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# Current status and challenges for ecotour implementation in Chinese national parks: A case study from Wuyishan

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## Abstract

China newly introduced a national park system in 2021, and national parks have been important places for ecotourism implementation. The present study explored the current status and challenges of ecotour implementation in Wuyishan National Park, China, with a specific focus on ecotourism activities and guiding. We selected four travel agencies offering ecotours that align with the Chinese definition of ecotourism, and collected empirical data through two methods, i.e., participatory observation of ecotours and interviews with ecotour guides. For participatory observation, we developed two checklists about ecotour guide compliance and ecotour guide evaluation. It was confirmed that the guides observed lacked several important compliances as well as knowledge issues, including response to emergencies, knowledge about geology and nature, diversity of tour routes, consideration for safety, and explanations that could raise tourists' environmental awareness. It is also evident that the guides lacked ecological knowledge, and their presentation abilities were inadequate. There is an urgent need to enhance the quality and professional competence training provided to guides.

***Keywords:*** Ecotourism; National Park; Ecotour Guide; Ecotour Guiding; China



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## 1. Introduction

Since the introduction of the concept of ecotourism at the Third World National Parks Conference held by the International Union for Conservation of Nature (IUCN) in 1982, the development of ecotourism has a history of 30 years. The International Ecotourism Society (2015) defines ecotourism as responsible travel to natural areas that protect the environment, maintain the well-being of local people, and involve both staff and guests. Mondino and Beery (2019), based on a case study of the transboundary biosphere reserve of Monviso, Italy, indicated that ecotourism has a positive catalytic effect on the sustainable development of nature reserves. Agyeman and Antwi-Bosiako (2022) confirmed opportunities created by ecotourism in terms of sustainable utilization of natural and cultural resources within Kakum National Park, Ghana. The development of ecotourism has also been conducive to the conservation of local natural resources, the promotion of regional economic development, and the sustainability of local communities in previous studies (Makabe, 2001; Tajima, 2003; Sirivongs and Tsuchiya, 2012; Das and Chatterjee, 2015). Ecotourism can also have positive socio-economic impacts (Li et al., 2019; Kim et al., 2019; Khaledi Koure, et al., 2023); these studies report positive impact of community-based ecotourism on local economic, environmental awareness, and social cohesion, particularly in remote communities. These studies have demonstrated the need to develop ecotourism in nature reserves (national parks, biosphere reserves, etc.).

In China, the concept of ecotourism was introduced in the 1980s. In 1993, China officially elevated ecotourism to the national policy level. Empirical pilot studies on ecotourism in China's nature reserves were particularly conducted in the 2000s. For example, Xiao and Yang (2004) addressed the attributes of ecotourists in the Shangri-La Nature Reserve, comparing strict tourists and average tourists, and concluded that local tourists are more inclined to be average travelers, and their ecological awareness is lower. Shimizu (2005) found that through the introduction of The Nature Conservancy system in Lahai City, Yunnan Province, the proportion of environmental education in local ecotourism became high, and the effect of education was not only popularized among tourists but also among ecotourism practitioners and local residents.

China’s developments in ecotourism activities have historically centered on nature reserves, forest parks, geoparks, and scenic spots. Consequently, most empirical studies have also focused largely on these management categories. However, in 2019, China released the "Guidance on the Establishment of a System of Nature Reserves with National Parks as the Main Body," prioritizing ecological protection. This guidance institutionally determines that activities such as nature experiences, cultural exploration, and ecotourism can be carried out in national parks. In 2021, the central government released the first list of national parks. Against this backdrop, it is essential to investigate how ecotourism activities can be conducted within national park protected areas, as this policy presents an opportunity to effectively balance the conservation and utilization of ecological resources.

Research on promoting ecotourism in Chinese national parks has been limited and has primarily focused on theory. For example, Li et al. (2021) illuminated the implementation framework of ecotourism under the national park system, including its definition and positioning. Qiao (2020) underscored the necessity for national parks to engage in ecotourism, emphasizing the exploration of environmental suitability and landscape appropriateness. Regarding managing ecotourism in national parks, Li et al. (2023) discussed a tripartite evolutionary game model involving "local government-tourism enterprises-tourists" to promote sustainable ecotourism development from three developmental perspectives in Wuyishan National Park. Duan

and Yang (2020) summarized the advantages and existing issues in the development of ecotourism in the Chinese Giant Panda National Park, such as immature markets and weak ecological awareness among visitor communities. Concerning the function of ecological education, preliminary studies on ecotourism education in national parks have highlighted the importance of regulating visitor behavior and fostering environmental awareness (Yang and Duan, 2020; Gao, 2023). Optimal and maximum tourist carrying capacity for ecotourism in Wuyishan National Park was illustrated using video test data (Guo et al., 2019).

However, studies collecting empirical data related to the status of ecotourism in Chinese national parks are lacking. Furthermore, studies tend to focus on visitors, with limited literature on the development status of ecotour guides. Therefore, we place a central focus on ecotour guides in national parks to explore their current status and strategies. Except for a couple of studies (Ma, 2004; Kong, 2014), there is little information about ecotour guides in China.

