JHP17: Jurnal Hasil Penelitian
Lembaga Penelitian dan Pengabdian kepada Masyarakat
Universitas 17 Agustus 1945 Surabaya
Volume 10 No. 1 [January 2025] p-ISSN: 2579-7980 e-ISSN: 2502-8308

Sustainable Mangrove Tourism Development Strategy in Banyuwangi, East Java

Ristanti Akseptori[1], Danis Maulana [2], Rudi Santoso* [3]

[1,2] Maritime Business Management Study Program, Department of Ship Building Engineering, PPNS
[3] S1 Accounting Study Program, Faculty of Economics and Business, Universitas Dinamika
*email: rudis@dinamika.ac.id

ABSTRACT

Ecotourism, a concept of sustainable tourism development, aims to promote environmental conservation measures and increase community engagement in management. Therefore, studies on mangrove tourism development techniques are needed to help maintain the coastal ecosystem. There are four species from two families that could grow into mangroves in the region: The wildlife inventory includes land birds, water birds, crustaceans, mammals, reptiles, and raptors, based on observations and book reviews. Picking sea water, or "randu telu," is said to heal illnesses, and there is the possibility of cultural rites. An analysis of the questionnaire about the introduction of mangroves reveals that 47% of all visitors learn about the environment. The remaining respondents were unclear or unable to decide, and only 47% of respondents understood how mangrove ecosystems operated. This is a result of education's low value and the even lower value of mangrove information. According to 85% of respondents, ecotourism has conservation or protection values from its inception. According to survey respondents, 67% of them believe that community involvement and empowerment should go hand in hand with ecotourism to promote community development. Cultural rituals could be performed, and gathering seawater, or "randu telu," is said to have therapeutic benefits. 47 percent of all visitors learn about the mangrove ecosystem, according to the study of the questionnaire regarding the introduction of mangroves. Furthermore, just 47% of respondents knew how mangrove ecosystems worked, while the remaining respondents were unsure or unsure. This is because education is undervalued and information about mangroves is much less valuable. According to 85% of respondents, ecotourism has always held conservation or protection values. The results of the survey indicate that 67% of participants acknowledge the value of ecotourism for community development in conjunction with community empowerment and involvement. establishing a trip to the mangroves with the possibility of a second tour; (d) formulating a five-year strategy for the sustainable growth of ecotourism; and (e) applying the current study to explore additional visitors.

KEYWORDS

Ecotourism, Mangrove, Total economic value (TEV), SWOT

Volume 10 No. 1 [January 2025] p-ISSN: 2579-7980 e-ISSN: 2502-8308

INTRODUCTION

The coastal area is the meeting area between land and sea, with the boundary towards land including the part of the land, both dry and submerged in water that is still influenced by the characteristics of the sea characterized by its distinctive vegetation, while the boundary of the coastal area towards the sea includes the outermost part of the continental shelf, where the characteristics of these waters are still influenced by natural processes that occur on land such as sedimentation and freshwater flows [1] [2] [3].

Mangrove is a term for coastal plant communities that have special adaptations [4], [5]. Ecologically, mangrove ecosystems can function as a barrier against waves, wind and seawater intrusion. And a breeding ground for various types of fish, shrimp, crabs, shellfish, snails, and other animals. Mangrove forests are also home to several wildlife such as monkeys, snakes, otters, monitor lizards, and birds. The importance of mangrove forests from the socio-economic aspect can be evidenced by community activities using mangrove forests to find timber and natural tourist attractions [6].

Ecotourism is a type of responsible travel to natural regions that is done with the intention of protecting the environment and the well-being of local people [7]. Therefore, ecotourism may be viewed as a notion of sustainable tourist development that seeks to enhance community involvement in environmental management and support initiatives to conserve the environment [8].

