

ASSESSING BIODIVERSITY AND TOURISM POTENTIAL IN SAMPUNONG BOLO WILDLIFE SANCTUARY, PHILIPPINES: STRATEGIES FOR REHABILITATION AND SUSTAINABLE DEVELOPMENT

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ASSESSING BIODIVERSITY AND TOURISM POTENTIAL IN SAMPUNONG BOLO WILDLIFE SANCTUARY, PHILIPPINES: STRATEGIES FOR REHABILITATION AND SUSTAINABLE DEVELOPMENT. This mixed methods research study investigates the biodiversity and tourism potential of Sampunong Bolo Wildlife Sanctuary in the Municipality of Sara, Province of Iloilo, Philippines, aiming to identify floral and faunal species, assess their tourism appeal, and propose strategies for rehabilitation and sustainable development. Primary data were collected through interviews and focus-group discussions with 14 purposively selected barangay residents and officials, complemented by secondary data from the Department of Environment and Natural Resources-Community Environment and Natural Resources Office (DENR-CENRO) of Sara. Thematic analysis was employed to analyze the interview data, identifying patterns and themes relevant to the sanctuary's current state and its potential for revival. The DENR-CENRO data revealed 39 faunal and 100 floral species, highlighting the sanctuary's rich biodiversity. Moreover, the findings suggest significant tourism potential, with opportunities for wildlife observation, recreational activities, and cultural and economic activities. To rehabilitate the sanctuary, recommendations include implementing protective policies, enhancing infrastructure, installing informative signage, and employing environmental conservation efforts. These measures are expected to preserve biodiversity, improve visitor infrastructure, and promote sustainable tourism practices. Future research should focus on long-term ecological monitoring and assessing the socio-economic impacts of tourism development on local communities.

Keywords: Sampunong Bolo Wildlife Sanctuary, biodiversity, tourism potential, sanctuary rehabilitation, sustainable development, Philippines

MENILAI KEANEKARAGAMAN HAYATI DAN POTENSI WISATA DI SUAKA MARGASATWA SAMPUNONG BOLO, FILIPINA: STRATEGI UNTUK REHABILITASI DAN PEMBANGUNAN BERKELANJUTAN. Studi penelitian dengan metode campuran ini menyelidiki keanekaragaman hayati dan potensi wisata Suaka Margasatwa Sampunong Bolo di Kotamadya Sara, Provinsi Iloilo, Filipina, yang bertujuan untuk mengidentifikasi spesies flora dan fauna, menilai daya tarik wisatanya, dan mengusulkan strategi untuk rehabilitasi dan pembangunan berkelanjutan. Data primer dikumpulkan melalui wawancara dan diskusi kelompok terfokus dengan 14 penduduk dan pejabat barangay yang dipilih secara purposif, dilengkapi dengan data sekunder dari Departemen Lingkungan Hidup dan Sumber Daya Alam-Kantor Lingkungan Hidup dan Sumber Daya Alam (DENR-CENRO) Sara. Analisis tematik digunakan untuk menganalisis data wawancara, mengidentifikasi pola dan tema yang relevan dengan kondisi cagar alam saat ini dan potensinya untuk dibidukkan kembali. Data DENR-CENRO mengungkapkan 39 spesies fauna dan 100 spesies bunga, menyoroti keanekaragaman hayati cagar alam yang kaya. Selain itu, temuan tersebut menunjukkan potensi pariwisata yang signifikan, dengan peluang untuk pengamatan satwa liar, kegiatan rekreasi, dan kegiatan budaya dan ekonomi. Untuk merehabilitasi suaka margasatwa tersebut, rekomendasi yang diberikan meliputi penerapan kebijakan perlindungan, peningkatan infrastruktur, pemasangan papan nama yang informatif, dan upaya pelestarian lingkungan. Langkah-langkah ini diharapkan dapat melestarikan keanekaragaman hayati, meningkatkan infrastruktur pengunjung, dan mempromosikan praktik pariwisata yang berkelanjutan. Penelitian di masa depan harus berfokus pada pemantauan ekologi jangka panjang dan menilai dampak sosial-ekonomi.

Kata kunci: Suaka Margasatwa Sampunong Bolo, keanekaragaman hayati, potensi pariwisata, rehabilitasi suaka margasatwa, pembangunan berkelanjutan, Filipina

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I. INTRODUCTION

Wildlife sanctuaries have emerged as crucial destinations for ecotourism, integrating environmental conservation, community empowerment, and sustainable development. Globally, these protected areas are gaining attention not only for their biodiversity but also for their potential to attract eco-conscious travelers and provide economic opportunities for surrounding communities (Acquah et al., 2022). For example, studies in Bangladesh and India have highlighted how sanctuaries such as the Rema-Kalenga and Biligiri Rangaswamy Temple Wildlife Sanctuary serve not only as ecological havens but also as models of tourism-driven conservation and cultural engagement (Rana et al., 2010; Balasubramanian, 2022). The evolving role of social media has further amplified the visibility of such destinations, with user-generated content influencing travel choices and public attitudes toward wildlife protection (Kredens & Vogt, 2023).

