

# Promoting Spatial Partnership and Community Perception for the Preservation of Orang Kayo Hitam Grand Forest Park (GFP) in Jambi Province, Indonesia

<sup>1\*</sup>Rosyani, <sup>2</sup>Fuad Mukhlis, <sup>3</sup>Fazriyas, <sup>4</sup>Neliyati, <sup>5</sup>Napitupulu, <sup>6</sup>Addion Nizori and <sup>7</sup>Heiko Faust

<sup>1,2,5</sup>Department of Agribusiness, Agricultural Faculty, University of Jambi, Indonesia.

<sup>3</sup>Department of Forest Program Study, Agricultural Faculty University of Jambi, Indonesia.

<sup>4</sup>Department of Agroecotechnology, Agricultural Faculty, University of Jambi, Indonesia.

<sup>6</sup>Department of Technology of Agricultural Products, Agricultural Faculty, University of Jambi, Indonesia.

<sup>7</sup>Geographisches Institute der Georg-August-University of Gottingen German.

**Submit:** 2023-02-28

**Received:** 2023-08-18

**Accepted:** 2023-08-30

**Keywords:** Spatial partnership; perception; grand forest park; and preservation

**Correspondent email:**

rosyani\_pertanian@unja.ac.id

**Abstract.** The Orang Kayo Hitam Grand Forest Park is located in Jambi Province, Indonesia, and is currently threatened by illegal logging and natural fire forest that has burned 7,984.78 hectares. Therefore, this research aims to improve community perceptions of the conservation function of the Orang Kayo Hitam. This can be achieved by providing conservation books on the Orang Kayo Hitam to the community, creating a demonstration video, and increasing community income through a partnership pattern by planting in utilization zones. The non-parametric statistical difference T-test was used, which involved a survey and training approach on 93 households living near the Grand Forest Park. This method was used to assess changes in the perception of the community after reading books, watching videos, and collaborating on counseling. The results showed that the perception of the community changed significantly after receiving knowledge from books and watching videos about the Grand Forest Park. There was also a shift in public perception regarding the use of the conservation zone at the Grand Forest Park location via collaboration counseling.

©2022 by the authors. Licensee Indonesian Journal of Geography, Indonesia.

This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution(CC BY NC) license <https://creativecommons.org/licenses/by-nc/4.0/>.

## 1. Introduction

The Grand Forest Park (GFP) is a forest area with a conservation function. In Indonesia, conservation areas are grouped into two categories, namely (1) nature conservation areas and (2) nature reserve areas. The GFP is categorized as a nature conservation area with ecotourism, research, and education functions (Forest Service, 2020). In Jambi Province, there is *Orang Kayo Hitam* GFP with an area of 18,140 hectares, located between Muaro Jambi Regency and Tanjung Jabung Timur Regency. The GFP is characterized by a peat swamp forest area and is managed by the Jambi Provincial Forestry Service. The *Orang Kayo Hitam* GFP faces several challenges such as recurrent forest fires in 1997, 2007, 2011, 2014, 2015, and 2019, as well as illegal logging, occupation of the area by the community, and conflicts over boundaries within the community.

In Indonesia, the management of conservation areas experienced a paradigm change in the 1990s, following the adoption of the Integrated Conservation and Development Program (ICDP) by the Director General of Nature Protection and Conservation. The ICDP program was funded by USAID, the World Bank, and several international NGOs that linked conservation programs with the development of alternative economic activities for communities around the area by embracing all stakeholders and accommodating all dimensions of development which are common goals (Wells *et al.* 1998). However, the community was still positioned as the object of

the activity implementation (Soekmadi *et al.*, 2010), leading to continuous deforestation and degradation in conservation areas.

Community interests have been taken into account in the management of the Grand Forest Park under Indonesian government regulation number 28, Year 2011 concerning the Management of Nature Reserves and Conservation Areas. Under these conditions, it can be assumed that by providing knowledge through reading books, watching videos, as well as collaborating, and counseling, there will be a change in the perception of the community. The partnership opportunities are built for the surrounding community to sustain the *Orang Kayo Hitam* GFP by changing the public perception.

The objectives of the research are (1) To determine whether distributing the *Orang Kayo Hitam* GFP conservation book to the community can change their perceptions of the conservation function, (2) To perform a video demonstration of the function of the *Orang Kayo Hitam* GFP in the community on changing the perceptions of the people (3) To analyze whether the promoting spatial partnership pattern approach can increase community income in the utilization block in the *Orang Kayo Hitam* GFP.

## 2. Methods

The research site is the location of a conservation feature, namely peatland protection, as recognised by the government of the Republic of Indonesia as the site of *Orang Kayo Hitam*

GFP. The *Orang Kayo Hitam* GFP is located in Muara Jambi Regency, and the western half of the *Orang Kayo Hitam* GFP is a communal hamlet with farmers and fisherman earning \$1.25 per day. The research site are shown in Figure 1.

