

Valuing Forest Resources by the Local Community in Sungai Melayu, West Kalimantan

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Abstract

Forests provide substantial direct and indirect benefits to local community. However, the effective use of forest products for a local community, vastly depends on the extent of their knowledge and access to forest that they are depending on. This research is aimed to identify local community understanding on the benefits of forest in Sungai Melayu, West Kalimantan, Indonesia. The data collection methods were carried out using nested plots to identify existence of various forest species, Focus Group Discussion (FGD) and field observation to collect data on forest and its usefulness to local livelihoods with the assistance of expert local informants. The research result indicated that Sungai Melayu forest in West Kalimantan is providing various direct (e.g., food, fodder, firewood, timber, and resin) and indirect (e.g., soil erosion control, increase soil fertility, reducing pollution, flood control) benefits to the local communities, including important cultural services. If forest is used and controlled by the local community, it can allow better management of forest than corporate based management, in terms of their scale of use and passion to forest.

Keywords: Species; Livelihood; Extent of benefit; Conservation

Introduction

Indonesia is the largest archipelagic country in the world, having ~18,110 islands and islets [1]. Indonesia also has a rich geological history and diverse habitats, making an area of biodiversity significance in Southeast Asia [2]. Indonesia holds ~10% of the world's flowering plant species, ~12% of the world's mammals, ~16% of the world's reptiles, and ~17% of the world's bird species [3]. The anthropogenic and cultural diversity of Indonesia is also high, with 1,000 tribes speaking more than 600 languages or dialects, resulting in a massive number of traditions and practices [4]. Such vast cultural diversity causes different understanding and ways to manage local resources, e.g., forest landscape.

In Indonesia, forest management is generally done through decentralized sustainable forest governance, social forestry program. The policy of this program respects customary or collective tenure rights and provides funding for sustainable forest management, community-based conservation initiatives, and forest and landscape restoration programs (UNDP, 2022). Since 2008, social forestry program has designated ~12.7 million hectares of Indonesian state forest to the indigenous and local communities for their management. The social

forestry program allows local communities to manage and develop forests by themselves, e.g., conserving the landscape, planting timber and fruit trees, developing environmental services, and tourism. The direct and indirect benefits derived from the forest can be categorized as ecosystem services, e.g., food, fiber, fuel, medicine, fodder, manure, resins, dyes, pollination, microclimate regulation, air filtration, rainwater drainage, sewage treatment, noise reduction, recreational and cultural values [5,6]. However, the effective use of forest products for a local community, vastly depends on the extent of their knowledge and access to forest that they are depending on. Such knowledge, which is often connected to local culture, can also benefit supporting forest management programs across the landscapes. Therefore, this research is aimed to identify local community understanding on the benefits of forest in Sungai Melayu, West Kalimantan, Indonesia.

Materials and Methods

The study site is located in Sungai Melayu, Ketapang regency, West Kalimantan, Indonesia (Figure 1). Sungai Melayu is a very remote area consists of oil palm plantations, agricultural fields, and forests. The road infrastructure in this area is poor and in a process of development. The total population of Sungai Melayu Village is 3,050 [7]. The data collection method was carried out

using a random sampling technique, to identify existence of various forest species in a total of two plots (20x20 m each), in which each plot consists of three nested smaller plots, i.e., 2x2m, 5x5m, and 10x10m. A Focus Group Discussion (FGD) was also conducted to collect data on forest and its usefulness to local livelihoods. Twelve local people were attended the FGD session. People for the FGD were purposively selected based on their good knowledge of local forests and their usefulness; the socioeconomic and geographic states of Sungai Melayu and its surroundings. A set of key FGD questions was prepared that guided the session. A report was prepared after the session summarizing the answers and opinions given by the participants, and to check its validity, the summarized information was verified by the participants. Field observations were also conducted in several locations selected based on the information gathered in the FGD. During observation, several pictures of local landscape were taken, and relevant information was noted. Two local people of Sungai Melayu, who had considerable knowledge of local land use systems, products, uses, were also nominated as expert local informants. These informants were present to assist data collection. Qualitative and quantitative analysis methods were used to analyze the data, particularly the usefulness of Sungai Melayu forest to local community.

