

Visitor Awareness and Self-Reported Ecotourism Practices at Bauang Bakawan Eco-Tourism Park, La Union

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ABSTRACT

This study is a quantitative, cross-sectional, descriptive-correlational research design that determined the level of visitor awareness and self-reported ecotourism practices at Bauang Bakawan Eco-Tourism Park, La Union. Specifically, it described the demographic profile of the visitors, assessed their level of visitor awareness, determined the extent of their self-reported ecotourism practices, examined the relationship between the two variables, and developed a proposed action plan to strengthen responsible ecotourism practices at the park. Data were gathered from 200 visitors who were 18 years old and above and had completed their visit to the park during the data-gathering period. A researcher-developed questionnaire was used to measure visitor awareness and self-reported ecotourism practices.

The demographic profile showed that respondents were predominantly young adults aged 18–24 years old and female, with first-time visitors comprising the highest proportion. The assessment revealed that respondents were “Very Aware” of mangrove conservation, with Conservation Rules and Visitor Responsibilities receiving the highest rating and Wildlife and Biodiversity Protection receiving the lowest. Similarly, self-reported ecotourism practices were rated as “Always,” with Compliance with Park Rules and Designated Trails receiving the highest rating and Proper Waste Management receiving the lowest. Statistical analysis revealed a strong positive and significant relationship between visitor awareness and self-reported ecotourism practices ($r = .779$, $p < .001$). Thus, the null hypothesis was rejected, indicating that higher visitor awareness was associated with more consistent self-reported ecotourism practices. Based on the findings, an action plan was proposed to strengthen visitor awareness and responsible ecotourism practices at the park.

Keywords: Self-Reported Ecotourism Awareness, Ecotourism Practices, Mangrove Conservation, Responsible Tourism

INTRODUCTION

Background of the Study

Tourism has become one of the major contributors to the economic growth of many countries, particularly those endowed with abundant natural resources and attractive destinations. In recent years, there has been an increasing demand for ecotourism. The International Ecotourism Society (TIES, 2015) defined ecotourism as responsible travel to natural areas that conserves the environment and improves the well-

being of local people. In simpler terms, ecotourism focuses on experiencing and conserving natural environments (Pham & Khanh, 2021). Furthermore, Spalding and Parrett (2019) emphasized that mangrove ecotourism has gained worldwide prominence and has become an important form of nature-based tourism. The importance of mangrove ecosystems has gained recognition because they serve as natural barriers against storm surges, coastal erosion, and tsunamis. Mangrove forests also provide habitats for various fish and wildlife species. However, Achyani et al. (2025) stated that despite their ecological importance, mangrove forests continue to face threats from illegal logging, urban expansion, unregulated human activities, and pollution, all of which contribute to ecosystem degradation and threaten their long-term sustainability.

Likewise, Ferreira et al. (2022) explained that these threats pose significant challenges to environmental conservation, biodiversity protection, and the well-being of local communities.

In addition to that, Blanton et al. (2024) explored mangrove ecotourism across Southeast Asia, including Thailand, and determined that environmental education and visitor awareness play an essential role in promoting responsible visitors' behavior and supporting the long-term conservation of mangrove ecosystems. The study emphasized that visitors who understand the ecological value of mangroves are more likely to comply with ecotourism guidelines, minimize harmful environmental impacts, and participate in conservation efforts. These findings emphasize the importance of increasing visitors' awareness as a foundation for sustainable ecotourism.

With the increasing demand for ecotourism in the Philippines, many visitors, both local and non-local, remain unaware of the ecological importance of mangrove ecosystems. Paz et al. (2026) determined that although local communities in Dumangas actively participate in mangrove conservation, visitor awareness remains limited because of inadequate information dissemination and weak implementation of regulations. Likewise, Marquez et al. (2026) reported that the provision of clear signage and proper orientation programs promote responsible visitor behavior.

However, inconsistent implementation reduces the effectiveness of these conservation measures. These findings suggest that responsible visitor practices are essential in minimizing environmental impacts and supporting the sustainable management of mangrove ecotourism sites.

In recent years, The Bauang Bakawan Eco-Tourism Park was recognized as the Third Runner-Up for the Best Mangrove Award during the Para El MAR 2025 Awards (University of the Philippines Marine Science Institute [UP MSI], 2025). This achievement showcases the municipality's commitment to preserve its coastal resources while promoting sustainable ecotourism. In addition to that, The Bauang Bakawan Eco-Tourism Park serves not only as an ecotourism destination but also as a venue for various recreational activities that promote leisure and environmental appreciation. Visitors may engage in activities such as bird watching and boat riding, which provide opportunities for relaxation while fostering a deeper understanding of the park's natural ecosystem.

As the Park continues to receive visitors, there is a need to assess visitors' self-reported awareness and environmentally responsible practices as a basis for strengthening visitor education and park-management initiatives. Aduana-Alcantara et al. (2023) conducted a mangrove land suitability assessment along the coastline of La Union using Geographic Information System (GIS) and Weighted Linear Combination (WLC) analysis to identify areas suitable for mangrove rehabilitation and restoration. The study emphasized that appropriate site selection, species suitability, and field validation are essential for improving the effectiveness of mangrove rehabilitation and supporting sustainable environmental management. Although the study of Aduana-Alcantara et al. (2023) provided valuable information on

ecological assessment and land-use planning, it did not examine visitor's awareness, perceptions, or ecotourism practices within mangrove areas. Most previous studies have focused on ecological restoration, conservation strategies, and habitat management, while limited attention has been given to understanding how visitors' awareness may be associated with their ecotourism practices. This gap limits the availability of evidence needed to develop visitor-centered environmental education and sustainable tourism management strategies at Bauang Bakawan Eco-Tourism Park.

The reviewed literature emphasizes that mangrove ecotourism plays a significant role in promoting environmental conservation while contributing to economic and community development. Previous studies consistently highlight the ecological importance of mangrove ecosystems and the increasing need to protect them from human-induced threats through sustainable tourism practices. Moreover, the literature demonstrates that visitor awareness is a key factor associated with responsible visitor behavior, as informed visitors are more likely to comply with conservation guidelines, participate in environmental initiatives, and minimize negative impacts on mangrove ecosystems. Studies conducted in the Philippines further reveal that limited environmental awareness, inadequate information dissemination, and inconsistent implementation of management strategies remain challenges to achieving sustainable mangrove ecotourism. Although existing research in La Union has focused on ecological assessment and mangrove rehabilitation, limited local evidence is available regarding visitor awareness and self-reported ecotourism practices in the Bauang Bakawan Eco-Tourism Park.

Existing studies on mangrove areas in Bauang, La Union and nearby locations have primarily focused on ecological assessment, environmental conservation, mangrove rehabilitation, and their ecological and community benefits. However, limited local evidence is available regarding visitors' self-reported awareness of mangrove conservation and their self-reported ecotourism practices while visiting Bauang Bakawan Eco-Tourism Park. It remains unclear whether visitors who demonstrate higher awareness also report more responsible practices. This gap provides the basis for the present study.

Theoretical Framework

The present study, entitled "Visitor Awareness and Self-Reported Ecotourism Practices at Bauang Bakawan Eco-tourism Park, La Union," is anchored on the Norm Activation Theory (NAT) developed by Schwartz (1977). The theory provides a useful framework for understanding how individuals develop personal moral obligations that may encourage environmentally responsible behavior. Rather than assuming that awareness automatically leads to action, the theory explains the psychological process through which people become more inclined to engage in pro-environmental behavior.

According to Schwartz (1977), the activation of personal norms follows a sequence of interrelated components. The first component is awareness of consequences (AC), which refers to an individual's recognition that his or her actions may have positive or negative effects on other people, wildlife, and the environment. In the context of ecotourism, visitors who understand the ecological importance of mangrove ecosystems and the possible consequences of irresponsible tourism activities may become more conscious of their environmental impact.