The stages carried out in this research included, first initial data on the perceptions of respondents were needed (A0), second, respondents were given reading books about the functions and regulations of the *Orang Kayo Hitam* GFP (A1), and then FGDs were conducted and videos were shown to respondents about the conservation of the GFP and the importance of the *Orang Kayo Hitam* GFP (A2), In addition

of that, the respondents were collaborating on counseling, to partner with the *Orang Kayo Hitam* GFP in the utilization zone (A3), lastly, one month after the interviews with the respondents, the data obtained revealed whether there was a change in perception and uses of the *Orang Kayo Hitam* GFP for partnership zone. The research framework used was briefly described figure 2.

Hypothesis: Giving adoption of innovations to community, will have a positive effect on changes in community perceptions (Supporting Adoption of Innovation Theory). This research was conducted in Jambi Province at the sample location of

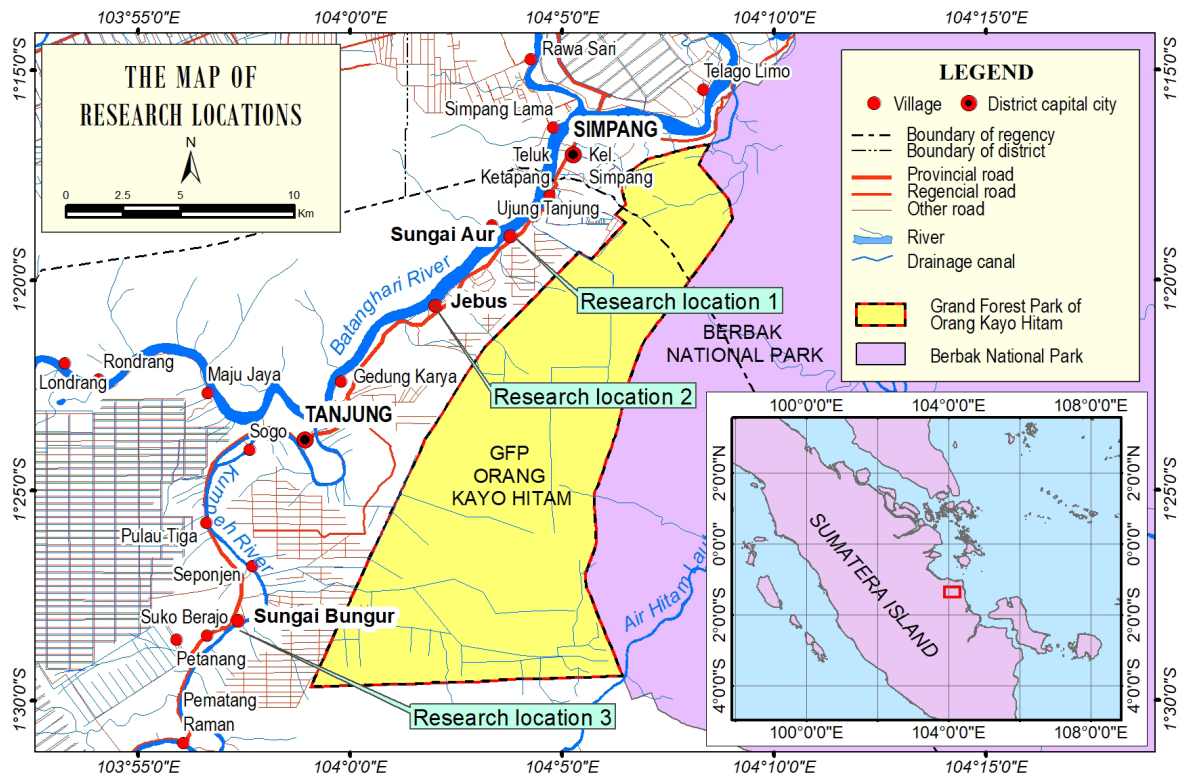


Figure 1 . The Map of Research Location.