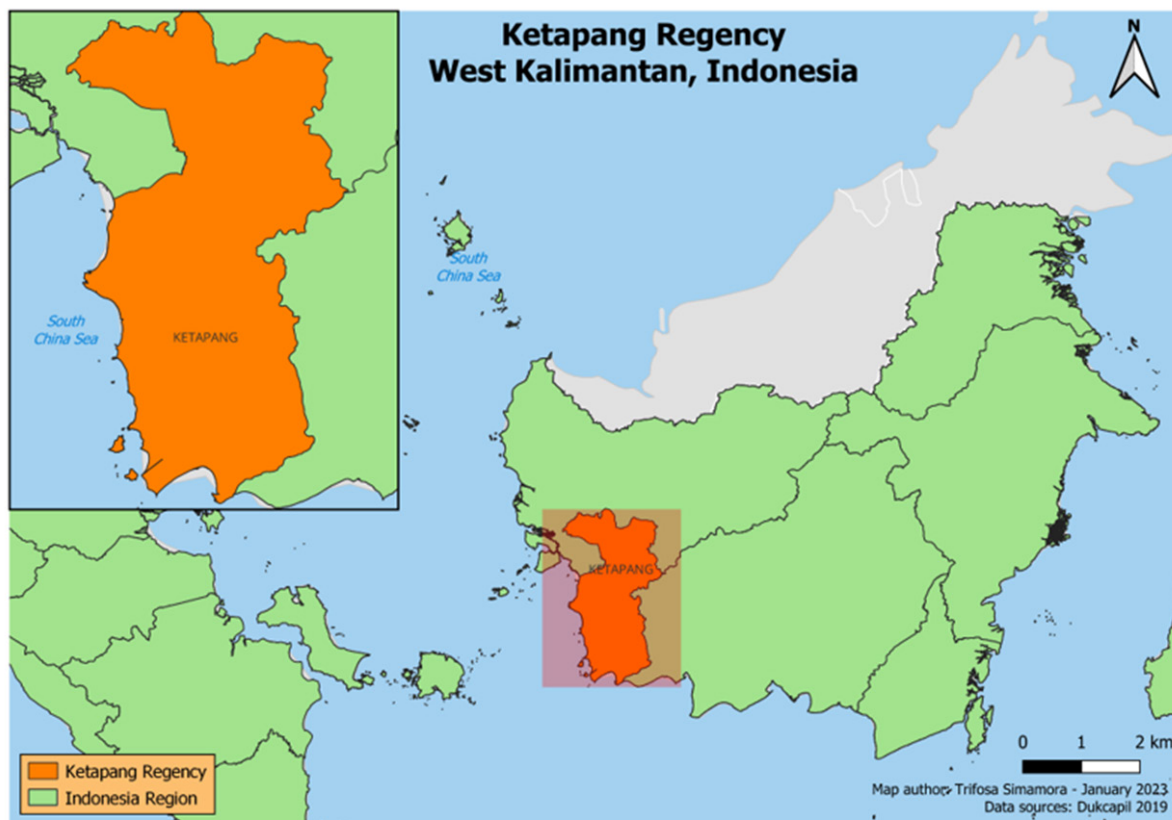


Figure 1: Location of study site in Sungai Melayu, West Kalimantan.

Result and Discussion

Total 29 flora and fauna species from Melayu forest provide direct livelihood benefits to the local communities (Figure 2),

which include food, fodder, firewood, timber, and resin. *Alstonia scholaris* provides highest benefit among other species to the local communities, followed by *Schima wallichii* and *Calamus Hookerianus*. The wood of *Alstonia scholaris* is very much useful to

use as net floats, household utensils, trenchers, etc. It is also useful in restoring the tone of the stomach after fevers. This tree grows rapidly and is easy to cultivate. The wood of *Schima wallichii* is used for construction, e.g., door and window frame, and for firewood. *Calamus Hookerianus* is normally harvested from the forest for its stems, which are mainly used for making baskets and cane furniture. Young shoots of this species also used as a vegetable to make curry and soup. Species from Melayu forest also provide indirect benefits to the local communities, e.g., soil erosion control, increase soil

fertility, reducing pollution, flood control. Even though almost all species in the forest can provide indirect benefit in different extent, however, eight species found in our research plots (Figure 3) which are also mentioned by the local people of Sungai Melayu village for indirect benefits. The FGD session and key expert informants used for this research allowed to reveal cultural benefits provided by Sungai Melayu forest (Table 1). The major cultural benefits derived from Sungai Melayu forests (i.e., in a form of trees, small plants, or as a scenic location) are sacred, rituals and recreational purpose.