By looking at the complexity of various definitions of ecotourism and the potential possessed by the area, the management of mangrove area ecotourism must be able to create various opportunities that can increase income both directly and indirectly [9]. Exploring the potential and value of mangrove ecosystem areas is a top priority, with the aim of being able to find out how much potential and value can be used to increase regional income based on the principles of justice and independence so that in the end it will improve the welfare of the community [10], [11], [12]. Therefore, research is needed on the development strategy of ecotourism in mangrove areas to support the preservation of a sustainable coastal environment.

The purpose of this study is to identify and analyze the tourism potential in the Bedul block, analyze the perception of the public and tourists towards the ecotourism of mangrove areas in the Bedul block, analyze the value of mangrove ecosystem areas in an effort to develop the ecotourism of mangrove areas in the Bedul block, and analyze and make ecotourism development strategies that can be applied in the mangrove area in the Bedul block of Alas Purwo National Park.

LITERATURE REVIEW

Mangrove habitats are thought to be some of the most productive and ecologically diverse ecosystems on Earth. Study [13] state that mangroves provide essential ecological services such carbon sequestration, nitrogen cycling, coastal protection, and habitat for both marine and terrestrial animals. Such ecosystems are essential for mitigating the impacts of climate change because they protect coastal areas from erosion, storm surges, and sea level rise [1], [14]. In addition to these natural uses, mangrove habitats support local economies by providing resources for fishing, forestry, and tourism.

However, global research indicates that mangrove ecosystems are facing significant threats. Around 35% of the world's mangrove cover has been lost in recent decades due to land conversion for urbanisation,

Volume 10 No. 1 [January 2025] p-ISSN: 2579-7980 e-ISSN: 2502-8308

aquaculture, and agriculture, according to studies by the International Union for Conservation of Nature (IUCN) [15]. Unchecked expansion and resource overexploitation have led to significant degradation in East Java, Indonesia, according to studies (Alongi et al., 2016). The study highlights the urgent need for improved management techniques that balance the preservation of these ecosystems with the economic needs of the local people [12].

The United Nations World Tourism Organisation (UNWTO) defines sustainable tourism as "tourism that takes full account of its current and future economic, social, and environmental impacts." In academic and policy circles, this concept has gained traction in recent decades, particularly in regions where the travel and tourism industry are based on mangroves and other natural habitats. Several studies [16], [17] asserts that the notion of sustainable tourism emphasises the need for measures that do not harm or exhaust the natural resources that support the industry.

Eco-tourism is a crucial component of sustainable tourism, focussing on reducing adverse environmental effects while promoting environmental awareness and preservation (Weaver, 2004). Ecotourism may boost local economies and offer financial incentives for environmental preservation, according to several studies (Das & Chatterjee, 2015). However, as evidenced in certain coastal regions where tourism-related activities have resulted in pollution and habitat loss, experts such as [18] warn that tourism development may deteriorate the environment if appropriate regulations and environmental management frameworks are not in place.

There is growing interest in how ecotourism might support conservation efforts in the context of mangrove environments while also benefiting residents economically. Meanwhile, [19] assert that mangrove ecotourism has the potential to increase public awareness of the importance of preserving mangroves and generate revenue for ecosystem restoration. Finding a balance between environmental protection and tourism expansion, however, remains a significant challenge, particularly in regions like East Java where visitor pressure is increasing.

Methodologies

Time and location of the research

This research was carried out from September to October 2024. The research location is in Alas Purwo National Park (TNAP). Alas Purwo National Park (TNAP) is a national park located in Tegaldelimo and Purwoharjo Districts, Banyuwangi Regency, East Java, Indonesia.