However, alongside this positive trajectory, sanctuaries worldwide are also confronting several critical challenges. These include the misuse of conservation labels for commercial gain (Winders, 2017), increased human-wildlife conflicts (Kala & Kothari, 2013), encroachment on natural habitats (Galodha et al., 2022), and insufficient governance to regulate activities that threaten biodiversity (Fultz, 2017; Hussain, 2016). These issues reflect the urgent need for locally grounded yet comprehensive strategies that reconcile environmental protection with tourism development and community interests.

In the Philippine context, the potential of wildlife sanctuaries to contribute to sustainable tourism remains underutilized in many areas. One such case is the Sampunong Bolo Wildlife Sanctuary, located in Barangay Juaneza, Municipality of Sara, Iloilo. The sanctuary, named after the native bamboo species *Bambusa levis* Blanco, is a 52 ha timberland area rich in avian life, endemic flora and fauna, and ecological diversity. Despite its natural assets, the sanctuary remains vulnerable due to the absence of formal protection and rehabilitation

measures. Devastated by Typhoon Haiyan and now facing threats such as illegal hunting, tree burning, and habitat degradation, Sampunong Bolo lacks the local ordinances, infrastructure, and conservation programs necessary to protect its ecological integrity (Tupas, 2020). The migration patterns of herons—a keystone feature of the sanctuary—are disrupted by human activity, particularly from nearby fishpond operations, and no comprehensive biodiversity inventory or tourism development plan is in place.

The lack of legal designation, management interventions, and sustainable tourism frameworks underscores the critical need for collaborative efforts among the local government unit (LGU), the Department of Environment and Natural Resources (DENR), the Community Environment and Natural Resources Office (CENRO), and local academic institutions. Such partnerships are vital not only for the sanctuary's rehabilitation but also for exploring its potential as a community-based ecotourism destination.

It is in this context that this study was conceived. This research provides a systematic assessment of biodiversity in Sampunong Bolo Wildlife Sanctuary and evaluates its potential for sustainable tourism development. By identifying key species and ecological features, as well as the threats and opportunities present, this study offers evidence-based strategies for rehabilitation and sustainable management. The findings are expected to support policy formulation, guide conservation efforts, and inform tourism development initiatives led by LGUs, government agencies, environmental groups, and academic institutions.

Specifically, the study aims to answer the following research questions: 1). What are the diverse species of flora and fauna present within Sampunong Bolo Wildlife Sanctuary?, 2). What is the tourism potential of these species and the sanctuary's overall appeal?, and 3). What renovating and upgrading activities can address existing issues and rehabilitate the sanctuary? To achieve these objectives, this study will: 1).

Identify the diverse species of flora and fauna within Sampunong Bolo Wildlife Sanctuary, 2). Evaluate the tourism potential of these species and the sanctuary's overall appeal, and 3). Determine appropriate renovating and upgrading activities to address the issues and rehabilitate the sanctuary.

II. MATERIAL AND METHOD

A. Study Site/Location

The research was conducted in Sampunong Bolo Wildlife Sanctuary located in Barangay Juaneza, Municipality of Sara, Province of Iloilo, Philippines, from November 2021 to March 2022. This location is significant for its ecological importance and the presence of diverse faunal and floral species, making it a suitable site for studying tourism potential and sanctuary revival efforts. Geographically, the area is located at approximately 11.3159, 123.0205, in the island of Panay, Iloilo, Philippines. Elevation at these coordinates is estimated at 167.2 m (548.5 feet) above sea level. Juaneza shares a common border with barangays Castor, Tady, Ardemil, and Aguirre in the municipality of Sara, Iloilo, and barangays Talo-ato and Pangi in San Dionisio, Iloilo, Philippines (PhilAtlas, 2024). Sara has

a tropical monsoon climate (Classification: Am). The district's yearly temperature is 27.92°C (82.26°F), and it is 0.7% higher than the Philippines's average. Sara typically receives about 85.28 mm (3.36 inches) of precipitation and has 150.08 rainy days (41.12% of the time) annually (Weather & Climate, 2024).

Primary data collection tools included a semi-structured interview guide featuring open-ended questions, along with recording devices (audio and video) used during interviews and focus-group discussions. Secondary data, such as an inventory of species, were obtained from the Department of Environment and Natural Resources-Community Environment and Natural Resources Office (DENR-CENRO). Thematic analysis software was utilized to assist in organizing and coding the interview transcripts.

The area was selected due to reports of its high biodiversity, including key species such as migratory birds and endemic flora. However, due to the absence of active field sampling by the researchers, biodiversity data in this study were sourced directly from the DENR-CENRO inventory, which did not disclose the detailed field methodologies or the temporal scope of data collection.



