Responsible Trekking and Environmental Sustainability in the Western Ghats: Ecological Sensitivity and Policy Perspectives

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The Western Ghats are an ecologically important region of India, known for their rich biodiversity, forests, water resources and diverse landscapes. The region also attracts visitors for trekking and other nature-based activities. Although trekking provides opportunities to experience nature, recreational activities in ecologically sensitive areas may create environmental pressures related to waste generation, plastic pollution, trail damage, wildlife disturbance and overcrowding. Responsible trekking is therefore essential for balancing recreational activities with environmental protection.

This study examined responsible trekking and environmental sustainability in selected trekking destinations of the Western Ghats of Karnataka. It assessed environmental awareness among trekkers, responsible trekking practices, compliance with existing guidelines, reported environmental pressures and perceptions of management effectiveness. A descriptive and analytical research design was adopted, and primary data were collected from 123 respondents through a structured questionnaire. The data were analyzed using descriptive statistics, Cronbach's alpha and Spearman's rank correlation.

The findings indicated relatively high mean scores for environmental awareness (3.94), responsible trekking behaviour (3.91) and guideline compliance (3.82). Overcrowding was the most frequently reported environmental pressure (41.5%), followed by noise (17.1%). A significant positive relationship was found between environmental awareness and responsible trekking behaviour ($\rho = 0.678$, $p < .001$). However, the relationship between guideline compliance and perceived management effectiveness was not statistically significant ($\rho = 0.130$, $p = .152$).

The study also considered the relevance of the High-Level Working Group report on the Western Ghats as a broader policy reference for ecological protection, sustainable development, environmental monitoring and community participation. The findings highlight

the importance of strengthening environmental awareness, consistently implementing existing trekking guidelines, improving visitor monitoring and encouraging responsible visitor behaviour. The study contributes to discussions on sustainable development, environmental governance and biodiversity protection in ecologically sensitive regions.

Keywords: Western Ghats, responsible trekking, environmental sustainability, ecological sensitivity, visitor management, environmental governance.

1. Introduction

The Western Ghats are one of the ecologically significant regions of India, extending across six states, including Karnataka. The region is known for its rich biodiversity, forests, water resources and diverse natural landscapes. It plays an important role in maintaining the ecological balance of peninsular India. Its natural beauty and ecological importance have also made it a popular destination for trekking and other nature-based recreational activities.

Trekking provides visitors with opportunities to experience natural landscapes and develop an appreciation for environmental conservation. However, recreational activities in ecologically sensitive areas may create environmental pressures through waste generation, plastic litter, damage to vegetation, disturbance to wildlife and movement outside designated trails. These concerns highlight the importance of responsible trekking in balancing recreational use with environmental protection.

Responsible trekking involves practices that minimize harm to the natural environment, including proper waste disposal, reducing unnecessary plastic use, following designated trails, protecting vegetation and wildlife, and complying with trekking guidelines. Environmental awareness can encourage such practices, but awareness does not always translate into responsible behaviour. Examining the relationship between environmental awareness, trekking practices and compliance is therefore important for understanding visitor behaviour and identifying areas where environmental management can be strengthened.

Karnataka has established trekking-management measures through Forest Department guidelines and Standard Operating Procedures. These measures provide a framework for regulating trekking activities and addressing visitor safety and environmental protection. The relevant concern is therefore not merely the existence of regulations, but also whether trekkers understand and follow the applicable guidelines and whether their implementation and monitoring can be strengthened to support biodiversity conservation.

The issue also has wider implications for public policy and environmental governance. The High-Level Working Group on the Western Ghats, chaired by Dr. K. Kasturirangan, examined the need to balance ecological protection with sustainable development. Its report provides a broader policy reference for considering ecological sensitivity, environmental monitoring, sustainable tourism and local community participation. Although the report was not specifically designed to regulate individual trekking behaviour, its broader principles are relevant to discussions on responsible tourism and environmental management in the Western Ghats.

Against this background, the present study examines the relationship between environmental awareness, responsible trekking behaviour, compliance with existing guidelines and perceived management effectiveness in selected trekking destinations of the Western Ghats in Karnataka. It also considers visitor-reported environmental pressures, including overcrowding, noise, waste, disturbance to wildlife and damage to natural features. By examining these aspects together, the study seeks to identify areas where visitor awareness, implementation of existing guidelines and trekking-management practices may be improved.