Ecotourism Potential

In this study, the tourism potential data to be taken includes:

a. biological potential (flora and fauna)
b. physical potential (accessibility, infrastructure buildings and supporting facilities and infrastructure) and culture of the local community

Tourism Activities

Existing tourism activities and local community activities related to tourism activities:

a. Tour packages offered

Volume 10 No. 1 [January 2025] p-ISSN: 2579-7980 e-ISSN: 2502-8308

b. visitors (secondary data on the number of visitors, age, origin, number of people in a group, motivation, money that can be spent to do mangrove tourism)
c. Local community activities related to tourism (utilization of local communities in areas related to tourism implementation)

Information and Data

Information and data related to the process of mangrove ecotourism development at TNAP:

a. functions and objectives of TNAP
b. Stakeholders (anyone involved in the development of ecotourism, roles, interests and duties of stakeholders)
c. Policy

Data Collection Techniques

This study uses a qualitative descriptive method. This stage includes secondary data collection and primary data collection such as the preparation of tools and materials to be used during research activities, and field orientation. Several stages carried out in data collection include: (1) conducting literature studies and discussions, (2) data collection and observations in the field (observation) and (3) interviews.

Data Analysis

The analysis carried out in this study consists of several different analyses, namely:

a) Analysis Mangrove
b) Economic Valuation Analysis
c) Community Perception Analysis

SWOT Analysis

Results and Discussions

General Conditions of Alas Purwo National Park

Alas Purwo National Park (TNAP) is geographically located at the eastern tip of Java Island in the South Coast area between 8o 47'45" – 8o 47'00" LS and 114o 20'16" – 114o 36'00" E. The TNAP area covers a land area of 43,420 ha.

General Condition of Sumber Asri Village

The Sumber Asri village area generally has a lowland topography with a land height above sea level of 0-32 meters above sea level with an average rainfall of 2000-3000 mm per year and a daily temperature between 27 - 32°C. Based on the 2011 monograph data of Sumberasri Village, Purwoharjo District, Banyuwangi, the potential area and population of Sumberasri Village are presented in the following tables.

Volume 10 No. 1 [January 2025] p-ISSN: 2579-7980 e-ISSN: 2502-8308
Climate

Table 1 Weather Conditions

No	Description	Satuan
1	Rainfall	**2000-3000 Mm/th**
2	Number of rainy months	**12 month**
3	Humidity	**-%**
4	Average daily temperature	**32 ° C**
5	**Place height from Sea Level**	**0-32 dl**

Table 2 Number of Residents

No	Description	2020	2021	2022
1	Number of males	3318	3353	**3618**
2	Number of women	3304	3373	**3193**
No	Description	2010	2011	**2012**
3	Total amount	6622	6726	**6811**
4	Number of family	2122	2136	**2150**
5	**Population Density**	**69/km^2**	**68/km^2**	**67/km^2**

Ecotourism Potential

There are various kinds of potentials that can be sold in mangrove ecotourism activities. Because what is sold is a mangrove area, the main potential is flora and fauna. For more details, it will be displayed below.

Potential of Flora

Satyasari's research revealed that there were fourteen different kinds of real mangroves. Bruguiera cylindrical, Bruguiera gymnorrhiza, Bruguiera sexangula, Ceriops decandra, Ceriops tagal, Excoecaria agaliocha, Rhizopora apiculata, Rhizopora mucronata, Scyphiphora hydrophyllacea, Sonneratia alba, Sonneratia caseolaris, and Acrosticum aureum are among them. The identification's findings revealed that two mangrove species—Ceriops decandra and Scyphiphora hydrophyllacea—were recognized as scarce worldwide yet were widespread locally.

The density of mangroves at the seedling level is 587 individuals/ha, at the stake level 927 individuals/ha, at the tree level 1,507 individuals/ha so that the total density of mangroves is 3,021 individuals/ha. Meanwhile, based on the results of the inventory by the TNAP Center in 1999, the total density of mangroves in Bedul is 8,398 individuals/ha consisting of a seedling density of 517 individuals/ha, a stake level of 6,400 individuals/ha and a tree level of 1,481 individuals/ha. From the results of the research of Faudzi Hamdan et al., in 2012 the types of mangroves found in the Bedul block amounted to five types, namely Rhizopora apiculata Blume, Rhizopora mucronata Lam, Ceriops tagal C.B Rob, Excoecaria

Volume 10 No. 1 [January 2025] p-ISSN: 2579-7980 e-ISSN: 2502-8308

agaliocha L and, Acrosticum aureum L. The five species belong to the Rhizoporaceae family (Rhizopora apiculata Blume, Rhizopora mucronata Lam, Ceriop tagal C.B rOB), and Pteridaceae (Acrosticum aureum L.).

