*forests*

*Article*

# Residents' Willingness to Pay for Forest Ecosystem Services Based on Forest Ownership Classification in South Korea

**Young-Gyun Son [1], Yohan Lee [2,*] and Jang-Hwan Jo [1,*]**

1 Department of Forest Sciences and Landscape Architecture, Wonkwang University, 460 Iksan-daero, Iksan 54538, Republic of Korea; wks3030@wku.ac.kr
2 Department of Agriculture, Forestry and Bioresources, Seoul National University, 1 Gwanak-ro, Seoul 08826, Republic of Korea
* Correspondence: johnlee@snu.ac.kr (Y.L.); osmanthusfvam007@wku.ac.kr (J.-H.J.); Tel.: +82-2-880-4754 (Y.L.); +82-63-850-6826 (J.-H.J.)

**Abstract:** South Korea is one of the countries with a significant proportion of its national territory covered by forests. However, it remains unclear what management strategies for providing forest ecosystem services are preferred by the residents. This study explores South Korean residents' preferences for managing local forest ecosystem services, with a focus on how these preferences vary by forest ownership. Using the choice experiment method, this research identified residents' willingness to pay for seven key local forest ecosystem services, along with a tax measure. The findings indicate a strong preference for biodiversity as the primary ecosystem service in both national/public and private forests, with residents willing to pay an average of KRW 28,370 (USD 21.80) per household per year and KRW 31,670 (USD 24.34) per household per year, respectively, for its enhancement. Preferences varied depending on forest ownership, with noticeable differences in perceptions of services like water supply, non-timber forest product supply, carbon storage, and recreation. Based on forest ownership, these variations in perceptions highlight the importance of managing ecosystem services in line with national/public forests and private forests, which significantly influences residents' preferences. The study emphasizes the necessity of formulating ecosystem service management policies that account for the region's unique natural resource characteristics, aiming to maximize ecological benefits for the local population.

**Keywords:** local forest; forest ownership; ecosystem services; choice experiment; willingness to pay



**Citation:** Son, Y.-G.; Lee, Y.; Jo, J.-H. Residents' Willingness to Pay for Forest Ecosystem Services Based on Forest Ownership Classification in South Korea. *Forests* **2024**, *15*, 551. https://doi.org/10.3390/f15030551

Academic Editor: John Innes

Received: 29 January 2024
Revised: 10 March 2024
Accepted: 15 March 2024
Published: 18 March 2024



## 1. Introduction

Forests cover 31% of the world's land area and are crucial for maintaining global biodiversity. They serve as significant carbon sinks, thereby mitigating the impacts of climate change [1]. They also provide vital resources to local communities and offer non-utilitarian values, such as improving living conditions for urban populations [2]. Countries with extensive forest coverage value forests not only for their economic worth but also for their contributions to environmental conservation and cultural heritage, recognizing them as a key component of national welfare and sustainable development [3–7]. In South Korea, forests span 6,348,834 hectares, accounting for 63.2% of the total national territory, making it the fourth highest among OECD countries in terms of the percentage of forested land [8,9].

Korean forests perform various crucial roles, as defined in the 'Forest Resources Management and Conservation Act', including water resource cultivation, disaster prevention, environmental conservation, timber production, recreation, and living environment preservation [10,11]. These roles highlight the broad spectrum of ecosystem services forests provide, encompassing provisioning, regulating, cultural, and supporting services that offer direct and indirect benefits to humans, such as resources, climate regulation, and maintenance of biodiversity [12–14].

Individual preferences for these ecosystem services vary [15]. Tian et al. [16] identified several factors affecting private forest owners' management of ecosystem services. These include forest tenure duration, individual preferences, and negative views on logging, all influencing the owners' interest in ecosystem service management. Thus, preferences for ecosystem services vary according to diverse factors, including the socio-cultural characteristics and economic status of users [17,18]. For example, government authorities own and administer national/public forests, where carbon storage services are considered a crucial function and are primarily managed [19,20]. However, Thompson and Hansen [21] investigated the preferences of private forest owners for carbon storage services and discovered that only 37% viewed these services and carbon credits positively. This underscores the significance of aligning ecosystem services with user preferences [22–24].

The variety of ecosystem services provided by forests often varies according to their ownership classification [25]. In South Korea, forests are categorized into national forests, public forests, and private forests. As of 2020, national forests span 1.65 million hectares, constituting 26.2% of the total forest area. Public forests cover 0.48 million hectares (7.7%), while private forests account for the largest portion with 4.15 million hectares (66.1%). Despite the significant area covered by private forests, research focusing on the preferred ecosystem services relative to the ownership types of regional forests is lacking. Moreover, the strategies for managing local forests to cater to the specific preferences of residents remain undefined. This gap highlights the need for a thorough analysis of residents' preferences for various types of forest ecosystem services [26,27].

### 1.1. The Tragedy of the Commons

Hardin's 'Tragedy of the Commons' [28] concept highlights how individual exploitation of public goods can reduce their collective value. Unlike pasturelands, which are non-excludable and rivalrous, forests represent a unique case of being both non-excludable and non-rivalrous [29]. Non-excludable goods are those to which access cannot be restricted without incurring a cost [30], whereas non-rivalrous goods are those whose use by one person does not reduce availability for others [31]. However, managing these resources presents challenges, as competition for rivalrous goods leads to overuse and depletion, while even non-rivalrous goods face issues of overuse [32]. This competition and overuse can ultimately lead to the depletion and degradation of resources, exemplifying the 'Tragedy of the Commons' [28].

To mitigate the 'Tragedy of the Commons,' two main strategies are proposed: privatization and government intervention. Privatization suggests that individual ownership encourages efficient and conservational use of resources [32]. Alternatively, government intervention involves regulation by a central authority to protect natural resources [33]. While no consensus exists on the superior method, privatization is often preferred in subsequent research [34–36]. However, it is crucial to acknowledge that privatization may also lead to resource degradation by increasing individual disposability [37].

Ostrom challenged the privatization and government intervention strategies by emphasizing community participation as key to resolving the 'Tragedy of the Commons' [38]. She showed that communities with a deep understanding of the resource, management experience, cohesion, and regulatory capabilities can successfully manage resources [39,40]. Ostrom's work suggests that effective management involves community-driven regulation and mutual oversight [41], underlining the importance of considering resource ownership types for tailored management strategies.

### 1.2. Ecosystem Services Valuation

The valuation of and preference for ecosystem services are shaped by regional characteristics, personal values, and experiences [12,13]. These preferences can be measured economically through willingness to pay, influencing policy decisions [42]. Ecosystem services fall into use values—direct, indirect, and option—and non-use values, including altruistic, bequest, and existence values [43,44].

Direct use values stem from consuming environmental goods, while indirect use values come from environmental processes like carbon absorption. Option values consider future resource use. Altruistic values reflect a desire for resources to be available to others, bequest values focus on preserving resources for future generations, and existence values appreciate environmental goods for their mere presence [45–47]. Forest ecosystem services are categorized accordingly, with provisioning and regulating services as use values, cultural services incorporating both use and non-use values, and supporting services as non-use values [48].

Ecosystem services are valued using methods like Stated and Revealed Preference, monetary valuation, benefit–cost analysis, cost-based approaches, and value transfer [49]. Revealed Preference, particularly through the Contingent Valuation Method (CVM) and choice experiments (CEs), is effective for valuing complex services like cultural and supporting ones [50,51]. CVM assesses non-market values but is limited to single attributes, whereas CE evaluates multiple attributes [52,53]. Jo et al. [54] used CE to study urban forest preferences in Seoul, highlighting biodiversity as a key value for residents, suggesting forest management should align with local preferences to enhance satisfaction and well-being. This underscores the importance of understanding resident preferences in forest management and planning [55,56].

Based on this background, the following research hypothesis is proposed:

Hypothesis: Residents' preferences for ecosystem services will vary significantly between national/public forests and private forests.

Consequently, this study aims to explore preferences in managing ecosystem services, specifically examining how these preferences vary based on the ownership classification of local forests. By understanding the diverse preferences for ecosystem services based on forest ownership, this study aims to contribute to more effective and tailored forest management strategies.

## 2. Materials and Methods

### 2.1. Study Site

The study was conducted in Jeollabuk-do, Republic of Korea (Figure 1). This province, accounting for 8.04% of South Korea's total area, is situated in the southwestern region of the country. The target population comprises residents living within this province. Jeollabuk-do is naturally separated from other administrative districts by the Sobaek Mountains to the east. The eastern part of the province is rich in forests, with regions such as Muju, Jinan, and Jangsu being predominantly mountainous terrain. In contrast, the western part is mostly composed of plains, especially the northwestern areas of Gunsan, Iksan, and Gimje, which have fewer forests compared to other cities. The province exhibits a terraced topography, higher in the east and gradually descending towards the west, and has a slightly longer east–west axis than its north–south axis [57].

As illustrated in Figure 2, forests in Jeollabuk-do are classified into national, public, and private forests. The region encompasses 103,117 hectares (23.4%) of national forests, 31,460 hectares (7.1%) of public forests, and a significant 306,169 hectares (69.5%) of private forests, highlighting the dominance of private ownership [58]. Additionally, considering the relatively smaller scale of forest administration in Jeollabuk-do than in other regions [59], there is a pressing need for efficient forest management. By examining the residents' preferences for ecosystem services concerning the ownership of forests in Jeollabuk-do, this study aims to enhance management efficiency by aligning it with the residents' preferred forest ecosystem services.

