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Assessing the Amenity Value of Forest Ecosystem Services: Perspectives from the Use of Sustainable Green Spaces

Wan-Yu Liu [1], Yen-Yu Lin [2], Han-Shen Chen [3,4] and Chi-Ming Hsieh [5,*]

1 Department of Forestry, National Chung Hsing University, 145 Xingda Rd., South Dist., Taichung City 40227, Taiwan
2 Innovation and Development Center of Sustainable Agriculture, National Chung Hsing University, 145 Xingda Rd., South Dist., Taichung City 40227, Taiwan
3 Department of Health Diet and Industry Management, Chung Shan Medical University, No. 110, Sec. 1, Jianguo N. Rd., Taichung City 40201, Taiwan
4 Department of Medical Management, Chung Shan Medical University Hospital, No. 110, Sec. 1, Jianguo N. Rd., Taichung City 40201, Taiwan
5 International Bachelor Program of Agribusiness, National Chung Hsing University, 145 Xingda Rd., South Dist., Taichung City 40227, Taiwan
* Correspondence: hsiehch9@nchu.edu.tw; Tel.: +886-4-2284-0849 (ext. 622)

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Abstract: Due to the fragility of forest ecosystems, developing forest recreational resources must consider sustainable ecological, economic, and social development, and reduce impacts from recreational activities. Diverse forests with different biodiversity could promote forest ecosystem services and resistance to the pressure of tourism development. Under such circumstance, it is important to ensure that the travel and tourism industry develops under the principle of sustainable management and assists ecosystem conservation. Forest ecosystem services (FES) have received increasing attention. Especially, the amenity value provided by FES is beneficial for enhancing human health, and has gained popularity. Huisun National Forest Park (HNFP) has the greatest natural forests in Taiwan, and tourists visit the HNFP for the well-preserved environment, abundance of green space, cleanliness, beautiful scenery, and quietness. This study assessed the amenity value of the Huisun National Forest Park (HNFP) by adopting the payment card method via face-to-face survey data of 223 respondents. The annual amenity value of the HNFP per person is NT$2884 in winter and NT$2905 in summer. The total annual amenity value of the HNFP is NT$473,978,430–474,755,774. The results showed that gender, age, education level, monthly income, place of residence, participation in environmental groups, frequency of visiting the HNFP, and stay period significantly influence willingness to pay (WTP). This study concludes that an ecologically sustainable forest with ecosystem services could provide multiple benefits to different stakeholders.

Keywords: amenity value; forest ecosystem services; ordered probit model; national forest recreation area; willingness to pay (WTP); contingent valuation method

1. Introduction

Outdoor recreational activities are progressively playing a more essential role in daily life. The urban population of the world has been increasing and has reached almost half of the world's population [1]. Enabling relaxation through interaction with scenery and green spaces outside cities is thus becoming crucial. The various types of recreational activities enjoyed worldwide include nature-based activities (e.g., hiking on forest trails and appreciation of animals, plants, picturesque

scenery, and landscapes), cultural activities (e.g., festivals that are held by the Tourism Bureau, visiting art exhibitions, and rural tourism and farming experiences), sporting activities (e.g., swimming, diving, paragliding, and rock climbing), amusement park activities (e.g., water parks, bumper cars, aerial tramways, and rollercoaster rides), and gourmet activities (e.g., night market snacks, food promotion, and cooking activities). Of these, nature-based activities are the most common in Taiwan [2].

Green spaces provide numerous recreation opportunities and amenities [3–8]. Furthermore, studies have verified the positive influence of green spaces on health [9,10]. Green spaces are considerably more attractive than unique landforms or distinctive cultures from the perspectives of environmental health and benefits. Specifically, green spaces play a critical role in the environment in filtering pollutants from the air, lowering temperatures, and reducing soil erosion, according to WorldAtlas.com (2018) [11]. Moscow, Sydney, and Singapore were ranked the top three cities for green space, with 54%, 47%, and 46%, respectively [11]. People usually enjoy participating in recreational activities in green spaces and wish to live close to such spaces [12]. In general, cities worldwide that are suitable for human habitation and have been developed sustainably have abundant and high-quality green spaces for local residents and tourists. Tourists have high praise for green spaces and some are even willing to pay for green space benefits and amenities [12–15]. The intangible and indirect value (e.g., non-market goods) of green space can be effectively quantified as a specific monetary value; citizens and policy promoters can make such quantifications to determine the size of their contribution to green space maintenance [12]. Various non-market valuation methods have been employed to quantify the recreational benefits and value of scenic views brought about by green spaces [16,17]. There are two major types of evaluation methods: the income compensation methods, and the expenditure function methods. The commonly used method from the compensation methods is the contingent valuation method, and the commonly used method from the expenditure function methods is the hedonic pricing method. The hedonic pricing method assesses the target value by leveraging the correlation between the environmental resources and other market goods, given a consumer utility function. It is often used to estimate the value of open spaces and urban parks. Diverse quantification results have been obtained using these methods, but the outcome uncertainty between each method can be reduced by the employment of suitable variables. The contingent valuation method (CVM) is often adopted to assess environmental assets and it is also suitable for assessing services with intangible value [16,18–21]. Using value assessment methods, people's willingness to pay (WTP) for amenity services can be determined, enabling the quantification of recreation opportunities and amenity value. Thus, the primary research question for this study was to investigate how much tourists are willing to pay to maintain the appropriate quality and amenity services to match their needs and desires in forest recreation areas in Taiwan.