Figure 1. Google Map Image of Sampunong Bolo in Barangay Juaneza, Sara, Iloilo, Philippines

B. Methods

The study followed a mixed-methods research design, as outlined by Creswell and Creswell (2018). Using the purposive sampling technique (Patton, 2014), 14 informants were selected based on their knowledge of the sanctuary and their capacity to provide relevant insights. These informants, consisting of barangay residents and officials, contributed to the study's two key data collection components. Primary data, including the tourism potential of various species and proposed renovation activities for the sanctuary, were collected through interviews and focus group discussions (Krueger, 2014). The interviews, conducted in person, were semi-structured to encourage detailed responses and were recorded with the informants' consent, then transcribed for analysis. Secondary data, such as species inventories, were sourced from the local DENR-CENRO office.

As the study relied on secondary biodiversity data from DENR-CENRO, the researchers did not conduct original field surveys to determine species composition, abundance, or seasonal variation. The absence of access to DENR-CENRO's sampling protocols limited the ability to analyze species distribution, habitat classification, or population estimates. Nonetheless, the species list provided valuable insights into the sanctuary's biodiversity profile. The evaluation of tourism potential was qualitative in nature and guided by the principles of sustainable ecotourism (Honey, 2008), focusing on observed attractions (e.g., avian diversity, natural landscape), accessibility, and informant perspectives.

C. Analysis

For data analysis, Thematic Analysis (Braun & Clarke, 2019) was employed to identify, analyze, and report patterns within the collected data. The analysis process involved several steps. First, the audio and video recordings were transcribed verbatim to ensure accuracy. The research team then familiarized themselves with the content by reading the transcripts multiple

times. Next, initial codes were generated, highlighting significant features of the data. These codes were subsequently organized into potential themes, which were then reviewed and refined to ensure coherence. After finalizing the themes, each was clearly defined and named to capture the essence of the data. A detailed report was then written, presenting the themes supported by direct quotes from participants to illustrate key findings.

Since species data were descriptive and based on lists, no quantitative biodiversity indices (e.g., Shannon-Weiner, Simpson's Index) were calculated. The analysis of interview and focus-group data remained thematic and exploratory due to the limited sample size.

III. RESULT AND DISCUSSION

A. Faunal and Floral Species in Sampunong Bolo Wildlife Sanctuary

The secondary data obtained from the local DENR-CENRO revealed 39 faunal and 100 floral species, highlighting the area's rich biodiversity. Table 1 shows that the Sampunong Bolo Wildlife Sanctuary is home to a diverse range of faunal species, encompassing various groups. The faunal inventory includes 21 bird species, 2 mammals, 8 reptiles, 5 amphibians, and 3 arthropods. The sanctuary hosts a significant number of bird species, each contributing to the rich avian biodiversity of the area (Tupas, 2020). Mammalian species, though fewer in number compared to birds, are also present in the sanctuary. They contribute to the ecological balance and offer additional attractions for ecotourists. Reptiles are another key component of the sanctuary's biodiversity, providing insights into the ecological interactions within the habitat. Amphibians are also indicators of environmental health and biodiversity, while arthropods play vital roles in the ecosystem, including pollination and nutrient cycling.

The presence of these faunal species highlights the rich biodiversity within the Sampunong Bolo Wildlife Sanctuary. This biodiversity not only underscores the ecological

importance of the sanctuary but also presents significant opportunities for eco-tourism. Activities such as guided nature walks, educational tours, and wildlife photography can be developed to attract tourists while promoting conservation efforts. The collaboration with the local DENR-CENRO was instrumental in identifying these species. Their support and data provision were crucial in ensuring the accuracy and comprehensiveness of the biodiversity assessment.

While the conservation status of the documented species in Sampunong Bolo Wildlife Sanctuary was not explicitly indicated in the DENR-CENRO inventory, it is worth noting that Philippine wildlife includes many endemic and potentially threatened species due to habitat degradation and biodiversity loss. Given this, the sanctuary may serve as a crucial habitat for species of ecological concern, underscoring the importance of further biodiversity assessments and conservation planning in the area.

In contrast to fauna, the sanctuary's flora boasts a rich diversity of native trees, fruit-bearing plants, medicinal herbs, ornamentals, and aromatic species. This botanical diversity plays a crucial role in maintaining ecosystem stability and supporting wildlife habitats. A total of 100 floral species, as shown in Table 2, were recorded within the sanctuary. However, due to limitations in taxonomic expertise and reference materials, further classification into functional groups (e.g., native, medicinal, ornamental) could not be conducted. This highlights the need for collaboration with botanical experts in future studies to fully assess the ecological and tourism value of the area's flora.