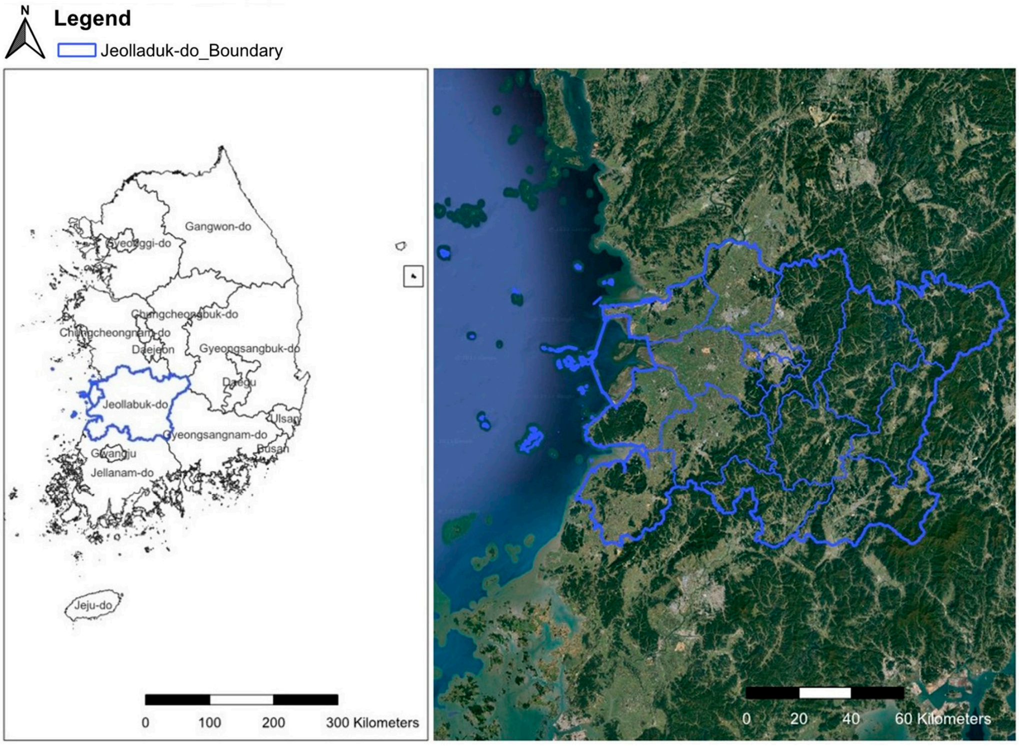



**Figure 1.** Study area.

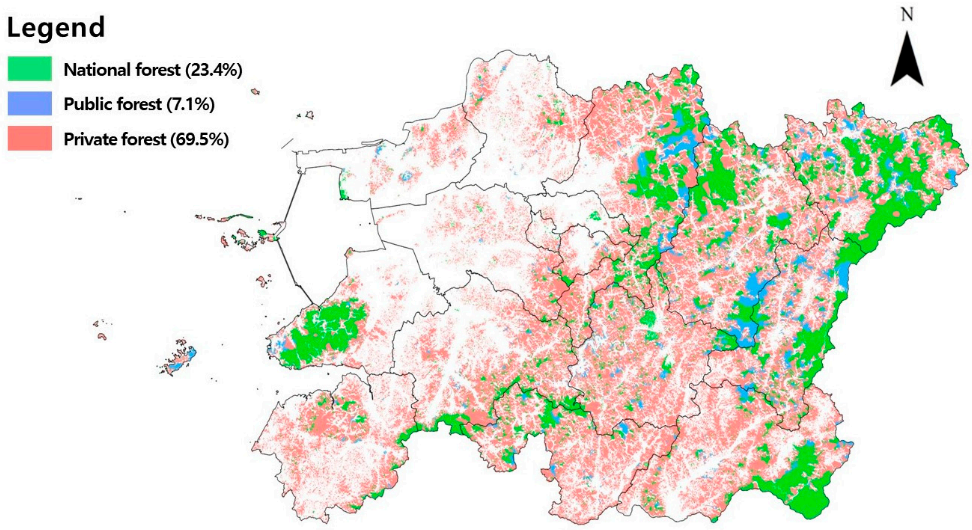



**Figure 2.** Forest ownership status in Jeollabuk-do.

### *2.2. Choice Experiment*

The choice experiment (CE) method, utilized in this study for preference analysis, falls under the Stated Preference methods used to evaluate the economic value of environmental goods. Stated Preference methods encompass both the Contingent Valuation Method (CVM) and choice experiments. Unlike CVM, which gauges value based on a hypothetical scenario for a single attribute of the target, the CE is distinct in its approach. It presents respondents with various alternatives that combine multiple attributes and levels. This setup enables a more comprehensive comparison of preferences across different attributes of the environmental goods in question [60,61].

### 2.2.1. Survey Design

This study focused on the residents of Jeollabuk-do as its subjects. As per the 2022 data from Statistics Korea [62], Jeollabuk-do's population stands at 1,774,248, which represents 3.43% of South Korea's total population.

For the choice experiment, seven attributes of ecosystem services were determined through an analysis of previous studies. The National Institute of Forest Science [63] conducted a literature review to identify representative attributes of forest ecosystem services in South Korea. They recognized key ecosystem services including provisioning services water and timber supply, soil conservation, carbon absorption, natural disaster prevention, recreational area provision, and biodiversity enhancement. Similarly, Jo et al. [54] investigated ecosystem service preferences in urban forests, identifying attributes such as water and timber supply, non-timber forest product supply, erosion control, carbon storage, water and air quality improvement, recreation, nature education, and biodiversity enhancement. Levels for each attribute were established based on findings from these previous studies.

The level of water supply provisioning was determined based on the ratio of deciduous to coniferous forests within the total forest area, following previous studies [64,65] that indicate deciduous forests provide a superior supply of water resources compared to coniferous forests. The level of timber supply was categorized based on the proportion of coniferous forests, as coniferous trees are considered more valuable as timber resources than deciduous trees, according to previous studies [66]. The level of non-timber forest product supply was classified based on the planting rate of forest products and fruit trees within the total forest area, guided by previous studies [54]. The ratios were categorized into three levels according to the FAO [67] criteria for forest type classification: less than 25%, between 25% and less than 75%, and more than 75%.

The level of erosion control was established based on previous studies [68], which argue that a higher understory coverage rate correlates with enhanced erosion control. Therefore, it was determined that forests with a high understory coverage rate would be considered to have a higher level of erosion control. The level of carbon storage varies according to forest stand type, species, and age [69,70]; therefore, the level of carbon storage was assumed to be consistent across characteristics such as forest type, species, age class, and stand density. Based on previous studies [71,72] that suggest a higher canopy density contributes to greater carbon storage, categorization was performed according to canopy density ratios [58].

The level of recreation was determined based on previous studies [73] that suggest a higher number of mountain sports activities available in forests indicates a higher level of recreation. Therefore, it was established that the more types and quantities of mountain sports activities that can be conducted in forests, the higher the level of recreation.

Given the importance of biodiversity and the general public's difficulty in recognizing it [74–77], this study references Koo [61] to establish that higher species diversity and richness in forests indicate enhanced biodiversity.

To ascertain the willingness to pay, the attribute of tax was selected. Entrance fees or donations might be influenced by personal factors including site visitation frequency, marital status, and income level [78], making tax a more suitable choice. Forests are considered public goods with substantial non-use values [79] and provide a range of direct and indirect benefits to the general population. Consequently, tax was chosen as it more accurately reflects the public nature of forests and the universal benefits they provide. Referencing the amounts shown in previous studies [54,80], the willingness to pay for the enhancement of forest ecosystem services was set at KRW 10,000 per household per year, KRW 20,000 per household per year, and KRW 40,000 per household per year.

In identifying key ecosystem service attributes for this study, seven representative attributes provided by local forests were selected based on their recurrence in previous studies. Limiting the number of attributes is crucial as an excessive number can lead to confusion among respondents and complicate the analysis [81,82]. Phelps and Shantem [83] recommend, at most, exceeding eight attributes in such assessments. Common practice involves categorizing these attributes into three levels [84], with the importance of an attribute escalating as the number of levels increases [85]. Recognizing that attribute significance is amplified with more distinct levels, eight attributes were identified, each divided into three stages. This approach informed the categorization presented in Table 1 [80].

**Table 1.** The attributes and levels of local forest ecosystem services.

| Attributes | | Levels | References |
|---|---|---|---|
| Provisioning | Water supply | Low: less than 25% of deciduous trees<br>Medium: 25% to less than 75% of deciduous trees<br>High: more than 75% of deciduous trees | [64,65,67] |
| | Timber supply | Low: less than 25% of coniferous trees<br>Medium: 25% to less than 75% of coniferous trees<br>High: more than 75% of coniferous trees | [66,67] |
| | Non-timber forest products supply | Low: less than 25% of forest products and fruit trees planting<br>Medium: 25% to less than 75% of forest products and fruit trees planting<br>High: more than 75% of forest products and fruit trees planting | [54] |
| Regulating | Erosion control | Low: area covered by the forest 33%<br>Medium: area covered by the forest 66%<br>High: area covered by the forest 99% | [68] |
| | Carbon storage | Low: low canopy density (less than 40% canopy cover area by trees)<br>Medium: medium canopy density (canopy cover area of 41~70%)<br>High: high canopy density (more than 71% canopy cover area by trees) | [58,69,70] |
| Cultural | Recreation | Low: trekking<br>Medium: trekking, camping, and climbing<br>High: trekking, camping, climbing, MTB, paragliding, etc. | [73] |
| Supporting | Biodiversity | Low: poor<br>Medium: average<br>High: high | [61] |
| Tax | WTP for forest ecosystem service (Tax) (KRW/household/year) | Low: KRW 10,000 (USD 7.68)<br>Medium: KRW 20,000 (USD 15.37)<br>Rich: KRW 40,000 (USD 30.74) | [54] |

KRW 10,000 = USD 7.69 (23 November 2023).

The regional forest ecosystem services selected for this study comprise eight attributes, each with three levels. This results in 6561 ($3^8$) possible combinations. Given that studying all combinations is impractical and considering the likelihood of high correlations between attributes, an orthogonal design was employed to manage this complexity [86,87]. From this design, 27 alternatives were derived, and pairs were randomly formed to create 351 (${}_{27}C_2$) different combinations. In the survey, respondents were presented with four combinations for each category of forest ecosystem services. In addition to alternatives 1 and 2, which displayed varied attributes and levels, a 'Not selecting anything' option was also included to allow respondents a choice to opt out. The purpose of this addition is to enhance the accuracy of responses by increasing the probability of respondents selecting the alternative they truly prefer [88].

In the survey, respondents were presented with descriptions and illustrations depicting the various attributes and levels of a hypothetical environment. This approach aligns with findings from Patterson et al. [89], who highlighted the effectiveness of hypothetical scenarios in surveys for capturing respondents' attention and yielding significant results. Moreover, Bateman et al. [90] and Matthews et al. [91] have emphasized that visual aids in surveys contribute to more consistent responses from participants. Shr et al. [92] further observed that combining images and text to explain attribute levels in choice experiments can more effectively elucidate respondents' preferences. Hence, for this study's choice experiments, illustrations, compared to photographs, were chosen as the medium for presenting the attributes and levels of the hypothetical scenarios due to their ability to more straightforwardly convey the information (see Figure 3).

Various methods exist for estimating parameters in choice experiments, including the conditional logit model, mixed logit model, and latent class model. The conditional logit model is favored for its convenience in parameter estimation. However, it operates under the Independence of Irrelevant Alternatives (IIA) assumption. This implies that the presence or absence of other alternatives does not affect the choice between the options presented, which can be a significant limitation [93]. In contrast, the mixed logit and latent class models are more adept at capturing variations in respondents' preferences but are less effective at highlighting preference diversity. For this study, the conditional logit model was employed. This decision was based on the fact that the independence of the alternatives was upheld, as evidenced by the results of the IIA test. This model was deemed appropriate given the specific requirements and context of the research.