The second component is ascription of responsibility (AR), which pertains to an individual's acceptance of personal responsibility for the consequences of his or her actions. When visitors believe that they have a role in protecting natural resources, they are more likely to recognize that their behavior can contribute either to environmental conservation or environmental degradation.

The third component is the activation of personal norms (PN). Personal norms refer to an individual's

internal sense of moral obligation to act in an environmentally responsible manner. According to the theory, personal norms become activated when individuals are aware of the consequences of their actions and accept responsibility for those consequences. Once activated, these personal norms may motivate individuals to behave in ways that are consistent with environmental protection.

The final outcome of the theory is pro-environmental behavior (PEB), which includes actions that help protect and conserve the natural environment. Within the context of ecotourism, such behaviors may include proper waste disposal, following park rules and designated trails, respecting wildlife and mangrove habitats, and supporting conservation initiatives. These behaviors reflect environmentally responsible practices that contribute to the sustainability of ecotourism destinations.

Norm Activation Theory is used in this study as an interpretive/theoretical lens for discussing how awareness-related cognitions may be associated with pro-environmental or responsible tourism behavior. The study did not separately measure all components of Norm Activation Theory, particularly responsibility attribution and personal norms. Therefore, the study should not be presented as a complete empirical test of the theory or as evidence of a causal NAT pathway. The theory is used only to provide a framework for interpreting the observed association between visitors' awareness and their self-reported responsible tourism practices.

Conceptual Framework

The conceptual framework presents the statistical relationship between visitor awareness and self-reported ecotourism practices. Visitor awareness is measured in terms of the ecological value of mangroves, wildlife and biodiversity protection, and conservation rules and visitor's responsibilities. Self-reported ecotourism practices are measured in terms of proper waste management, compliance with park rules and designated trails, respect for wildlife and mangrove habitats, and conservation-oriented visitor behavior. The study determined whether a statistically significant relationship exists between the two variables. The findings will not be interpreted as evidence that awareness causes the reported practices.

Figure 1

Conceptual Framework Showing the Statistical Relationship Between Self-Reported Visitors Awareness and Self-Reported Ecotourism Practices at Bauang Bakawan Eco-Tourism Park, Bauang, La Union



Statement of the Problem

1. What is the demographic profile of the visitors in terms of:
 - 1.1 age group;
 - 1.2 sex;
 - 1.3 frequency of visit?
2. What is the level of visitors' awareness in terms of:
 - 2.1 ecological value of mangrove forest;
 - 2.2 wildlife and biodiversity protection; and
 - 2.3 conservation rules and visitor responsibilities?
3. What is the extent of the respondents' self-reported ecotourism practices in terms of:
 - 3.1 proper waste management;
 - 3.2 compliance with park rules and designated trails;
 - 3.3 respect for wildlife and mangrove habitats; and
 - 3.4 conservation-oriented visitor behavior?
4. Is there a significant relationship between visitor awareness and self-reported ecotourism practices?
5. What action plan may be proposed to strengthen visitor awareness and responsible ecotourism practices at the park?

Objective of the Study

This study aims to determine the level of visitor awareness and self-reported ecotourism practices at Bauang Bakawan Eco-Tourism Park.

Specifically, it aims to:

1. Determine the demographic profile of the respondents in terms of age, sex, and frequency of visits;
2. Determine the respondents' level of visitor awareness in terms of ecological value of mangroves, wildlife and biodiversity protection, and conservation rules and visitor responsibilities;
3. Determine the extent of the respondents' self-reported ecotourism practices in terms of proper waste management, compliance with park rules and designated trails, respect for wildlife and mangrove habitats, and conservation-oriented visitor behavior;
4. Examine whether a significant relationship exists between visitor awareness and self-reported ecotourism practices; and
5. Develop a proposed action plan to strengthen visitor awareness and responsible ecotourism practices based on the findings of the study.

Hypothesis

H₀: There is no significant relationship between visitor awareness and self-reported ecotourism practices at the Bauang Bakawan Eco-Tourism Park.

Scope and Delimitations of the Study

This study determined the level of visitor awareness and the self-reported ecotourism practices at Bauang Bakawan Eco-Tourism Park, Barangay Parian Oeste, Bauang, La Union. The respondents of this study will consist of visitors aged 18 years old and above who have personally visited the park during the data-gathering period. Individuals who have not visited the park and visitors below 18 years old will not be included.

Visitor awareness was measured in terms of the ecological value of mangroves, wildlife and biodiversity

protection, and conservation rules and responsibilities and operationally measured through respondents' self-ratings of their present awareness and does not represent an objective knowledge test. Self-reported ecotourism practices were measured in terms of proper waste disposal, compliance with park rules and regulations, designated trails, respect for wildlife and mangrove habitats, and conservation-oriented visitor behavior based only on the respondents' actions during their visit to the park.

This study did not assess the actual condition of the mangroves, biodiversity population, water quality, carbon storage, soil quality, environmental damage, policy effectiveness, LGU expenditures, or long-term visitor behavior. The findings were based on the respondents' self-reported answers during the specified data-gathering period. Because both variables were measured through self-reported responses in the same questionnaire, the observed relationship may be influenced by social-desirability and common-method bias.

Significance of the Study

The findings will be helpful and will serve as a valuable reference for improving ecotourism management and promoting responsible tourist in the Bauang Bakawan Eco-Tourism Park, La Union. This study will benefit the following:

Municipality of Bauang, La Union. This study will be helpful to the Municipality of Bauang, La Union to have a strong implementation of visitor awareness campaigns and ecotourism practices in the Bauang Bakawan Eco-Tourism Park.

Local Communities. The study may increase awareness of the importance of mangrove conservation and encourage community participation in protecting natural resources while benefiting from sustainable tourism opportunities.

Tourists and Visitors of Bauang Bakawan Eco-Tourism Park. The findings may provide a basis for developing visitor-information and environmental-education initiatives.

Future Researchers. The findings may serve as a reference for future studies related to ecotourism, wildlife conservation, visitor awareness, ecotourism practices and sustainable tourism development. It may also provide a foundation for further research in similar coastal communities.

Definition of Terms

Bauang Bakawan Eco-tourism Park. Refers to the mangrove ecotourism site at Bauang, La Union that serves as the research locale where data on visitors' awareness, ecotourism practices and wildlife conservation are gathered.

Ecotourism Practices. In this study, ecotourism practices refer to the environmentally responsible behaviors demonstrated by visitors while visiting the Bauang Bakawan Eco-tourism Park. These practices include observing park regulations, practicing proper waste management, respecting wildlife, and supporting conservation initiatives.

Environmental Conservation. In this study, environmental conservation refers to the sustainable protection, preservation, and management of the mangrove ecosystem through responsible tourism practices and active support for conservation efforts at Bauang Bakawan Eco-tourism Park.

Visitor Awareness. Refers to the respondents perceived level of awareness regarding the ecological value of mangroves, wildlife and biodiversity protection, conservation rules, and visitor responsibilities, as measured by their self-ratings on the awareness scale during their present visit to Bauang Bakawan Eco-Tourism Park.

Visitors. Refers to the individuals who visit Bauang Bakawan Eco-tourism Park for recreational,

educational, or ecotourism purposes. They constitute the respondents from whom the data are collected.

Wildlife Conservation. Refers to the protection and preservation of wildlife within the mangrove forest of Bauang Bakawan Eco-tourism Park.

METHODS

This chapter presents the research design, research locale, respondents of the study, population and sampling procedure, research instrument, data-gathering procedure, ethical considerations, data-management procedures, statistical treatment of data and action plan.

Research Design

This study employed a quantitative, cross-sectional, descriptive-correlational research design. The descriptive component determined the level of the respondents' awareness and extent of self-reported ecotourism practices, while the correlational component examined whether a statistically significant relationship exists between the two variables. Data was gathered at one point during the approved data-collection period using a structured and validated questionnaire. No variable was manipulated; therefore, the findings indicated association but did not establish that visitor awareness caused responsible ecotourism practices.