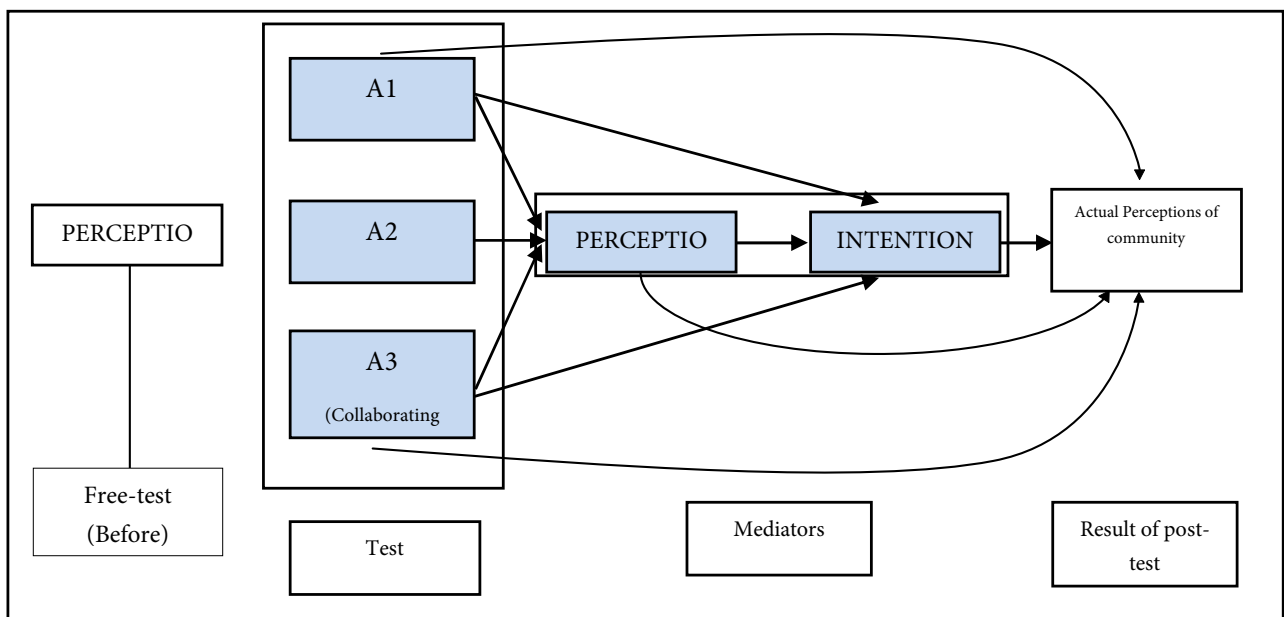


Figure 2. Research framework used, before and after community perception of the *Orang Kayo Hitam* GFP before and after being given treatment (A).

the *Orang Kayo Hitam* GFP, where training was given to the community members from the nearest village. The training was attended by 93 community members surrounding the GFP. Respondents were people within the three villages closest to the GFP, which included *Sungai Aur*, *Jebus*, and *Sungai Bungur* with 528, 256, and 603 households, respectively, making a total population of 1,387 households (Forestry Service, 2020).

The sample size was determined using the Slovin approach (Riduwan, 2009, as expressed in the formula below:

$$n = \frac{N}{N \cdot d^2 + 1}$$

Where :

- n = total number of samples
- N = Number of population
- d<sup>2</sup> = Level of Precision (set to 10%)

Based on the formula above, the number of samples is obtained as follows:

$$n = \frac{N}{N \cdot d^2 + 1} = \frac{1.387}{1.387(0,1)^2 + 1} = \frac{1.387}{14.87} = \mathbf{93 \text{ respondent}}$$

The method of analysis used in this research was the pre-test and post-test factors (Nasir, 2014). The method effectively described changes that occurred in community perceptions after being given training on the preservation of the *Orang Kayo Hitam* GFP. Further data from survey results were cross-tabulated and analyzed using T-test.

Formula: H<sub>0</sub> dan H<sub>1</sub>

- H<sub>0</sub> : μ<sub>0</sub> = μ<sub>k</sub>
- H<sub>1</sub> : μ<sub>1</sub> ≠ μ<sub>k</sub>

Description:

- μ<sub>0</sub> = Community perception before getting training
- μ<sub>1</sub> = Community perception after getting training
- H<sub>0</sub> = There is no difference in perception before and after getting training
- H<sub>1</sub> = There are differences in perceptions of the community before and after getting training
  - a. Set a critical point (α) or the level of trust found in table “t”

- b. Determine the critical area or test area with db = n – 1
- c. Determine the t count using the formula.

$$T = \frac{[\bar{X}_1 - \bar{X}_2]}{\sqrt{\frac{(n_1-1)Sd_1^2 + (n_2-1)Sd_2^2}{(n_1+n_2)-2} \left[ \frac{1}{n_1} + \frac{1}{n_2} \right]}}$$

Information:

- $\bar{X}_1$  = The average community perception of GFP *Orang Kayo Hitam* preservation treatment before training
- $\bar{X}_2$  = The average community perception of GFP *Orang Kayo Hitam* Preservation after training
- Sd<sub>1</sub><sup>2</sup> = Variant of perception before training
- Sd<sub>2</sub><sup>2</sup> = Variant f perception after
- n<sub>1</sub> = Number of the community before training
- n<sub>2</sub> = Number of the community after training

- Perform a significance test by comparing the amount of “t” count with the “t” table with the following criteria
- a. if t count > t tabel, then community perceptions before and after training are different
  - b. if t count ≤ t tabel, then community perceptions before and after training are no different (Sugiono, 2014).

### 3. Result and Discussion

#### *Orang Kayo Hitam* GFP’s Concerns for Biodiversity in Peatlands

The *Orang Kayo Hitam* GFP was designated as a forest area of 18,140.32 hectares in line with the Minister of Environment and Forestry Decree 1973/menlhk-pktl/kuh/pla.2/4/2017. This area played a critical in preserving the diversity of peatland forests.

The land cover area in the *Orang Kayo Hitam* GFP, primary peat swamp forest was only 11.6%, located on the border of Berbak National Park on the east side, while the remaining 88.4% consisted of secondary plants, such as grasses and ferns. The land was being deforested due to fires and community occupations. The figures below showed a picture of the condition of the *Orang Kayo Hitam* GFP when the research was carried out in 2021.



Figure 3. *Orang Kayo Hitam* GFP after Forest Fire 2015-2019 (Source: Rosyani, 2021).