Ceriops tagal has a wide distribution because the habitat that supports its life is also wider. The dominant vegetation of Ceriops tagal shows that the species has a wider tolerance to changes in environmental factors than other species.

Potential of Fauna

Based on the results of a literature study on the richness of bird species, 19 species were found. There are 14 types of waterbirds found in Bedul mud exposure, 12 species in Padas-Bulu mud exposure and 13 types in Cungur.

Some of the fauna potentials that can be offered to visitors are:

1) Crane Tong Tong
2) Biawak
3) Squirrel river
4) Bondol eagle
5) Gray-headed fish eagle
6) Glodok Fish
7) Calculated balance
8) Mangrove crab
9) Little egret
10) Long-tailed Monkey

The existence of protected wildlife in conservation areas is an added value in the implementation of ecotourism. The opportunity to see protected wildlife in the open is an opportunity that is rarely found when doing ordinary tourism.

Cultural Potential

Once a year, the surrounding community always holds a "Sea Picking" ceremony in Segara Anak. The purpose of the ceremony is to ask for safety for nature and the village, in addition to that so that the number of fish stocks does not decrease so that the community does not have difficulty in finding fish in the following year. In addition, in mid-2010, a source of spring water or the Randu Telu well was found which is believed to be able to cure diseases. This well is in the middle of the Bedul block mangrove ecotourism location.

Tour Packages

From the beginning, the manager admitted that he had made a limited tourism program related to mangroves, which was in the form of an introduction to mangroves and their ecosystems. In its implementation, the manager offers 2 options of mangrove tour packages.

1. Mangrove ecotourism in Cungur
2. Turtle ecotourism in Ngagelan

Volume 10 No. 1 [January 2025] p-ISSN: 2579-7980 e-ISSN: 2502-8308

Access to Location

Accessibility to the TNAP area can be reached from Surabaya by public transportation (bus) heading for Surabaya-Banyuwangi and continuing with the Rowobendo route to Sumber Asri and taking a motorcycle taxi from Sumber Asri to Bedul. The total distance ± 360 km which can be covered in an average of 8.5 hours.

Facilities and Infrastructure

The existing facilities are in good condition, but their existence needs to be considered again to facilitate ecotourism activities properly. Currently, the existing information center is not used at all. This information center in its planning will be made one with the souvenir room, so that there are mementos that will be brought by visitors. This is very detrimental because the facilities already exist but have not been used.

What the surrounding community complained about was electricity. Because people in the eco-friendly area who also work as food sellers are in dire need of electricity. However, there has been no response from PLN (State electricity company) to accelerate the installation of electricity in the area.

Most of the existing ecotourism infrastructure is in good condition for the access road infrastructure to the location is good. This can be seen from the road that has been asphalted to the Eco-Tourism area. Three important facilities supporting facilities and infrastructure are signboards, prohibition boards, and garbage cans.

Visitors

Since the opening of the Bedul area for tourism activities in July 2019, the number of visits that occurred in this area has increased relatively more, the average number of visitors per month in 2019 was 1,874 people with a total of 11,802 visitors. The average visitor in 2020 was 74,679 people. And in April 2020, the entrance fee for the tour was increased from Rp 4,000,00 to IDR 7,000,00 which includes a ticket to cross by boat (IDR 4,000,00), the entrance fee to the conservation area (IDR 2,500,00,-) and the conservation fund (IDR 500,00,-). And at the beginning of 2021 the ticket was increased to IDR 10,000.00,- which consisted of management services IDR 4,500,00,- crossing services IDR 3,000.00,-, tickets to the national park area IDR 2,500.00,-. There was a decrease in visitors in 2011 which amounted to 62,749 people. However, at the beginning of 2022 there was a decrease in the number of visitors due to new rules from national parks that required the closure of areas for ecosystem recovery.