Research Locale

This study was conducted at Bauang Bakawan Eco-tourism Park, in Barangay Parian Oeste, Bauang, La Union. The Bauang Bakawan Eco-tourism Park is a mangrove ecotourism destination that promotes environmental conservation, biodiversity protection, and sustainable tourism through the preservation and rehabilitation of its mangrove ecosystem. It provides visitors with opportunities to participate in nature-based activities such as mangrove boardwalk tours, sightseeing, bird watching, boat riding, environmental education, wildlife observation, and recreational visits.

The locale is considered appropriate for the present study because it attracts both local and non-local visitors who experience the park's ecotourism activities and conservation initiatives. These visitors are considered appropriate respondents because they can provide information regarding their awareness of mangrove conservation and their self-reported ecotourism practices while visiting the park.

Respondents of the Study

The respondents were visitors aged 18 years old and above who have personally entered and completed their visit to Bauang Bakawan Eco-Tourism Park during data-gathering period. They were required to be able to understand the questionnaire, provide informed consent, and answer based on their actual experience at the park. Visitors below 18 years old, individuals who have not personally experienced the park, visitors approached before completing their visit, park personnel responding in their official capacity, and individuals who decline to participate were not included. Residents participated provided that they were visiting the park as actual visitors and met all eligibility requirements.

Population and Sampling Procedure

The population of this study consisted of visitors to the Bauang Bakawan Eco-Tourism Park in Barangay Parian Oeste, Bauang, La Union, during the approved data-collection period. Since no complete sampling frame or master list of park visitors was available, the study employed structured time-location visitor-

intercept sampling using consecutive sampling to recruit eligible visitors at Bauang Bakawan Eco-Tourism Park, La Union. Data gathering was conducted at the designated park areas and during the scheduled data-collection periods. Visitors who met the established eligibility criteria and voluntarily agreed to participate were provided with the informed consent form and questionnaire. A total of 200 valid completed questionnaires were obtained and included in the final analysis. Since the field records did not document the total number of visitors who declined participation, the study does not report an estimated refusal or response rate.

The minimum sample size was determined through a priori power analysis using GPower 3.1 (Faul et al., 2009). The statistical test selected was “Exact: Correlation—Bivariate normal model,” which served as the sample-size basis for the correlational analysis. The analysis assumed a medium expected correlation effect size of $r = .30$, based on Cohen’s (1988) conventional guideline for a medium correlation effect. The significance level was set at $\alpha = .05$, with a desired statistical power of .80 (80%), using a two-tailed test because the study did not specify a directional hypothesis regarding the relationship between self-reported visitor awareness and self-reported ecotourism practices. The GPower calculation yielded a minimum required sample size of 84 respondents. Therefore, at least 84 respondents with complete paired scores for the two principal variables were required for the correlational analysis.

During the data-gathering period, a total of 232 visitors were approached for participation. 217 visitors met the eligibility criteria, 200 consented to participate and completed the questionnaire, and 17 declined to participate. 15 visitors were excluded during eligibility screening based on the study’s documented eligibility criteria. A total of 200 completed questionnaires were obtained and included in the final analysis. The recruitment figures were reconstructed from the recruitment and sampling records.

A valid paired response referred to a respondent with usable overall self-reported visitor-awareness and self-reported ecotourism-practice scores required for the correlation analysis. After the questionnaires were retrieved, the responses were screened for eligibility, completeness, and consistency. The final number of valid paired responses included in the correlational analysis was determined after data screening. No responses were fabricated, duplicated, or replaced to meet the target sample size.

The study was conducted over five data-gathering days consisting of three weekdays and two weekend days: Tuesday (August 25, 2026), Wednesday (August 26, 2026), Thursday (September 3, 2026), Saturday (September 5, 2026), and Sunday (September 6, 2026). Data collection was carried out during two daily time blocks: morning, from 8:30 a.m. to 11:30 a.m., and afternoon, from 1:30 p.m. to 4:30 p.m. The researchers administered the survey at the designated exit area of the Bauang Bakawan Eco-Tourism Park after visitors had completed their park visit. The number of completed questionnaires obtained during each data-gathering day and time block depended on the actual visitor volume.

At the beginning of each scheduled time block, the researchers selected an eligible departing visiting party that was approached for possible participation. The eligibility criteria required respondents to be 18 years of age or older, to have completed their park visit on the day of the survey, and to voluntarily agree to participate in the study. When a selected visiting party declined to participate or was found to be ineligible, the researchers then resumed to invite the next eligible visiting party. The final number of valid paired responses included in the correlational analysis was determined during data screening. These records provided documentation of the actual implementation of the sampling procedure and supported the transparent reporting of the study’s achieved sample and data-gathering process.

Because no complete visitor sampling frame was available and data collection was limited to the five approved data-gathering days and selected time-location blocks, the findings were interpreted primarily in relation to the participating visitors during the actual collection period.

Research Instrument

The study utilized a researcher-developed questionnaire as the primary instrument for data collection. The questionnaire was developed based on the objectives of the study, the Norm Activation Theory, relevant literature on ecotourism and mangrove conservation, and applicable conservation guidelines and visitor regulations implemented in Bauang Bakawan Eco-Tourism Park. These references served as the basis for constructing questionnaire items that measured visitors' awareness and ecotourism practices.

The questionnaire was organized into four parts. Part I – Eligibility Screening determined whether the prospective respondent met the established eligibility criteria. This section included questions to determine whether the respondent was 18 years old or older, had completed the park visit, had not previously answered the survey, and was participating as a visitor rather than in an official capacity as a park employee or official.

Part II – Respondent Profile collects the respondent's age, sex, and frequency of visit. The frequency of visit was categorized as: (1) First visit; (2) 2–3 visits; (3) 4–5 visits; and (4) More than 5 visits.

Part III – Self-Reported Visitor Awareness measured self-reported visitor awareness in terms of the ecological value of mangroves, wildlife and biodiversity protection, and conservation rules and visitor responsibilities. Respondents answered the items based on their present understanding at the time of their visit. The items measured self-reported awareness and did not represent an objective knowledge test. Part III contains fifteen (15) questionnaire items.

Part IV – Self-Reported Ecotourism Practices measured self-reported ecotourism practices in terms of proper waste management, compliance with park rules and designated trails, respect for wildlife and mangrove habitats, and conservation-oriented visitor behavior. Respondents answered the items based only on the actions they performed during their present visit to Bauang Bakawan Eco-Tourism Park. Part IV contained twenty (20) questionnaire items.

To establish content validity, the questionnaire was evaluated by three experts with relevant qualifications in tourism, environmental management, and research methodology. The validators assessed the relevance, clarity, appropriateness, and representativeness of each questionnaire item using the following four-point relevance scale:

4	Highly Relevant
3	Quite Relevant
2	Somewhat Relevant
1	Not Relevant

Item-level content validity was determined using the Item-Level Content Validity Index (I-CVI). An item was retained since all three validators assigned a rating of 3 or 4, resulting in an I-CVI of 1.00. The S-CVI/Ave was calculated by averaging the I-CVI values of all items. An S-CVI/Ave of at least 0.90 was considered acceptable, subject to validator comments and conceptual review. The overall scale-level content validity index based on the average method (S-CVI/Ave) was 1.00, indicating excellent content validity and a high degree of agreement among the validators regarding the relevance of the questionnaire items.

Items that did not meet this criterion were revised, replaced, and removed based on their conceptual importance and the written recommendations of the validators. Any item that undergoes substantial revision was resubmitted to the validators for confirmation prior to pilot testing. In addition to relevance, the validators separately evaluated the clarity, ambiguity, and wording of each item, and the results were documented in an Instrument Validation and Revision Matrix to ensure transparency and consistency throughout the revision process.