The satellite image of May 1998 (Giesen, 2004) showed early indications of local people from *Sungai Kumpeh* villages moving north of the GFP to engage in agriculture and establish tree plantations. New forest clearing in the areas affected extended from *Sungai Aur* Village to the north of the GFP area up to the top of the *Air Hitam Dalam* River. The small fire plots began along the “*Air Hitam Dalam*” River in the middle of the GFP and spread to the GFP area.

Problems faced in the restoration of regional ecosystems included the condition of the area that was not fully supported and agreed upon by the parties. This caused an incomplete boundary delineation process and the need for land due to the increasing population. Generally, agriculture and plantations were a challenge for the *Orang Kayo Hitam* GFP to restore ecosystems.

The main occupations of the people around the *Orang Kayo Hitam* GFP in *Sungai Aur*, *Jebus*, and *Sungai Bungur* Villages, included farming, ranching, fishing, laboring, trading, crafting, and wage labor. The surrounding community had a low standard of living with an average daily income of less than \$1.25 (Bappenas, 2020). Therefore, after the forest fires in 2015 and 2019, the community occupied an area of 902 hectares due to their ignorance of the *Orang Kayo Hitam* GFP regulations and the benefits. The pressure of poverty also forced people to engage in these occupations.

According to the statement, the factors that influenced the occurrence of forest and land fires in Riau Province were classified as 1) environmental biophysical, 2) socioeconomic, and 3) spatial policy factors. Previous research in the tropics had revealed a similar grouping of these driving factors (Barber and Schweithelm, 2000, Geist and Lambin, 2002; Chowdhury, 2006; Miettinen and Liew, 2010).

**Perceptions Before and After Receiving Knowledge (Reading Book) and Watching a Video About Orang Kayo Hitam GFP.**

Table 1 showed the results of the pre-test and post-test conducted to assess the perception of the *Orang Kayo Hitam* GFP. The pre-test revealed that the knowledge of the public and their perception was low. However, after a month of post-test, there was a very significant change in perception.

There has been a shift in the community surrounding the *Orang Kayo Hitam* GFP due to their understanding of the significance of the GFP as a Pearland conservation site. Additionally, the community became aware of the types of protected fauna and flora found at the conservation site and understood the importance of protecting the plant species. The community also recognized that protecting the *Orang Kayo Hitam* GFP was critical to the long-term viability and the community surrounding the peat ecosystem. Table 1 showed the difference in the public perception of the GFP *Orang Kayo Hitam* before and after being given books and videos. The results indicated a strong perception of forming a partnership in the GFP partnership zone. The differences in public perception before and after treatment were shown in Table 1.

The deforestation that occurred in the *Orang Kayo Hitam* GFP in 2015 and 2019 was caused by forest fires due to natural factors and human negligence. Land Management Without Burning is a concept of sustainable land management, where the land clearing and post-harvest stages are carried out without burning (Widarti, *et al.*, 2022). However, this concept should not be applied to the *Orang Kayo Hitam* GFP location, because the occupied land is in a conservation location. The second cause was illegal logging, carried out by people outside the village who entered through the river channel. Lastly, the

Table 1. Differences in public perception before and after treatment

Differences in public perception before and after treatment	Value Sig.	Value-T	Correlation
Reading book	0.00	15.22	0,05
Watching Videos	0.00	11.47	0,15
Collaboration on counselling	0.00	11.49	0,77

Source : Result of Primary data processing, 2022

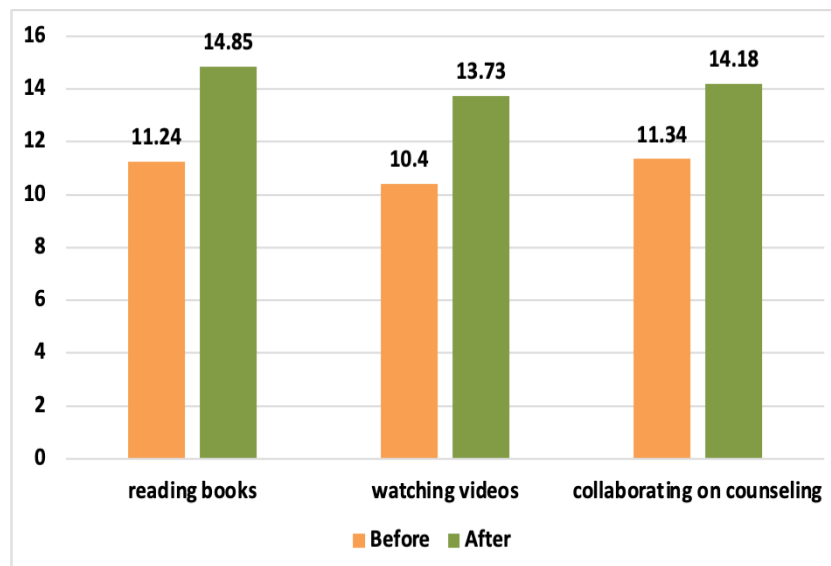


Figure 4. Changing local community perceptions before and after treatment (T-Test)

community has occupied the land, using it to plant rubber and oil palm trees (Anonymous, 2019). The analysis output showed that the average acquisition value of public knowledge on the *Orang Kayo Hitam* GFP before being given a book and watching a video was 11.24, while the post-test had a value of 14.85.