The study is limited to visitor-related aspects of environmental sustainability at selected trekking destinations. It does not assess the overall ecological condition of the Western Ghats or evaluate the entire trekking-policy framework of Karnataka. Instead, it focuses on trekker responses and perceptions to develop evidence-based recommendations for responsible trekking, effective visitor management and biodiversity protection.

2. Statement of the Problem

The Western Ghats of Karnataka attract visitors for trekking and other nature-based recreational activities. Although existing Forest Department guidelines and Standard Operating Procedures provide a framework for managing trekking activities, effective environmental protection also depends on visitor awareness, compliance with applicable guidelines and consistent monitoring.

Trekking-related environmental pressures may include plastic waste, improper waste disposal, excessive noise, overcrowding, movement into restricted or sensitive areas, damage to vegetation and disturbance to wildlife. Other irresponsible practices, such as scratching trees, removing natural objects and ignoring instructions provided by guides, may also affect the

natural environment. The extent to which these concerns occur at individual destinations requires appropriate evidence and assessment.

The central problem addressed by this study is the relationship between trekkers' environmental awareness, their responsible trekking behaviour and their compliance with existing guidelines. It also examines how trekkers perceive the effectiveness of current management measures. Understanding these aspects is important because awareness and compliance alone may not provide a complete picture of visitor management or the environmental pressures reported at trekking destinations.

Therefore, the study investigates these issues in selected trekking destinations of the Karnataka Western Ghats using responses from trekkers. The findings are intended to identify areas where environmental awareness, implementation of existing guidelines, visitor monitoring and management practices may be strengthened to support responsible trekking and biodiversity conservation.

3. Scope of the Study

The study focuses on responsible trekking and environmental sustainability in selected trekking destinations of the Western Ghats in Karnataka. It examines visitor-related aspects of environmental protection based on responses collected from 123 trekkers.

The study covers the following areas:

1. Environmental awareness: Trekkers' understanding of environmental protection and the ecological consequences of visitor activities.
2. Responsible trekking behaviour: Practices relating to waste disposal, plastic use, designated trails and protection of natural features and wildlife.
3. Environmental pressures: Respondents' reports of overcrowding, noise, waste and other visitor-related environmental concerns.
4. Guideline compliance: Trekkers' reported compliance with existing trekking guidelines and instructions.
5. Perceived management effectiveness: Respondents' perceptions of the effectiveness of trekking-management measures.

The study also considers relevant government guidelines, academic literature and the High-Level Working Group report on the Western Ghats to develop policy recommendations for improving visitor awareness, monitoring and environmental management.

The scope is limited to the responses of the selected participants and the secondary sources examined. It does not assess the overall ecological condition of the Western Ghats, directly measure environmental damage or evaluate the entire trekking-management framework of Karnataka. The findings are intended to provide insights into responsible trekking practices and identify areas where existing management measures may be strengthened.

4. Objectives of the Study

1. To assess the level of environmental awareness among trekkers visiting selected trekking destinations in the Western Ghats of Karnataka.
2. To examine self-reported responsible trekking practices and compliance-related behaviour among trekkers.
3. To identify the major forms of environmental pressure associated with visitor activities, including waste, plastic use, noise, overcrowding, disturbance to wildlife and damage to natural features.
4. To examine the perceived effectiveness and implementation of existing trekking guidelines and management measures.
5. To suggest evidence-based measures for strengthening trekking management and biodiversity protection in the Western Ghats of Karnataka.

5. Research Methodology

The study adopted a **quantitative, descriptive and analytical research design** to examine environmental awareness, responsible trekking practices and compliance-related behaviour among trekkers visiting selected trekking destinations in the Western Ghats of Karnataka. Primary data were collected from **123** respondents through a structured questionnaire containing multiple-choice and rating-scale questions. The questionnaire covered environmental awareness, responsible trekking practices, environmental pressures, compliance with existing trekking guidelines and perceptions of management effectiveness. **Purposive sampling** was used to select respondents with trekking experience in the selected destinations. Secondary data were obtained from **Karnataka Forest Department guidelines** and **Standard Operating Procedures (SOPs), the High-Level Working Group report on the Western Ghats,** government publications, academic studies and other credible sources. The collected

data were analyzed using descriptive statistics, Cronbach's alpha and Spearman's rank correlation to examine response patterns, assess the internal consistency of selected measures and investigate relationships between key variables. The findings were used to develop evidence-based policy suggestions for sustainable trekking management and biodiversity protection.