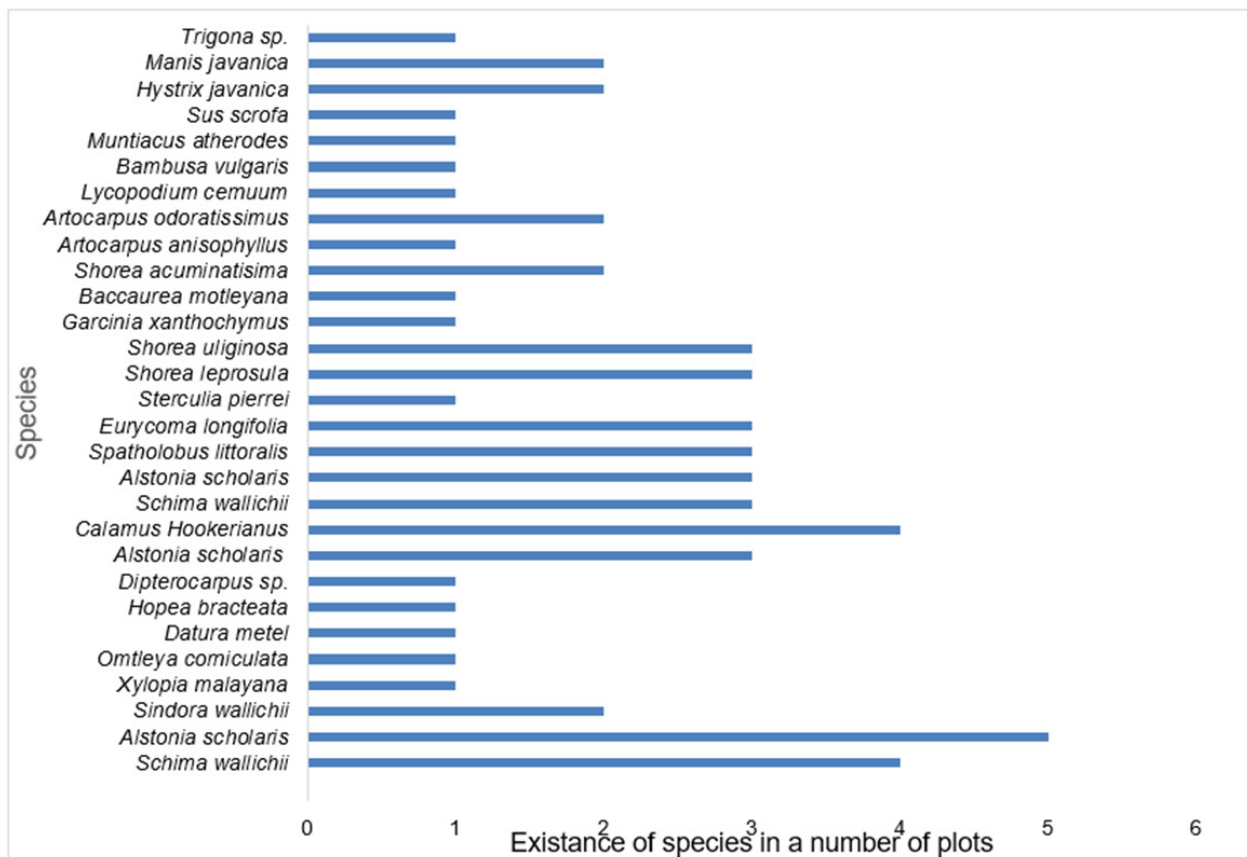


Figure 2: List of species found in Sungai Melayu forest providing direct benefit to local communities.