The present study aims to explore the current status and challenges of ecotour implementation in Wuyishan National Park, China, with a specific focus on ecotourism activities and guiding within the general protected area of the park. We chose to focus on Wuyishan National Park because it is one of the first national parks designated in China and is recognized as one of the world's sites of natural and cultural heritage. Several studies about ecotourism in the Wuyishan region have been conducted before its designation as a national park. Chen and Qiu (2017) found that residents in the Wuyishan Nature Reserve generally hold a positive attitude towards tourism development, with a significant relationship observed between age, income, distance to the scenic area, and the development of ecotourism. Discussions on the compensation mechanism and research for local residents in the development of ecotourism in Wuyishan have also been explored (Liao, 2018; Ni, 2010). Zhang (2008) highlighted the guide overall cultural level of Wuyishan, emphasizing the lack of highly skilled tour guides and professionals with modern business management concepts. Wu et al. (2023) pointed out that tourism companies are likely to rely on certain spots and the diversity and creativity in tour routes is low.

However, as mentioned earlier, empirical information on ecotour guiding is lacking. Through participatory observation, we seek to understand the content of ecotourism in the region and the current status of eco-guides. Ultimately, our goal is to explore the challenges faced by ecotourism in national parks and identify areas that require improvement.

## 2. Study area and methods

### 2.1. Study area

The Wuyishan National Park is situated on the border of Fujian and Jiangxi provinces (Figure 1). It is located in the central subtropical monsoon humid region, serving as the largest and most intact central subtropical forest ecosystem in southeastern China. Currently, the park covers an area of 12.8 square kilometers, with Fujian province accounting for 1,001.41 square kilometers, representing 78.2% of the total area.

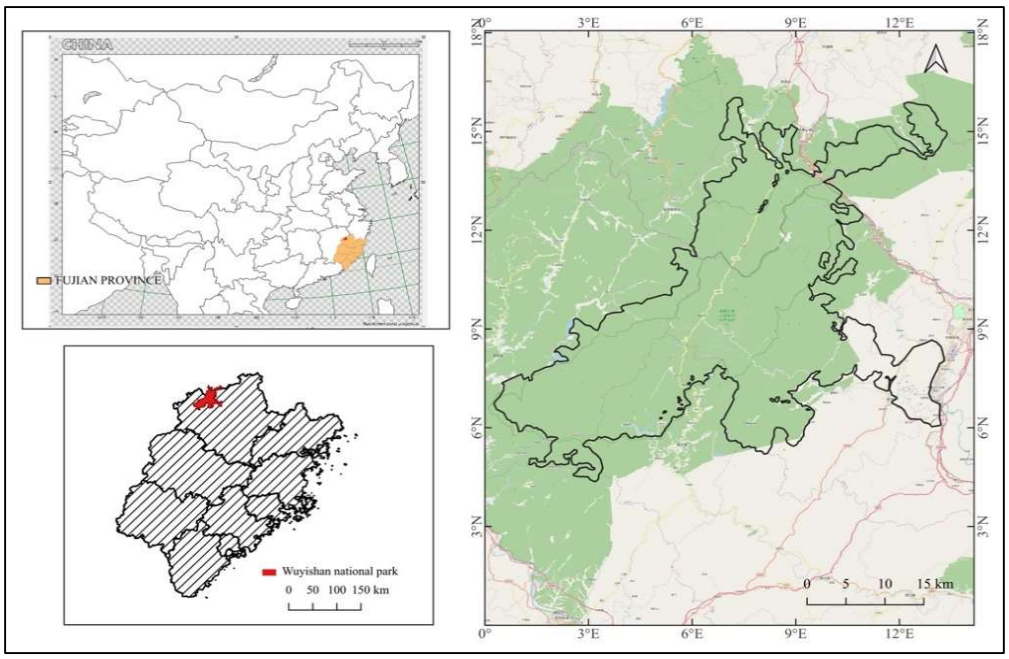


**Figure 1.** Location of the Wuyishan National Park in China and Fujian Province and its boundaries (blacklined area represents the boundaries of the Wuyishan National Park and green area indicates a national level natural reserve, where tourists are not permitted to access)

In 1979, Wuyishan was designated as the first national nature reserve in China. In 1987, it was accepted by the International Coordinating Council of the "Man and the Biosphere Program" as a world biosphere reserve. In 1999, it was included in the World Natural and Cultural Heritage List, making it the only region in China that is both a biosphere reserve and a world cultural and natural heritage site. Furthermore, Wuyishan Nature Reserve has played a significant role in ecological construction both domestically and internationally (Fang, 2005). In 2016, Wuyishan was included as one of the first ten pilot national parks in China, and in 2021, it officially became one of the five national parks in China. The scope of Wuyishan National Park includes Wuyishan National Nature Reserve, Wuyishan National Scenic Area, and the protected zone of Nine-Bend Stream.

Within the boundaries of the park, various areas, such as nature reserves, scenic spots, and forest parks, have implemented a series of ecotourism activities. From the 1970s to the 1990s, in accordance with the regulations governing the management of nature reserves in China, Wuyishan Reserve adopted a policy of closed management that discouraged any form of tourism or activities, and it was not until 1993 that ecotourism activities were gradually introduced. In the same year, the Fujian Forestry Bureau approved the establishment of the Ecotourism Management Committee of the Fujian Wuyishan National Nature Reserve Administration, which is responsible for the organization and arrangement of ecotourism activities. Regarding the ecotourism projects carried out, the focus is mainly on visiting the natural museum located in the western region of the nature reserve and visiting Huang gang Mountain.

However, in order to protect natural resources, the nature reserve ceased public tourism in 2016 and no longer sells tickets. Various ecotourism activities have been conducted, including Nine-Bend Stream bamboo rafting, the cultural promotional performance "Impression Dahongpao," and hiking to Tianyou Peak. Particularly, bamboo rafting, one of the most renowned activities in Wuyishan, has faced significant challenges due to the increasing number of tourists, resulting from the continuous improvement of the national park system.