Table 1
Table of Specifications for the Visitor Awareness and Self-Reported Ecotourism Practices Questionnaire

Part	Dimension	Indicators	Item Code	Number of Items	Basis
Visitor Awareness	Ecological Value of Mangroves	Coastal protection, habitat conservation, erosion control, ecological	SA-EM 1–5	5	Norm Activation Theory (Schwartz, 1977); Blanton et al. (2024); Bauang Bakawan Eco-Tourism Park Information

Continued to page 25

Continuation of Table 1

Visitor Awareness	Wildlife and biodiversity protection	Wildlife protection, mangrove ecosystem conservation, biodiversity conservation, protection of native flora and fauna.	SA-WP 1–5	5	Norm Activation Theory (Schwartz, 1977); Blanton et al. (2024); Bauang Bakawan Eco-Tourism Park Information
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Visitor Awareness	Conservation rules and visitor responsibilities	Awareness of visitor regulations, conservation guidelines, individual responsibilities, and the consequences of visitor actions.	SA-CR 1–5	5	Bauang Bakawan Eco-Tourism Park Visitor Guidelines; Norm Activation Theory
Self-Reported Ecotourism Practices	Proper waste management	Proper waste disposal, maintenance of cleanliness, reduction of single-use plastics, prevention of littering, and responsible handling of waste.	SP-PM 1–5	5	Park Guidelines; Ecotourism Literature

Continuation of Table 1

Self-Reported Ecotourism Practices	Compliance with park rules and designated trails	Following park regulations, staying on designated trails, obeying park instructions, proper use of visitor facilities.	SP-CT 1–5	5	Park Guidelines; Ecotourism Literature
Self-Reported Ecotourism Practices	Respect for Wildlife and Habitat	Avoiding disturbance to wildlife, protecting mangroves, maintaining appropriate distance from wildlife, avoiding collection of natural resources.	SP-RH 1–5	5	Ecotourism Literature; Park Conservation Activities

Self-Reported Ecotourism Practices	Conservation-oriented visitor behavior	Proper waste disposal, following park rules and regulations, conservation of mangroves, responsible use of park facilities.	SP-CB 1-5	5	Norm Activation Theory (Schwartz 1977); Bauang Bakawan Eco-tourism park visitor guidelines; ecotourism literature
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For Visitor Awareness, respondents answered the visitor awareness using five-point Likert scale: 5 – Very Aware, 4 – Aware, 3 – Moderately Aware, 2 – Slightly Aware, 1 – Not Aware. For Self-Reported Ecotourism Practices, respondents indicated how frequently they performed each practice using a five-point Likert scale: 5 – Always, 4 – Often, 3 – Sometimes, 2 – Rarely, 1 – Never. An “N/A – Not Applicable” option was also be provided for practices that do not apply to the respondent.

Content Validation

To evaluate the content validity of the questionnaire, the validators used a four-point relevance scale: 4 – Highly Relevant; 3 – Relevant; 2 – Somewhat Relevant; and 1 – Not Relevant. Item-level Content Validity Index (I-CVI) was computed for each questionnaire item.

Since the Research Instrument Validation Form was evaluated by three validators, ratings, comments, overall recommendations and the necessary revisions were addressed before pilot testing. Items that are identified as unclear was revised and items that are irrelevant or inappropriate was revised or removed from the questionnaire.

In addition to relevance, the validators provided separate comments regarding the clarity, wording, ambiguity, and appropriateness of each item. Their comments and recommendations were documented in an Instrument Validation and Revision Matrix, and necessary revisions were incorporated before pilot testing.¹

Pilot Testing and Reliability

Following expert validation and the incorporation of the recommended revisions, the questionnaire underwent pilot testing at Agoo Eco Park in Agoo, La Union. The site was selected because it was a nature-based ecotourism destination that included mangrove (bakawan) areas and provided environmental features comparable to those of the Bauang Bakawan Eco-Tourism Park. Similar to the study site, Agoo Eco Park promotes environmental conservation, provides conservation information and visitor guidelines, and offers nature-based activities that encourage responsible environmental practices. These comparable characteristics enabled pilot respondents to meaningfully understand and answer the questionnaire items related to mangrove ecology, coastal protection, wildlife and biodiversity conservation, visitor responsibilities, and self-reported ecotourism practices.

Prior to the conduct of the pilot test, formal permission was obtained from the management of Agoo Eco Park. Fifteen (15) eligible pilot respondents were recruited. The respondents were at least 18 years old and above, had completed their visit to Agoo Eco Park, and and capable of providing informed consent, and

voluntarily agreed to participate in the study. Individuals who participated in the pilot test were excluded from the actual study to prevent duplication of respondents and preserve the integrity of the research findings.

The pilot test assessed the clarity, comprehensibility, administration time, applicability, and internal consistency of the questionnaire. Cronbach's alpha coefficient was computed separately for each of the three Self-Reported Visitor Awareness dimensions—Ecological Value of Mangroves (0.86), Wildlife and Biodiversity Protection (0.87), and Conservation Rules and Visitor Responsibilities (0.85). The overall visitor awareness score was 0.94 using Cronbach's alpha.

Likewise, Cronbach's alpha coefficient was computed separately for each of the four Self-Reported Ecotourism Practices dimensions—Proper Waste Management (0.86), Compliance with Park Rules and Designated Trails (0.96), Respect for Wildlife and Mangrove Habitats (0.82), and Conservation-Oriented Visitor Behavior (0.82). The overall Self-Reported Ecotourism Practices score was 0.95.

The results indicate an acceptable level of internal consistency among the questionnaire items. Therefore, the questionnaire was considered as sufficiently reliable and was retained for the actual data gathering.

Data Gathering Procedure

Before the conduct of the study, the researchers followed a systematic procedure for data collection and analysis.

First, proposal approval was secured from the research adviser and the appropriate institutional authorities before proceeding with the succeeding research activities.

Second, expert validation of the researcher-developed questionnaire was conducted by qualified experts in relevant fields to assess the content validity, clarity, relevance, organization, and appropriateness of the instrument in relation to the objectives of the study.

Third, instrument was revised based on the comments and recommendations provided by the validators. Necessary revisions were incorporated to improve the quality and appropriateness of the instrument before it proceeds to the succeeding stage.

Fourth, institutional ethics review and clearance were secured for the revised research protocol, questionnaire, informed consent form, and other required research documents. Participant recruitment and data collection proceeded only after the required ethics clearance had been obtained.

Fifth, permission from Agoo Eco Park was secured after obtaining ethics clearance to conduct the pilot test at the site.

Sixth, pilot testing was conducted among the 15 qualified respondents with characteristics similar to those of the intended respondents. These individuals were not included in the main study. The pilot test assessed the clarity, comprehensibility, administration time, applicability, and internal consistency of the questionnaire.

Seventh, reliability analysis and final instrument revision were conducted using the pilot-test data. The researchers evaluated the internal consistency of the instrument and interpreted the reliability results in conjunction with corrected item–total correlations, inter-item correlations, conceptual alignment, clarity, applicability, and validators' comments. Necessary final revisions were made before the questionnaire was administered in the main study.

Eighth, permission and scheduling at Bauang Bakawan Eco-Tourism Park were secured after the instrument has been finalized. The researchers coordinated with the appropriate authorities and park

management to obtain permission and establish the approved dates, time blocks, survey locations, visitor procedures, and other operational guidelines for the main data collection.

Ninth, main data collection was conducted at Bauang Bakawan Eco-Tourism Park in accordance with the approved sampling procedure and schedule. The researchers approached eligible visitors only after they have completed their park visit. The purpose and objectives of the study, voluntary nature of participation, confidentiality and anonymity measures, and estimated time required to complete the questionnaire will be explained to prospective respondents. Informed consent was obtained before the questionnaire was administered. Questionnaires were distributed only to qualified respondents and collected upon completion.