The diverse flora of Sampunong Bolo Wildlife Sanctuary holds significant potential for tourism and recreation, offering opportunities for nature-based activities, educational tours, and aesthetic appreciation. Visitors can engage in botanical tours to learn about indigenous plants and their ecological roles, fostering a deeper appreciation for biodiversity

Table 1. Inventory of faunal species in Sampunong Bolo Wildlife Sanctuary

Groups	Species	Scientific names
Birds (Aves)	1. Olive-backed sunbird	<i>Cinnyris jugularis</i>
	2. Zebra dove	<i>Geopelia striata</i>
	3. Mountain white-eye	<i>Zosterops montanus</i>
	4. Philippine coucal	<i>Centropus viridis</i>
	5. Magnificent sunbird	<i>Aethopyga siparaja</i>
	6. Green-winged ground dove	<i>Chalcophaps indica</i>
	7. White-eared brown dove	<i>Phapitreron leucotis</i>
	8. Yellow-vented bulbul	<i>Pycnonotus goiavier</i>
	9. Philippine bulbul	<i>Hypsipetes philippinus</i>
	10. Crested serpent-eagle	<i>Spilornis cheela</i>
	11. Pied fantail	<i>Rhipidura javanica</i>
	12. Black-naped monarch	<i>Hypothymis azurea</i>
	13. Red jungle fowl	<i>Gallus gallus</i>
	14. White-breasted woodswallow	<i>Artamus leucorhynchus</i>
	15. White-collared kingfisher	<i>Todiramphus chloris</i>
	16. Red turtle dove	<i>Streptopelia tranquebarica</i>
	17. Large-billed crow	<i>Corvus macrorhynchos</i>
	18. Brown shrike	<i>Lanius cristatus</i>
	19. Pink-necked green-pigeon	<i>Treron vernans</i>
	20. Glossy swiftlet	<i>Collocalia esculenta</i>
	21. Pacific swallow	<i>Hirundo tabitica</i>
Mammals	22. Palm civet	<i>Paradoxurus hermaphroditus</i>
	23. Malay civet	<i>Viverra zangalunga</i>

Groups	Species	Scientific names
Reptiles	1. Amboina box turtle	<i>Cuora amboinensis</i>
	2. Dog-tooth cat snake	<i>Boiga cynodon</i>
	3. Reticulated python	<i>Malayopython reticulatus</i>
	4. Green whip-snake	<i>Abaetulla prasina</i>
	5. Rough-necked water monitor	<i>Varanus salvator</i>
	6. Dog-faced water snake	<i>Cerberus rynchops</i>
	7. Philippine rat snake	<i>Coelognathus erythrorus</i>
	8. Common wolf snake	<i>Lycodon capucinus</i>
Amphibians	9. Whistling forest frog	<i>Platymantis dorsalis</i>
	10. Cane toad	<i>Rhinella marina</i>
	11. Bull frog	<i>Kaloula pulchra</i>
	12. Common green frog	<i>Hylarana erythraea</i>
	13. Philippine narrow-mouth toad	<i>Kaloula conjuncta</i>
Arthropods	14. Millipede	<i>Thyropygus</i> spp.
	15. Giant whip scorpion	<i>Mastigoproctus</i> spp.
	16. Tailless whip scorpions	<i>Amblypygi</i> spp.

Source: Department of Environment and Natural Resources-Community Environment and Natural Resources Office (DENR-CENRO), Municipality of Sara, Iloilo, Philippines

conservation (Arkema & Ruckelshaus, 2017). Species with vibrant blooms and unique foliage provide picturesque settings for photography enthusiasts, enhancing the sanctuary's appeal as a scenic destination (Laplanche, 2023). Moreover, the sanctuary serves as a valuable site for environmental education and research, supporting studies on biodiversity conservation and sustainable land management (Gaston et al., 2008).

Effective conservation strategies are imperative to safeguard the sanctuary's flora diversity and enhance its role in sustainable tourism development. Habitat restoration efforts, including reforestation with native and fruit-bearing trees, are critical for maintaining habitat quality and promoting species diversity (Lindenmayer & Fischer, 2013). Community involvement in conservation initiatives is

essential, fostering local stewardship and ensuring the sanctuary's long-term viability as a tourist destination (Khalid et al., 2019). Educational initiatives, such as interpretive signage and guided tours, can educate visitors about the ecological significance of flora species and encourage responsible behavior to minimize ecological impact (Poudel & Nyaupane, 2013).

To promote eco-tourism and raise environmental awareness, themed guided trails may be developed, such as a “Medicinal Plant Trail” showcasing traditional herbal species, or a “Native Tree Walk” highlighting indigenous flora important to local biodiversity. These trails can be supplemented with interpretive signage and guided tours to enhance visitor learning and engagement.