Today, Wuyishan National Park not only boasts abundant natural resources as a representative of the Central Asian subtropical ecosystem but also possesses cultural resources such as tea culture. According to the "Wuyishan National Park Master Plan (2017-2025)," natural resources in the park can be classified into four types: geology, water areas, biodiversity, celestial phenomena, and climate. Human resources can be classified into four types: cultural relics and archaeological sites, buildings and facilities, tourism products, and cultural activities (Wuyishan National Park Administration, 2019).

## 2.2. Data collection and analysis

We targeted travel agencies and ecotour routes according to China's definition of ecotourism. According to Ren and Song (2023), ecotourism in China can be defined as tours that exhibit characteristics of sustainability, environmental education, economic benefits, and environmental protection. Table 1 shows the contents in Wuyishan National Park corresponding to the aforementioned definition of ecotourism. Therefore, the ecotours in the present study include some of these contents with educational value for tour participants.

**Table 1.** Three benchmarks for route selection

| **Characteristics of ecotourism** | **Corresponding contents in Wuyishan** |
|---|---|
| Geographical development and sustainability | Bamboo rafting and other natural activities promote local economic benefits and employment |
| Naturalness of the tourist site | The Longchuan Grand Canyon in the Nature Reserve serves as a forest oxygen bar with a negative ion content of 93,000 per cubic centimeter. |
| Environmental protection and environmental education aspects of tourism activities | Enjoy the plants on the way to Tianyou Peak, visit Wuyi Essence House, Zhu Zi Lecture and other cultural attractions. |

*(Source: Ren and Song, 2023)*

In total, we identified 135 travel agencies in Wuyishan from a list published by the Nanping Municipal Government. Our focus was on resorts near the Wuyishan Scenic Area. Using the internet, we screened local travel agencies that align with the Chinese definition of ecotourism as follows.

We particularly focused on Wuyishan Sangu Town, which is just four kilometers away from the entrance of Wuyishan National Park. After conducting online research and obtaining information from a tour guide association, we identified a total of 33 travel agencies in Sangu Town. We checked whether these 33 travel agencies have an official website and confirmed that five travel agencies have their own websites. We identified whether the travel agencies provide tours that align with Chinese definition of ecotourism from the contents of their websites; all of them provide ecotours falling under the definition. However, One of the five was specialized in national travel routes and was therefore excluded. Thus, we decided to target the remaining four travel agencies: Companies A, B, C, and D, which will be explained in detail in the following section. All of them offer customized itineraries according to the needs of tourists and specifically plan ecotourism products and routes within the national park, such as eco-oxygen tours and tea art study routes. In the present study, we conducted participatory observation as well as interviews for ecotour guides in each company; we call them Guides A, B, C, and D (each is from Companies A, B, C, and D, respectively).

Companies A and B used an almost same route (hereafter Route 1) for ecotourism (Figure 2). Route 1 is primarily located in the Wuyishan Scenic Area, featuring attractions such as the typical Danxia landform, the unique One-Line-Sky, Tianyou Peak, Tiger Roaring Rock, and the rare vegetation in the Dahongpao Scenic Area. These landscapes demand a high level of natural ecological knowledge from tour guides, enabling a clear evaluation of their interpretation skills. Companies C and D also used an almost same route (hereafter Route 2). Route 2 is situated within the Wuyishan Nature Reserve, featuring attractions such as the Qinglong Waterfall and Longchuan Grand Canyon. This route encompasses forest hiking and waterfall viewing activities, putting to test the tour guide's safety response abilities and their proficiency in providing explanations about the local flora and fauna.

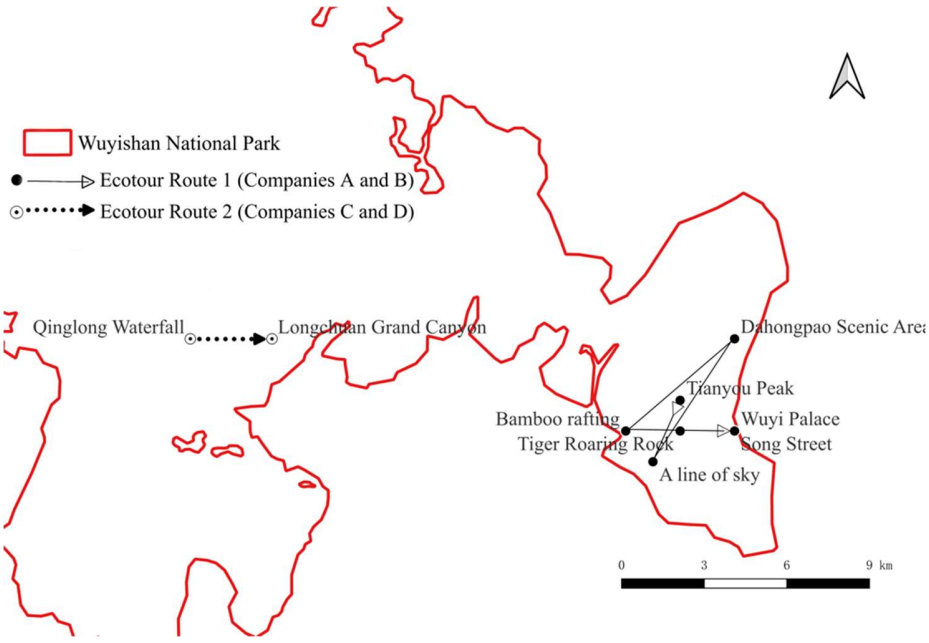


**Figure 2.** Location map of attractions on the ecotour routes in Wuyishan

Empirical data were collected through two methods: participatory observation of ecotours and interviews with ecotour guides. Firstly, we focused on one ecotour from each of these four companies (Companies A, B, C, and D) and conducted participatory observations of the ecotour guides (Guides A, B, C, and D) from 27 August to 2 September in 2023. We simply targeted ecotour guides who was coincidentally in charge of the tour that the first author participated; we had no choice of selecting a particular guide.