During the data-collection period, the researchers maintained the required field and sampling records. Completed questionnaires were reviewed for unintended omissions; however, respondents were not required to answer any item they choose to leave unanswered.

Tenth, data analysis and development of the proposed action plan were conducted after the completion of data collection. The responses were encoded, tabulated, screened, and securely stored before the application of the approved statistical procedures. The findings were interpreted in relation to the research objectives and relevant academic literature. Based on the findings, the researchers developed a proposed action plan addressing the identified findings and areas for improvement. Results were also interpreted using various statistical tools.

Ethical Considerations

Ethical principles were observed throughout the conduct of the study to protect the rights, privacy, confidentiality, and welfare of the respondents. Participation in the study was voluntary, and no respondent was required to participate or continue participation against their wishes.

Before answering the questionnaire, the purpose and objectives of the study, the nature of participation, the estimated time required to complete the questionnaire, and the participants' rights were clearly explained. Informed consent was obtained from each respondent before the questionnaire was administered. Consent forms were stored separately from the questionnaires to prevent responses from being directly associated with the identities of the respondents.

Respondents may decline to participate or withdraw from the study at any time before submitting the questionnaire without penalty or adverse consequence. Once an anonymous questionnaire had been submitted and incorporated into the dataset, removal of an individual response was no longer possible because the researchers were not able to determine which questionnaire belonged to a particular respondent.

Participants could request a summary of the overall study results after the completion of the research. The summary presented the general findings of the study did not contain individual responses, personal information, or any data that could identify a participant. Requests for summary could be communicated to the researcher through the contact information provided in the informed consent form. Providing a summary allowed participants to be informed about the general outcomes of the research in which they participated.

To preserve the integrity of the research process and protect respondents from undue influence, park officials and employees did not participate in the selection or recruitment of respondents, encourage or pressure visitors to participate, observe respondents while they completed the questionnaire, collect completed questionnaires, or access individual responses or records of refusal to participate. Their

involvement was limited to granting permission for the conduct of the study and facilitating the researchers' access to the research site.

To maintain the confidentiality of the collected data, completed questionnaires were submitted directly to the researchers or were placed by respondents in the designated sealed collection envelope or collection box accessible only to the researchers. Electronic data were stored in password-protected files, while printed questionnaires were kept in a secure location to prevent unauthorized access. Access to the raw research data was limited to the researchers and the authorized research adviser.

Photographs, audio recordings, or video recordings were not collected unless separate consent was obtained from the respondents. The questionnaire contains only items relevant to the objectives of the study and did not include questions intended to cause harm or unnecessary discomfort.

The researchers reported and presented the findings accurately, honestly, and objectively. Data was not fabricated, duplicated, or intentionally altered. The researchers complied with the approved research protocol and applicable institutional requirements throughout the conduct of the study.

The researchers also acknowledge their responsibility for the appropriate and ethical use of generative artificial intelligence (AI) tools throughout the development of this study. AI tools, including ChatGPT, Consensus, and Grammarly, were utilized for brainstorming research ideas, language editing, organizing information, and clarifying statistical concepts. No confidential, sensitive, or personally identifiable participant information was entered into or processed through AI tools. All AI-assisted outputs were carefully reviewed, verified, and critically evaluated by the researchers prior to their incorporation into the study. The researchers retain full responsibility for the accuracy, originality, interpretation, conclusions, and ethical integrity of the research. AI tools were not regarded as authors or substitutes for the researchers' academic judgment and decision making. Their use was conducted in accordance with applicable institutional research, academic, and ethical policies and guidelines.

Data Management

Upon retrieval of the completed questionnaires, all responses were reviewed for completeness, accuracy, and consistency. Each questionnaire assigned a unique identification code to facilitate data encoding while preserving the anonymity of the respondents.

To minimize duplicate responses, each prospective respondent was first asked the oral screening question: "Have you already answered this survey during a previous visit or data-collection schedule?" Individuals who answered "Yes" were not invited to participate again. In addition, only adult respondent, 18 years of age or older, from each visiting party was invited to participate in the survey. No names or other personal identifiers were collected for the purpose of preventing duplicate responses.

The collected data were encoded into a spreadsheet and examined for encoding errors, missing values, duplicate entries, and inconsistencies prior to statistical analysis. A variable codebook and documented coding rules were used to promote consistency in data processing. A record of excluded questionnaires and the corresponding reasons for exclusion was also maintained. A clean analysis dataset was prepared separately from the original encoded file.

For the descriptive analyses, dimension scores were computed based on the valid responses to the corresponding items. A dimension score was computed only when at least four of its five items had valid responses, with the dimension mean calculated using the available valid responses. An overall awareness or practice score was computed only when all corresponding dimension scores were available. A response containing more than one marked option for a single item was treated as missing when the intended

response could not be determined. Missing responses were not imputed. The valid sample size used in each descriptive and correlational analysis was documented and reported.

For the correlational analysis, respondent-level overall awareness and overall practice scores were used rather than the group means presented in the descriptive tables. The overall score for each variable was calculated by averaging the respective dimension scores. These respondent-level composite scores served as the basis for determining the relationship between visitor awareness and self-reported ecotourism practices. Because all three awareness dimensions and all four practice dimensions were required for the overall correlation, the final sample size for the correlational analysis could be smaller than the total number of completed questionnaires. Questionnaires with incomplete demographic information were retained in the analyses of the principal variables when the awareness and practice responses were valid, but they were excluded only from the analysis involving the missing demographic variable.

The Statistical Package for the Social Sciences (SPSS) was used to process and analyze the data. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were generated as appropriate. Frequency and percentage were used to summarize the respondents' demographic profile, while mean and standard deviation were used to describe the levels of visitor awareness and self-reported ecotourism practices. Pearson product-moment correlation was employed to determine whether a statistically significant relationship existed between visitor awareness and self-reported ecotourism practices.

All encoded data were stored in a password-protected electronic file accessible only to the researchers and their research adviser. Printed questionnaires were kept in a secure location to protect the confidentiality and privacy of the respondents. Consent records were stored separately and treated as confidential, while the completed questionnaires remained anonymous and did not contain names or direct identifiers.

Research records were retained for five (5) years after the completion and approval of the study. After the approved retention period, the printed questionnaires and informed consent forms will be securely shredded, while electronic files and backup copies will be permanently deleted from all storage devices and backup locations used by the researchers.

The researchers also acknowledged their responsibility for the appropriate and ethical use of generative artificial intelligence (AI) tools throughout the development of the study. AI tools, including ChatGPT, Consensus, and Grammarly, were used as appropriate for brainstorming research ideas, language editing, organizing information, and clarifying statistical concepts. No confidential, sensitive, or personally identifiable participant information was entered into or processed through AI tools. All AI-assisted outputs were reviewed, verified, and critically evaluated by the researchers before being incorporated into the study. The researchers retained full responsibility for the accuracy, originality, interpretation, conclusions, and ethical integrity of the research. AI tools were not regarded as authors or substitutes for the researchers' academic judgment and decision-making. Their use was conducted in accordance with applicable institutional research, academic, and ethical policies and guidelines.

Statistical Treatment of Data

The data gathered through the questionnaire were coded, tabulated, and analyzed using appropriate statistical procedures aligned with the research questions. The Statistical Package for the Social Sciences (SPSS) was used for data processing and analysis.

The data from Part II – Respondent Profile, consisting of the respondents' age group, sex, and frequency of visit, were analyzed using frequency and percentage. These statistical measures were used to summarize

the distribution of the respondents according to their profile characteristics.

The data from Part III – Visitor Awareness and Part IV – Self-Reported Ecotourism Practices were analyzed using the mean and standard deviation for each dimension and for the overall composite scores. The mean was used to describe the level of visitor awareness and self-reported ecotourism practices, while the standard deviation was used to describe the variability of the respondents' responses.