As incomes in Taiwan have increased, tourism has become increasingly popular [22]. Taiwanese people are beginning to pay more attention to leisure time outside work, spending this time on outdoor recreational activities. According to statistics compiled by the Tourism Bureau of the Ministry of Transportation and Communications [2], the number of yearly domestic tourist trips has risen from 110,253 in 2007 to 190,376 in 2016. Our research site, the Huisun National Forest Park (HNFP), is characterized by scenic green spaces and high-quality recreational activities. The area's history dates back to the Japanese colonial period, when it was originally the national forest subordinated to Nanto Chō. In March 1918, the area was turned into a forest subordinated to the College of Agriculture, Hokkaido Imperial University, and then in September 1949, the forest was transferred under the Taiwan Provincial College of Public Agriculture (now National Chung Hsing University) for administration [23]. Due to its rich history, the recreation area had the largest primary forest area in Taiwan. The number of visitors to the HNFP has increased in recent years, reaching a high of 204,384 in 2015 [2]. The purpose of this study was to assess the recreation opportunities and amenity value of the HNFP, along with exploration of tourists' recreational behaviors, preferred recreational activities, and other potential factors. The findings and conclusions could lead to better understanding of the needs for sustainable forest management, as well as promotion of tourists' environmentally responsible

behavior in the forest recreation areas, such as HNFP. We adopted the payment card approach to the CVM for evaluations and to make suggestions according to the research findings. The calculated amenity value can be used not only by the related authorities but also as a prerequisite for maintaining the natural assets of the HNFP [24].

2. Materials and Methods

2.1. Study Site

The area investigated in this study was the HNFP in Taiwan, located at 24°2′ to 24°6′ N and 120°59′ to 121°59′ E. Spectacular valleys and waterfalls are located in the HNFP, and the area's elevation range is almost 2000 m. Thus, parts of the HNFP simultaneously have a subtropical climate, warm climate, or temperate climate. As a result, the HNFP has high species diversity and abundant natural resources [25]. The majority of the forest in the HNFP is primary forest, and approximately 15% is plantation forest. The main plantation species are Taiwania cryptomerioides, Chamaecyparis formosensis, and Calocedrus formosana. The HNFP has, thus, been in existence for more than 100 years. Its current main function is as a venue for education, research, and outdoor recreation. There are numerous hiking trails for tourists that offer beautiful scenery (Figure 1). Ten attractions were selected, including Song-Fong Mountain trail, Frog Rock Trail, Tang Monument Trail, Fording Trail, Banana Trail, Tea Trail, Herb Garden, Urocissa caerulea, cherry blossom season, and fireflies.