For the participatory observation, we developed two evaluation checklists. Since there was no specific guideline for ecotourism in Wuyishan National Park, we drew on information from ecotourism sites in Japan. There are several rationales for this. First, located in East Asia, China and Japan share a cultural background with geographical proximity. Hence, it could be more appropriate than referring to practices in Western countries. Second, Japan is considered to have a more comprehensive set of tourism management practices, including risk management, than China (Wang et al., 2009). Japanese ecotourism guidelines also emphasize community economic development and community participation, which is in line with China's current policy promoting economic development in remote mountainous areas through ecotourism. Hence, we considered the application of guidelines in Japanese ecotourism sies will be beneficial for China, which ecotourism is currently developing.

The first checklist is an ecotour guide compliance checklist, which assesses whether ecotour guides appropriately and adequately adhere to safety and conservation rules or provide services and support for participants. This checklist was developed based on ecotourism guidelines from three locations in Japan—Yakushima, Shiretoko, and Amami Oshima—which are listed on the World Natural Heritage List and have well-established systems for eco-tour guides. The checklist includes four main categories: safety precautions, guide skill improvement, participant support, and environmental considerations, with several subparts (Table 3).

The second checklist is an ecotour guide evaluation checklist, focusing on whether contents requiring professional explanations are effectively addressed (Table 4). This checklist was developed based on the Ecological Tour Guide Management Regulations of Japan. During the tours, we assessed the tour guides' explanations and behaviors using these checklists.

Secondly, at the conclusion of the ecotours, a brief interview was conducted with four guides. The questions posed included inquiries about their backgrounds, motivations for becoming ecotour guides, an overview of the ecotour guide landscape in the region, and their perspectives on the newly designated national park.

For ecotour guides we observed and interviewed, we explained that the information obtained will be used for academic papers under the assurance of anonymity. They provided us with informed consent.

## 3. Results

### 3.1. Overview of the four companies

Table 2 provides a summary of the four targeted companies. Established in 2002, Company A originated as a state-owned tourism company founded in 1998. It underwent privatization and became a limited company. Currently, the company employs 15 tour guides and primarily focuses on a travel route revolving around the Wuyishan Scenic Area, offering both self-driving and group tour options. Additionally, Company A has organized various events, including the Wuyishan Travel Forum.

Established in 2003 and upgraded to an international travel agency in 2007, Company B is one of the travel agencies in the Wuyishan Scenic Area with the highest number of local tour guides. It currently has more than thirty certified tour guides and is a member of the Nanping Tourism Association. Company B offers diverse travel routes, including regular routes within the scenic area and unique routes like the Longchuan Grand Canyon, often referred to as the "Little Jiuzhaigou".

Established in 2008, Company C entered the tourism market through various channels such as e-commerce. It currently has eight tour guides on its team.

Established in 1987, Company D is a 100% state-owned travel agency. It serves as the executive director of the Wuyishan Travel Agency Association and was recognized as an excellent travel agency by the Wuyishan Municipal from 2006 to 2008. Company D is one of the earliest travel agencies established in Wuyishan and accepts foreign guests. Its official website contains a wealth of knowledge about Wuyishan.

**Table 2.** Summary of the four travel agencies targeted

| **Company** | **A** | **B** | **C** | **D** |
|---|---|---|---|---|
| Establishment period | 2002 | 2003 | 2008 | 1987 |
| Nature of the travel agency | From nationalized business to limited company | Private business | Private business | Nationalized business |
| Number of ecotour guides | 15 people | 30 or more | 8 people | not quite clear |

## 3.2. Findings from participatory observation using checklists

### *3.2.1. Tour Guide A (Company A and Route 1)*

The tour guide was approximately 47 years old and originally from Wuyishan town. He had over 20 years of experience as a tour guide. Duo to the prosperous tea industry in Wuyishan, it has been observed that tour guides experience a decrease in income during the off-peak tourism season. As a result, some tour guides opt to open tea shops to supplement their livelihood. Company A's tour guides are no exception, with some of them running their own tea shop businesses.

There were six participants in total. On the first day of the itinerary, we departed from the resort hotel near the Wuyishan scenic area, took a bus to the ticket office of Wuyishan National Park, and entered the scenic area. We then boarded a scenic bus to visit the main attractions, focusing on hiking and sightseeing around the Tianyou Peak Scenic Area. The following day, bamboo rafting was scheduled for a refreshing morning at 7 o'clock, allowing participants to enjoy the picturesque scenery while riding on bamboo rafts amidst the clouds and mist.

The guide's presentation of the attractions demonstrated professionalism. He provided informative explanations about the natural and cultural heritage of Wuyishan, emphasizing its significance as one of the first national parks. Additionally, he highlighted historical backgrounds to enhance the participants' understanding and confidence in delivering historical narratives. However, the reasons for Wuyishan's selection as a national park were not addressed, indicating a lack of knowledge regarding relevant systems and processes related to natural heritage.