Visitor Characteristics

Based on the results of the interview, it can be found that the most visitors are from the Diploma, S1, and S2 groups, followed by the high school and junior high school groups. In addition, it is also known that based on the largest visitor distance in the range of 0-50 km from tourist locations, the farthest is > 300 km.

Volume 10 No. 1 [January 2025] p-ISSN: 2579-7980 e-ISSN: 2502-8308

Visitor destinations

Based on the goal, 83% of respondents stated that recreation was the main purpose of their arrival at the Bedung Block ecotourism area. 7% carry out journalistic and research activities. The remaining 10% is for spiritual activities.

Local Communities Around the Area

Based on the results of interviews with 24 residents, most of the respondents were aged 20-39 years (50%), the second most were aged 40-49 years (31%). Some of the respondents came from the Solo Block hamlet (50%), namely the hamlet of Sumberasri Village which is located closest to Bedul. Other respondents came from Sumber Rejeki hamlet (25%), Gebang Kandel hamlet (15%), The rest came from other villages outside Sumberasri Village, namely from Tegaldlimo. Based on their livelihoods, 22% of respondents are farmers, 26% traders, 19% fishermen, 33% mangrove ecotourism workers.

Institutional

The Bedul Mangrove Tourism Management Agency is one of the business units under the Village-Owned Enterprises (BUMDES) of Sumberasri Village which has a role as a daily implementer in the implementation of mangrove ecotourism in the Bedul TNAP block. The legal basis used to review the collaborative management and development of ecotourism in TNAP is:

a) Government Regulation Number 36 of 2010 concerning Nature Tourism Entrepreneurs in Wildlife Reserves, National Parks, Forest Parks and Nature Tourism Parks.
b) Government Regulation Number 59 of 1998 concerning tariffs on the types of non-tax State revenues that apply.
c) Regulation of the Minister of Forestry Number: P.19/Menhut-II/2004 concerning Guidelines for Collaborative Management of Nature Reserves and Nature Conservation Areas.
d) Regulation of the Minister of Forestry Number: P.56/Menhut-II/2006 concerning Zoning Guidelines for National Parks.
e) Decree of the Minister of Forestry Number: 167/Kpts-II/1994 concerning Facilities and Infrastructure for Natural Tourism Business in Conservation Areas

Functions and Objectives of TNAP

Based on the master plan or National Park Management Plan (RPTN), the general objectives of the establishment of TNAP are as follows:

a) Protect hydrological functions, ecological balance, and microclimate stability.
b) Protecting the biodiversity and native ecosystem of Alas Purwo National Park.
c) Improving research efforts related to the flora, fauna and ecosystem of Alas Purwo National Park.
d) Increasing efforts to utilize the Alas Purwo National Park area and its potential as a vehicle for nature conservation education to increase public awareness and appreciation for nature conservation.
e) Increasing the role of Alas Purwo National Park as a potential source of germplasm in supporting cultivation.
f) Increasing tourism and recreational activities within the Alas Purwo National Park area.
g) Improving the welfare of the community around the National Park area

Volume 10 No. 1 [January 2025] p-ISSN: 2579-7980 e-ISSN: 2502-8308

And in carrying out these tasks, the Technical Implementation of the Alas Purwo National Park Center carries out several functions, namely:

a) Zoning arrangement, preparation of activity plans, monitoring and evaluation of the management of the Alas Purwo National Park area
b) Management of the Alas Purwo National Park area
c) Investigation, protection, and security of the Alas Purwo National Park area
d) Forest fire control
e) Promotion and information on the conservation of biological natural resources and their ecosystems
f) Development of fostering love for nature and counseling on the conservation of biological natural resources and their ecosystems
g) Community empowerment around Alas Purwo National Park
h) Development and utilization of environmental services and natural tourism
i) Implementation of housekeeping affairs
j) Reviewing the objectives and functions of TNAP above, basically the purpose of developing ecotourism in TNAP is in accordance with the purpose and function of the formation of TNAP.