6. Review of Literature

Sustainable Tourism and Environmental Sustainability

Nature-based tourism has received considerable attention because it provides opportunities for people to experience natural environments while also creating a need to protect ecological resources. **Ardoin et al. (2015),** through a review of research on nature-based tourism, examined environmental knowledge, attitudes, intentions and behaviour among visitors. The review indicated that although environmental awareness has received considerable attention, relatively fewer studies have directly examined actual behavioural change among visitors. This highlights the importance of examining how environmental understanding is reflected in visitor practices.

Li et al. (2024), in a systematic review of 331 publications on sustainable tourist behaviour, identified pro-environmental behaviour, responsible behaviour and sustainable consumption as important areas of sustainable tourism research. The review also highlighted the continuing need to understand the relationship between environmental intentions and actual behaviour. This is relevant to trekking destinations where environmental sustainability depends not only on visitor awareness but also on responsible practices while using natural areas.

Environmental Awareness and Responsible Visitor Behaviour

Environmental awareness is an important factor in understanding responsible behaviour among visitors to natural areas. **Sharma and Gupta (2020),** in their study of nature-based tourists in an Indian national park, examined environmental awareness, personal norms and pro-environmental behaviour. Their findings indicated that awareness of environmental consequences and a sense of responsibility were associated with environmentally responsible behaviour.

Esfandiar et al. (2022), through a systematic review of 88 empirical studies on pro-environmental behaviour in protected areas, examined different forms of visitor behaviour, including littering and staying on designated trails. The review highlighted the importance of

examining specific environmental behaviour rather than considering pro-environmental behaviour as a single general activity. It also identified the need for greater attention to actual behaviour rather than relying only on behavioural intentions.

Maidullah et al. (2024) examined pro-environmental behaviour among national park visitors in India by considering recreation involvement, environmental activism and place attachment. The study provides evidence that visitors' engagement with natural areas and their environmental involvement are relevant to understanding responsible behaviour in protected areas.

Visitor Behaviour and Environmental Pressure

Visitor behaviour can influence the environmental conditions of recreational and protected areas. Research has examined activities such as littering, inappropriate movement and other forms of visitor-related environmental impact. **Esfandiar et al. (2022)** highlighted the importance of specific behaviour such as littering and trail-related behaviour when assessing pro-environmental practices in protected areas.

Gross et al. (2023), through a systematic review of tourists' valuation of nature in protected areas, examined how visitors relate to and value natural environments. The review demonstrates the importance of understanding visitors' relationship with nature when considering environmental protection.

Wang and Yin (2026) examined the gap between tourists' pro-environmental intentions and actual behaviour in nature-based destinations. Their study draws attention to the fact that positive environmental intentions do not necessarily result in responsible actions. This distinction is important in trekking environments, where visitors may express concern for nature but their actual practices may differ.

These studies are relevant to the present research because responsible trekking involves practical behaviour such as appropriate waste management, following designated trails, avoiding unnecessary disturbance and respecting natural features and wildlife.

Visitor Management, Monitoring and Policy Implementation

Visitor management is an important component of environmental protection in areas experiencing recreational use. **Salerno et al. (2013),** in their study of tourism and carrying capacity in the Mount Everest region, considered environmental, social, spatial and temporal dimensions of tourism pressure. Their study demonstrates that managing tourism pressure

requires consideration of the characteristics and conditions of the destination rather than relying only on visitor numbers.

Pásková et al. (2021) examined carrying capacity and visitor management from a systems perspective. Their work emphasized the importance of understanding visitor numbers, patterns of use and the wider destination context while developing visitor-management approaches.

Pickering et al. (2018), through a review of visitor monitoring and management research in recreational and protected areas, highlighted the importance of monitoring visitor use and environmental conditions for supporting management decisions. These studies indicate that environmental guidelines and visitor regulations need to be supported by monitoring and effective implementation.

For trekking destinations, this literature provides a basis for examining whether visitors understand existing guidelines, whether responsible practices are followed and where implementation and monitoring can be strengthened.

Western Ghats and Sustainable Tourism Governance

The Western Ghats provide an important context for examining the relationship between tourism and environmental protection because of their ecological significance. The High-Level Working Group report on the Western Ghats emphasized ecological protection along with sustainable development and recognized the importance of sustainable tourism, environmental monitoring and local community participation. The report provides a broader policy framework for considering tourism and ecological protection in the Western Ghats.

However, the policy framework does not specifically examine the behaviour of individual trekkers or the extent to which trekkers understand and follow trekking guidelines. This creates scope for examining the visitor-level dimension of environmental sustainability.