The results of this research were related to the theories of Blaus (1998) and Harper (1989). When the community had good knowledge and understanding of the *Orang Kayo Hitam* conservation function and additional income, the GFP can be maintained and sustainable. According to Harper (1989), social change was inevitable and significantly occurred in social structure based on the cycle of time travel. Blaus (1998) explained that there were two types of structural change parameters, namely nominal and gradual. The nominal parameters distinguished members of the population into discrete categories, such as gender, ethnicity, and religion. Meanwhile, the gradual parameters distinguished members by a certain development level, such as income, age, wealth, power, socioeconomic status, and prestige. Heterogeneity or diversity was defined as a social differentiation based on nominal parameters. Therefore, human civilization will also always grow and develop dynamically in line with the changes that occurred in the social system (community). As a creature that constantly searched for perfection, humans always strived and struggled to fulfill the necessity of life to exist and survive in the middle of togetherness in society. This condition motivated humans to optimally use their minds. In a previous report, it was discovered that treatment of knowledge, videos, and giving special land partnerships, farmer households were found to change perceptions of farmers (Romero, *et al* 2019. Teuscher, *et al*, 2016).

The perceptions theory has been linked to this research because of its importance in the psychological aspect of

humans in responding to the presence of various aspects and symptoms in their environment (Sarlito, 2010). Parsons also proposed an evolutionary theory that explained the movement of primitive societies to modern ones through four major structural change processes, namely differentiation, adaptation upgrading, inclusion, and generalization of values (Parsons, 1985). The structural differentiation and developmental processes associated with influencing evolutionary processes such as the emergence of social stratification systems, bureaucratic organizations, the money system, impersonal market networks, and the patterns of democratic associations were called evolutionary universal, which played a significant role in enhancing the capacity of people in their adaptation.

The pattern of community evolution, according to Parsons, historically had passed through primitive, intermediate, and modern stages. Parsons rejected the old notion that society will experience change and development in a uniform shape. However, the theory stated that the history of human development showed an evolutionary change, leading to an increase in adaptive capacity.

The social groups that existed in the society were not static or fixed, but always evolved in line with the changes required by the group. This was revealed by Auguste Comte (Sztompka, 2007), a sociologist, who stated that the social life of society will run dynamically. The change was necessary because the social group was no longer compatible with the situation and conditions that existed.

Human beings are dynamic creatures who are not always satisfied or sufficient with the present circumstances. Through interactions with other humans and the natural surroundings, humans begin to realize and discover opportunities for personal growth and development. Naturally, this is tailored to the development of mindset and capabilities.

