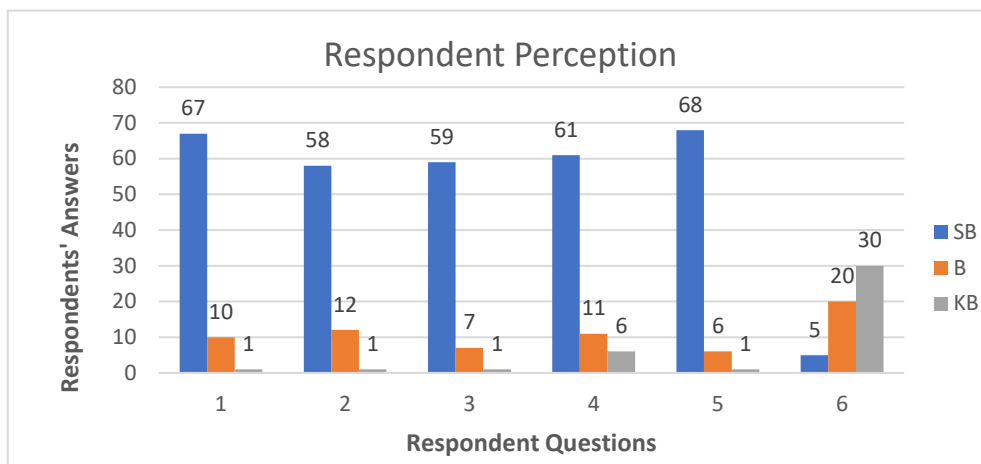


Figure 1. Graph of respondents' answers and perceptions of the ecological function of bamboo, with a range of answers: SB, very good; B, good; KB, not good; SBR, very bad

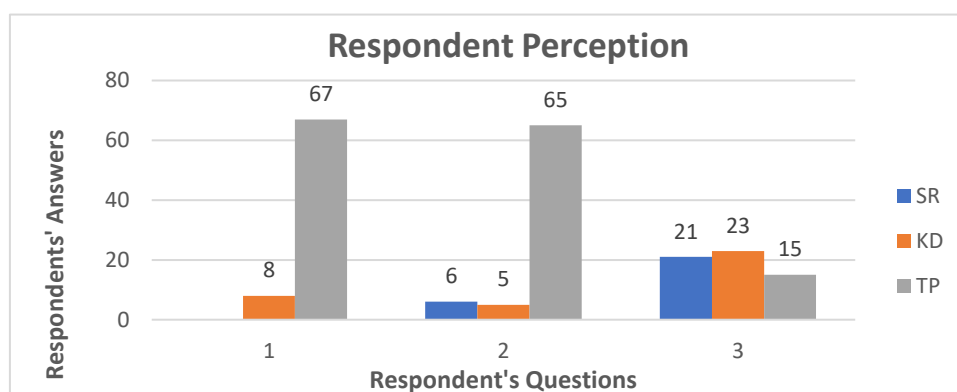


Figure 2. Graph of respondents' answers and participation in bamboo planting, with a variety of answers: SR, often; K, sometimes; TP, never

The relationship between community participation in planting sowan wood

Community participation in planting sowang in preserving sowang wood, the results of interviews and questionnaires with 70 respondents with 3 questions, namely: (1) procurement of seeds, (2) planting, (3) maintenance of sowang wood showed that respondent participation in planting was in the low category. The distribution of respondents' answers to planting sowang wood in the Nyei Toro Educational Forest was: 49 people (70%) respondents had low participation, 12 people (17.14%) respondents had moderate participation, 9 people (12.86%) respondents had high participation in preserving sowang wood.

The factors related to the public perception of the ecological function of wood are very large, this indicates that both respondents who are productive, less productive and unproductive provide relatively the same perception, This indicates that age does not provide a different perception of the assessment of the ecological function of the sowang plant, they have realized, felt and seen that maintaining the sustainability of the existence of the function of sowang wood as a natural resource is very important. Efendi (2005), said that although farmers have varying ages, they have the same experience to determine the level of one's perception. Observations in providing perceptions of the function of sowang wood as a natural resource that must continue to be maintained and preserved. Experience in the field of the community has no doubt,

although sowang has slow growth, but a strong and extensive root system, this is also proven in research , Raynard C. Sanito . (2018)

education with the ecological function of sowang wood shows that there is no big relationship between education and respondents' perceptions. This indicates that without being limited by their level of education they see, feel and have proven that sowang wood has strong roots that enable the plant to maintain the hydrological system as a binder of soil and water, prevent erosion, landslides, store so that sowang wood can be used as a conservation plant . In relation to the ecological function, the people of Papua are very concerned about the preservation of sowang wood because the wood that only grows around the Cyclops mountains and is an endemic wood of Papua so it has great meaning for the people of Papua.

Respondents' income with sowang ecological function does not show a significant relationship between income and respondents' perceptions. This is because both respondents with low income and high income levels have a relatively high perception, because they see, feel and the results they get are that sowang wood can increase sources of income because it is used as a house construction material, charcoal and carvings. Sowang can increase sources of income through the sale of sowang wood to be used as a house construction material, especially stilt houses or anchored houses but with good and correct collection so as not to cause damage and also now there is a ban on the use of sowang wood as a material for stilt house construction by the City Government through the Governor's Circular to reduce illegal logging and the threat of extinction of owang wood , Sowang wood can be used as charcoal because the embers of sowang wood are very good and long-lasting but now it has been banned for use by the Jayapura City Government and the Police due to the decline in the number of sowang wood and the threat of extinction of sowang, carvings from sowang only apply to the Sentani Tribe to represent the cultural and ancestral values of the Setani Tribe and the community are still hesitant and disagree because it only uses sowang for house construction, and can be used as a conservation plant.