Table 2. Inventory of floral species in Sampunong Bolo Wildlife Sanctuary

Species	Scientific names	Species	Scientific names
1. Agoyangyang	<i>Abrus precatorius</i>	51. Kauayan Kiling/ Lunas	<i>Bambusa vulgaris</i>
2. Agpoi	<i>Phanera integrifolia</i>	52. Kauyan tinik	<i>Bambusa blumeana</i>
3. Alibangbang	<i>Bauhinia purpurea</i>	53. Kawilan	<i>Bridelia stipularis</i>
4. Alim	<i>Melanolepis multiglandulosa</i>	54. Kubi	<i>Artocarpus nitidus</i>
5. Amamali	<i>Leea aculeata</i>	55. Lagundi	<i>Vitex negundo</i>
6. Anagas	<i>Semecarpus elmeri</i>	56. Lamio	<i>Dracontomelon edule</i>
7. Anahau	<i>Livistona rotundifolia</i>	57. Lampuyang	<i>Curcuma zedoaria</i>
8. Anolang	<i>Papualthia lanceolata</i>	58. Lanete	<i>Wrightia pubescens</i>
9. Anonang	<i>Cordia dichotoma</i>	59. Langka	<i>Artocarpus heterophyllus</i>

Species	Scientific names	Species	Scientific names
10. Antipolo	<i>Artocarpus blancoi</i>	60. Large-leaf Mahogany	<i>Swietenia macrophylla</i>
11. Anubing	<i>Artocarpus ovatus</i>	61. Libas	<i>Spondias pinnata</i>
12. Atis	<i>Annona squamosa</i>	62. Ligtang	<i>Anamirta cocculus</i>
13. Avocado	<i>Persea americana</i>	63. Lipata	<i>Kopeia fruticosa</i>
14. Bahobaho	<i>Ageratum conyzoides</i>	64. Lusegot	<i>Amydrum medium</i>
15. Balete	<i>Ficus balete</i>	65. Magabuyo	<i>Celtis luzonica</i>
16. Balinghasay	<i>Buchanania arborescens</i>	66. Makopa	<i>Syzygium samarangense</i>
17. Bamban	<i>Donax cannaeformis</i>	67. Malaikmo	<i>Calophyllum philippinense</i>
18. Banaba	<i>Lagerstroemia speciosa</i>	68. Malapaho	<i>Mangifera monandra</i>
19. Bangkal	<i>Nauclea orientalis</i>	69. Malapapaya	<i>Polyscias nodosa</i>
20. Bani	<i>Pongamia pinnata</i>	70. Malatungao	<i>Melastoma malabathricum</i>
21. Batino	<i>Alstonia macrophylla</i>	71. Mamilis	<i>Pittosporum pentandrum</i>
22. Bignai	<i>Antidesma bunius</i>	72. Mangga	<i>Mangifera indica</i>
23. Binunga	<i>Macaranga tanarius</i>	73. Marang	<i>Artocarpus odoratissimus</i>
24. Bogo	<i>Garuga floribunda</i>	74. Marang banguhan	<i>Litsea perrottetii</i>
25. Bolo or botong	<i>Gigantochloa levis</i>	75. Matang hipon	<i>Breynia vitis-idaea</i>
26. Buho	<i>Schizostachyum lumampao</i>	76. Neem	<i>Azadirachta indica</i>
27. Bunga	<i>Areca catechu</i>	77. Niyog	<i>Cocos nucifera</i>
28. Buri	<i>Corypha elata</i>	78. Niyog-niyogan	<i>Ficus pseudopalma</i>
29. Buta-buta	<i>Excoecaria agallocha</i>	79. Nito	<i>Lygodium circinnatum</i>
30. Cacao	<i>Theobroma cacao</i>	80. Nito puti	<i>Lygodium flexuosum</i>
31. Caimito/star apple	<i>Chrysophyllum cainito</i>	81. Oringon	<i>Cynometra mirabilis</i>
32. Chico	<i>Manilkara zapota</i>	82. Pagsahingin	<i>Canarium asperum</i>
33. Cogon	<i>Imperata cylindrica</i>	83. Pahutan	<i>Mangifera altissima</i>
34. Dita	<i>Alstonia scholaris</i>	84. Papaya	<i>Carica papaya</i>
35. False bird of paradise	<i>Heliconia bibai</i>	85. Putian	<i>Averrhoa javanica</i>
36. Gabi	<i>Colocasia esculenta</i>	86. Sablot	<i>Litsea glutinosa</i>
37. Galamay amo	<i>Schefflera odorata</i>	87. Saging-saging	<i>Aegiceras corniculatum</i>
38. Golden shower	<i>Cassia fistula</i>	88. Sambong	<i>Blumea balsamifera</i>
39. Guava	<i>Psidium guajava</i>	89. Sampalok	<i>Tamarindus indica</i>
40. Hauili	<i>Ficus septica</i>	90. Santol	<i>Sandoricum koetjape</i>
41. Igyo	<i>Dysoxylum gaudichaudianum</i>	91. Tagoang uak	<i>Croton leiophyllus</i>
42. Ilang-ilang	<i>Cananga odorata</i>	92. Takip asin	<i>Macaranga grandifolia</i>
43. Iloilo	<i>Aglaia argentia</i>	93. Takip kohol	<i>Centella asiatica</i>
44. Ipil-ipil	<i>Leucaena leucocephala</i>	94. Takipan	<i>Caryota rumphiana</i>
45. Kahoi dalaga	<i>Mussaenda philippica</i>	95. Talisai terminal	<i>Terminalia catappa</i>
46. Kalios	<i>Streblus asper</i>	96. Taluto	<i>Pterocymbium tinctorium</i>
47. Kamuning	<i>Murraya paniculata</i>	97. Tangisang Bayawak	<i>Ficus variegata</i>
48. Kaong	<i>Arenga pinnata</i>	98. Tisang-gubat	<i>Carmona retusa</i>
49. Kapok	<i>Ceiba pentandra</i>	99. Torch ginger	<i>Etlingera elatior</i>
50. Katmon baging	<i>Tetracera</i> sp.	100. Uvaria	<i>Uvaria rufa</i>