The guide was proficient in providing detailed explanations and answers regarding cultural attractions but placed less emphasis on knowledge about the natural environment and providing guidance on minimizing environmental impact. Additionally, the duration of sightseeing was adjusted based on the physical stamina of the participants, with the tour lasting no more than eight hours over two days. Notably, thorough communication of safety precautions and field considerations during the tour, as well as regular attendance of first-aid training courses to ensure safety in emergency situations, were lacking. It is worth mentioning that this particular tour guide was the only one who provided food and water to the tourists (Table 3, 4).

### *3.2.2. Tour Guide B (Company B and Route 1)*

The guide from Company B was a male in his twenties who had graduated from a local vocational school and obtained his tour guide certification after passing the exam. He had been working as a local tour guide for seven years.

The itinerary and visited attractions were largely similar to those offered by Company A. However, a notable difference was that the tour guide from Company B scheduled the bamboo rafting activity for a hot afternoon without considering the physical stamina of the tourists.

On the day of the visit, there were five participants. Similar to Guide A, Guide B lacked in safety management and training in life-saving and emergency response. Moreover, he did not provide specific explanations regarding the significance of national parks, nature, and cultural heritage. These shortcomings may be attributed to the fact that despite having seven years of experience, the tour guide lacked professional guidance and training opportunities during the early stages of their career. As a result, he appeared to have insufficient knowledge about the flora and fauna along the route, leading to an inability to accurately answer tourists' questions.

Furthermore, Guide B did not provide guidance on relevant laws and regulations such as the Birds and Wildlife Protection Law, nor did he instruct tour participants to comply with these laws. It is worth noting that photography and similar services were not offered on the guided tours, indicating a lack of customer service awareness (Table 3, 4).

### *3.2.3. Tour Guide C (Company C and Route 2)*

The tour organized by Company C was a 1-day program for hiking in the ecological restoration area of the national park's nature reserve, featuring forest hiking to see waterfalls. The tour commenced promptly at 8 o'clock in the morning, with an approximate duration of one and a half hours to reach the Qinglong Waterfall. This privately developed waterfall attraction implements a revenue-generating approach through the collection of entrance fees. The main focus of this excursion is centered around indulging in a refreshing hike,

primarily experiencing the oxygen-rich ambiance exuded by the waterfall, spanning approximately 90 minutes. Subsequently, the itinerary proceeds with a one-hour trekking activity up the majestic Longchuan Waterfall.

Similar to Guides A and B, Guide C also did not regularly receive safety training. However, prior to commencing the journey, he promptly communicated potential challenges to the participants, such as steep steps and slippery road conditions that may arise along the way. During the two-hour hiking expedition to Qinglong Waterfall, the time was arranged reasonably, taking into account the physical strength of the participants. However, the guide did not provide explanations that would enhance participants' environmental conservation awareness.

Information regarding the heritage system of Wuyishan and the relevant national park system was mentioned only for promotional purposes, but it was not sufficient to explain that “Wuyishan is an area with valuable ecological systems.” In terms of travel content, although the tour guide had sufficient knowledge about the waterfalls and local rivers in the scenic area, he did not touch upon explanations of flora, fauna, and landforms. Additionally, there was a lack of focus on “actively participating in various guiding technical workshops and training sessions to enhance the skills of guides,” with the tour guide primarily focusing on the cultural and historical background of the scenic area without addressing knowledge of natural ecology (Table 3, 4).

### *3.2.4. Tour Guide D (Company D and Route 2)*

Company D's route was similar to that of Company C, but Company D allowed for flexible departure times based on the participants' situations, and the tour itinerary was entirely decided by the participants themselves. Guide D demonstrated a particular seriousness about "the general public’s efforts to avoid any negative impact on the natural environment." Prior to the tour, Guide D emphasized the importance of Wuyishan's natural ecology, showcasing a high level of environmental consciousness.

During the mountain climbing portion of the tour, while there was no explanation of the topography and landforms, Guide D provided detailed scientific knowledge and answers regarding the rare flora and fauna of the area. Guide D was the only one among the four travel agencies to offer such comprehensive explanations (Table 3, 4).

### *3.2.5. Other information*

Participating in the tour routes offered by the four travel agencies, we observed that they heavily relied on standardized reference routes, such as the Eco-Sightseeing Bus Sketch tour routes within scenic spots in Wuyishan National Park. As a result, the ecotour routes offered by these agencies were nearly identical to each other.

In these standardized routes, the bus fee is typically included in the entrance ticket, allowing for unlimited rides from 6 AM to 6 PM.

These observations highlight a commonality in the approach taken by the travel agencies, potentially limiting the diversity and uniqueness of the ecotour experiences offered to visitors.

**Table 3.** Ecotour guide compliance checklist

| **Common rules for eco-tour guides** | **Item** | **Status of implementation evaluation** | | | |
|---|---|---|---|---|---|
| Company (Guide) | | A | B | C | D |
| Safety Precautions | Communicate safety precautions and field considerations thoroughly on the tour. | - | - | ++ | ++ |
| | Cooperate with each other in dealing with injuries and accidents. | ++ | | | ++ |
| | Ensure that guided activities do not interfere with the general public's use of the site. | ++ | ++ | ++ | ++ |
| | The tour is conducted with an itinerary that takes into consideration the physical strength and abilities of the tour participants. * | ++ | ++ | ++ | ++ |
| | No guiding activity is conducted if a weather warning is in effect for the field in which you are working at the start of the tour. | ++ | ++ | ++ | ++ |
| Guide Skill Improvement | Regularly attend first-aid training courses to ensure safety in emergency situations. * | - | - | - | - |
| | Actively participate in various guiding technical workshops and training sessions to enhance the skills of guides. * | ++ | ++ | ++ | ++ |
| | Comply with all relevant laws and regulations (e.g., the Natural Parks Law and the Wildlife Protection Law) and instruct tour participants and the public on how to comply with such laws and regulations. | ++ | - | ++ | - |
| | Provide explanations to tour participants to help them better understand the mitigation of impacts on and conservation of natural environment. | - | - | - | - |
| Participant Support | Provide tour participants with the correct knowledge by explaining to them that natural heritage sites are areas that preserve globally valuable ecosystems. | + | + | + | + |
| | Provide explanations to tour participants to deepen their understanding of the local culture and history. | ++ | + | ++ | ++ |
| | Do not pollute or step into the upstream of water bodies and take care to prevent water pollution. | ++ | ++ | ++ | ++ |
| | Reside in the area to better understand and contribute to the local community. | ++ | ++ | ++ | ++ |