Research on tourism in the Western Ghats has also considered the relationship between tourism development, environmental management, biodiversity conservation and community participation. Such studies indicate that tourism in ecologically sensitive areas needs to be considered together with environmental protection and appropriate management practices.

7. Research Gap

The reviewed literature shows that sustainable tourism research has given considerable attention to environmental awareness, pro-environmental behaviour, visitor impacts and

protected-area management. Previous studies have examined issues such as littering, trail behaviour, environmental responsibility, visitor pressure, carrying capacity and monitoring. However, there remains scope to examine these dimensions together within the specific context of trekking destinations, particularly the relationship between environmental awareness, responsible trekking practices, compliance with existing guidelines and perceived management effectiveness.

The literature also highlights the importance of understanding the relationship between environmental awareness and actual behaviour. Although environmental awareness may encourage responsible practices, awareness alone does not necessarily ensure consistent compliance with environmental guidelines. Examining this relationship in trekking destinations is important because visitor activities take place in natural environments that may be ecologically sensitive.

In the context of the Western Ghats, existing policy literature provides a broader framework for ecological protection, sustainable tourism, environmental monitoring and community participation. However, further visitor-level evidence can help clarify how trekkers understand and report compliance with existing trekking guidelines and how they perceive the effectiveness of current management measures.

Therefore, the present study addresses this research gap by examining environmental awareness, self-reported responsible trekking behaviour, reported environmental pressures, guideline compliance and perceived management effectiveness in selected trekking destinations of the Karnataka Western Ghats. By analyzing these dimensions together, the study seeks to identify opportunities for improving visitor awareness, strengthening the implementation of existing guidelines and supporting evidence-based trekking management and biodiversity conservation.

8. Hypotheses

Hypothesis 1: Environmental Awareness and Responsible Trekking Behaviour

H_{01} (Null Hypothesis):

There is no significant relationship between environmental awareness and responsible trekking behaviour among trekkers visiting selected trekking destinations in the Western Ghats of Karnataka.

H_{11} (Alternative Hypothesis):

There is a significant relationship between environmental awareness and responsible trekking behaviour among trekkers visiting selected trekking destinations in the Western Ghats of Karnataka.

Hypothesis 2: Compliance with Existing Guidelines and Perceived Effectiveness of Trekking Management

H_{02} (Null Hypothesis):

There is no significant relationship between trekkers' compliance with existing trekking guidelines and their perception of the effectiveness of trekking management measures.

H_{12} (Alternative Hypothesis):

There is a significant relationship between trekkers' compliance with existing trekking guidelines and their perception of the effectiveness of trekking management measures.

9. Operational Definitions

1. **Environmental Awareness:**

The level of understanding among trekkers regarding the ecological sensitivity of the Western Ghats and the environmental consequences of activities such as littering, plastic use, noise, vegetation damage and disturbance to wildlife.

1. **Responsible Trekking Behaviour:**

The extent to which trekkers follow environmentally responsible practices while trekking, including proper waste management, staying on designated trails, avoiding damage to natural features and respecting wildlife and environmental instructions.

1. **Trekking Guidelines:**

The environmental, safety and visitor-management instructions applicable to trekkers at the selected trekking destinations, including instructions relating to designated routes, waste, restricted areas, visitor conduct and guide directions.

1. **Compliance:**

   The extent to which trekkers follow and adhere to the existing trekking guidelines and instructions provided by the Forest Department, guides and trekking-management authorities.

2. **Environmental Pressure:**

The visitor-related pressure placed on the natural environment through activities such as waste generation, plastic pollution, excessive noise, overcrowding, disturbance to wildlife, movement outside designated routes and damage to vegetation or natural features.

1. **Perceived Management Effectiveness:**

The extent to which trekkers perceive existing trekking rules, monitoring, guide instructions, visitor management and other management measures as effective in promoting responsible behaviour and protecting the environment.

1. **Visitor Management:**

The measures used to regulate and manage visitor activities at trekking destinations, including visitor control, route management, monitoring, guidance, compliance and environmental protection measures.

1. **Ecological Sensitivity:**

The vulnerability of natural areas to disturbance or environmental damage resulting from visitor activities, particularly in relation to vegetation, wildlife, water resources, trails and other natural features.

1. **Selected Trekking Destinations:**

The trekking locations in the Western Ghats of Karnataka included within the geographical scope of the present study.

These operational definitions provide a common basis for measuring the variables used in the questionnaire and for interpreting the results of the study.