Source: Department of Environment and Natural Resources-Community Environment and Natural Resources Office (DENR-CENRO), Municipality of Sara, Iloilo, Philippines

B. Tourism Potential of Faunal and Floral Species in Sampunong Bolo Wildlife Sanctuary

The potential of the sanctuary to support eco-tourism development was explored through in-depth interviews with local informants.

Based on their responses, three overarching themes emerged regarding the tourism potential of the faunal and floral species in Sampunong Bolo Wildlife Sanctuary (see Table 3): Theme 1 – Wildlife Observation, Theme 2 – Recreational Activities, and Theme 3 – Cultural and Economic Activities.

Theme 1: Wildlife Observation

Informants described the sanctuary as a historically popular site for birdwatching and faunal observation, particularly of species such as fruit bats and purple herons. One informant recalled,

“Years back, I remembered that the place was frequently visited by students and teachers from nearby schools, and from far and adjacent towns. There were lots of them coming here just to do some bird watching.”

Another added,

“That’s true, in the past it was nice and delightful to observe faunal species, especially those big ‘kabog’ (fruit bats) and ‘dugwak’ (purple herons).”

Wildlife observation is a central activity in ecotourism, offering opportunities for tourists to experience biodiversity in natural habitats (Tapper & Waedt, 2006). Research indicates that destinations rich in birdlife and other fauna attract eco-tourists and contribute to conservation and local economies (Shoo & Songorwa, 2013). These accounts highlight the site's potential to revive and expand wildlife tourism initiatives, especially birdwatching and nature photography.

Theme 2: Recreational Activities

Informants also noted that the sanctuary is an ideal setting for recreational activities such as picnics, trekking, and hiking. One shared,

“The presence of trees and plants enhances the place as a potential venue for picnics and relaxation. One can experience a serene and peaceful state of mind as the place is cool and calm due to the enormous shades of trees that protect people from the heat of the sun, and moreover, it is near to a stream.”

Another stated,

“The place is not only good for picnics but also for trekking or hiking activities, as it is wide and features trails, and hilly and valley areas.”

The sanctuary's cool, shaded environment and diverse terrain—characterized by streams, valleys, and natural trails—make it highly suitable for both leisure and low-impact adventure tourism. Recreational activities in natural settings are known to enhance mental well-being and physical health (Puhakka, 2021; Wicks et al., 2022; Wright, 2023). Additionally,

studies have shown that well-maintained picnic grounds and hiking trails improve tourist satisfaction and encourage repeat visitation (Velmurugan et al., 2021). By enhancing these recreational offerings, Sampunong Bolo can attract nature-based tourists seeking both relaxation and exploration.

Theme 3: Cultural and Economic Activities

The sanctuary also holds value as a source of cultural heritage and local livelihood through its native plant resources. Informants highlighted the presence of kaong palm trees (*Arenga pinnata*), traditionally used for craft-making. One noted,

“Here in Sampunong Bolo, there are lots of ‘hibyok or kaong palm trees’. Older residents and children made hand fans out of them, of which their finished products are then sold by them as a source of livelihood.”

Another added,

“These palm trees that grow abundantly here may have potential that relates to tourism. Perhaps, this can be done if studies can be conducted to determine what other usages can be obtained from them.”

These insights suggest opportunities for cultural tourism through craft-making, sustainable harvesting, and community-based enterprises. Cultural tourism, which includes engagement with local traditions and products, is a growing sector that supports both heritage preservation and economic resilience (Richards, 2018; Brown, 2020). Promoting locally made products and traditional knowledge could diversify the sanctuary's tourism offerings while reinforcing sustainable resource use and community involvement (Chan et al., 2021).

The three themes—wildlife observation, recreational use, and cultural livelihood—illustrate the sanctuary's multifaceted tourism potential. By promoting environmentally sensitive tourism activities that celebrate both biodiversity and local culture, Sampunong Bolo Wildlife Sanctuary can serve as a model for sustainable inland ecotourism in Northern Iloilo.