| | | | | | |
|---|---|---|---|---|---|
| Environmental Consideration | No animals are allowed on the mountain. (Except guide dogs, service dogs, and hearing dogs.) | ++ | ++ | ++ | ++ |
| | Guides shall manage tours in consideration of their impact on the natural environment and shall instruct tour participants and the general public to avoid any negative impact on the natural environment. | - | - | - | ++ |
| | Do not feed wildlife. | ++ | - | ++ | - |
| | Do not damage the environment of sacred places such as shrines | ++ | ++ | ++ | ++ |
| | Trash should be brought back to the car or to the designated trash pickup area. | - | - | - | - |

*++ : Fulfilled, + : Partially fulfilled, - : Not carried out, blank space : not relevant.*

** : Items which information was derived in advance of the tour through direct interviews to the guide*

*Note: Based on "Amami Islands Eco-Tour Guide Common Rules" and "Shiretoko Ecotourism Guidelines" and "Yakushima Guide Common Rules.*

## 3.3. Findings from Interviews with Ecotour Guides

Firstly, inquiries about the educational backgrounds of the four individuals confirmed that although all four became tour guides after graduating from high school, their overall educational attainment was limited. Despite demonstrating excellent skills in landscape interpretation during the tours, our interviews revealed that the primary reason for becoming guides was the challenge of finding local employment and the scarcity of job opportunities. This highlights a genuine issue of local education and talent outflow in Wuyishan, underscoring the emerging need for social welfare improvement. Additionally, guiding work serves as a seasonal and temporary source of income, leading the four guides to seek additional employment. According to the guides interviewed, this situation is not unique to these individuals. A local survey found that there are approximately 3,000 tour guides in the Wuyishan area, with the majority being locals and generally having completed lower secondary education. While many have obtained certification as tour guides or interpreters, it is estimated that more than half of them engage in part-time jobs.

Secondly, according to our interviews, among the four surveyed travel companies, follow-up training for professional guides focuses primarily on knowledge of tourist spots and explanations of tea culture. However, dissemination of ecological knowledge about wildlife, rocks, and geological landscapes in Wuyishan National Park is notably absent from training components. Furthermore, guide exchange meetings are lacking, resulting in insufficient opportunities to share experiences and enhance understanding of the local ecosystems.

In response to our question "Do you think the establishment of the national park system has changed the job of being a guide?", the four guides expressed indifference toward the impact of national park establishment and did not possess a clear stance. Their responses indicate that local people often view the protection and management of national parks as the government's responsibility, perceiving no direct positive effects for themselves.

**Table 4.** Ecotour guide contents checklist

| Eco Tour Guide | | Guide A (Company A) | Guide B (Company B) | Guide C (Company C) | Guide D (Company D) |
|---|---|---|---|---|---|
| Age | | 47 | 30 | 40s | 40s |
| Gender | | man | man | man | man |
| Guided tour experience | | 20 years | 7 years | 25 years | 20 years |
| Birthplace | | Wuyishan town | Wuyishan town | Xingcun Township, Wuyishan City | Wuyishan town |
| Education | | Graduate from high school | Graduate from junior high school | Graduate from high school | Graduate from high school |
| Situation of participants at the time of authors' participation | | 6 persons (2 40-generation couple families and 2 children) | 5 persons (3 university students, 2 50-generation males) | 2 people (20-generation couple) | 2 people (2 university students) |
| Content of guided tours | Explanation of safety precautions | - | - | + | + |
| | Description of the Transportation Itinerary | + | + | + | + |
| | Explanation of humanistic landscapes | + | + | + | + |
| | Explanation of topography and geomorphology | - | - | - | - |
| | Flora and Fauna | - | - | - | + |
| | Knowledge of World Natural Heritage and National Parks | + | - | | |
| | historical background | + | + | | |
| | local conditions and customs | + | + | | |
| | Waterfalls | | | + | + |
| | Streams | | | + | + |
| Guided tour service | shopping spree | + | + | - | - |
| | Food supply | + | - | - | - |
| | photo-realistic | + | - | + | - |
| Travel time | | 2 days and 1 night | 2 days and 1 night | 90 minutes +60 minutes | 90 minutes +60 minutes |
| Fee | | 580yuan | 770yuan | 320yuan | 460yuan |

+: Fulfilled. -: Not carried out

## 4. Discussion and conclusions

Based on the results of the previous observations, two points have been evident. Firstly, regarding the content of tourism, the four guides designed routes considering the physical abilities of participants. However, according to Table 3, none of the guides from the four companies have received training on how to respond to emergencies. In terms of explaining tourist spots, they focus solely on the establishment and history of the spots, neglecting knowledge about geological formations and natural features, such as the composition of rocks and the reasons behind their formation within the national park. These findings are basically in line with previous studies (e.g., Zhang, 2008; Wu et al., 2023). However, in the previous studies, there was little reference to tour guides' safety knowledge. We infer that this could be due to the relatively short duration of stays in Wuyishan for sightseeing, the relatively independent behavior of Chinese tourists, and the lack of mandatory requirements from relevant authorities to enhance safety training.