Bedul Mangrove Tourism Management Agency

On October 29, 2008, the institution was formed through deliberation attended by representatives of the community of Sumberasri Village, representatives of Alas Purwo National Park officers facilitated by JICA and BPHM Region 1.

The management agency is the daily executor of tourism activities in the Bedul block, which plays a role as a manager in the management of tourism activities and has an interest in obtaining the benefits and results of these activities. In the management of the Bedul Block mangrove ecotourism area, there are four obligations that have not been fulfilled by the Tourism Management Agency, namely:

a) TNAP and Sumberasri Village collaborate in developing limited natural tourism in the Bedul block, in fact, the implementation of natural tourism is more managed by Sumberasri Village without continuous communication with TNAP.
b) The preparation of the Five-Year Work Plan (RKL) and the Annual Work Plan (RKT) as a reference in organizing tourism activities has not been completed.
c) Habitat development activities that should be carried out together are only carried out by TNAP.
d) Socialization and counseling to the community are only carried out by the TNAP phak, the activity should be carried out together by Sumberasri Village.

Economic Valuation Analysis

To estimate the economic value of an area, the travel cost method (TCM) approach can be used. This approach begins by calculating the amount of travel costs for ecotourism actors. The travel costs used include transportation costs, consumption costs, lodging costs and the cost of buying tickets to enter the ecotourism area. In this analysis, I divide the visitor zone based on the distance from which the visitor comes from. So, there are 4 different zones based on distance.

Volume 10 No. 1 [January 2025] p-ISSN: 2579-7980 e-ISSN: 2502-8308

a) Zone 1 is a zone that is 0-50 km away.
b) Zone 2 is a zone that is 50-150 km away.
c) Zone 3 is a zone that is 150-300 km away.
d) Zone 4 is a zone that is >300 km away.

Perception analysis

According to the findings of the questionnaire research on mangrove introduction. The knowledge of mangrove habitats is possessed by 47% of all visitors. And only 47% of those surveyed knew how mangrove ecosystems worked. Eighty-five percent of respondents recognize that ecotourism has conservation or protection values from its inception.

Sixty-seven percent of responders to the study recognized the importance of community empowerment and engagement in conjunction with ecotourism. 50% of those surveyed also believed that ecotourism needs to benefit the local economy. For it to be consistent with the idea of ecotourism, it is hoped that the neighboring community would realize that they are the ones who need to receive a significant amount of economic value.

SWOT Analysis

The development strategy of the Bedul block mangrove ecotourism obtained from the results of this study is expected to provide solutions in policymaking for the management of the Bedul mangrove ecotourism area in the future.

SWOT Matrix Analysis

The selection of the strategy is arranged in the form of a matrix which can be seen in the following table 1. So, the alternative strategies obtained from the SWOT matrix are:

a) Development of ecotourism-based businesses by collaborating in the field of marketing with tourism managers on the island of Bali.
b) TNAP can regulate the number of visitors who enter according to the carrying capacity of the land and the environmental conditions of the ecotourism area.
c) The institution of ecotourism management can improve its services so that the number of visitors does not decrease so that the income obtained can be taken to the maximum.
d) Making catalogs and information about tourism potential in the Betul block ecotourism.
e) Using existing research for study so that it has other tourism potential.
f) Conducting tourism awareness counseling.
g) The development of mangrove tourism by looking for other tourism potentials so that visitors do not travel on the beach but in the mangrove area.
h) The government can arrange cooperative relations with the local government of the province of Bali to improve and manage tourist areas properly and correctly.
i) A five-year work plan was made so that the development of ecotourism activities can continue to be sustainable
j) The role of the government through policies that support mangrove ecotourism activities with community empowerment.

Volume 10 No. 1 [January 2025] p-ISSN: 2579-7980 e-ISSN: 2502-8308

k) There is a well-established collaboration between local governments, academics and mangrove ecotourism area management agencies.