Visitor Awareness

Mean Range	Awareness Interpretation
4.21 – 5.00	Very Aware
3.41 – 4.20	Aware
2.61 – 3.40	Moderately Aware
1.81 – 2.60	Slightly Aware
1.00 – 1.80	Not Aware

Self-reported Ecotourism Practices

Mean Range	Practice Interpretation
4.21 – 5.00	Always Practiced
3.41 – 4.20	Often Practiced
2.61 – 3.40	Sometimes Practiced
1.81 – 2.60	Rarely Practiced
1.00 – 1.80	Never Practiced

Before conducting the Pearson product-moment correlation, the respondent-level composite scores for visitor awareness and self-reported ecotourism practices were examined to assess whether the assumptions relevant to the analysis were reasonably satisfied. Linearity was assessed through a scatterplot of the two composite scores to determine whether the pattern of observations followed an approximately straight-line relationship. Potential influential outliers were also examined using the scatterplot and the available diagnostic information to identify observations that could disproportionately affect the correlation coefficient. The results of these checks were considered together with the measurement and sampling procedures before Pearson product-moment correlation was applied.

Pearson product-moment correlation is a statistical technique used to quantify the direction and strength of the linear association between two quantitative variables. In this study, the analysis examined the relationship between each respondent's overall self-reported visitor-awareness score and overall self-reported ecotourism-practices score. The respondent-level composite scores were used rather than group means because the research question concerned the relationship between the two variables across individual respondents. Each respondent's overall awareness score was obtained by averaging the applicable awareness dimension scores, while the overall ecotourism-practices score was obtained by averaging the applicable practice dimension scores. Pearson's correlation coefficient (r) ranges from -1 to $+1$, where the sign indicates the direction of the association and the absolute value indicate its strength. A positive coefficient indicates that higher scores on one variable tend to be associated with higher scores on the other variable, whereas a negative coefficient indicates an inverse association. Values closer to zero indicate a weaker linear association, while values closer to either -1 or $+1$ indicate a stronger linear association.

RESULTS AND DISCUSSIONS

This section presents, analyzes, and interprets the data obtained from the 200 respondents. The discussion follows the Statement of the Problem, which focuses on the visitors' demographic profile, level of visitor awareness, extent of self-reported ecotourism practices, the relationship between awareness and practices, and the development of a proposed action plan.

SOP 1. What is the demographic profile of the visitors?

1.1 Age Group

Table 2
Distribution of Respondents According to Age Group

Age Group	Frequency	Percentage
18–24 years old	106	53.0%
25–34 years old	59	29.5%
35–44 years old	22	11.0%
45–54 years old	4	2.0%
55 years old and above	9	4.5%
Total	200	100.0%

The results show that the largest group of respondents consisted of visitors aged 18–24 years old, with 106 respondents or 53.0% of the total sample. This was followed by those aged 25–34 years old, comprising 59 respondents or 29.5%. Respondents aged 35–44 years accounted for 11.0%, while those aged 55 years and above represented 4.5%.

The smallest group consisted of respondents aged 45–54 years old, with only four respondents or 2.0%. Overall, the distribution indicates that the respondents were predominantly younger visitors. More than half belonged to the 18–24 age group, while over four-fifths of the sample were below 35 years old.

1.2 Sex

Table 3 Distribution of Respondents According to Sex

Sex	Frequency	Percentage
Male	85	42.5%
Female	115	57.5%
Total	200	100.0%

Among the 200 respondents, 115 or 57.5% were female, while 85 or 42.5% were male. Thus, female respondents constituted the majority of the sample, although both sexes were substantially represented

1.3 Frequency of Visit

Table 4 Distribution of Respondents According to Frequency of Visit

Frequency of Visit	Frequency	Percentage
1–2 visits	102	51.0%
2–3 visits	64	32.0%

4–5 visits	22	11.0%
More than 5 visits	12	6.0%
Total	200	100.0%

The findings reveal that 102 respondents or 51.0% were first-time visitors, making this the largest category. Another 64 respondents or 32.0% had visited the park two to three times, while 22 or 11.0% had made four to five visits.

Only 12 respondents or 6.0% had visited the park more than five times, making this the least represented category.

These results indicate that the respondent group consisted largely of visitors with relatively limited prior exposure to the park, particularly because more than half were visiting for the first time.

Summary of SOP 1

The respondents were predominantly 18–24 years old (53.0%), female (57.5%), and first-time visitors (51.0%). Thus, the sample was primarily composed of younger visitors, with slightly more females than males, and a majority experiencing the park for the first time. The following scale was used:

SOP 2. What is the level of self-reported visitor awareness?

The questionnaire measured visitor awareness in three dimensions: ecological value of mangrove forest, wildlife and biodiversity protection, and conservation rules and visitor responsibilities.

Mean Range	Verbal Interpretation
4.21–5.00	Very Aware
3.41–4.20	Aware
2.61–3.40	Moderately Aware
1.81–2.60	Slightly Aware
1.00–1.80	Not Aware

Table 5
Level of Visitor Awareness

Dimension	Mean	Standard Deviation	Verbal Interpretation	Rank		
Conservation rules and visitor responsibilities			4.5780	0.56951	Very Aware	1
Ecological value of mangrove forest	4.4680		0.58711	Very Aware	2	
Wildlife and biodiversity protection	4.4660		0.62578	Very Aware	3	
Overall Visitor Awareness	4.5040		0.52949	Very Aware	—	

The respondents obtained an overall mean of 4.5040 (SD = 0.52949), which is interpreted as Very Aware. This indicates that, in general, respondents reported a high level of awareness regarding the environmental importance of the mangrove ecosystem, wildlife and biodiversity protection, and their responsibilities as park visitors. The finding is supported by Blanton et al. (2024), who emphasized the significance of environmental education and visitor awareness in fostering responsible visitor behavior and contributing

to mangrove conservation. Their review of mangrove ecotourism in Southeast Asia indicated that an understanding of the ecological importance of mangrove ecosystems may encourage visitors to adhere to established ecotourism guidelines and participate in conservation-related activities. The Very Aware level observed among the respondents in the present study is therefore consistent with previous literature highlighting visitor awareness as an important component of sustainable mangrove ecotourism.

Among the dimensions, conservation rules and visitor responsibilities obtained the highest mean of 4.5780 (SD = 0.56951) and ranked first. This suggests that respondents were particularly aware of the importance of environmental rules, conservation guidelines, individual responsibilities, and appropriate visitor behavior in protecting the park. The questionnaire specifically covers awareness that environmental rules are necessary for mangrove protection, that visitors have a responsibility to preserve natural resources, and that individual actions can either protect or damage the ecosystem.

The highest rating for conservation rules and visitor responsibilities is consistent with Blanton et al. (2024), who emphasized the role of visitor awareness and environmental education in promoting compliance with ecotourism guidelines. Awareness of environmental responsibilities may enhance visitors' understanding of the importance of adhering to regulations intended to minimize adverse impacts on natural ecosystems. Thus, the high rating for this dimension indicates a strong level of awareness regarding visitor responsibilities, which is consistent with the role of environmental education identified in the related literature.

The ecological value of mangrove forest ranked second, with a mean of 4.4680 (SD = 0.58711), also interpreted as Very Aware. This suggests strong awareness of the ecological functions of mangroves, including their role in coastal protection, habitat provision, water quality, ecological balance, and carbon storage.

The dimension wildlife and biodiversity protection obtained the lowest mean of 4.4660 (SD = 0.62578). Despite ranking lowest, it still falls within the Very Aware category. Therefore, its lower ranking should not be interpreted as poor awareness but rather as the comparatively lowest among three highly rated dimensions.

This dimension also recorded the highest standard deviation among the awareness areas, suggesting somewhat greater variation in respondents' self-reported awareness regarding wildlife and biodiversity protection compared with the other dimensions.