In addition, our observations of the four tours confirmed that the routes are monotonous, with insufficient consideration for explanations that could raise environmental conservation awareness among tourists. It is recommended to develop more natural hiking and climbing paths; currently, the observed four routes mostly rely on existing bus routes and lack originality. Continued attention should also be paid to the design and development of attractive and educationally meaningful tour routes.

Secondly, the four guides did not possess national guide qualifications; they only held certificates qualifying them to explain the scenic areas of Wuyishan. Based on our investigation, it is evident that the guides lacked ecological knowledge, and their presentation abilities were inadequate. Ma (2004) reports that the educational requirements for working in the scenic area are not stringent, and the selection process for ecotour guides is relatively simple, with the majority of applicants being local residents. In addition, Ma (2004) indicates that regardless of the type of guide training, there is little emphasis on imparting knowledge of basic tourism service skills or ecological knowledge to cultivate professional ethics. Kong (2014) highlighted in his research that Chinese tour guides, while acknowledging the significance of ecological conservation, exhibit inadequacies in educating tourists on eco-friendly travel practices. The findings of the present study are aligned with the above-mentioned indications.

We conclude with a couple of policy recommendations. First, there is an urgent need to enhance the quality and professional competence training provided to guides. This requires firm policy directions toward quality assurance of ecotourism to set a bar for entry to ecotour industries. Currently, the standard required for ecotour guides is not high. If the importance of educational effects of ecotourism is recognized appropriately, travel agencies will require greater quality of ecotour guides, prompting candidates to study and be trained more to be qualified. At the same time, to ensure that local residents are not hindered from entering the eco-tour guide profession, training opportunities for them need to be secured. Specialized institutions dedicated to promoting and guiding ecotourism could be a future option in the whole China. The establishment of specialized agencies and tour guide associations to promote and guide ecotourism requires significant financial support for infrastructure development and staff training. In 2020, China allocated a budget of one billion yuan for national park expenditures. However, the current situation in Chinese national parks is characterized by confusion in government management agencies and types, which may lead to issues such as unreasonable budgeting, low efficiency in fund utilization, and lack of transparency in the budgeting process.

Second, it is desirable to strengthen the planning, development, operation, and management of the scenic area under the current Wuyishan National Park system in terms of the enhancement of ecotourism. During our investigation, it was found that the development of the scenic area focuses more on direct economic effects, with tourism operators such as travel agencies and tea shops emphasizing hotel development, road repairs, and the construction of leisure facilities while neglecting consideration for the sustainability of ecotourism.

Third, in addition to enhancing ecotour guides' competence and quality, awareness raising for tourists before coming to the national park or any other ecotourism spots is recommended. In our observation, ecotour guides did not effectively provide guidance on "Trash should be brought back to the car or to the designated trash pickup area." Tour guides' guiding and compliance could be undermined when most of the tourists do not care those issues at all. Hence, to make ecotourism experiences better, some kind of tourists' cooperation will work, and such cooperation could be fostered outside the national parks such as in schools. The lack of comprehensive legal regulations on ecotourism in China can lead to challenges in establishing ecological institutions and eco-tourism training centers, such as difficulties in interdepartmental coordination and communication involving environmental protection, culture, and tourism, resulting in inefficiencies. While emphasizing the importance of community residents' involvement in educating tourists and promoting ecological knowledge (Rule et al., 2022), cultural differences among some tourists may lead to conflicts due to a lack of understanding and compliance with local ecological conservation regulations, such as waste disposal and prohibitions on tea leaf picking.

Lastly, we refer to the limitations of this study. For participatory observation, we were able to target only one ecotour guide from the companies. It is difficult for us to generalize whether other guides in the same company have similar characteristics in tour guiding. In future investigations of the current status of eco-tourism in national parks and the ecological awareness and behavior of tour guides, both quantitative and qualitative surveys should be conducted for generalization. Additionally, this study only explored the eco-tourism and tour guide situation in Wuyishan National Park, without addressing other national parks. Future research should explore the impact of China's new national park system on eco-tourism, conducting surveys from the perspectives of stakeholders such as communities, travel agencies, and tour guides.

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## References

Agyeman, Y.B. and Antwi-Bosiako, N.B. (2022), "Visitor perceptions of the roles of tour guides in Kakum National Park in Ghana", *Cogent Social Sciences*, Vol. 8 No. 1, p. 2052403.

Chen, B.X. and Qiu, Z.M. (2017), "Community attitudes toward ecotourism development and environmental conservation in nature reserve: a case of Fujian Wuyishan National Nature Reserve, China", *Journal of Mountain Science*, Vol. 14, pp. 1405-1418.

Das, M. and Chatterjee, B. (2015), "Ecotourism: A panacea or a predicament?", *Tourism management perspectives*, Vol. 14, pp. 3-16.

Duan, X. and Yang, S. (2020), "Discussion on ecotourism management of Giant Panda National Park in China", *E3S Web of Conferences*, Vol. 143, p. 02036.

Fang, Y. (2005), "The questionnaire of eco-tourism in Wuyishan Nature Reserve", *Journal of Nangping Teachers College*, Vol. 24 No. 3, pp. 263-266.