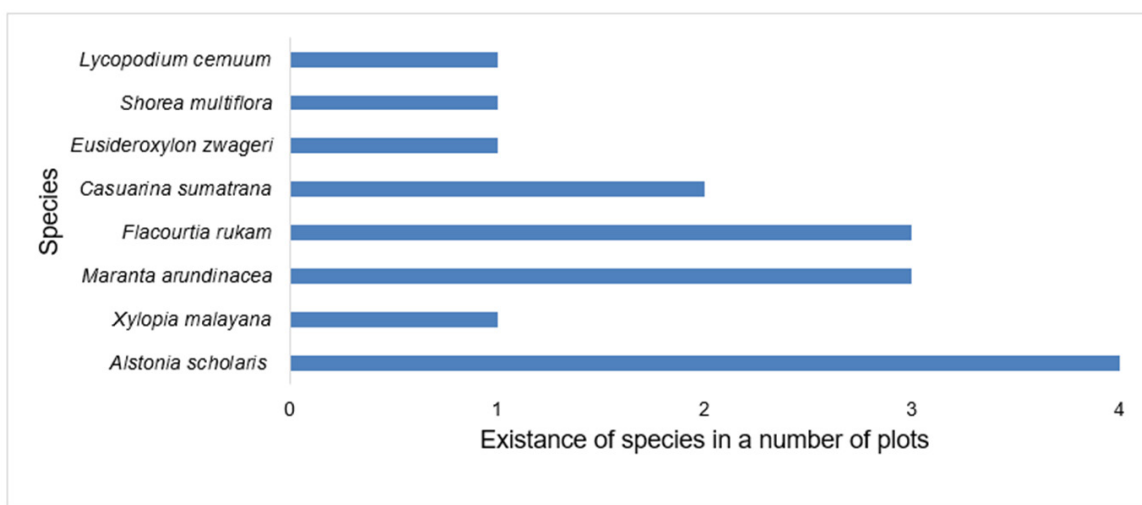


Figure 3: List of species found in Sungai Melayu forest providing indirect benefit to local communities.

Table 1: Type of cultural benefit provided by Sungai Melayu forests.

Species and Location	Type	Function	Extent
Species			
<i>Alstonia scholaris</i>	Tree	Sacred	High
<i>Xylophia sp.</i>	Small plants	Sacred	Low
<i>Marantaceae</i>	Small plants	Ritual	High
<i>Flacourtia rukam</i>	Tree	Sacred	Medium
<i>Bambusa vulgaris</i>	Tall woody grass	Ritual	High
<i>Ficus benjamina</i>	Tree	Ritual	Low
<i>Lycopodium cernuum</i>	Small plant	Ritual	Medium
<i>Shorea multiflora</i>	Tree	Sacred	High
<i>Eusideroxylon zwageri</i>	Tree	Sacred	High
Location			
Air Terjun Punjung Samak	Waterfall	Recreation	Medium
Batu Banama	Scenic location of rock	Recreation	Medium

Alike Sungai Melayu forest, many parts in the tropics, forests have gained increasing attention due to the various products and services that people derive from them [8,9]. Forests serve as income sources as well as shelter and consumption of goods, e.g., food, fodder, fuelwood, timber, for local communities [10]. It is estimated that ~1.2 to 1.6 billion people depend to some extent on forests for their livelihoods, which includes 60 million indigenous people [11]. At the national level, forest resources can help foreign exchange earnings through export of forest products [12]. Besides such cash returns from forests, other ecosystem service benefits are far greater [13]. They include climate regulation through carbon sequestration, regulation of water quality and flood risk and air quality, maintenance of supporting services providing primary production through nutrient cycling (minimize nutrient losses and enriching soils through nitrogen fixation), and protecting crops from wind damage [12,14]. In the tropics, forests could absorb as much as 2.8 billion tons of carbon per year [15]. Therefore, forests have important potential to contribute to sustainable development and thereby to a greener economy.

Conclusion

Sungai Melayu forest in West Kalimantan is providing various livelihood benefits to the local communities, including important cultural services. Forest is valuable for this community for generations. The extent of such supporting role of forest to the community depends on the local socio-economic, cultural and environmental conditions. In many parts of the world, if forest is used and controlled by the local community, it can allow better management of forest than corporate based management, in terms of their scale of use and passion to forest. Local communities also access to forest mainly for their local or regional needs rather than large scale export needs; and the local decision-making process can enable community members to participate and to have their voice based on local reality, which is an important element of sustainable forest management.

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