Table 3 SWOT Analysis Matrix

IFAS / EFAS	Strengths (S)	Weaknesses (W)
	1. Public understanding of mangroves 2. Duties and functions of TNAP 3. Public understanding of ecotourism 4. Institution of ecotourism management. 5. Population. 6. Land carrying capacity. 7. Environmental conditions of ecotourism areas	1. Local government policies 2. Five-year plan planning. 3. Cross-sectoral conditions.
Opportunities (O) 1. Proximity to the island of Bali 2. Number of visitors 3. Community income 4. Number of jobs 5. Land use value	1. Development of ecotourism-based businesses by collaborating in the field of marketing with tourism managers on the island of Bali. 2. TNAP can regulate the number of visitors who enter according to the carrying capacity of the land and the environmental conditions of the ecotourism area. 3. The institution of ecotourism management can improve its services so that the number of visitors does not decrease so that the income obtained can be taken to the maximum.	1. The government can arrange cooperative relations with the local government of the province of Bali to improve and manage tourist areas properly and correctly. 2. A five-year work plan was made so that the development of ecotourism activities can continue Sustainable
Threats (T) 1. Information media 2. Academic commitment 3. Community participation and stakeholders 4. Land ownership status 5. Community education level	1. Making catalogs and information about tourism potential in the Betul block ecotourism. 2. Using existing research for study so that it has other tourism potential. 3. Conducting tourism awareness counseling. 4. The development of mangrove tourism by looking for other tourism potentials so that visitors do not travel on the beach but in the mangrove area.	1. The role of the government through policies that support mangrove ecotourism activities with community empowerment. 2. There is a well-established collaboration between local governments, academics and mangrove ecotourism area management agencies

Volume 10 No. 1 [January 2025] p-ISSN: 2579-7980 e-ISSN: 2502-8308

Conclusions

Mangroves in this region have the potential to support four species from two families: Rhizophora mucronata, Rhizophora apiculata, Sonneratia alba, and Cariop tagal. In addition, literature reviews have shown that there are 24 species from 12 families in the Alas Purwo National Park area. Waterfowl, land birds, birds of prey, mammals, reptiles, fish, and crustaceans are among the animal inventory types based on the findings of literature reviews and field observations. For cultural purposes, there is a sea-picking ceremony and a spring of randu telu water that is thought to have healing properties. According to the questionnaire's research, 47% of tourists were aware of the mangrove habitat. Additionally, 47% of respondents are aware of how mangrove ecosystems work. Eighty-five percent of those surveyed recognize that ecotourism has conservation or protection values. 67% of respondents recognize the need for community involvement and empowerment in conjunction with ecotourism. Furthermore, 50% of respondents concur that ecotourism ought to benefit the local economy. Additionally, 73% of respondents are aware of the need for ecotourism to be able to educate tourists. According to the findings of the computation based on the idea of consumer surplus, the Bedul Block Mangrove Ecotourism Area is worth IDR88,606,183.00 in total. This figure represents visits per 1000 individuals annually.

Bibliography

[1] E. B. Barbier, S. D. Hacker, C. Kennedy, E. W. Koch, A. C. Stier, and B. R. Silliman, “The value of estuarine and coastal ecosystem services,” 2011. doi: 10.1890/10-1510.1.

[2] D. Y. Riyanto, R. Santoso, and J. Wibowo, “Enhancing the environmental sustainability and business resilience of mangrove tourism in East Java through innovation design using META (Mangrove ecosystem transformation approach),” *Edelweiss Applied Science and Technology*, vol. 8, no. 6, pp. 4778–4789, Nov. 2024, doi: 10.55214/25768484.v8i6.3029.

[3] D. Y. Riyanto, R. Santoso, and J. Wibowo, “Mangrove Ecosystem Transformation Approach (META) Innovation Design as Strengthening Business Resilience and Environmental Sustainability of in East Java”, doi: 10.5281/zenodo.13928083.