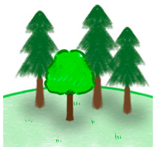
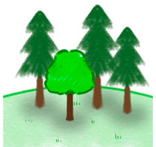
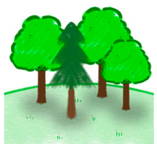
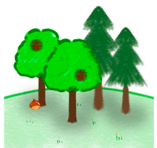
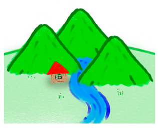
<table>
<tr><td colspan="4">You will be visiting a forest in Jeollabuk-do, which is a 'national/public forest'. You are required to visit one forest, and your options are limited to the two forests described here. After viewing the cards that describe each forest, please respond to the following question. Note that the forest you choose will entail a tax payment, as indicated on the card for the use of that forest.<br>"Comparing the two national/public forests, which forest do you prefer?"</td></tr>
<tr><td>Ecosystem services</td><td>Plan A □</td><td>Plan B □</td><td>Plan C □</td></tr>
<tr><td>Water supply</td><td><br>Less than 25% of deciduous trees</td><td><br>25% to less than 75% of deciduous trees</td><td rowspan="4">Not selecting anything</td></tr>
<tr><td>Timber supply</td><td><br>More than 75% of coniferous trees</td><td><br>Less than 25% of coniferous trees</td></tr>
<tr><td>Non-timber forest product supply</td><td><br>25% to less than 75% of forest products and fruit tree planting</td><td><br>Less than 25% of forest products and fruit tree planting</td></tr>
<tr><td>Erosion control</td><td><br>Area covered by the forest 66%</td><td><br>Area covered by the forest 99%</td></tr>
</table>

**Figure 3.** *Cont.*

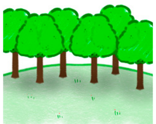
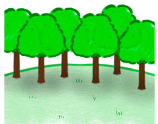
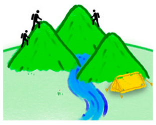
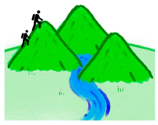
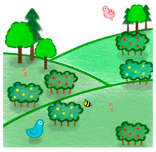
| | | | |
|---|---|---|---|
| Carbon storage |  High canopy density |  High canopy density | |
| Recreation |  Trekking, camping, and climbing |  Trekking | |
| Biodiversity |  Average |  Rich | |
| WTP for forest ecosystem services | Annual KRW 20,000 per household | Annual KRW 40,000 per household | |

**Figure 3.** Example of choice experiment survey.

### 2.2.2. Choice Experiment Theoretical Model

The theoretical background of choice experiments is based on McFadden's [94] Random Utility Model, Hanemann's [95] Discrete Choice Model, and Lancaster's [96] Characteristic Theory of Demand [61,97].

According to the Random Utility Model, it is posited that a decision-maker selects the alternative that maximizes their personal utility from the set of available options. This model is expressed through an indirect utility function, which represents the utility of a respondent $n$ when they choose an alternative $i$. The specific formulation of this utility function is detailed in Equation (1).

$$U_{ni} = V_{ni} + e_{ni} \quad (1)$$

In the context of the Random Utility Model, $e_{ni}$ represents the utility component that is not accounted for by the characteristics of the goods. The importance of this variable lies in its role as the foundation for maximum likelihood estimation in statistical analysis.

Lancaster's Characteristic Theory of Demand suggests that goods are essentially bundles of various attributes. According to this theory, respondents derive utility not directly from the goods themselves but from the combination of attributes these goods possess. The deterministic part of the utility, denoted as $V_{ni}$, is constructed as a linear combination of an attribute vector $X_i$, comprising $m$ attributes, as illustrated in Equation (2). This theory aptly aligns with the premise of choice experiments, where goods are assumed to be composed of multiple attributes, each contributing to the overall utility derived by the respondents.

$$V_{ni} = \sum_{k=1}^{m} \beta_k X_i \quad (2)$$

The Discrete Choice Model operates by presenting respondents with a set of options, from which they are asked to select one. This selection process is then utilized to explain or predict their choice behavior. The model calculates the probability that the nth respondent will prefer option $i$ over option $j$, as delineated in Equation (3). This probability is underpinned by the premise that the utility derived from choosing option $i$ is greater than that from choosing option $j$. This concept is rooted in the theory of utility maximization, which asserts that individuals make decisions in a manner that maximizes their personal utility.

$$P_{ni} = \Pr\left(V_{nj} + e_{nj} > V_n + e_{ni}\right) \tag{3}$$

In the conditional logit model, as represented in Equation (4), $V$ signifies the contribution of attribute $i$ to the overall utility. This model assumes that the probabilistic component of choice follows the Gumbel distribution, also known as the Type-I extreme value distribution. This assumption is crucial for the estimation of parameter values within the model. The specific formulation of this probabilistic component is detailed in Equation (4) [93]. The Gumbel distribution aids in modeling the random variation in utility that cannot be explained by observable attributes alone.

$$P_{ni} = \frac{e^{V_{ni}}}{\sum_j e^{V_{nj}}} \tag{4}$$

## 3. Results

### 3.1. Characteristics of Respondents

This study aimed to gauge residents' preferences for forest ecosystem services and their willingness to pay, thereby gaining insights into local preferences for regional forest ecosystem services. Prior to conducting the research, approval was secured from the Institutional Review Board (WKIRB-202307-SB-057). Data collection was carried out from 10 August to 14 August 2023. Residents of Jeollabuk-do aged 19 and above, who had resided in the area for over a year, were contacted via email for the survey. A total of 4177 emails were dispatched, resulting in 790 individuals accessing the survey link. After excluding responses from those outside the target demographic, those who exceeded the sample size limit, and those who did not complete the survey, an initial collection of 490 responses was obtained. Following a review process that identified and removed 90 insincere responses, a final dataset of 400 valid responses was compiled and analyzed (see Table 2). The response rate for the survey was 50.63%, which meets the nonresponse rate criteria of 65% [98] and 70% [99].

**Table 2.** Response status.

<table>
<tr><th colspan="4">Status</th><th>Case Number (Person)</th><th>Proportion (%)</th></tr>
<tr><td rowspan="6">Survey link successfully sent</td><td colspan="3">Received Survey link unchecked</td><td>3387</td><td>81.1</td></tr>
<tr><td rowspan="5">Received Survey link checked</td><td rowspan="3">Out</td><td>Not targeted subject</td><td>83</td><td>2.0</td></tr>
<tr><td>Exceeded targeted subject</td><td>154</td><td>3.7</td></tr>
<tr><td>Incomplete response</td><td>63</td><td>1.4</td></tr>
<tr><td rowspan="2">Response completed</td><td>Untrustworthy data</td><td>90</td><td>2.2</td></tr>
<tr><td>Completed response</td><td>400</td><td>9.6</td></tr>
<tr><td colspan="4">Total</td><td>4177</td><td>100.0</td></tr>
</table>

The socio-economic characteristics of the respondents are detailed in Table 3. In reviewing these characteristics against the data from the Population and Housing Census by the Statistics Office and the Social Survey Report of Jeollabuk-do, we identified a notable discrepancy. The respondent demographics, with the exception of gender, did not entirely mirror the broader population of Jeollabuk-do. This disparity is a known limitation of online surveys [100]. Particularly, the lower internet access and usage rates among individuals aged 50 and above, largely due to lower digital literacy and accessibility among the elderly, contributed to a reduced representation of this age group in the survey responses. This aspect highlights a potential bias in the sample, which should be considered when interpreting the study's findings.

**Table 3.** Characteristics of respondents.

| Category | | | Sample Size (%) | Proportion of Jeollabuk-do's Total Population, as of 2020 (%) |
|---|---|---|---|---|
| Variables | | Code | | |
| Age | 20s | 2 | 26.5 | 15.7 |
| | 30s | 3 | 26.8 | 11.2 |
| | 40s | 4 | 26.8 | 10.0 |
| | 50s and above | 5 | 20.0 | 48.8 |
| Sex | Male | 1 | 50.0 | 49.8 |
| | Female | 2 | 50.0 | 51.1 |
| Marriage | Single | 0 | 52.0 | 12.0 |
| | Married | 1 | 48.0 | 88.0 |
| Number of children | None | 0 | 15.5 | - |
| | 1 | 1 | 13.3 | |
| | 2 | 2 | 16.8 | |
| | 3 above | 3 | 2.5 | |
| Education | Less than middle school graduate | 1 | 0.8 | 48.1 |
| | High school graduate | 2 | 12.3 | 29.2 |
| | Attending or graduated university | 3 | 73.0 | 21.0 |
| | Graduate school student or graduate degree holder | 4 | 14.0 | 1.7 |
| Monthly household income | Less than KRW 1,000,000 | 0 | 6.3 | 21.7 |
| | KRW 1,000,000 to less than KRW 2,000,000 | 1 | 5.5 | 18.3 |
| | KRW 2,000,000 to less than KRW 3,000,000 | 2 | 21.0 | 20.2 |
| | KRW 3,000,000 to less than KRW 4,000,000 | 3 | 16.8 | 14.7 |
| | KRW 4,000,000 to less than KRW 5,000,000 | 4 | 14.3 | 9.5 |
| | KRW 5,000,000 to less than KRW 6,000,000 | 5 | 14.3 | 6.4 |
| | KRW 6,000,000 to less than KRW 7,000,000 | 6 | 8.0 | 3.5 |
| | KRW 7,000,000 to less than KEW 8,000,000 | 7 | 6.3 | 1.8 |
| | KRW 8,000,000 or more | 8 | 7.8 | 3.9 |
| Number of forest visits in the past year | None | 1 | 24.8 | - |
| | More than once | 2 | 75.3 | |
| Purpose of visit | Forestry activities | 1 | 0.3 | |
| | Relaxation/walking | 2 | 46.5 | |
| | Nature experience(education) | 3 | 1.0 | |
| | Physical activity | 4 | 27.0 | |
| | Others | 5 | 0.5 | |

Source: adapted from Jo et al. [54].