10. Plan of Analysis

Data collected from **123** respondents were coded and organized for analysis. Descriptive statistics, including frequency, percentage, mean and standard deviation, were used to summarise the respondents' profiles and key study variables. Cronbach's alpha was used to assess the internal consistency of the multi-item scales, wherever appropriate.

Spearman's rank correlation analysis was used to examine the relationship between environmental awareness and responsible trekking behaviour, and between compliance with existing trekking guidelines and perceived effectiveness of trekking management measures. Statistical significance was assessed at the 5% level. The findings were presented through concise tables and selected graphs. The results were interpreted in relation to the study objectives to identify patterns in environmental awareness, responsible trekking behaviour,

reported environmental pressures, guideline compliance and perceived management effectiveness. The findings were subsequently used to develop practical recommendations for strengthening trekking management, environmental sustainability and biodiversity protection.

Table 1: Respondent profile and Major Environmental pressure (N=123)

Variable	Category	Frequency	Percentage
Age	Below 20 years	8	6.5%
Age	20–29 years	54	43.9%
Age	30–39 years	34	27.6%
Age	40–49 years	17	13.8%
Age	50 years and above	10	8.1%
Trekking frequency	Once	18	14.6%
Trekking frequency	2–3 times	39	31.7%
Trekking frequency	4–5 times	29	23.6%
Trekking frequency	More than 5 times	37	30.1%
Guideline information	Social media/internet	44	35.8%
Guideline information	Trekking guide/organiser	30	24.4%
Guideline information	Forest Department/official source	25	20.3%
Guideline information	Usually do not check	14	11.4%
Guideline information	Friends/family	10	8.1%
Environmental pressure	Overcrowding	51	41.5%
Environmental pressure	Noise	21	17.1%
Environmental pressure	Plastic/waste	16	13.0%
Environmental pressure	Vegetation/natural-feature damage	13	10.6%
Environmental pressure	Off-route movement	11	8.9%
Environmental pressure	Wildlife disturbance	11	8.9%

Interpretation: Most respondents were aged 20–29 years (43.9%), and 53.7% had undertaken trekking at least four times. Social media/internet was the most common source of guideline information (35.8%). Overcrowding was the leading environmental pressure reported by respondents (41.5%), followed by noise (17.1%).

Analysis: Table 2. Descriptive Statistics of Study Constructs (N = 123)

Table 2. Reported environmental pressures. (N = 123)

Construct	Items	N	Mean	SD
Environmental awareness	Q4–Q7	123	3.94	0.75
Responsible trekking behaviour	Q8–Q11	123	3.91	0.74
Reported environmental pressures	Q12–Q14	123	3.64	0.66
Guideline compliance	Q16–Q18	123	3.82	0.91
Management effectiveness (perceived)	Q19–Q20	123	2.33	0.97

Interpretation: Environmental awareness (M = 3.94), responsible trekking behaviour (M = 3.91) and guideline compliance (M = 3.82) recorded relatively high mean scores. Reported environmental pressures also scored 3.64, suggesting that respondents reported encountering such pressures during trekking. Perceived management effectiveness was lower (M = 2.33), indicating less favorable assessments of existing management measures.

Analysis: Cronbach's Alpha

Table 3: Reliability Analysis

Scale	Items	No. of items	N	Cronbach's alpha
Environmental awareness	Q4-Q7	4	123	0.616
Responsible trekking behaviou	Q8-Q11	4	123	0.632
Guideline compliance	Q16-Q18	3	123	0.700

Interpretation: Guideline compliance recorded the highest Cronbach's alpha (0.700), indicating acceptable internal consistency. Environmental awareness (0.616) and responsible trekking behaviour (0.632) showed limited internal consistency. These two scales should be interpreted cautiously, and their items should be reviewed before drawing strong conclusions from composite scores.

Analysis: Spearman Correlation Results for the study Hypotheses

Table: 4 Spearman Correlation

Hypothesis / relationship	Test	N	Correlation (ρ)	p-value	Decision
H1: Awareness and responsible trekkin	Spearman's rho	123	0.678	<0.001	Significant positive relationship
H2: Guideline compliance and perceive	Spearman's rho	123	0.130	0.152	Not statistically significant

Interpretation:

Hypothesis 1: Environmental awareness was significantly and positively associated with responsible trekking behaviour ($\rho = 0.678$, $p < .001$) Therefore, the null hypothesis was rejected.

Hypothesis 2: The association between guideline compliance and perceived management effectiveness was not statistically significant ($\rho = 0.130$, $p = .152$) Therefore, the null hypothesis was not rejected.