[4] E. Damastuti, B. K. van Wesenbeeck, R. Leemans, R. S. de Groot, and M. J. Silvius, “Effectiveness of community-based mangrove management for coastal protection: A case study from Central Java, Indonesia,” *Ocean Coast Manag*, vol. 238, 2023, doi: 10.1016/j.ocecoaman.2023.106498.

[5] N. L. Winarni *et al.*, “Problems in paradise: Mangrove bird communities impacted by litter in Jakarta Bay, Indonesia,” *Ocean Coast Manag*, vol. 225, 2022, doi: 10.1016/j.ocecoaman.2022.106223.

[6] C. C. Wu and H. M. Tsai, “Capacity building for tourism development in a nested social-ecological system-case study of the South Penghu Archipelago Marine National Park, Taiwan,” *Ocean Coast Manag*, vol. 123, pp. 66–73, 2016, doi: 10.1016/j.ocecoaman.2016.02.001.

[7] O. Mtapuri and A. Giampiccoli, “Tourism, community-based tourism and ecotourism: a definitional problematic,” *South African Geographical Journal*, vol. 101, no. 1, 2019, doi: 10.1080/03736245.2018.1522598.

Volume 10 No. 1 [January 2025] p-ISSN: 2579-7980 e-ISSN: 2502-8308

[8] R. Rifdan, Indra, S. H. Arhas, and S. Suprianto, "Mangrove Forest Ecotourism Program Development Tongke-tongke in Sinjai Regency," *Jurnal Penelitian Pendidikan IPA*, vol. 9, no. 5, 2023, doi: 10.29303/jppipa.v9i5.3607.

[9] I. Šagovnović and I. Stamenković, "Investigating values of green marketing tools in predicting tourists' eco-friendly attitudes and behavior," *Journal of Ecotourism*, vol. 22, no. 4, 2023, doi: 10.1080/14724049.2022.2075003.

[10] D. B. Weaver, "Ecotourism as Mass Tourism: Contradiction or Reality?," *Cornell Hotel Restaur Adm Q*, vol. 42, no. 2, 2004, doi: 10.1177/0010880401422010.

[11] H. Henri, G. R. Ningsih, and N. I. Bahtera, "Ecotourism Development Strategy of Mangrove Forest in Kurau Timur Village, Koba District, Bangka Tengah Regency," *Jurnal Kepariwisataan: Destinasi, Hospitalitas dan Perjalanan*, vol. 7, no. 1, 2023, doi: 10.34013/jk.v7i1.455.

[12] FAO, "The world's mangroves 1980-2005," *FAO Forestry Paper*, vol. 153, 2007.

[13] K. Kathiresan and B. L. Bingham, "Biology of mangroves and mangrove ecosystems," 2001. doi: 10.1016/S0065-2881(01)40003-4.

[14] R. G. Kroner *et al.*, "COVID-era policies and economic recovery plans: Are governments building back better for protected and conserved areas?," *Parks*, vol. 27, no. Special Issue, 2021, doi: 10.2305/IUCN.CH.2021.PARKS-27-SIRGK.en.

[15] M. Spalding, M. Kainuma, and L. Collins, "Book review: World atlas of mangroves," *Wetlands*, vol. 31, no. 5, 2010.

[16] J. Yeoman, "Ecotourism and Sustainable Development. Who Owns Paradise?," *Tour Manag*, vol. 22, no. 2, 2001, doi: 10.1016/s0261-5177(00)00045-5.

[17] M. Das and B. Chatterjee, "Ecotourism: A panacea or a predicament?," 2015. doi: 10.1016/j.tmp.2015.01.002.

[18] S. Gössling, "Global environmental consequences of tourism," *Global Environmental Change*, vol. 12, no. 4, 2002, doi: 10.1016/S0959-3780(02)00044-4.

[19] C. Kuenzer, A. Bluemel, S. Gebhardt, T. V. Quoc, and S. Dech, "Remote sensing of mangrove ecosystems: A review," 2011. doi: 10.3390/rs3050878.