### *3.2. Results of Estimation*

In this survey, respondents were asked twice about their preferences for ecosystem services in both national/public and private forests. For each query, respondents were presented with a set of three alternatives, and this process was repeated four times. As a result, a total of 1600 data points were collected for national/public forests and an equal number for private forests, culminating in 3200 data points overall. The analysis of this data was carried out using R, specifically employing conditional logistic regression [101]. The results of this analysis highlighted distinct differences in preferences for ecosystem services between national/public forests and private forests. This indicates that the preferences of residents in Jeollabuk-do for forest ecosystem services are influenced by the type of forest, as detailed in Table 4. The analysis incorporated a Log Likelihood test, which confirmed significant differences between preferences for national/public forests and private forests. Further hypothesis testing on specific attributes revealed notable differences in preferences for water supply, non-timber forest product supply, carbon storage, and recreation. In particular, ecosystem services like medium levels of water supply and carbon storage were more favored in national/public forests. Conversely, higher levels of non-timber forest product supply and recreational opportunities were preferred in private forests. These findings underscore the variation in preferences for local forest ecosystem services based on forest ownership type. They align with previous studies [102–104], reinforcing the argument for adopting diverse and tailored management strategies for different forest types to adequately address these varied preferences.

**Table 4.** The estimation results.

| Ecosystem Service (Attributes) | Attributes and Levels | National/Public Forest (N) | Private Forest (P) | Hypothesis Testing ($\beta_N = \beta_P$) $\chi^2$ (1) |
|---|---|---|---|---|
| Alternative specific constant (ASC) | | 1.302 *** | 1.568 *** | |
| Water supply (Reference level: less than 25% of deciduous trees) | 25% to less than 75% of deciduous trees | 0.073 | 0.107 | 0.065 |
| | More than 75% of deciduous trees | 0.468 *** | 0.183 * | 4.921 ** |
| Timber supply (Reference level: less than 25% of coniferous trees) | 25% to less than 75% of coniferous trees | 0.000 | −0.084 | 0.437 |
| | More than 75% of coniferous trees | 0.077 | 0.041 | 0.080 |
| Non-timber forest product supply (Reference level: less than 25% of forest products and fruit tree planting) | 25% to less than 75% of forest products and fruit trees planting | −0.085 | 0.098 | 2.007 |
| | More than 75% of forest products and fruit trees planting | −0.236 * | 0.207 * | 11.658 *** |
| Erosion control (Reference level: area covered by the forest 33%) | Area covered by the forest 66% | 0.383 *** | 0.415 *** | 0.057 |
| | Area covered by the forest 99% | 0.697 *** | 0.498 *** | 2.356 |
| Carbon storage (Reference level: low canopy density) | Medium canopy density | 0.542 *** | 0.123 | 10.181 *** |
| | High canopy density | 0.627 *** | 0.437 *** | 2.149 |
| Recreation (Reference level: trekking) | Trekking, camping, and climbing | 0.226 * | 0.337 *** | 0.738 |
| | Trekking, camping, climbing, MTB, paragliding, etc. | 0.194 * | 0.519 *** | 6.214 ** |
| Biodiversity (Reference level: poor) | Average | 0.504 *** | 0.380 *** | 0.898 |
| | Rich | 0.745 *** | 0.598 *** | 1.271 |
| WTP for forest ecosystem service (Tax) (KRW/household/year) | | −0.022*** | −0.015 *** | |

Significance level: * 10%, ** 5%, and *** 1%.

The analysis utilizing the conditional logit model revealed that, for national/public forests, the preferences of Jeollabuk-do residents were statistically significant for all attribute levels, with the exception of timber supply. These preferences significantly influenced the respondents' choices, as detailed in Table 5. When it comes to the average willingness to pay (WTP) for changes in ecosystem service attributes, biodiversity was found to be the most valued. It was followed, in descending order, by carbon storage, erosion control, water supply, recreation, timber supply, and non-timber forest product supply. Notably, biodiversity attracted the highest WTP. Residents of Jeollabuk-do expressed a willingness to pay KRW 22,896 (USD 17.60) per household per year for an enhancement from a 'low' to 'medium' biodiversity level and an even higher KRW 33,844 (USD 26.01) per household per year for an improvement from 'low' to 'high' biodiversity level. Interestingly, the analysis revealed a unique trend in the willingness to pay for recreation services. While the WTP for an improvement from 'low' to 'medium' was KRW 10,250 (USD 7.88) per household per year, it surprisingly decreased to KRW 8836 (USD 6.79) per household per year for an enhancement from 'low' to 'high' level. This decrease in WTP, despite an increase in the level of service, highlights a complex valuation pattern for recreation services. In contrast, erosion control and carbon storage demonstrated increasing WTPs with higher levels of service. The WTP for erosion control rose from KRW 17,421 (USD 13.39) per household per year for a 'low' to 'medium' improvement to KRW 31,667 (USD 24.34) per household per year for a 'low' to 'high' improvement. Similarly, carbon storage's WTP increased from KRW 24,618 (USD 18.92) per household per year to KRW 28,517 (USD 21.92) per household per year for the same respective improvements. Furthermore, the study noted negative values for non-timber forest product supply and tax attributes. This suggests that higher levels of these attributes were perceived negatively, adversely impacting the respondents' choices.

**Table 5.** Willingness to pay for ecosystem services in national/public forest.

| Ecosystem Service (Attributes) | Attributes and Levels | Coefficient | z | p > z | MWTP (Unit: Korean Won (KRW)) | | |
|---|---|---|---|---|---|---|---|
| | | | | | Mean | 95% CI | |
| Alternative specific constant (ASC) | | 1.302 *** | 6.39 | 0.000 | | | |
| Water supply (Reference level: less than 25% of deciduous) | 25% to less than 75% of deciduous trees | 0.073 | 0.79 | 0.429 | 3339 | −5127 | 12,379 |
| | More than 75% of deciduous trees | 0.468 *** | 5.13 | 0.000 | 21,271 | 12,446 | 33,170 |
| Timber supply (Reference level: less than 25% of coniferous trees) | 25% to less than 75% of coniferous trees | 0.000 | 0.01 | 0.996 | 0.021 | −8405 | 8309 |
| | More than 75% of coniferous trees | 0.077 | 0.84 | 0.401 | 3511 | −4745 | 12,317 |
| Non-timber forest products supply (Reference level: less than 25% of forest products production and fruit tree planting) | 25% to less than 75% of forest products and fruit trees planting | −0.085 | −0.93 | 0.354 | −3855 | −12,420 | 4387 |
| | More than 75% of forest products production and fruit trees planting | −0.236 * | −2.50 | 0.013 | −10,719 | −20,600 | −2207 |
| Erosion control (Reference level: area covered by the forest 33%) | Area covered by the forest 66% | 0.383 *** | 4.04 | 0.000 | 17,421 | 8733 | 29,122 |
| | Area covered by the forest 99% | 0.697 *** | 7.50 | 0.000 | 31,667 | 21,928 | 45,975 |

**Table 5.** *Cont.*

| Ecosystem Service (Attributes) | Attributes and Levels | Coefficient | z | *p* > z | MWTP (Unit: Korean Won (KRW)) | | |
|---|---|---|---|---|---|---|---|
| | | | | | Mean | 95% CI | |
| Carbon storage (Reference level: low canopy density) | Medium canopy density | 0.542 *** | 5.67 | 0.000 | 24,618 | 15,279 | 37,450 |
| | High canopy density | 0.627 *** | 6.65 | 0.000 | 28,517 | 19,001 | 42,076 |
| Recreation (Reference level: trekking) | Trekking, camping, and climbing | 0.226 * | 2.41 | 0.016 | 10,250 | 1947 | 20,301 |
| | Trekking, camping, climbing, MTB, paragliding, etc. | 0.194 * | 2.09 | 0.036 | 8836 | 0.486 | 18,453 |
| Biodiversity enhancement (Reference level: poor) | Average | 0.504 *** | 5.42 | 0.000 | 22,896 | 13,703 | 35,699 |
| | Rich | 0.745 *** | 7.99 | 0.000 | 33,844 | 23,710 | 48,961 |
| WTP for forest ecosystem service (Tax) (KRW/household/year) | | −0.022 *** | −7.08 | 0.000 | | | |

Significance level: * 10%, and *** 1%; KRW 10,000 = USD 7.69 (23 November 2023).

In private forests, similar to national/public forests, changes in all attribute levels, excluding timber supply, were statistically significant and influenced respondents' choices, as detailed in Table 6. The pattern of average willingness to pay (WTP) for changes in ecosystem service attributes differed from that observed in national/public forests. In private forests, the highest WTP was for biodiversity, followed by erosion control, recreation, non-timber forest product supply, water supply, carbon storage, and, lastly, timber supply. Notably, as in national/public forests, biodiversity was the attribute to the highest preference. Residents were willing to pay KRW 24,609 (USD 18.91) per household per year for an improvement from 'low' to 'medium' level and an even higher KRW 38,730 (USD 29.76) per household per year for an upgrade from 'low' to 'high'. Contrary to the trend in national/public forests, where the WTP for recreation services decreased for higher levels of improvement, in private forests, the WTP increased to KRW 21,846 (USD 16.79) per household per year for 'medium' level and KRW 33,617 (USD 25.83) per household per year for 'high' level improvements. Similar to the findings in national/public forests, negative values were observed for timber supply and tax attributes in private forests, indicating that an increase in these levels had a negative impact on respondents' choices.