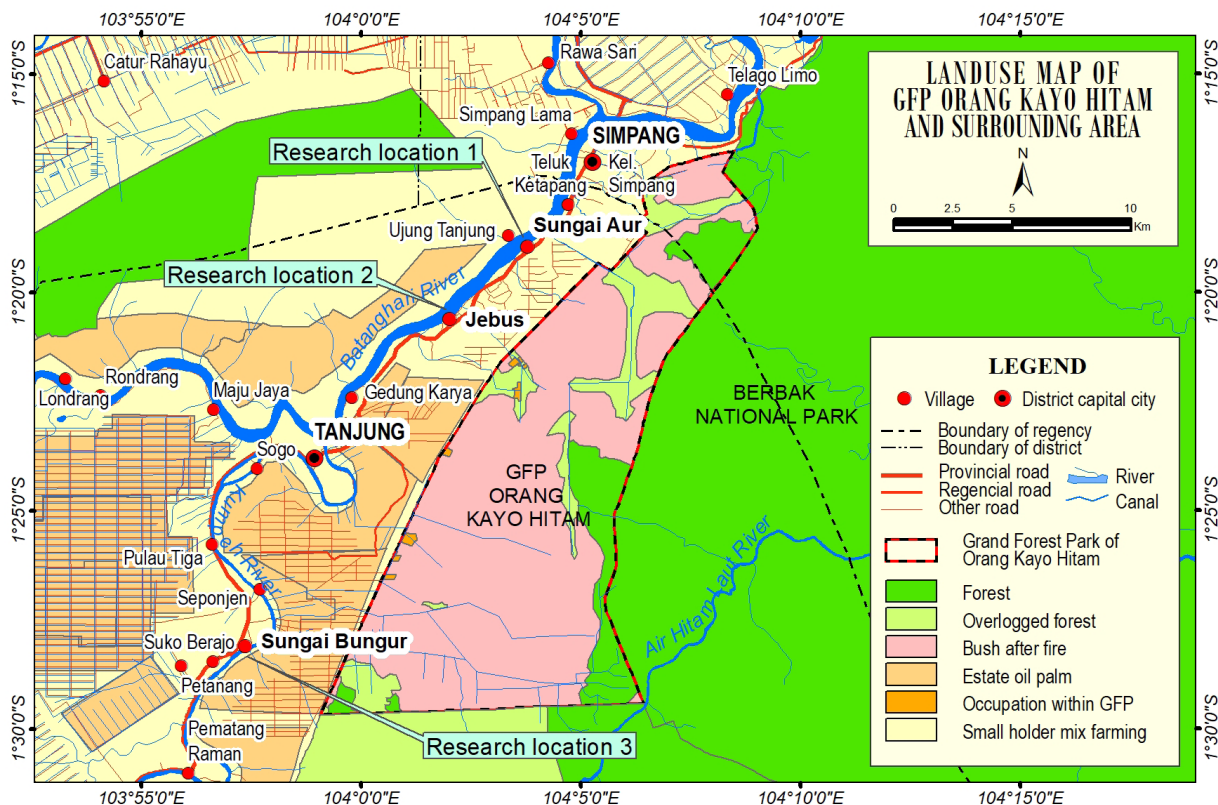


Figure 5 . The Landuse map of GFP Orang Kayo Hitam and Surrounding Area

### Promoting Spatial Partnership and Community Perception for the Preservation

According to research findings, after reading a book about the functions of *Orang Kayo Hitam* GFP and watching the GFP video, the community and the GFP reached an agreement to manage part of the space in the GFP to be used by the community for farming. Planting crops first, then forestry plant. Simultaneously, a pledge to safeguard and maintain the GFP *Orang Kayo Hitam*. Earlier of studies conducted in Vietnam, the promoting better farming practise can contribute to achieving higher yields while at the same time ensuring environmental protection (Nyuyen, *et, al* 2019),(Gunawan, *et, al*, 2022); IFCC (2021). Figure 5 indicates that the space at the west of the *Orang Kayo Hitam* GFP is an ideal location for community agricultural development.

Change is a social phenomenon experienced by every society and tends to progress and develop, along with the advancement of mindset and level of ability. Barry, (2007), and Culture is human creative product associated to perceptual and behavioral perception. Inheritance of culture across society involves continuous process of socialization and communication that is crucial in character building process (Waluya, *et, al* 2023); Kunz, *et, al* (2017). The theory related with the results of this research and the statement of the theory were used as parameters for the protection of the *Orang Kayo Hitam* GFP from the threat of occupation and forest fires. Although there were other opinions that fires on peatlands were not only caused by human negligence, but also by physical conditions, such as the long summer or dry season. (Putra, 2019) and Miettinen (2010) analyzed that the deforestation of peatlands in Southeast Asia had endangered the peatland ecosystems. Therefore, changes in the knowledge of the community around the *Orang Kayo Hitam* GFP and their positive perception to cultivate part of the land with a partnership pattern were needed to protect the deforestation of the conservation area from occupancy and forest fires. This partnership pattern will increase the community income, considering their limited land availability, with an average of 0.5 hectares of land per community. Sugandi (2013) reported a socio-economic influence of the community on participation in conservation, which indicated an additional community income. Sibhatu, *et, al*, (2022), Romero, *et, al*, (2017), and Prastyo and Kliwon Hidayat, (2016) stated that two partnership patterns between communities surrounding the Pinus forest led to changes in incomes and maintained forest conservation. A previous report also showed that the perceptions and willingness of people to collaborate will change, this made it necessary to motivate the community to protect the *Orang Kayo Hitam* GFP (Jumanto and Darsono. 2020). Forestry for Social Good *LMDH* (Forest Village Community Institution) *Rimba Mas Sejahtera's* forestry partnership scheme also affected forest sustainability. For three years, 2017, 2018, and 2019, there had been a reduction in Illegal logging, forest fires, and the success of Perhutani's staple crops. This demonstrated that by providing space for the surrounding community, there can be an increase in income and preservation of the *Orang Kayo Hitam* GFP peatland. (GIZ, 2021); (Gatiso, 2017).

The state had also improved the procedures for more effective protection and efficient use of agricultural land. This was carried out by enhancing spatial planning and land management practices at local and national levels, resulting in the creation of legally binding land use plans and efficient monitoring systems.

### 4. Conclusion

This research showed a significant shift in the perceptions of the respondents on the management and partnership of the *Orang Kayo Hutan* GFP. The results indicated that community partnerships can be carried out successfully by empowering community knowledge through reading books, watching videos, and collaborating on counseling. Furthermore, these results can assist the GFP managers in considering a partnership process for surrounding communities, using the partnership zone in the *Orang Kayo Hitam* GFP for protection and provision of additional income opportunities for local communities.

### Acknowledgment

The authors are grateful to the “Scientific Project: Socio-cultural and institutional transformation processes in rural Jambi” of the research project, as well as the “Ecological and Socioeconomic Functions of Tropical Lowland Rainforest Transformation Systems (Jambi, Sumatra, Indonesia): CRC Effort 990: ABS Funding, DFG German.