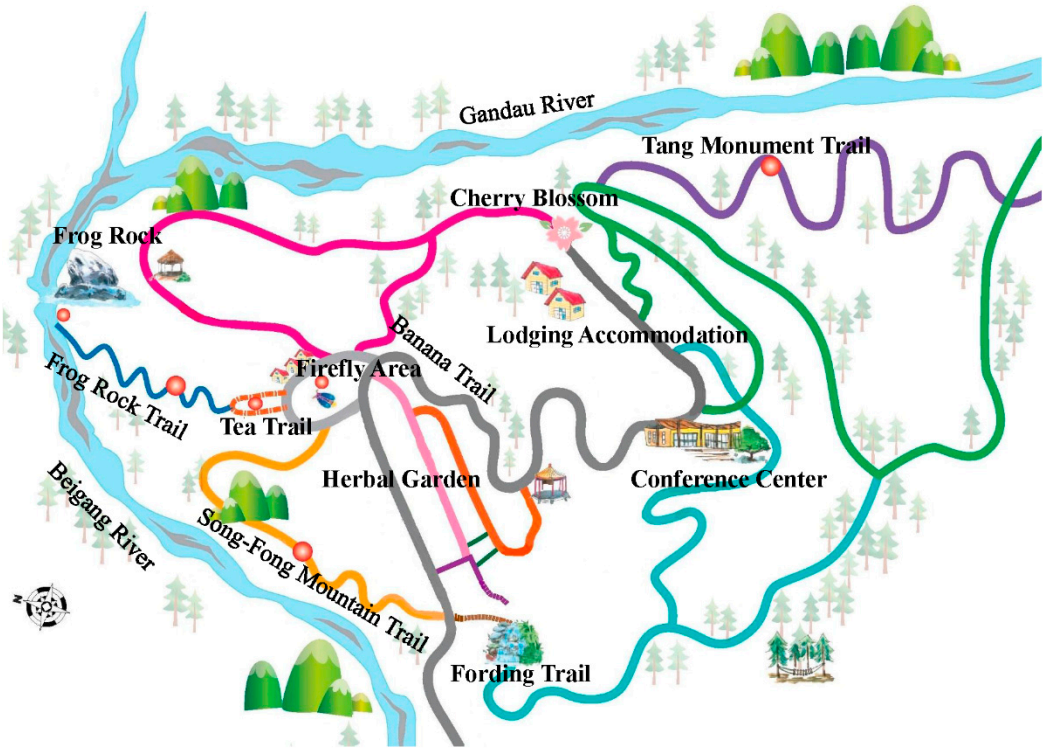

Figure 1. Map of the Huisun National Forest Park (HNFP).

2.2. Evaluation Method

Environmental resources are intangible and cannot be traded; thus, they cannot be valued through market prices. The contingent valuation method (CVM) is suitable for defining the value of environmental assets. According to Xiao et al. [26], the CVM has the following advantages: (1) field and non-field investigations can be conducted simultaneously; (2) it has less restrictive available information than other methods; (3) it can be used to estimate use and non-use value simultaneously; and (4) the questionnaire that is employed can be varied depending on the length of the study and

its funding. Four types of CVM have been developed: the open-ended method, sequential bids method, payment card format, and the dichotomous choice method. The CVM can be employed to evaluate a variety of entities, such as air pollution, wildlife resources, lakes, forest landscapes, national parks, and national forest recreation areas. The payment card method also has shortcomings. For example, the difference in the price range or order may cause a bias given by the payment card method. It is possible that the subject changes their mind from the set of options, thereby changing the WTP. If non-market value is to be accurately determined, the questionnaire used must be designed appropriately. If the questionnaire does not provide sufficient information, the credibility of the questionnaire might be questioned [27]. If the questionnaire is too long and has too many options, respondents may become bored, impatient, or confused, which affects their responses [12]. Therefore, questionnaire design plays a crucial role in evaluation research [18,28,29], especially CVM research. Pervious studies have discovered that providing the questionnaire is designed appropriately, the CVM is a credible method for non-market valuation [30]. Testing whether the questionnaire is proper is based on building a hypothetical market with a clear description. Because the evaluation object of the CVM is intangible goods, it is easier for the subject to evaluate the WTP by leveraging such a hypothetical market. After establishing the hypothetical market, a pre-test questionnaire can be used to test whether the subject will encounter difficulties when filling out the questionnaire and whether the description of the hypothetical market is flawed or unclear. This allows revision of the questionnaire and improvement of the quality of the questionnaire.

The purpose of this study is to analyze the amenity value. Since the amenity value does not have a market price, the CVM can be used for evaluation. This study uses WTP in the CVM to assess the amenity value and to establish a hypothetical market through the questionnaire. The tourists who travel to HNFP are asked to evaluate their WTP every year to quantify the amenity value of HNFP. The WTP is evaluated by the payment card method. The questionnaire employed in this study includes questions related to respondents' WTP for the HNFP amenity and their recreation experiences. In the binary selection model, the requirement to "ask a series of multiple bidding questions" could potentially confuse or distract respondents; thus, the payment card method is more appropriate [12]. The payment card method is the best method in the four types of CVM methods. It retains the advantages of the open-ended method and avoids the starting-point bias of the sequential bids method. Based on the above reasons, the payment card method is adopted in this study. The payment card method used in this study was established after considering many relevant factors. The suggestions of experts with considerable professional knowledge and experience were collected. The questionnaire was sent to experts in the field of forest recreation and revised according to the received comments. Although these basic surveys, similar to respondents' recreation experience, may affect the questionnaire responses, they also provide valid clues for the study, and respondents do not consider these problems to be redundant [20,28,31,32]. The drawbacks of the payment card approach are that it may underestimate the value of environmental goods and services [32,33]. Nevertheless, the payment card approach is widely used in conservation research to provide information for policy-making [12].