**Table 6.** Willingness to pay for ecosystem services in private forests.

| Ecosystem Service (Attributes) | Attributes and Levels | Coefficient | z | *p* > z | MWTP (Unit: Korean Won (KRW)) | | |
|---|---|---|---|---|---|---|---|
| | | | | | Mean | 95% CI | |
| Alternative specific constant (ASC) | | 1.568 *** | 7.45 | 0.000 | | | |
| Water supply (Reference level: less than 25% of deciduous trees) | 25% to less than 75% of deciduous trees | 0.107 | 1.18 | 0.239 | 6902 | −4669 | 21,024 |
| | More than 75% of deciduous trees | −0.183 * | 2.03 | 0.042 | 11,881 | 0.581 | 27,492 |
| Timber supply (Reference level: less than 25% of coniferous trees) | 25% to less than 75% of coniferous trees | −0.084 | −0.93 | 0.351 | −5445 | −18,722 | 6198 |
| | More than 75% of coniferous trees | 0.041 | 0.45 | 0.649 | 2648 | −9260 | 15,796 |

**Table 6.** *Cont.*

| Ecosystem Service (Attributes) | Attributes and Levels | Coefficient | z | *p* > z | MWTP (Unit: Korean Won (KRW)) | | |
|---|---|---|---|---|---|---|---|
| | | | | | Mean | 95% CI | |
| Non-timber forest products supply (Reference level: less than 25% of forest product production and fruit tree planting) | 25% to less than 75% of forest products and fruit trees planting | 0.098 | 1.08 | 0.282 | 6360 | −5628 | 20,058 |
| | More than 75% of forest products production and fruit trees planting | 0.207 * | 2.33 | 0.020 | 13,408 | 1888 | 29,378 |
| Erosion control (Reference level: area covered by the forest 33%) | Area covered by the forest 66% | 0.415 *** | 4.57 | 0.000 | 26,875 | 14,268 | 49,000 |
| | Area covered by the forest 99% | 0.498 *** | 5.49 | 0.000 | 32,241 | 18,924 | 56,331 |
| Carbon storage (Reference level: low canopy density) | Medium canopy density | 0.123 | 1.36 | 0.173 | 7952 | −3466 | 22,077 |
| | High canopy density | 0.437 *** | 4.86 | 0.000 | 28,287 | 15,365 | 50,023 |
| Recreation (Reference level: trekking) | Trekking, camping, and climbing | 0.337 *** | 3.73 | 0.000 | 21,846 | 10,066 | 40,975 |
| | Trekking, camping, climbing, MTB, paragliding, etc. | 0.519 *** | 5.69 | 0.000 | 33,617 | 20,075 | 57,152 |
| Biodiversity enhancement (Reference level: poor) | Average | 0.380 *** | 4.12 | 0.000 | 24,609 | 12,036 | 44,247 |
| | Rich | 0.598 *** | 6.56 | 0.000 | 38,730 | 24,164 | 64,404 |
| WTP for forest ecosystem service (Tax) (KRW/household/year) | | −0.015 *** | −5.19 | 0.000 | | | |

Significance level: * 10%, and *** 1%; KRW 10,000 = USD 7.69 (23 November 2023).

## 4. Discussion

This study was initiated with the hypothesis that residents' preferences for ecosystem services would vary according to forest ownership in Jeollabuk-do. Focusing on residents who have lived in Jeollabuk-do for more than a year and are aged 19 or older, it aimed to survey their willingness to pay (WTP) for improvements in forest ecosystem service levels. A choice experiment was conducted for this purpose, and data from 400 respondents were analyzed using the conditional logit model. Previous studies have either estimated preferences for ecosystem services for a single forest type [97,98] or focused on estimating ecosystem service preferences in major cities [54,105]. In this study, considering the ownership of forests, preferences for ecosystem services provided by regional forests were examined. While previous studies [54] examining the differences in preferences according to different forest types indicated no significant differences in preferences, Lapointe et al. [24] highlighted distinctions in ecosystem service preferences between urban and rural areas. The findings of this research underscore that residents perceive national/public forests and private forests differently. Specifically, residents in Jeollabuk-do showed a higher preference for national/public forests characterized by a substantial proportion of deciduous trees, lower ratios of forest products and fruit trees, high understory coverage and canopy density, and the availability of basic mountain sports activities such as hiking, camping, and climbing. A key factor contributing to this preference was the presence of rich biodiversity within these forests. Similarly, preferences for ecosystem services in private forests were higher in forests with a high proportion of deciduous trees, high ratios of forest products and fruit trees, high understory coverage and canopy density, the possibility of various mountain sports activities, and rich biodiversity.

When analyzing the preferences for ecosystem services in national/public and private forests regarding average willingness to pay (WTP), biodiversity was consistently the most preferred service, aligning with previous studies' findings [54,106]. Jo et al. [54] reported that the willingness to pay (WTP) for improving urban forest biodiversity from 'poor' to 'average' levels was KRW 12,632 per household per year; for enhancing biodiversity from 'poor' to 'rich' levels, the WTP was KRW 21,645 per household per year. Muller et al. [107] found that citizens prefer improving species habitat services over recreational services, with an annual household WTP of KRW 54,291 for enhancing species habitat services. In this study, the average WTP for enhancing biodiversity in national/private forests from 'low' to 'medium' levels was KRW 28,370 per household per year; from 'low' to 'high' levels, the WTP was KRW 31,670 per household per year, indicating differences in WTP compared to previous studies. This suggests that biodiversity has become increasingly important over time [108], and differences in WTP may arise due to income level disparities between countries [109,110].

The erosion control service was universally favored, regardless of forest ownership. This preference is likely influenced by the increased occurrences of localized heavy rainfalls and subsequent landslides [111]. The survey was conducted right after the monsoon season, which could have heightened residents' awareness and concern for landslide prevention and erosion control [112]. Although some ecosystem services like biodiversity and erosion control are universally preferred, other attributes demonstrated varying preferences depending on forest ownership.

### *4.1. National/Public Forest Ecosystem Services*

The preference for the water supply service, when improved from 'low' to 'high', was notably higher in national/public forests than private forests. Although previous studies have suggested that water supply is more influenced by the proportion of forest area to total land area than by forest ownership [113], the actual perceptions of residents seem to diverge from this. National/public forests, primarily managed for nature conservation, likely influenced this higher preference for water supply services than the varied management goals of private forests [114,115]. Similarly, the preference for carbon storage services significantly increased from 'low' to 'medium' in national forests but not in private forests. This difference can also be attributed to the conservation focus in national/public forests, leading to a stronger preference for carbon storage services than in private forests. Carbon storage is significantly influenced by the methods of forest management and the intensity of harvesting [116]. Consequently, it is assessed that there is a relatively higher preference for carbon storage in national/public forests, where uniform management approaches can be applied, compared to private forests, where the objectives of forest management vary according to the owner.

Furthermore, it was noted that the willingness to pay (WTP) for recreation services was lower when improving from the 'low' to 'high' level compared to an enhancement from 'low' to 'medium'. This trend is attributed to the residents' perception that extensive mountain sports activities could lead to forest overdevelopment, thereby potentially harming the forest environment [73,117]. Many previous studies have reported that recreation has a negative impact on the natural environment. Steven et al. [118] reported that forest recreation activities such as hiking, mountain biking, and mountain horseback riding have negative effects on the environment. Evju et al. [119] reported that all trail-based activities cause damage to vegetation and soil.

In a similar vein, for the non-timber forest product supply service, WTP decreased as the level of the service increased. This decrease in WTP is believed to stem from the same concerns as those for the recreation service, where increased activity levels are perceived as potentially detrimental to forest health and sustainability. Moegenburg and Levey [120] reported that the management of non-timber forest products to meet market demand has a negative impact on forest ecosystems, while Albers and Robinson [121] found that the patterns of supplying non-timber forest products determine the level and pattern of forest cover and degradation.

Consequently, as indicated by previous studies, local communities consider the protection and conservation of national/public forests to be important [122], and recreation and the supply of non-timber forest products are less preferred compared to private forests; as the level of ecosystem service management increases, there is a potential for negative impacts on the forest environment.

### *4.2. Private Forest Ecosystem Services*

In private forests, the carbon storage service, which was a high priority in national/public forests, ranked only sixth in terms of preference. Conversely, attributes like non-timber forest product supply and recreation services, which had lower WTP in national/public forests, exhibited higher values in private forests. This indicates that residents perceive private forests more as areas for the economic activities of the owners [123]. The trend for recreation services also differed from that in national/public forests; in private forests, the WTP was higher for an improvement from the 'low' to 'high' level than from 'low' to 'medium'. This aligns with the findings of Sotomayor et al. [124], suggesting that people value diverse activities more in private forests than national/public forests. While timber supply has traditionally been a key function of forests, it was not significantly preferred by residents, and the WTP for this service was also low.

In the past, timber supply was a significant activity and one of the important functions of forests [125]. However, according to Levers et al. [126], the intensity of forest logging has significantly decreased compared to the past. Additionally, Heinonen et al. [127] reported that, as the preferences of private forest owners in Finland shifted towards conservation, the supply of timber decreased. It is believed that changes in environmental awareness have influenced the preference for timber supply through forest logging.

As shown in previous studies, changes in perception towards forests and shifts in societal values have influenced local communities' preferences for ecosystem services. Carrus et al. [128] reported that people in modern society are increasingly recognizing the ecological and social values of trees and forests. Consequently, among various forest ecosystem services, biodiversity is the most preferred. However, it is recognized that private forests are places of economic activity for the owners; when visiting private forests, it is believed that people prefer to engage in different activities compared to national/public forests.

## 5. Conclusions

The results of this study offer substantial evidence for the development of forest ecosystem service management strategies that are aligned with residents' preferences. It highlights that, since forest functions vary depending on the owners' management objectives [129], customizing management strategies to reflect the type of forest ownership is crucial. Such tailored approaches can significantly improve the efficiency of managing local forest ecosystem services and budget allocations. Additionally, these strategies are likely to enhance the ecological utility for residents, ensuring that the management of forests is responsive to the needs and values of the local community.

As proposed in this study, forest ownership is an important factor to consider in forest management. For instance, for the successful implementation of forest projects like REDD+, local governance is crucial [130,131], and successful local governance requires considering forest ownership. The REDD+ Safeguard Information System (SIS) also includes elements such as forest governance and respect for the rights of residents, making it important to reflect their preferences [132]. Therefore, it is necessary to manage forest ecosystem services based on whether forest ownership lies with the state or with other individuals, including residents, and to consider the preferences of residents in the project areas in light of forest ownership. By doing so, we can establish local governance that involves the local community in the management of forest ecosystem services, leading to the successful execution of forest projects.

A notable limitation of this study is that the sample does not fully represent the population. The survey was conducted online, resulting in a lower representation of respondents aged 50 and above, who constitute a significant portion of the rapidly aging population in Jeollabuk-do. Additionally, conducting the survey in regions outside of metropolitan areas like Seoul limited the availability of a diverse sample, which can be considered another limitation. When conducting surveys, especially considering the accelerating depopulation in rural areas, efforts to maximize sample collection through face-to-face surveys, using local communities, and conducting Gang surveys instead of relying solely on online methods are deemed important.

**Author Contributions:** Conceptualization, Y.-G.S. and J.-H.J.; methodology, Y.-G.S. and J.-H.J.; formal analysis, Y.-G.S. and J.-H.J.; investigation, Y.-G.S. and J.-H.J.; data curation, Y.-G.S. and J.-H.J.; writing—original draft preparation, Y.-G.S.; writing—review and editing, J.-H.J. and Y.L.; supervision, J.-H.J. and Y.L. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research was supported by the Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (2021R1I1A3044195).

**Data Availability Statement:** The data presented in this study are available on request from the corresponding author.