Table 3. Overarching themes, sub-themes, and actual responses of informants on the tourism potential of faunal and floral species in Sampunong Bolo Wildlife Sanctuary

Overarching themes	Sub-themes	Actual responses
1. Wildlife observation	1. Bird watching	<i>"Years back, I remembered that the place was frequently visited by students and teachers from nearby schools, and from far and adjacent towns. There were lots of them coming here just to do some bird watching."</i>
	2. Faunal observation	<i>"That's true, in the past it was nice and delightful to observe faunal species, especially those big 'kabog' (fruit bats) and 'dugwak' (purple herons)."</i>
2. Recreational activities	1. Picnics and relaxation	<i>"The presence of trees and plants enhances the place as a potential venue for picnics and relaxation. One can experience a serene and peaceful state of mind as the place is cool and calm due to the enormous shades of trees that protect people from the heat of the sun, and moreover, it is near to a stream."</i>
	2. Trekking and hiking	<i>"The place is not only good for picnics but also for trekking or biking activities, as it is wide and features trails, and hilly and valley areas."</i>
3. Cultural and economic activities	1. Local craft and livelihood	<i>"Here in Sampunong Bolo, there are lots of 'hibyok or kaong palm tree'. Older residents and children made hand fans out of them of which their finished products are then sold by them as a source of livelihood."</i>
	2. Potential for new uses and studies	<i>"These palm trees that grow abundantly here may have potential that relates to tourism. Perhaps, this can be done if studies can be conducted to determine what other usages can be obtained from them."</i>

C. Renovating and Upgrading Activities to Rehabilitate Sampunong Bolo Wildlife Sanctuary

When asked about necessary efforts to rehabilitate and enhance Sampunong Bolo Wildlife Sanctuary, informants proposed a range of activities aimed at improving both its ecological integrity and appeal as a tourist destination. Their responses, as summarized in Table 4, revealed three overarching themes: Theme 1 – Policy and Regulation, Theme 2 – Infrastructure Improvement, and Theme 3 – Environmental Conservation.

Theme 1: Policy and Regulation

A critical concern raised by the informants was the lack of formal policies or ordinances protecting the sanctuary's rich biodiversity. One informant emphasized,

"For me, what is best here is that there should be a policy or barangay ordinance that could protect the place."

The absence of regulatory frameworks puts

the area at risk of degradation. Implementing local policies or ordinances is vital to regulate human activities, prevent resource exploitation, and guide sustainable tourism development. Effective environmental governance at the community level can promote accountability, stewardship, and long-term conservation (Aall, 2014; Börner et al., 2020; Heyes, 2000). Moreover, community-based regulations—crafted with stakeholder participation—can empower residents and strengthen ecological resilience (Allgood et al., 2019; Lockwood, 2010).

Theme 2: Infrastructure Improvement

The need to enhance existing infrastructure emerged as a consistent recommendation among informants. One participant observed,

"If you have seen it, there are trails and concrete stairs that are still there. It's better that it should be enhanced and repaired to make the place more attractive."

The sanctuary's existing trails and stairs, if rehabilitated, can improve accessibility and

visitor experience. Infrastructure such as well-maintained trails and facilities helps reduce environmental degradation by directing foot traffic and minimizing damage to sensitive areas (Leung et al., 2018).

Another informant noted,

“This place is naturally good for picnic activities, but people may come here more often if huts or cottages can be provided.”

Providing visitor amenities like cottages or huts can encourage more frequent recreational use, increase tourist satisfaction, and extend visitor stays—leading to potential economic benefits (Akama & Kieti, 2003; Singh & Mishra, 2004). Additionally, the lack of signage was identified as a concern. One informant recommended,

“If there is signage, they should be placed at the site at once to serve as a warning and constant reminder for all to see and act accordingly relative to the protection of the place.”

Strategic signage can guide visitor behavior, promote environmental awareness, and reinforce conservation messages. Educational

and regulatory signs are proven tools in managing tourism impacts and supporting responsible visitation (Marschall et al., 2017).

Theme 3: Environmental Conservation

Informants also emphasized the need for reforestation and better utilization of natural resources. One shared,

“It is good also that more trees that birds like to stay with as their shelters be planted.”

Tree planting, particularly of native species that provide food and shelter for wildlife, can significantly contribute to habitat restoration and biodiversity enhancement (Hails & Kavanagh, 2013; Di Sacco et al., 2021). Additionally, the sanctuary is abundant with kaong palm trees (*Arenga pinnata*), which locals use for making brooms and hand fans. One informant suggested,

“One more thing to consider is the presence of kaong palm tree which grows abundantly here. Besides using the palm trees to make fans or brooms, they can be further studied towards identification and development of more saleable products.”