### References

- Anonymous, (2019). *Kerusakan Tahura Orang Kayo Hitam*, Jambikita. Id : <https://kumparan.com/jambikita/taman-hutan-roya-orang-kayo-hitam-di-jambi-yang-terabaikan-pemerintah-15536>
- Agriculture Service, (2020). Minister Agriculture regulation Number 5 2018 year: land clearing without Burning. Minister of Agriculture Republic of Indonesia
- Blaus P M. (1998). *Microstructural Theory*. America (US): Wadsworth Publishing
- Barber, Charles Victor dan James Schweithelm. (2000). *Penggunaan Oleh Api : Kebakaran Hutan dan Kebijakan Kehutanan di Masa Krisis dan Reformasi Indonesia, edisi terjemahan dari Trial by Fire : Forest fires and Forestry policy in Indonesia s Era of Crisis and Reform*. Washington D.C: World Resources Institute
- Barry, J, (2007). *Environment and Social Theory*, Rutledge Introduction Environment Series Taylor and Francis Group, London and New York
- Bappenas, (2020). *Meta Data Indikator Pembangunan Berkelanjutan (Sustainable Development Goals. Indonesia; Pilar Pembanguna Sosial. Kementerian Perencanaan Pembangunan Nasional (Badan Perencanaan Pembangunan Nasional*.
- Chowdhury, Rinku. (2006). Driving forces of tropical deforestation: The role of remote sensing and spatial models. *Singapore Journal of Tropical Geography - SING J TROP GEOGR*. 27. 82-101. 10.1111/j.1467-9493.2006.00241.x. <https://doi.org/10.1111/j.1467-9493.2006.00241.x>
- Forest service, (2020). *Forest Service Data*, Jambi Province, Badan Pusat Statistik
- Gatiso, Tsegaye T. (2017). Households' dependence on community forest and their contribution to participatory forest management: Evidence from rural Ethiopia, *Environmental Development Sustain: Volume 21*-page: 181-197 : <https://doi.org/10.1007/s10668-017-0029-3>
- Geist, H. J., & Lambin, E. F. (2002). Proximate Causes and Underlying Driving Forces of Tropical Deforestation. *BioScience*, 52, 143-150. [https://doi.org/10.1641/0006-3568\(2002\)052\[0143:PCAUDF\]2.0.CO;2](https://doi.org/10.1641/0006-3568(2002)052[0143:PCAUDF]2.0.CO;2)
- Giddens, (1986). *Capitalism and Modern Social Theory, An Analysis of the Works of Mark, Durkheim and Max Weber*. Translation. Jakarta: Press UI (deleted)
- Giesen, W., (1991). *Berbak Wildlife Reserve, Jambi, Sumatra - Final Draft Survey Report - Sumatra Wetland Project Report No. 13*, Bogor, Indonesia, Sumatra Wetland Project, Asian Wetland Bureau – Asian-Wetland Bureau, Indonesia-General