**Conflicts of Interest:** The authors declare no conflicts of interest.

## References

1. FAO; UNEP. *The State of the World's Forests 2020: Forests, Biodiversity and People*; Food and Agriculture Organization of the United Nations: Rome, Italy, 2020.
2. Jin, X.; Ma, J.; Cai, T.; Sun, X. Non-use Value Assessment for Wetland Ecosystem Service of Hongxing National Nature Reserve in Northeast China. *J. For. Res.* **2016**, *27*, 1435–1442. [CrossRef]
3. Siiskonen, H. The Conflict between Traditional and Scientific Forest Management in 20th Century Finland. *For. Ecol. Manag.* **2007**, *249*, 125–133. [CrossRef]
4. Kumagai, J.; Wakamatsu, M.; Hashimoto, S.; Saito, O.; Yoshida, T.; Yamakita, T.; Hori, K.; Matsui, T.; Oguro, M.; Aiba, M. Natural Capital for Nature's Contributions to People: The Case of Japan. *Sustain. Sci.* **2021**, *6*, 5162–5186. [CrossRef]
5. Park, M.S.; Lee, H. Forest Policy and Law for Sustainability within the Korean Peninsula. *Sustainability* **2014**, *6*, 5162–5186. [CrossRef]
6. Builan, G. *The Multilocality of Satoyama. Landscape, Cultural Heritage and Environmental Sustainability in Japan*; Ca'foscari Japanese Studies: Venezia, Italy, 2021. [CrossRef]
7. Li, Y.; Mei, B.; Linhares-Juvenal, T. The Economic Contribution of the World's Forest Sector. *For. Policy Econ.* **2019**, *100*, 236–253. [CrossRef]
8. Korea Forest Service. *Statistical Yearbook of Forestry*; Korea Forest Service: Seoul, Republic of Korea, 2022.
9. Korea Forest Service. *2020 Forest Statistics*; Korea Forest Service: Seoul, Republic of Korea, 2021.
10. De Groot, R.S.; Wilson, M.A.; Boumans, R.M. A Typology for the Classification, Description and Valuation of Ecosystem Functions, Goods and Services. *Ecol. Econ.* **2002**, *41*, 393–408. [CrossRef]
11. Maes, J.; Liquete, C.; Teller, A.; Erhard, M.; Paracchini, M.L.; Barredo, J.I.; Grizzetti, B.; Cardoso, A.; Somma, F.; Petersen, J. An Indicator Framework for Assessing Ecosystem Services in Support of the EU Biodiversity Strategy to 2020. *Ecosyst. Serv.* **2016**, *17*, 14–23. [CrossRef]
12. Costanza, R.; d'Arge, R.; De Groot, R.; Farber, S.; Grasso, M.; Hannon, B.; Limburg, K.; Naeem, S.; O'neill, R.V.; Paruelo, J. The Value of the World's Ecosystem Services and Natural Capital. *Nature* **1997**, *387*, 253–260. [CrossRef]
13. Daily, G.C. *Introduction: What Are Ecosystem Services*; Island Press: Washington, DC, USA, 1997.
14. Millennium Ecosystem Assessment. *Ecosystems and Human Well-Being*; Island Press: Washington, DC, USA, 2005.
15. Khan, A.; Khan, S.U.; Ali, M.A.S.; Khan, A.A.; Zhao, M. Prioritizing Stakeholders' Preferences for Policy Scenarios of Vul-nerable Ecosystems with Spatial Heterogeneity in Choice Experiment: Coupling Stated Preferences with Elevation. *J. Environ. Manag.* **2022**, *310*, 114757. [CrossRef]
16. Tian, N.; Poudyal, N.C.; Hodges, D.G.; Young, T.M.; Hoyt, K.P. Understanding the Factors Influencing Nonindustrial Private Forest Landowner Interest in Supplying Ecosystem Services in Cumberland Plateau, Tennessee. *Forests* **2015**, *6*, 3985–4000. [CrossRef]
17. Castro, A.J.; Vaughn, C.C.; Julian, J.P.; García-Llorente, M. Social Demand for Ecosystem Services and Implications for Wa-tershed Management. *JAWRA J. Am. Water Resour. Assoc.* **2016**, *52*, 209–221. [CrossRef]
18. Jo, J.H.; Choi, M.; Shin, S.; Lee, C. Navigating Nature's Benefits to People: An Examination of Asymmetrical Stakeholder Preferences for Local Forest Ecosystem Services in South Korea. *Forestry* **2023**, *96*, 277–292. [CrossRef]

19. An, H.; Seok, H.D.; Lee, S.; Choi, J. Forest Management Practice for Enhancing Carbon Sequestration in National Forests of Korea. *For. Sci. Technol.* **2019**, *15*, 80–91. [CrossRef]
20. Vondolia, G.K.; Navrud, S. Are Non-Monetary Payment Modes More Uncertain for Stated Preference Elicitation in Developing Countries? *J. Choice Model.* **2019**, *30*, 73–87. [CrossRef]
21. Thompson, D.W.; Hansen, E.N. Factors Affecting the Attitudes of Nonindustrial Private Forest Landowners regarding Carbon Sequestration and Trading. *J. For.* **2012**, *110*, 129–137. [CrossRef]
22. De Juan, S.; Gelcich, S.; Fernandez, M. Integrating Stakeholder Perceptions and Preferences on Ecosystem Services in the Management of Coastal Areas. *Ocean Coast. Manag.* **2017**, *136*, 38–48. [CrossRef]
23. Quyen, N.T.K.; Berg, H.; Gallardo, W.; Da, C.T. Stakeholders' Perceptions of Ecosystem Services and Pangasius Catfish Farming Development along the Hau River in the Mekong Delta, Vietnam. *Ecosyst. Serv.* **2017**, *25*, 2–14. [CrossRef]
24. Lapointe, M.; Cumming, G.S.; Gurney, G.G. Comparing Ecosystem Service Preferences between Urban and Rural Dwellers. *Bioscience* **2019**, *69*, 108–116. [CrossRef]
25. McDermott, C.L.; Cashore, B.; Kanowski, P. Setting the Bar: An International Comparison of Public and Private Forest Policy Specifications and Implications for Explaining Policy Trends. *Environ. Sci.* **2009**, *6*, 217–237. [CrossRef]
26. Kumar, S.; Kant, S. Exploded Logit Modeling of Stakeholders' Preferences for Multiple Forest Values. *For. Policy Eco-Nomics* **2007**, *9*, 516–526. [CrossRef]
27. Edwards, D.; Jay, M.; Jensen, F.S.; Lucas, B.; Marzano, M.; Montagné, C.; Peace, A.; Weiss, G. Public Preferences for Structural Attributes of Forests: Towards a Pan-European Perspective. *For. Policy Econ.* **2012**, *19*, 12–19. [CrossRef]
28. Hardin, G. The Tragedy of the Commons: The Population Problem has no Technical Solution; it Requires a Fundamental Extension in Morality. *Science* **1968**, *162*, 1243–1248. [CrossRef]
29. Rana, M.S.; Mousumi, M. Role of Institutions in Natural Resource Management (NRM): The Nexus between Natural Resources and Conflict. *Acad. Lett.* **2021**, *2*, 2517. [CrossRef]
30. Saijo, T.; Yamato, T. A Voluntary Participation Game with a Non-Excludable Public Good. *J. Econ. Theory* **1999**, *84*, 227–242. [CrossRef]
31. Kotchen, M. *Public Goods. Environmental and Natural Resource Economics: An Encyclopedia*; Greenwood Publishing Group: Westport, CT, USA, 2014.
32. Forster, J. The Creation, Maintenance and Governance of Public Goods and Free Goods. *Public Manag. Int. J. Res. Theory* **1999**, *1*, 313–327. [CrossRef]
33. Hardin, G. The Tragedy of the Unmanaged Commons. *Trends Ecol. Evol.* **1994**, *9*, 199. [CrossRef] [PubMed]
34. Orbell, J.M.; Dawes, R.M. Social Welfare, Cooperators' Advantage, and the Option of Not Playing the Game. *Am. Sociol. Rev.* **1993**, *58*, 787–800. [CrossRef]
35. Rand, D.G.; Nowak, M.A. The Evolution of Antisocial Punishment in Optional Public Goods Games. *Nat. Commun.* **2011**, *2*, 434. [CrossRef] [PubMed]
36. Gross, J.; De Dreu, C.K. Individual Solutions to Shared Problems Create a Modern Tragedy of the Commons. *Sci. Adv.* **2019**, *5*, eaau7296. [CrossRef] [PubMed]
37. Partelow, S.; Abson, D.; Schlüter, A.; Fernández-Giménez, M.; von Wehrden, H.; Collier, N. Privatizing the Commons: New Approaches Need Broader Evaluative Criteria for Sustainability. *Int. J. Commons* **2019**, *13*, 747–776. [CrossRef]
38. Ostrom, E. *Governing the Commons: The Evolution of Institutions for Collective Action*; Cambridge University Press: Cambridge, UK, 1990.
39. Ostrom, E. A Behavioral Approach to the Rational Choice Theory of Collective Action: Presidential Address, American Po-litical Science Association, 1997. *Am. Political Sci. Rev.* **1998**, *92*, 1–22. [CrossRef]
40. Ostrom, E. *Institutional Arrangements for Resolving the Commons Dilemma: Some Contending Approaches*; ICS Press: San Francisco, CA, USA, 1988.
41. Buffum, B. Why is there no Tragedy in these Commons? An Analysis of Forest User Groups and Forest Policy in Bhutan. *Sustainability* **2012**, *4*, 1448–1465. [CrossRef]
42. De Groot, R.; Brander, L.; Van Der Ploeg, S.; Costanza, R.; Bernard, F.; Braat, L.; Christie, M.; Crossman, N.; Ghermandi, A.; Hein, L. Global Estimates of the Value of Ecosystems and Their Services in Monetary Units. *Ecosyst. Serv.* **2012**, *1*, 50–61. [CrossRef]
43. Baciu, G.E.; Dobrotă, C.E.; Apostol, E.N. Valuing Forest Ecosystem Services. Why is an Integrative Approach Needed? *Forests* **2021**, *12*, 677. [CrossRef]
44. Bateman, I.; Department of Transport Großbritannien. *Economic Valuation with Stated Preference Techniques: A Manual*; Ed-Ward Elgar Publishing: Cheltenham, UK, 2002.
45. Menzel, S.; Bögeholz, S. Values, Beliefs and Norms that Foster Chilean and German Pupils' Commitment to Protect Biodiversity. *Int. J. Environ. Sci. Educ.* **2010**, *5*, 31–49.
46. Jones-Walters, L.; Mulder, I. Valuing Nature: The Economics of Biodiversity. *J. Nat. Conserv.* **2009**, *17*, 245–247. [CrossRef]
47. Kopp, R.J. Why Existence Value should be used in Cost-Benefit Analysis. *J. Policy Anal. Manag.* **1992**, *11*, 123–130. [CrossRef]
48. Fisher, B.; Turner, R.K.; Morling, P. Defining and Classifying Ecosystem Services for Decision Making. *Ecol. Econ.* **2009**, *68*, 643–653. [CrossRef]