Exploring innovative and sustainable

Table 4. Overarching themes, sub-themes, and actual responses of informants on the renovating and upgrading activities to rehabilitate Sampunong Bolo Wildlife Sanctuary

Overarching themes	Sub-themes	Actual responses
1. Policy and regulation	1. Protection policies	<i>“For me, what is best here is that there should be a policy or barangay ordinance that could protect the place.”</i>
2. Infrastructure improvement	1. Trail and stair enhancements	<i>“If you have seen it, there are trails and concrete stairs that are still there. It’s better that it should be enhanced and repaired to make the place more attractive.”</i>
	2. Facilities for visitors	<i>“This place is naturally good for picnic activities, but people may come here more often if huts or cottages can be provided.”</i>
	3. Signage and information	<i>“If there is signage, they should be placed at the site at once to serve as a warning and constant reminder for all to see and act accordingly relative to the protection of the place.”</i>
3. Environmental conservation	1. Tree planting	<i>“It is good also that more trees that birds like to stay with as their shelters be planted.”</i>
	2. Utilization of kaong palm tree	<i>“One more thing to consider is the presence of kaong palm tree which grows abundantly here. Besides using the palm trees to make fans or brooms, they can be further studied towards identification and development of more saleable products.”</i>

uses for the kaong palm could generate new livelihood opportunities and promote eco-friendly entrepreneurship. Developing value-added products from local resources is aligned with community-based sustainable tourism and can boost both conservation and economic development (Lantican & Haagen, 2014; Samal & Dash, 2023).

The three themes—policy formulation, infrastructure development, and environmental conservation—provide a roadmap for rehabilitating Sampunong Bolo Wildlife Sanctuary. A multi-pronged approach that integrates governance, visitor services, and ecological enhancement can transform the sanctuary into a resilient, attractive, and sustainable inland ecotourism destination.

IV. CONCLUSION

This study successfully identified the rich biodiversity of the Sampunong Bolo Wildlife Sanctuary, cataloging 39 faunal and 100 floral species. The findings demonstrate significant tourism potential through wildlife observation, recreational activities, and cultural and economic engagements. The sanctuary's history as a popular bird-watching site, particularly for species like fruit bats and purple herons, underscores its appeal to wildlife enthusiasts. Its natural environment, with cool, shaded spots and proximity to a stream, provides an ideal setting for picnics, relaxation, trekking, and hiking. Furthermore, the abundant kaong palm trees offer opportunities for local crafts and sustainable tourism, enhancing the sanctuary's attractiveness to culturally inclined tourists. The implications of this study are significant for LGU officials, DENR personnel, academicians, and other possible stakeholders. By highlighting the sanctuary's biodiversity and tourism potential, the study provides a roadmap for sustainable development that can benefit both the environment and the local community. The recommended renovating and upgrading activities, if implemented, can transform Sampunong Bolo into a premier ecotourism

destination in the municipality of Sara, Iloilo, Philippines, promoting conservation and economic growth simultaneously.

V. LIMITATIONS OF THE STUDY

While this study provides valuable insights into the tourism potential of Sampunong Bolo Wildlife Sanctuary, several limitations should be considered when interpreting the findings. Firstly, the sample size for the interviews was relatively small, consisting only of key informants from the local community. To gain a more comprehensive understanding, future studies should include a broader sample, including visitors and external stakeholders, to provide a more holistic view of the sanctuary's tourism potential. Additionally, the study primarily relied on qualitative methods, which are inherently subjective. While qualitative insights are valuable for understanding perceptions and experiences, they may not fully capture quantitative aspects, such as species population densities, economic impacts, or visitor satisfaction.

Another limitation stems from the ecological data used in this study. Secondary data from the Department of Environment and Natural Resources (DENR) was used to create a species list. However, this data lacked detailed sampling protocols, abundance estimates, and consideration of temporal variation. A more robust field-based ecological assessment, including seasonal monitoring and detailed species distribution data, would be necessary to understand the sanctuary's biodiversity fully. The assessment of tourism potential was also limited by the absence of a structured framework. Basic visual and ecological criteria were used to evaluate the sanctuary's tourism appeal, but a comprehensive, established tourism evaluation tool would have enhanced the rigor and depth of the analysis. Furthermore, the study did not assess the infrastructure requirements for tourism development or conduct a detailed economic analysis of the potential costs and benefits, which are crucial for determining

the feasibility and sustainability of proposed tourism initiatives.

Moreover, this study did not account for seasonal variations in biodiversity or tourism activities. Temporal differences in species presence and visitor patterns are important factors to consider for sustainable tourism planning. In addition, the study lacked essential environmental data, such as habitat quality or climate metrics, which would have provided further context for evaluating the sanctuary's tourism potential. Lastly, the research did not include a comparative analysis with other similar sanctuaries in the region. Such an analysis could have offered valuable insights into the unique features of Sampunong Bolo and its potential standing in the broader ecotourism landscape.

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