Interpretation of the Overall Analysis

- The analysis of 123 respondents revealed relatively high environmental awareness (M = 3.94), responsible trekking behaviour (M = 3.91) and guideline compliance (M = 3.82). Overcrowding (41.5%) was the most frequently reported environmental pressure, followed by noise (17.1%). Cronbach's alpha indicated moderate internal consistency

for the awareness (0.616) and behaviour (0.632) scales, while the compliance scale recorded 0.700. Correlation analysis showed a significant positive relationship between environmental awareness and responsible trekking behaviour ($\rho = 0.678$, $p < 0.001$). However, the relationship between guideline compliance and perceived management effectiveness was not statistically significant ($\rho = 0.130$, $p = 0.152$). Overall, the findings highlight the importance of combining environmental awareness with effective visitor management, consistent implementation of existing guidelines and stronger protection of ecologically sensitive trekking destinations.

11. Secondary Data Analysis Interpretation:

Secondary source	Key points from the source	Relevance to the present study	Source details
1. High-Level Working Group (HLWG) Report on Western Ghats (2013)	Emphasises protection of biodiversity and ecological integrity while considering sustainable development and local livelihoods.	Provides the broad policy basis for managing trekking in ecologically sensitive landscapes and balancing conservation with responsible visitor use.	MoEFCC, Government of India. (2013). Report of the High Level Working Group on Western Ghats. https://www.moef.gov.in/uploads/2021/08/1-HLWG-Report-Part-1_0.pdf
2. MoEFCC material on ecological sensitivity (2010)	Highlights ecological vulnerability and the importance of local knowledge and community participation in decisions concerning ecologically sensitive areas.	Supports community awareness, stakeholder participation and locally appropriate measures for protecting trekking environments.	Press Information Bureau, Government of India. (2010). Official release on ecological sensitivity and community participation.
3. Government conservation update (2023)	Summarises continuing conservation programmes and the identification/protection of ecologically important areas.	Shows that trekking management can complement wider conservation work through visitor education, waste control and monitoring of sensitive locations.	Press Information Bureau, Government of India. (2023). Official conservation update.
4. MoEFCC draft Western Ghats ESA notification (2026)	A draft notification indicates continuing policy attention to identifying and protecting ecologically sensitive areas in the Western Ghats; it is a draft, not a final regulation.	Provides current policy context, but should not be cited as an enforceable final rule. Existing applicable trekking guidelines remain important.	MoEFCC, Government of India. (2026). Draft notification, Western Ghats Ecologically Sensitive Area.

Secondary sources establish the importance of protecting the Western Ghats through ecological safeguards, conservation measures and sustainable development. When considered alongside the survey findings—particularly the reported concerns about overcrowding and noise—they support the need for stronger visitor awareness, effective implementation of existing trekking guidelines and regular monitoring. The 2026 notification listed by MoEFCC is a draft.

12. Limitations of the Study

- Limited sample size of 123 respondents.
- Restricted coverage of trekking destinations.
- Reliance on self-reported responses.
- No direct measurement of environmental damage.
- Limited assessment of guideline implementation.

The internal consistency of the environmental awareness and responsible trekking behaviour scales was below the commonly used benchmark of 0.70. Although the guideline compliance

scale reached this benchmark, the reliability of the measures should be considered when interpreting the findings. The perceived management effectiveness construct was based on two questionnaire items, and its limited internal consistency warrants cautious interpretation. These measurement limitations should be considered when drawing conclusions from the statistical analysis.

13. Conclusion

This study examined environmental awareness, responsible trekking behaviour, compliance with existing guidelines, and perceived management effectiveness in the Western Ghats, based on responses from 123 participants. It identified overcrowding and noise as major reported environmental pressures. The analysis found a significant positive relationship between environmental awareness and responsible trekking behaviour, while the relationship between guideline compliance and perceived management effectiveness was not statistically significant. The study highlights the need to strengthen trekker awareness, implement existing guidelines consistently, and improve visitor monitoring to support responsible trekking and environmental sustainability in the Western Ghats.

14. Scope for Future Research

- Include a larger sample of trekkers across more Western Ghats destinations.
- Conduct seasonal studies to assess changes in visitor pressure.
- Use field observations to measure environmental impacts.
- Examine the implementation of existing trekking guidelines.
- Study the role of local communities, guides and forest officials.
- Evaluate the effectiveness of trekker awareness programmes and visitor management measures.

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