49. Dunford, R.; Harrison, P.; Smith, A.; Dick, J.; Barton, D.N.; Martin-Lopez, B.; Kelemen, E.; Jacobs, S.; Saarikoski, H.; Turkel-boom, F. Integrating Methods for Ecosystem Service Assessment: Experiences from Real World Situations. *Ecosyst. Serv.* **2018**, *29*, 499–514. [CrossRef]
50. Resende, F.M.; Fernandes, G.W.; Andrade, D.C.; Néder, H.D. Economic Valuation of the Ecosystem Services Provided by a Protected Area in the Brazilian Cerrado: Application of the Contingent Valuation Method. *Braz. J. Biol.* **2017**, *77*, 762–773. [CrossRef]
51. Ghermandi, A. Integrating Social Media Analysis and Revealed Preference Methods to Value the Recreation Services of Ecologically Engineered Wetlands. *Ecosyst. Serv.* **2018**, *31*, 351–357. [CrossRef]
52. Venkatachalam, L. The Contingent Valuation Method: A Review. *Environ. Impact Assess. Rev.* **2004**, *24*, 89–124. [CrossRef]
53. Hanley, N.; MacMillan, D.; Wright, R.E.; Bullock, C.; Simpson, I.; Parsisson, D.; Crabtree, B. Contingent Valuation Versus Choice Experiments: Estimating the Benefits of Environmentally Sensitive Areas in Scotland. *J. Agric. Econ.* **1998**, *49*, 1–15. [CrossRef]
54. Jo, J.H.; Park, S.H.; Koo, J.C.; Roh, T.; Emily, M.L.; Youn, Y.C. Preferences for Ecosystem Services Provided by Urban Forests in South Korea. *For. Sci. Technol.* **2020**, *16*, 86–103. [CrossRef]
55. Tahvanainen, L.; Tyrväinen, L.; Ihalainen, M.; Vuorela, N.; Kolehmainen, O. Forest Management and Public Perceptions—Visual Versus Verbal Information. *Landsc. Urban Plann.* **2001**, *53*, 53–70. [CrossRef]
56. Kuvan, Y.; Akan, P. Residents' Attitudes Toward General and Forest-Related Impacts of Tourism: The Case of Belek, Antalya. *Tour. Manag.* **2005**, *26*, 691–706. [CrossRef]
57. Jeonju University-Industry Cooperation Foundation. *2022 Jeollabuk-do Social Survey Report*; Jeonju University-Industry Cooperation Foundation: Jeonju, Republic of Korea, 2022.
58. Korea Forest Service. *The 7th National Forest Resource Survey Report*; Korea Forest Service: Jeonju, Republic of Korea, 2022.
59. Jeonbuk Institute. *Jeollabuk-do Mountainous Resource Specialization Plan*; Jeonbuk Institute: Jeonju, Republic of Korea, 2017.
60. Louviere, J.J. *Choice Experiments: An Overview of Concepts and Issues*; Edward Elgar Publishing: Cheltenham, UK, 2001. [CrossRef]
61. Koo, J.C.; Park, M.S.; Youn, Y.C. Preferences of Urban Dwellers on Urban Forest Recreational Services in South Korea. *Urban For. Urban Green.* **2013**, *12*, 200–210. [CrossRef]
62. Statistics Korea. *Population Census. Statistics*; Statistics Korea: Seoul, Republic of Korea, 2023.
63. National Institute of Forest Science. *Assessment of Forest Public Benefit Functions*; National Institute of Forest Science: Seoul, Republic of Korea, 2020.
64. Swank, W.T.; Douglass, J.E. Streamflow Greatly Reduced by Converting Deciduous Hardwood Stands to Pine. *Science* **1974**, *185*, 857–859. [CrossRef]
65. Breil, M.; Weber, A.; Pinto, J.G. The Potential of an Increased Deciduous Forest Fraction to Mitigate the Effects of Heat Extremes in Europe. *Biogeosciences* **2023**, *20*, 2237–2250. [CrossRef]
66. Nepal, P.; Johnston, C.M.; Ganguly, I. Effects on Global Forests and Wood Product Markets of Increased Demand for Mass Timber. *Sustainability* **2021**, *13*, 13943. [CrossRef]
67. FAO. *Global Forest Resources Assessment 2000*; Food and Agriculture Organization of the United Nations: Rome, Italy, 2001.
68. Colombo, S.; Hanley, N.; Calatrava-Requena, J. Designing Policy for Reducing the Off-farm Effects of Soil Erosion using Choice Experiments. *J. Agric. Econ.* **2005**, *56*, 81–95. [CrossRef]
69. Pregitzer, C.C.; Hanna, C.; Charlop-Powers, S.; Bradford, M.A. Estimating Carbon Storage in Urban Forests of New York City. *Urban Ecosyst.* **2022**, *25*, 617–631. [CrossRef]
70. Nowak, D.J.; Crane, D.E. Carbon Storage and Sequestration by Urban Trees in the USA. *Environ. Pollut.* **2002**, *116*, 381–389. [CrossRef]
71. Hardiman, B.S.; Gough, C.M.; Halperin, A.; Hofmeister, K.L.; Nave, L.E.; Bohrer, G.; Curtis, P.S. Maintaining High Rates of Carbon Storage in Old Forests: A Mechanism Linking Canopy Structure to Forest Function. *For. Ecol. Manag.* **2013**, *298*, 111–119. [CrossRef]
72. Meyer, V.; Saatchi, S.; Clark, D.B.; Keller, M.; Vincent, G.; Ferraz, A.; Espírito-Santo, F.; d'Oliveira, M.V.; Kaki, D.; Chave, J. Canopy Area of Large Trees Explains Aboveground Biomass Variations Across Neotropical Forest Landscapes. *Biogeosciences* **2018**, *15*, 3377–3390. [CrossRef]
73. Shin, Y.J.; Park, S.J.; Park, C.R. Valuation of Cultural Ecosystem Services using the Choice Experiment Method (CE). *Sanrim Hyu'yang Yeon'gu* **2016**, *20*, 65–77. [CrossRef]
74. Mohneke, M.; Erguvan, F.; Schlüter, K. Explorative Study about Knowledge of Species in the Field of Early Years Education. *J. Emergent. Sci.* **2016**, *11*, 1–234.
75. Hooykaas, M.J.; Schilthuizen, M.; Smeets, I. Expanding the Role of Biodiversity in Laypeople's Lives: The View of Communicators. *Sustainability* **2020**, *12*, 2768. [CrossRef]
76. Vanhöfen, J.; Schöffski, N.; Härtel, T.; Randler, C. Are Lay People Able to Estimate Breeding Bird Diversity? *Animals* **2022**, *12*, 3095. [CrossRef] [PubMed]
77. Breitschopf, E.; Bråthen, K.A. Perception and Appreciation of Plant Biodiversity among Experts and Laypeople. *People Nat.* **2023**, *5*, 826–838. [CrossRef]
78. Jo, J.; Lee, C.; Cho, H.; Lee, J. Estimation of Citizens' Willingness to Pay for the Implementation of Payment for Local Forest Ecosystem Services: The Case of Taxes and Donations. *Sustainability* **2021**, *13*, 6186. [CrossRef]