Although wildlife and biodiversity protection obtained the lowest mean among the awareness dimensions, the result remained within the Very Aware category. This finding may be considered in relation to Paz et al. (2026), who reported that visitor awareness in coastal ecotourism settings may be influenced by the adequacy of information dissemination and the implementation of environmental regulations. The relatively lower rating for this dimension may therefore indicate an area in which visitor information and conservation education could be further strengthened, particularly with regard to wildlife protection and biodiversity conservation. Nevertheless, the finding indicates that respondents continued to demonstrate a high level of awareness in this area.

Summary of SOP 2

The respondents demonstrated a Very Aware level of visitor awareness, with an overall mean of 4.5040. Conservation rules and visitor responsibilities received the highest mean ($M = 4.5780$), while wildlife and biodiversity protection obtained the lowest mean ($M = 4.4660$), although all dimensions were interpreted as Very Aware.

SOP 3. What is the extent of the respondents' self-reported ecotourism practices?

The questionnaire assessed four dimensions of ecotourism practices: proper waste management, compliance with park rules and designated trails, respect for wildlife and mangrove habitats, and conservation-oriented visitor behavior.

The following interpretation was applied:

Mean Range	Verbal Interpretation
4.21–5.00	Always
3.41–4.20	Often
2.61–3.40	Sometimes
1.81–2.60	Rarely
1.00–1.80	Never

Table 6
Extent of Self-Reported Ecotourism Practices

Dimension	Mean	Standard Deviation	Verbal Interpretation	Rank
Compliance with park rules and designated trails	4.6360	0.51501	Always	1
Conservation-oriented visitor behavior	4.6063	0.58070	Always	2
Respect for wildlife and mangrove habitats	4.5768	0.51086	Always	3
Proper waste management	4.5690	0.57585	Always	4
Overall Ecotourism Practices	4.5970	0.48469	Always	—

The respondents obtained an overall mean of 4.5970 (SD = 0.48469), verbally interpreted as Always. This indicates that respondents reported consistently practicing responsible ecotourism behaviors during their current or most recent park visit.

The high level of self-reported ecotourism practices is consistent with Blanton et al. (2024), who identified environmental awareness and education as important components of responsible visitor behavior in mangrove ecotourism. Their review emphasized that mangrove ecotourism can contribute to conservation when visitors adhere to environmental guidelines and avoid activities that may negatively affect mangrove ecosystems. Accordingly, the consistently reported responsible practices observed in the present study are consistent with literature emphasizing responsible visitor behavior as an important consideration in mangrove conservation.

The highest-rated dimension was compliance with park rules and designated trails, with a mean of 4.6360 (SD = 0.51501). This suggests that respondents generally reported following posted park rules, staying on designated trails and walkways, entering only areas open to visitors, complying with official environmental instructions, and following directions from authorized personnel.

The highest rating for compliance with park rules and designated trails may be associated with the provision of clear guidance to visitors within ecotourism sites. Marquez and Ramirez-Bello (2026)

emphasized the importance of clear signage and appropriate visitor orientation in promoting responsible behavior in mangrove ecotourism areas. Similarly, Blanton et al. (2024) highlighted the significance of environmental education and adherence to ecotourism guidelines in minimizing potential environmental impacts. The finding in the present study is therefore consistent with previous literature emphasizing the contribution of clear visitor guidance and environmental education to responsible ecotourism behavior. Conservation-oriented visitor behavior ranked second, with a mean of 4.6063 (SD = 0.58070). This indicates that respondents generally reported paying attention to environmental information, supporting cleanliness efforts, avoiding environmentally harmful activities, using facilities responsibly, and reporting environmental damage or improper visitor behavior when necessary.

Respect for wildlife and mangrove habitats ranked third, with a mean of 4.5768 (SD = 0.51086). The finding indicates that respondents generally reported behaviors such as avoiding feeding or attracting wildlife, minimizing noise, avoiding damage to mangrove plants, refraining from collecting natural materials, and maintaining an appropriate distance from wildlife.

Although proper waste management ranked lowest, it still obtained a high mean of 4.5690 (SD = 0.57585) and was interpreted as Always. Thus, the ranking does not suggest poor waste management practices. Rather, it indicates that this was the comparatively lowest among four dimensions that were all highly rated.

Although proper waste management obtained the lowest mean among the practice dimensions, the result remained within the Always category. Marquez and Ramirez-Bello (2026) emphasized the importance of clear signage and appropriate visitor orientation in promoting responsible environmental practices. Similarly, Paz et al. (2026) identified information dissemination and effective implementation of environmental regulations as relevant considerations in strengthening ecotourism practices and conservation efforts. In this context, the finding suggests that continued visitor reminders, clear informational materials, and accessible waste-management facilities may further reinforce responsible waste-management practices.

The standard deviations were relatively small across the dimensions, showing generally consistent responses. Conservation-oriented visitor behavior had the largest standard deviation (SD = 0.58070), indicating slightly greater variation in respondents' reported behavior in this area.

Summary of SOP 3

The respondents Always practiced responsible ecotourism behaviors, as reflected by the overall mean of 4.5970. Compliance with park rules and designated trails obtained the highest mean (M = 4.6360), while proper waste management had the lowest mean (M = 4.5690). Nevertheless, all four dimensions were interpreted as Always.

SOP 4. Is there a significant relationship between visitor awareness and self-reported ecotourism practices?

Scale for Interpreting Pearson Correlation

Absolute Pearson r		Strength
0.00–0.19		Very Weak
0.20–0.39	Weak	
0.40–0.59	Moderate	
0.60–0.79	Strong	

0.80–1.00	Very Strong
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The level of significance was set at $\alpha = .05$.

Table 7

Relationship Between Visitor Awareness and Self-Reported Ecotourism Practices

Variables	Pearson r	Strength/Direction	p-value	Decision on H_0	Interpretation	
Visitor Awareness and Ecotourism Practices		0.779	Strong Positive	< .001	Reject H_0	Significant Relationship

The Pearson product-moment correlation analysis yielded a correlation coefficient of $r = .779$ between overall visitor awareness and overall self-reported ecotourism practices. Based on the adopted interpretation scale, the coefficient indicates a strong positive relationship.

The positive direction means that higher levels of visitor awareness tended to be associated with higher levels of self-reported responsible ecotourism practices among the respondents. Conversely, respondents reporting relatively lower levels of awareness also tended to report relatively lower levels of responsible practices.

The SPSS output reported a significance value of .000. In statistical reporting, this should be expressed as $p < .001$, rather than $p = .000$. Since $p < .001$ is lower than the significance level of $\alpha = .05$, the null hypothesis stating that there is no significant relationship between visitor awareness and self-reported ecotourism practices is rejected.

Thus, there is sufficient statistical evidence to conclude that visitor awareness is significantly associated with self-reported ecotourism practices among the 200 respondents.

However, because the analysis is correlational, the result should not be interpreted as evidence that awareness directly causes responsible ecotourism practices. It establishes an association between the two variables rather than a cause-and-effect relationship.

The statistically significant positive relationship identified in the present study is consistent with the discussion of Blanton et al. (2024), who identified visitor awareness and environmental education as important elements associated with responsible behavior in mangrove ecotourism. Their review indicated that a greater understanding of the ecological importance of mangroves may encourage visitors to adhere to ecotourism guidelines and engage in conservation-related activities. The strong positive association observed between visitor awareness and self-reported ecotourism practices ($r = .779$, $p < .001$) is therefore consistent with the relevant literature. However, given the cross-sectional and correlational nature of the present study and the use of self-reported measures, the finding indicates an association between the variables and does not establish a causal relationship.

Summary of SOP 4

There is a significant strong positive relationship between awareness and self-reported ecotourism practices, $r = .779$, $p < .001$, $N = 200$. Therefore, the null hypothesis is rejected. Higher reported visitor awareness tended to be associated with more consistent responsible ecotourism practices.

SOP 5. What action plan may be proposed to strengthen visitor awareness and responsible ecotourism practices at the park?