Gao, M. (2023), "Environmental Education approach, Visitor Characteristics and Environmental Education Perception in National Parks—A Configuration Analysis Based on SOR Framework", China University of Geosciences, available at: https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFDTEMP&filename=1023826585.nh (accessed 1 July 2024).

Guo, J., Xiao, F., Zou, L., Wang, L. and Chen, Q. (2019), "Research on monitoring the ecotourism carrying capacity of Wuyi Mountain National Park", *Journal of Northwest College of Forestry*, Vol. 2, pp. 263-266.

Khaledi Koure, F., Hajjarian, M., Hossein Zadeh, O., Alijanpour, A. and Mosadeghi, R. (2023), "Ecotourism development strategies and the importance of local community engagement", *Environment, Development and Sustainability*, Vol. 25, pp. 6849-6877.

Kim, M. Xie, Y. and Cirella, G.T. (2019), "Sustainable transformative economy: Community-based ecotourism", *Sustainability*, Vol. 11 No. 18, p. 4977.

Kong, H. (2014), "Are tour guides in China ready for ecotourism? An Importance‐Performance Analysis of Perceptions and Performances", *Asia Pacific Journal of Tourism Research*, Vol. 19, pp. 17-34.

Liao, L. (2018), "Research on Community Planning of the Wuyishan National Park System Pilot Area", Tsinghua University, available at: https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CDFDLAST2020&filename=1019602811.nh (accessed 1 July 2024).

Li, S., Yang, J., Cheng, X. and Liu, Z. (2023), "Multi-agent evolutionary game strategy for ecotourism development in national parks: A Case Study of Wuyishan National Park", *Forests*, Vol. 14 No. 8, p. 1590.

Li, X., Lu, H., Xing, W. and Wu, S. (2021), "Concept, orientation and implementation program of ecotourism in the context of national parks", *Ecological Economy*, Vol. 06 pp. 117-123.

Li, Y., Zhang, L., Gao, Y., Huang, Z., Cui, L., Liu, S., ... and Xiao, W. (2019), "Ecotourism in China, misuse or genuine development? An analysis based on map browser results", *Sustainability*, Vol. 11 No. 18, p. 4997.

Ma, W. (2004), "On the quality cultivation of ecotourism tourist guides", *Journal of Shaoyang College*, Vol. 1, pp. 30-32.

Makabe, A. (2001), "A historical study on the definition of the ecotourism and its form of concept", *Senri Ethnological Reports*, Vol. 23, pp. 15-40.

Mondino, E. and Beery, T. (2019), "Ecotourism as a learning tool for sustainable development: The case of Monviso Transboundary Biosphere Reserve, Italy", *Journal of Ecotourism*, Vol. 18 No. 2, pp. 107-121.

Ni, T. (2010), "The Development of Community Participation in Ecotourism on Wuyi Mountain Nature Reserve", Master's thesis, Fujian Normal University, available at: https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD2012&filename=1011062015.nh (accessed 1 July 2024).

Qiao, Y. (2020), "Exploring the suitability of national parks for ecotourism", *China Market*, Vol. 2, pp. 56-57.

Ren, H. and Song, X. (2023), "Progress and Prospect of Ecotourism Related Research in China", Management and Administration, Online First (published online 10 October 2023) (in Chinese) DOI: 10.16517/j.cnki.cn12-1034/f.20231008.014.

Rule, A., Dill, S., Sun, G., Chen, A., Khawaja, S., Li, I., Zhang, V. and Rozelle, S. (2022), "Challenges and opportunities in aligning conservation with development in China's national parks: A narrative literature review", *International Journal of Environmental Research and Public Health*, Vol. 19 No. 19, p. 12778.

Shimizu, N. (2005), "Ecotourism and education: A case study in Yunnan Province, China", *Suzuka International University Campana*, Vol. 11, pp. 107-120 (in Japanese).

Sirivongs, K. and Tsuchiya, T. (2012), " Relationship between local residents' perceptions, attitudes and participation towards national protected areas: A case study of Phou Khao Khouay National Protected Area, central Lao PDR", *Forest policy and economics*, Vol. 21, pp. 92-100.

Tajima, Y. (2003), "Eco-tourism in Yaku Island, Kagoshima Prefecture", *Bulletin of the Faculty of Education, Kagoshima University. Cultural and social science*, Vol. 55, pp. 31-47.

Wang, S., Heo, J., Yamada, N. and Hwang, S. (2009), "Comparison of ecotourism policies and implications for China's ecotourism development", *Journal of China Tourism Research*, Vol. 5 No. 3, pp. 259–272.

Wuyishan National Park Administration (2019), "Wuyishan National Park Master Plan (2017-2025)", available at: http://gui-hua.com/post/545.html (accessed 16 July 2023).

Wu, X., Deng, Y., Qi, S. and Lan, Z. (2023), "Wuyishan tourism new business cultivation pathway research", *Proceedings of the Annual Conference on Tourism Science in China 2023 (the second volume)*, pp. 76-79.

Xiao, Z. and Yang, G. (2004), "Survey and research on ecological awareness of domestic ecotourists—The case of Bitahai ecotourism scenic spot in Shangri-La", *Journal of Tourism*, Vol. 01, pp. 67-71.

Yang, S. and Duan, X. (2020), "Discussion on the development of ecotourism education in China's national parks", *IOP Conference Series: Earth and Environmental Science*, Vol. 526.

Zhang, W. (2008), "Research on sustainable development of ecotourism in Wuyi Mountain Nature Reserve", *Journal of Dezhou College*, Vol. 02, pp. 76-79.