79. Yu, Y.; Wang, E.; Wang, Z. Valuing Nonuse Value of a National Forest Park with Consideration of the Local Residents' Environmental Attitudes. *Forests* **2023**, *14*, 1487. [CrossRef]
80. Moeltner, K.; Fanara, T.; Foroutan, H.; Hanlon, R.; Lovko, V.; Ross, S.; Schmale, D., III. Harmful Algal Blooms and Toxic Air: The Economic Value of Improved Forecasts. *Mar. Resour. Econ.* **2023**, *38*, 1–28. [CrossRef]
81. Mangham, L.J.; Hanson, K.; McPake, B. How to do (or Not to do) . . . Designing a Discrete Choice Experiment for Application in a Low-Income Country. *Health Policy Plan* **2009**, *24*, 151–158. [CrossRef]
82. Marshall, D.; Bridges, J.F.; Hauber, B.; Cameron, R.; Donnalley, L.; Fyie, K.; Reed Johnson, F. Conjoint Analysis Applications in Health—How are Studies being Designed and Reported? An Update on Current Practice in the Published Literature between 2005 and 2008. *Patient Patient-Centered Outcomes Res.* **2010**, *3*, 249–256. [CrossRef]
83. Phelps, R.H.; Shanteau, J. Livestock Judges: How Much Information can an Expert use? *Organ. Behav. Hum. Perform.* **1978**, *21*, 209–219. [CrossRef]
84. Szinay, D.; Cameron, R.; Naughton, F.; Whitty, J.A.; Brown, J.; Jones, A. Understanding Uptake of Digital Health Products: Methodology Tutorial for a Discrete Choice Experiment using the Bayesian Efficient Design. *J. Med. Internet Res.* **2021**, *23*, e32365. [CrossRef]
85. Ratcliffe, J.; Longworth, L. Investigating the Structural Reliability of a Discrete Choice Experiment within Health Technology Assessment. *Int. J. Technol. Assess. Health Care* **2002**, *18*, 139–144.
86. Green, P.E. On the Design of Choice Experiments Involving Multifactor Alternatives. *J. Consum. Res.* **1974**, *1*, 61–68. [CrossRef]
87. Alamri, A.S.; Georgiou, S.; Stylianou, S. Discrete Choice Experiments: An Overview on Constructing D-optimal and Near-optimal Choice Sets. *Heliyon* **2023**, *9*, e18256. [CrossRef]
88. Rolfe, J.; Bennett, J. The Impact of Offering Two Versus Three Alternatives in Choice Modelling Experiments. *Ecol. Econ.* **2009**, *68*, 1140–1148. [CrossRef]
89. Patterson, Z.; Darbani, J.M.; Rezaei, A.; Zacharias, J.; Yazdizadeh, A. Comparing Text-only and Virtual Reality Discrete Choice Experiments of Neighbourhood Choice. *Landsc. Urban Plann.* **2017**, *157*, 63–74. [CrossRef]
90. Bateman, I.J.; Day, B.H.; Jones, A.P.; Jude, S. Reducing Gain–loss Asymmetry: A Virtual Reality Choice Experiment Valuing Land use Change. *J. Environ. Econ. Manag.* **2009**, *58*, 106–118. [CrossRef]
91. Matthews, Y.; Scarpa, R.; Marsh, D. Using Virtual Environments to Improve the Realism of Choice Experiments: A Case Study about Coastal Erosion Management. *J. Environ. Econ. Manag.* **2017**, *81*, 193–208. [CrossRef]
92. Shr, Y.J.; Ready, R.; Orland, B.; Echols, S. How do Visual Representations Influence Survey Responses? Evidence from a Choice Experiment on Landscape Attributes of Green Infrastructure. *Ecol. Econ.* **2019**, *156*, 375–386. [CrossRef]
93. Train, K.E. *Discrete Choice Methods with Simulation*; Cambridge University Press: Cambridge, UK, 2009. [CrossRef]
94. McFadden, D. *A Conditional Logit Analysis of Qualitative Behavior*; Academic Press: Cambridge, UK, 1973.
95. Hanemann, W.M. Discrete/Continuous Models of Consumer Demand. *Econom. J. Econom. Soc.* **1984**, *52*, 541–561. [CrossRef]
96. Lancaster, K.J. A New Approach to Consumer Theory. *J. Political Econ.* **1966**, *74*, 132–157. [CrossRef]
97. Aizaki, H.; Nakatani, T.; Sato, K. *Stated Preference Methods Using R*; CRC Press: Boca Raton, FL, USA, 2014. [CrossRef]
98. Fowler, F.J., Jr. *Survey Research Methods*; Sage Publications: Thousand Oaks, CA, USA, 2013.
99. Dillman, D.A.; Christenson, J.A.; Carpenter, E.H.; Brooks, R.M. Increasing Mail Questionnaire Response: A Four State Comparison. *Am. Sociol. Rev.* **1974**, *39*, 744–756. [CrossRef]
100. O'Hare, W.P. *2020 Census Faces Challenges in Rural America*; The Carsey School of Public Policy at the Scholars's Repository; The University of New Hampshire: Durham, NH, USA, 2018; Volume 330. [CrossRef]
101. Aizaki, H. Basic Functions for Supporting an Implementation of Choice Experiments in R. *J. Stat. Softw.* **2012**, *50*, 1–24. [CrossRef]
102. Duncker, P.S.; Barreiro, S.M.; Hengeveld, G.M.; Lind, T.; Mason, W.L.; Ambrozy, S.; Spiecker, H. Classification of Forest Management Approaches: A New Conceptual Framework and Its Applicability to European Forestry. *Ecol. Soc.* **2012**, *17*, 4. [CrossRef]
103. Duncker, P.S.; Raulund-Rasmussen, K.; Gundersen, P.; Katzensteiner, K.; De Jong, J.; Ravn, H.P.; Smith, M.; Eckmüllner, O.; Spiecker, H. How Forest Management Affects Ecosystem Services, Including Timber Production and Economic Return: Syn-ergies and Trade-Offs. *Ecol. Soc.* **2012**, *17*, 4. [CrossRef]
104. Aquilué, N.; Messier, C.; Martins, K.T.; Dumais-Lalonde, V.; Mina, M. A Simple-to-use Management Approach to Boost Adaptive Capacity of Forests to Global Uncertainty. *For. Ecol. Manag.* **2021**, *481*, 118692. [CrossRef]
105. Han, Z.Y.; Youn, Y.C. Beijing Resident's Preferences of Ecosystem Services of Urban Forests. *Forests* **2020**, *12*, 14. [CrossRef]
106. Shoyama, K.; Managi, S.; Yamagata, Y. Public Preferences for Biodiversity Conservation and Climate-Change Mitigation: A Choice Experiment using Ecosystem Services Indicators. *Land Use Policy* **2013**, *34*, 282–293. [CrossRef]
107. Müller, F.; Fohrer, N.; Chicharo, L. The Basic Ideas of the Ecosystem Service Concept. In *Ecosystem Services and River Basin Ecohydrology*; Springer: Berlin/Heidelberg, Germany, 2015; pp. 7–33. [CrossRef]
108. Rands, M.R.; Adams, W.M.; Bennun, L.; Butchart, S.H.; Clements, A.; Coomes, D.; Entwistle, A.; Hodge, I.; Kapos, V.; Scharlemann, J.P. Biodiversity Conservation: Challenges beyond 2010. *Science* **2010**, *329*, 1298–1303. [CrossRef]
109. Jacobsen, J.B.; Hanley, N. Are there Income Effects on Global Willingness to Pay for Biodiversity Conservation? *Environ. Resour. Econ.* **2009**, *43*, 137–160. [CrossRef]

110. Yishay, A.B.; Fraker, A.; Guiteras, R.; Palloni, G.; Shah, N.B.; Shirrell, S.; Wang, P. Microcredit and Willingness to Pay for Environmental Quality: Evidence from a Randomized-Controlled Trial of Finance for Sanitation in Rural Cambodia. *J. Environ. Econ. Manag.* **2017**, *86*, 121–140. [CrossRef]
111. Korea Forest Service. *Landslide Information System*; Korea Forest Service: Seoul, Republic of Korea, 2023.
112. Chaturvedi, P.; Dutt, V. Evaluating the Public Perceptions of Landslide Risks in the Himalayan Mandi Town. *Proc. Hum. Factors Ergon. Soc. Annu. Meet.* **2015**, *59*, 1491–1495. [CrossRef]
113. Liu, N.; Caldwell, P.V.; Dobbs, G.R.; Miniat, C.F.; Bolstad, P.V.; Nelson, S.A.; Sun, G. Forested Lands Dominate Drinking Water Supply in the Conterminous United States. *Environ. Res. Lett.* **2021**, *16*, 084008. [CrossRef]
114. Ficko, A.; Lidestav, G.; Dhubháin, Á.N.; Karppinen, H.; Zivojinovic, I.; Westin, K. European Private Forest Owner Typologies: A Review of Methods and Use. *For. Policy Econ.* **2019**, *99*, 21–31. [CrossRef]
115. Dwiyahreni, A.; Fuad, H.A.; Sunaryo, S.; Soesilo, T.E.B.; Margules, C.; Supriatna, J. Forest Cover Changes in Indonesia's Terrestrial National Parks between 2012 and 2017. *Biodiversitas J. Biol. Divers.* **2021**, *22*, 3. [CrossRef]
116. Mäkelä, A.; Minunno, F.; Kujala, H.; Kosenius, A.; Heikkinen, R.K.; Junttila, V.; Peltoniemi, M.; Forsius, M. Effect of Forest Management Choices on Carbon Sequestration and Biodiversity at National Scale. *Ambio* **2023**, *52*, 1737–1756. [CrossRef] [PubMed]
117. Yang, H.; Song, W.; Moon, J. Mega-Events and Conflict: The Case of the 2018 Pyeongchang Winter Olympics. *J. Qual. Assur. Hosp. Tour.* **2019**, *20*, 552–571. [CrossRef]
118. Steven, R.; Pickering, C.; Castley, J.G. A Review of the Impacts of Nature Based Recreation on Birds. *J. Environ. Manag.* **2011**, *92*, 2287–2294. [CrossRef] [PubMed]
119. Evju, M.; Hagen, D.; Jokerud, M.; Olsen, S.L.; Selvaag, S.K.; Vistad, O.I. Effects of Mountain Biking Versus Hiking on Trails under Different Environmental Conditions. *J. Environ. Manag.* **2021**, *278*, 111554. [CrossRef] [PubMed]
120. Moegenburg, S.M.; Levey, D.J. Prospects for Conserving Biodiversity in Amazonian Extractive Reserves. *Ecol. Lett.* **2002**, *5*, 320–324. [CrossRef]
121. Albers, H.J.; Robinson, E. A Review of the Spatial Economics of Non-Timber Forest Product Extraction: Implications for Policy. *Ecol. Econ.* **2013**, *92*, 87–95. [CrossRef]
122. Manning, R.; Valliere, W.; Minteer, B. Values, Ethics, and Attitudes toward National Forest Management: An Empirical Study. *Soc. Nat. Resour.* **1999**, *12*, 421–436. [CrossRef]
123. Hirsch, F.; Schmithüsen, F.J. *Private Forest Ownership in Europe*; ETH Zurich: Zurich, Switzerland, 2010.
124. Sotomayor, S.; Barbieri, C.; Wilhelm Stanis, S.; Aguilar, F.X.; Smith, J.W. Motivations for Recreating on Farmlands, Private Forests, and State or National Parks. *Environ. Manag.* **2014**, *54*, 138–150. [CrossRef]
125. Farrell, E.P.; Führer, E.; Ryan, D.; Andersson, F.; Hüttl, R.; Piussi, P. European Forest Ecosystems: Building the Future on the Legacy of the Past. *For. Ecol. Manag.* **2000**, *132*, 5–20. [CrossRef]
126. Levers, C.; Verkerk, P.J.; Müller, D.; Verburg, P.H.; Butsic, V.; Leitão, P.J.; Lindner, M.; Kuemmerle, T. Drivers of Forest Harvesting Intensity Patterns in Europe. *For. Ecol. Manag.* **2014**, *315*, 160–172. [CrossRef]
127. Heinonen, T.; Pukkala, T.; Asikainen, A. Variation in Forest Landowners' Management Preferences Reduces Timber Supply from Finnish Forests. *Ann. For. Sci.* **2020**, *77*, 31. [CrossRef]
128. Carrus, G.; Panno, A.; Aragonés, J.I.; Marchetti, M.; Motta, R.; Tonon, G.; Sanesi, G. Public Perceptions of Forests Across Italy: An Exploratory National Survey. *Iforest-Biogeosci. For.* **2020**, *13*, 323. [CrossRef]
129. Nordlund, A.; Westin, K. Forest Values and Forest Management Attitudes among Private Forest Owners in Sweden. *Forests* **2010**, *2*, 30–50. [CrossRef]
130. Dissanayake, S.; Beyene, A.; Bluffstone, R.A.; Gebreegziabher, Z.; Martinsson, P.; Mekonnen, A.; Vieider, F.M. Preferences for REDD+ contract attributes in low-income countries: A choice experiment in Ethiopia. In *World Bank Policy Research Working PAPER*; World Bank: Washington DC, USA, 2015; p. 7296. [CrossRef]
131. Rakatama, A.; Pandit, R.; Iftekhar, S.; Ma, C. Heterogeneous public preference for REDD+ projects under different forest management regimes. *Land Use Policy* **2018**, *78*, 266–277. [CrossRef]
132. Grieg-Gran, M.; Mohammed, E.Y.; Nhantumbo, I. *What People Want from REDD+: Assessing Local Views and Preferences*; IIED Briefing Paper-International Institute for Environment and Development: London, UK, 2014; p. 17217.