The proposed action plan is based on the principal findings of the study. Although both visitor awareness and ecotourism practices received very high overall ratings, opportunities for further improvement remain. In particular, wildlife and biodiversity protection received the lowest awareness mean ($M = 4.4660$) and the greatest variability among awareness dimensions ($SD = 0.62578$). Meanwhile, proper waste management obtained the lowest practice mean ($M = 4.5690$). Conservation-oriented visitor behavior also showed the greatest variation among practice dimensions ($SD = 0.58070$).

Furthermore, the strong positive relationship between awareness and practices ($r = .779$, $p < .001$) suggests that initiatives aimed at reinforcing visitor awareness may appropriately be paired with initiatives designed to encourage responsible visitor behavior. This should be understood as an evidence-based program priority rather than a claim of causation.

The demographic findings may also inform implementation. Since 53.0% of respondents were aged 18–24 and 51.0% were first-time visitors, orientation materials and environmental reminders may be especially useful when provided before or at the beginning of a park visit.

Table 8

Proposed Action Plan to Strengthen Visitor Awareness and Responsible Ecotourism Practices

Area of Concern	Objective	Strategies	Offices Involved	Time Frame	Resources Needed	Success Indicators
Wildlife and biodiversity protection had the lowest awareness mean ($M = 4.4660$) and highest awareness variability ($SD = 0.62578$).	Strengthen visitors' understanding of the importance of wildlife and biodiversity conservation.	Install or improve interpretive signages featuring native wildlife, biodiversity functions, prohibited activities, and appropriate wildlife observation practices.	Park Management, Environmental Office, Tourism Office, conservation personnel	Within 3–6 months; continuing implementation	Educational signages, posters, QR codes, digital materials	Increased visitor exposure to biodiversity information; improved ratings in succeeding visitor assessments
Majority of respondents were first-time visitors (51.0%).	Ensure that first-time visitors receive essential environmental information before entering major park areas.	Provide a brief visitor orientation covering conservation rules, waste management, wildlife protection, and responsible behavior before entry or at designated orientation points.	Park personnel, tour guides, Tourism Office	Every visitor entry/visit	Orientation materials, posters, video or digital presentation	Increased proportion of visitors receiving orientation; sustained or improved awareness ratings
Proper waste management obtained the lowest practice mean ($M = 4.5690$).	Reinforce responsible waste disposal and waste-reduction practices among visitors.	Improve visibility and accessibility of properly labeled waste bins; display reminders on waste reduction and single-use plastics; implement "leave no waste" reminders.	Park Management, Environmental Office, maintenance personnel	Continuous	Segregated bins, labels, environmental reminders	Reduced visible litter; sustained or improved waste-management practice ratings
Conservation-oriented visitor behavior showed the greatest practice variability ($SD = 0.58070$).	Encourage more consistent conservation-oriented behaviors among visitors.	Place environmental information at high-traffic areas; establish easy mechanisms for reporting damage or improper visitor behavior; provide QR-based reporting where feasible.	Park Management, Tourism Office, environmental personnel	Within 3 months; continuous	Information boards, QR codes, reporting forms	Increased environmental information engagement and availability of visitor reporting mechanisms

53.0% of respondents were aged 18–24 years old.	Use communication approaches that are accessible and engaging to younger visitors while remaining suitable for all age groups.	Develop concise digital conservation materials, QR-linked information, infographics, and social media-based environmental reminders.	Tourism Office, Park Management, ICT/social media personnel	Quarterly or continuous	Infographics, digital platforms, QR-linked content	Increased engagement with online/digital conservation materials
Strong positive relationship exists between awareness and responsible practices ($r = .779$, $p < .001$).	Integrate visitor education with behavioral reminders throughout the park experience.	Combine awareness information with specific behavioral instructions, such as “Know–Protect–Practice” messages focusing on the ecological importance of mangroves and concrete actions visitors can take.	Park Management, Environmental Office, Tourism Office	Continuous	Signages, orientation materials, campaign materials	Maintenance or improvement of both visitor awareness and responsible-practice ratings
All dimensions were already rated highly.	Sustain existing strengths while monitoring areas for improvement.	Conduct periodic visitor awareness and practice surveys and compare results across assessment periods.	Park Management, Tourism Office, researchers	Semi-annually or annually	Survey forms, digital survey platform, database	Availability of periodic monitoring reports and sustained high ratings

Summary of SOP 5

A proposed action plan may focus on strengthening wildlife and biodiversity education, reinforcing proper waste management, providing environmental orientation particularly for first-time visitors, expanding conservation-oriented information, using visitor-friendly digital communication strategies, and periodically monitoring visitor awareness and practices. These strategies address the relatively lower-rated areas while sustaining the already high levels observed in the study.

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents the summary of findings made, the conclusions drawn, and the recommendations advanced as a result the survey.

Summary of Findings

- Demographic profile.** Among the 200 respondents, the largest proportion was 18–24 years old (53.0%), female (57.5%), and composed of first-time visitors (51.0%).
- Visitor awareness.** Respondents were Very Aware, with an overall mean of 4.5040 (SD = 0.52949). Conservation rules and visitor responsibilities ranked highest ($M = 4.5780$), while wildlife and biodiversity protection ranked lowest ($M = 4.4660$), although all dimensions remained within the Very Aware category.
- Self-reported ecotourism practices.** Respondents reported that they Always practiced responsible ecotourism behaviors, with an overall mean of 4.5970 (SD = 0.48469). Compliance with park rules and designated trails ranked highest ($M = 4.6360$), while proper waste management ranked lowest ($M = 4.5690$). All dimensions were nevertheless interpreted as Always.
- Relationship between awareness and practices.** There was a strong, positive, and statistically significant relationship between visitor awareness and self-reported ecotourism practices, $r = .779$, p

$< .001$, $N = 200$. Thus, the null hypothesis was rejected. The result indicates that higher self-reported awareness tended to be associated with more consistent responsible ecotourism practices.

5. **Proposed action plan.** The findings support an action plan emphasizing wildlife and biodiversity education, proper waste management, first-time visitor orientation, conservation-oriented behavioral reminders, digital information strategies, and periodic monitoring and evaluation.

Conclusions

Based on the statement of the problem, the study concludes that the respondents reported a very high level of awareness regarding the ecological value of mangroves, wildlife and biodiversity protection, and conservation rules and visitor responsibilities. The respondents also reported a very high level of responsible tourism practices across compliance with park rules and designated trails, proper waste management, respect for wildlife, and conservation-oriented visitor behavior. The results further showed a strong positive association between awareness and responsible tourism practices ($r = .779$, $p < .001$, $N = 200$). Therefore, the null hypothesis of no significant relationship was rejected. However, because the study used a cross-sectional design and self-reported measures, the relationship should be interpreted as an association rather than a causal effect.

Recommendations

Based on the findings, the following recommendations were drawn:

1. **Park Management** — Continue and strengthen visitor education, especially information on wildlife and biodiversity protection, waste-management practices, conservation reminders, and first-time visitor orientation. Maintain existing compliance measures while reinforcing areas with relatively lower mean scores or greater variability.
2. **Municipality of Bauang, La Union** — Support coordinated conservation and visitor-information programs, including standardized educational materials, signage, and periodic monitoring of visitor-related environmental practices.
3. **Visitor-Information Initiatives** — Develop concise orientation materials and digital communication that explain park rules, responsible waste disposal, wildlife protection, and conservation-oriented visitor behavior before and during visits.
4. **Visitors** — Continue following park rules and trails, practicing proper waste management, respecting wildlife, and supporting conservation activities during visits.
5. **Future Researchers** — Include observational measures of visitor behavior and, where feasible, objective environmental indicators. Future studies may use wider sampling periods, other visitor groups, other ecotourism sites, and methods that reduce common-method bias. Longitudinal or other designs may also help examine temporal relationships more directly.

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