- Directorate for Forest Protection and Nature Conservation (PHPA), Ministry of Forestry, Indonesia.
- Giesen, W. (2004). Causes of Peat swamp Forest Degradation in Berbak National Park and Recommendations for Restoration, Arnhem, The Netherlands, Water for Food and Ecosystems Programed Project on: 'Promoting the river basin and ecosystem approach for sustainable management of SE Asian lowland peat swamp forests' - ARCADIS Euro consult.
- GIZ, (2021). Spatial Planning and Land Management II **Commissioned by** German Federal Ministry for Economic Cooperation and Development (BMZ), by Ministry of Environment and Spatial Planning : <https://www.giz.de/en/worldwide/79329.html>
- [Gunawan, H.](#), Gunawan, H, Irma Yeny , Endang Karlina, Sri Suharti, Murniati, Subarudi, Budi Mulyanto, Sulistya Ekawati, Raden Garsetiasih , Pratiwi, Bugi Kabul Sumirat, Reny Sawitri, Nur M. Heriyanto, Mariana Takandjandji, Asmanah Widarti, Surati, Desmiwati, Titi Kalima, Rachman Effendi, Edwin Martin, Nur Arifatul Ulya, Sylviani and Ari Nurlia, (2022). [Integrating Social Forestry and Biology Conservation In Indonesia](#), Forests 2022, 13, 2152. <https://doi.org/10.3390/f13122152>
- Harper C L. (1989). *Exploring Social Change*. Amerika (US): Prentice Hall
- Jumanto and Martono, (2020). Impact of Social Forestry Program Forest Partnership Scheme on Forest Sustainability and Forest Farmer Income: Gontor AGROTECH Science Journal Vol. 6 No. 3, Desember 2020 (Special Issue): <http://ejournal.unida.gontor.ac.id/index.php/agrotec> : <http://dx.doi.org/10.21111/agrotech.v6i3.490>
- Indonesian Forestry Certification Cooperation (IFCC), (2021). Sustainable Forest Management—Requirements; Perkumpulan Kerjasama Sertifikasi Kehutanan Indonesia (KSK): Bogor, Indonesia
- [Miettinen J.](#) and [S. C. Liew](#) (2010). Degradation and Development of Peat lands in Peninsular Malaysia and in the Islands of Sumatra and Borneo Since 1990, 296 (February), Vo 21, Issue 3 285–296: <https://doi.org/10.1002/ldr.976>
- Nasir, M, (2014). Research Method, Indonesia Ghalia, IKAPI Members
- Nguyen, Thi Trang Nhung, Huu Chouong Tran, Thin Minh Hop Ho, Philippe Burny and Philippe Lebally, (2019). Dynamics of Farming System Under the Context of Coastal Zone Development; The Case of Xuan Thuy National Park. Vietnam. Agriculture 2019, 0(7), <https://doi.org/10.3390/agriculture9070138>
- Ors, Ferlal, (2012). Environmental education and the role of media environmental education in Turkey. Journal of social and behavioral science (Procedia). Vol 46 hal 1339 -1342.
- Pittroff, Wolfgang, (2011). Rangeland management and conservation in Afghanistan, International Journal of Environmental Studies, <https://doi.org/10.1080/00207233.2011.584474>
- Putra, R, Edy Sutriyono, Sabaruddin Kadir, Iskhaq Iskandar, and Deni Okta Lestari. 2019. Dynamical Link of Peat Fires in South Sumatra and the Climate Modes in the Indo-Pacific Region, Indonesian Journal of Geography Vol. 51 No. 1, April 2019 (18 - 22).DOI: <http://dx.doi.org/10.22146/ijg.35667>
- Prastyo, Eko Edi and Kliwon Hidayat, (2016). Partnership Pattern between Perum Perhutani and Forest Countryside Society (Case Study of PKPH Program in Kucur Village, Dau District, Malang Regency). Jurnal Habitat ISSN: 0853-5167 (p); 2338-2007 (e), Volume 27, No. 3, Desember 2016, Hal. 139-149: <https://doi.org/10.21776/ub.habitat.2016.027.3.16>
- Riduwan. (2009). *Aplikasi dan Metode Penelitian Untuk Administrasi dan Manajemen*. Bandung : Dewa Ruci
- Ritzer, G. (2008) Modern Sociological Theory. Fourth Edition, McGraw-Hill, New York, New York.
- Romero M, Meike Wollni, Katrin Rudolf, Rosyani Asnawi, Bambang Irawan. 2019. Promoting biodiversity enrichment in smallholder oil palm monocultures – Experimental evidence from Indonesia, World Development, Volume 124, 2019, 104638,ISSN 0305-750X, <https://doi.org/10.1016/j.worlddev.2019.104638>
- Soekanto, (1990). Sociology, An Introduction, First Edition, Jakarta: CV. Rajawali.
- Sztompka, Piotr. (2007). *Sosiologi Perubahan Sosial*. Jakarta : Prenada
- Sarlito W. Sarwono, (2010). Introduction to General Psychology, Jakarta Rajawali Press
- Soekmadi R, Edward, Sambas Basuni, and Sembiring. (2010). Resolusi 150 Konflik Pengelolaan Taman Nasional Teluk Cenderawasih Di Kabupaten Teluk Wondama. *Jurnal Manajemen Hutan Tropika* XVI (2): 84–91.
- Sugandi, D, (2013). The Effect Of Socio-Economy Towards Conservation At Ci Tanduy Watershed : Indonesian Journal of Geography, Vol 45, No.1, June 2013 : 90 – 99: ISSN 0024-9521
- Sugiono, (2014). Introduction to Statistics, Alfabeta, Bandung
- Sibhatu, Kibrom T. Linda Steinhübel, Hermanto Siregar, Matin Qaim and Meike Wollni, (2022). Spatial Heterogeneity in Smallholder Oil Palm Production, Forest Policy and Economics: Volume 139, June: <https://doi.org/10.1016/j.forpol.2022.102731>
- Teuscher, M., Gérard, A., Brose, U., Buchori, D., Clough, Y., Ehbrecht, M., Kref, H. (2016). Experimental Biodiversity Enrichment in Oil-Palm-Dominated Landscapes in Indonesia. *Frontiers in plant science*, 7, 1538–1538. <https://doi.org/10.3389/fpls.2016.01538>
- Wells, M, Scott Guggenheim, Asmen Khan, Wahyudi Wardajo, and Paul Jepson, (1998). Investing in Biodiversity: A Review of Indonesia's Integrated Conservation and Development Project. 10.1596/0-8213-4419-6. <http://dx.doi.org/10.1596/0-8213-4419-6>
- Widarti, S, Donna Youlla, Icut Setiawan, (2022). Farmers' Perceptions Of Land Clearing Without Burning (PLTB)) In Sagatani Kelurahan Singkawang Selatan District, Kalimantan-Indonesia:
- YvonneKunza,Y, Stefanie Steinebach, Christoph Dittricha, Brigitta Hauser-Schäublinb , Rosyani , Endriatmo Soetartod , Heiko Faust, (2017). The fridge in the forest: Historical trajectories of land tenure regulations fostering landscape transformation in Jambi Province, Sumatra, Indonesia.
- Waluya, B., Elly Marliyah, Mamat Ruhimat, and Erlina Wiyanarti, (2023). Cultural Ecology and Environmental Education: Lesson Learned from Baduy Indigenous Community, ISSN 2354-9114 (online), ISSN 0024-9521 (print) Indonesian Journal of GeographyVol 55, No 1 (2023): 88-97 DOI: 10.22146/ijg.77203 website: <https://jurnal.ugm.ac.id/ijg> ©2023 Faculty of Geography UGM and The Indonesian Geographers Association