Amount family dependents show that there is a big relationship between the number of family dependents and the respondents' perception of the ecological function of sowang. From the results of interviews with respondents who have a large number of family dependents, they gave a very good perception of the ecological function of sowang because they have seen and felt that sowang has a strong root system that prevents erosion, landslides, and is a habitat for various types of wild animals and wood. Sowang is a food source for birds, although there is no scientific evidence that the fruit of the *Xanthostemon novoguineensis* is a food source for poultry, but *Xanthostemon chrysanthus* planted in public open spaces in Singapore is known to be a food source for birds (Nazarudin *et al.*, 2015) & (Ling & Hui , 2016)

Community participation in the ecological function of sowang wood is equally not actively participating in planting and shows that there is no big relationship between productive age, or less productive with participation . This is because both do not actively participate in planting and nursery of sowang wood , they still expect seedlings from sowang wood stands and let regeneration occur naturally because they think that sowang wood grows by itself in the forest. So it is difficult to carry out planting in large quantities. Sumardiono (2007), said that one form of decline, destruction and destruction of biodiversity is harvesting, logging without cultivation efforts, and introducing new species.

Education with respondent participation in planting sowang, it is explained that respondent participation in planting and procuring sowan seeds is not limited by education , because respondents both showed low participation in planting sowang wood, but some respondents stated that they would plant it if the government provided sowang wood seedlings or useful tree seedlings. In fact, if they were interested, there were many seeds that could be developed, this was due to the existence of a hereditary culture that only

hoped for natural regeneration, even though they always stated that maintaining the sustainability of the function of sowang wood as a natural resource was important.

Respondents' income regarding sowang planting is not that different between the income and participation of respondents regarding sowang wood planting . This is because both respondents with low, medium and high income levels show low participation in sowang planting and procuring sowang wood seedlings . Even though they know that it is a source of income and understand the importance of preserving owang wood , there is low participation in planting and procuring owang seedlings. They expect regeneration to occur naturally and assume that owang will grow by itself in the forest.

The number of dependents of the respondents' families regarding the planting of sowang wood does not have a very far relationship between the number of dependents of the family regarding the planting of sowang wood , from the results of the interview it can be concluded that both respondents with a large number of dependents, as well as low, both show low participation in planting sowang wood and procuring sowang seeds. If seen in detail that many dependents affect a person's level of participation, meaning that the more dependents the more someone participates in planting sowang wood , on the other hand respondents with a low number of dependents provide low participation in planting sowang wood . This is due to the existence of a hereditary culture that only hopes for natural regeneration, even though they realize that maintaining the preservation and sustainability of the function of sowang as a natural resource is important.

The results of this study indicate that the level of perception of community respondents around the Nyei Toro Pasir 6 educational and training forest in Ravenirara District in preserving sowang wood is very good, they have seen and felt safe from landslides, the availability of water, the breeding of various types of wild animals as a source of income, sowang wood is a versatile plant because it can be used as a construction material for the Sentani Tribe's houses who live on the edge or above Lake Sentani and also anchored houses on the sea. Sowang wood is made for household utensils, especially the Sentani Tribe, namely (plates (Toje), papeda spoons (Hiloi), sago cokers, spoons for making papeda (Yangkaru), spears (Menda), and arrows for hunting), durable charcoal because of the fire-resistant nature of sowang wood, also presents the Tribe's cultures. Sowaang wood as a tool to maintain cultural values so that they are maintained from generation to generation . In this case, it is not in line with the level of respondent participation in the low planting of sowang wood and low protection of sowang , .Budiman et al (2013), that conceptually a good perception will be followed by good participation as well. The inconsistency of perception and community participation in the preservation of sowang wood is caused by the lack of routine counseling and socialization from the local government through the Forestry and Environment Service to involve the community in cultivating sowang wood, then there is local wisdom or hereditary culture that only hopes for natural regeneration and assumes that sowang will grow by itself in the forest. Budiman et al (2013), said that one of the factors that determines the level of community participation is when the community understands and really understands something through socialization activities held directly by the authorities. In contrast to the understanding obtained through wisdom or hereditary culture which only increases the level of human participation. Ngakan (2006) said that community perception is not always in line with participation. Good perception does not guarantee positive participation, but can instead guarantee negative participation. There are many factors that influence community participation in doing good, this picture is generally in the utilization of natural resources where conditions are somewhat far from expectations when we rely on local wisdom as a positive thing.

5. Conclusion

From the results of data analysis and discussion, the following conclusions can be drawn: The sowang tree has slow growth and a strong and extensive root system, preventing erosion, landslides, and flooding. It can be used as a conservation plant. The sowang tree is a food source for birds, although there is no scientific evidence that the fruit of the sowang tree is beneficial. *Xanthostemon novoguineensis* is a food source for poultry,

Sowang is in accordance with the cultural values and social life of the Sentani Tribe. Sowang is a versatile plant because it can be used as a construction material for the houses of the Sentani Tribe who live on the edge or above Lake Sentani and also anchored houses on the sea, household tools especially for the Sentani Tribe, namely (plates (Toje), papeda spoons (Hiloi), sago pushers, spoons for making papeda (Yangkaru), spears (Menda), and arrows for hunting), long-lasting charcoal because of the fire-resistant nature of sowang wood. In order to increase public perception and participation in the preservation of sowang, it is recommended that: research be conducted on what types of insects eat sowang leaves, what types of birds eat sowang fruit and seeds. There is a need for outreach about sowang, which is closely related to the socio-culture of the Sentani Tribe, to become knowledge for the community and also become one of the reasons to maintain the preservation of sowang, sowang as an endemic plant of Papua that is threatened.

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