A review of the literature indicates that the amenity value of numerous recreational sites has been investigated, including national parks [34,35], forest recreation areas [36–38], world heritage sites [39], forests [31,40], and traditional villages [41]. These studies are summarized in Table 1. Because the CVM was employed in most of these studies to assess the amenity value of recreational locations, this study also employed the WTP of the CVM to evaluate the amenity value of the Huisun National Forest Recreation Area (HNFP) in Taiwan (see Appendix A).

Table 1. Literature regarding the amenity value of recreational locations.

Author (year)	Topic	Method	Amenity Value
Boyle and Bishop [31]	Welfare measurements using contingent valuation: a comparison of techniques	Contingent Valuation Method (CVM): dichotomous choice method	US$18.88 per person
Wu and Su [35]	Evaluation of the economic value of natural resources in Kenting National Park—with excursion of the philosophical bases of natural resource conservation and components of economic value	CVM	NT$1279 per person for local residents; NT$926 per person for non-local residents
Liu [36]	Recreation benefit estimation of the Alishan Forest Recreation Area performed using contingent valuation and a travel cost model	CVM	NT$2694 per person
Kim et al. [39]	Assessing the economic value of a world heritage site and Willingness to Pay (WTP) determinants: A case of Changdeok Palace	CVM (travel cost method)	6005 KRW per person per year
Zhang et al. [42]	The Recreational Value of Gold Coast Beaches, Australia: An application of the Travel Cost Method	CVM (travel cost method)	19.47 AUD per person per year
Rezende et al. [43]	An economic valuation of mangrove restoration in Brazil	CVM (WTP)	upper bound: R$13,703,000 to 17,821,000 lower bound: R$994,000 to 2,911,000
Ahmed and Hussain [44]	The Recreational Value of Rohtas Fort, Pakistan	CVM (travel cost method)	US$8,710,000 per year
Rathnayake [34]	Economic Values for Recreational Planning at Horton Plains National Park, Sri Lanka	CVM (travel cost method)	3794 LKR per year per trip
Zhou [40]	Valuing environmental amenities through inverse optimization: Theory and case study	Hedonic price method	US$243 per hectare
Rathnayake [34]	Economic value for recreational planning at Horton Plains National Park, Sri Lanka	CVM (Travel cost method)	3974 LKR per person per trip
Chen et al. [41]	Traditional village forest landscapes: Tourists' attitudes and preferences for conservation	CVM (WTP)	418.6 JPY per person per year
Chang [38]	Assessing the recreational value of urban forest parks using the ITCM method—The case of Jingyuetan National Forest Park	Individual travel cost method	1282 CNY per person per trip
Gordillo [45]	Willingness to pay for forest conservation in Ecuador: Results from a nationwide contingent valuation survey in a combined "referendum"–"Consequential open-ended" design	CVM (WTP)	US$3.17–6.28 per month

Data source: compiled by the present study. Note: NT$= New Taiwan Dollar (1 USD = NT$30.607); KRW = South Korean Won (1 USD = 1118.568KRW); LKR = Sri Lankan Rupee (1 USD = 160LKR); JPY = Japanese Yen (1 USD = 111.932JPY); CNY = Chinese Yen (1 USD = 6.818CNY).

2.3. Questionnaire Design

The binary selection model and payment card method are the most commonly used methods for determining non-market value [12]. Previous studies have compared various assessment methods

and indicated the advantages and drawbacks of each [46]. The payment card method has recently been successfully used in assessment of environmental goods [6,12,15,47–49]. Therefore, the payment card method enables respondents to not only answer questions intuitively but also clarify their WTP. If respondents are unsatisfied with the options offered, they can indicate their own specific WTP. The payment card method also provides clear and direct information that enables respondents to clearly understand hypothetical questions [12].

The respondents in this study were tourists who visited the HNFP and were all above 18 years of age. Before a respondent completed the questionnaire, they were given an oral explanation of the purpose of the study to ensure their willingness to complete the survey. After completing the questionnaire, each respondent received a small gift. Because the study population was unknown, convenience sampling was conducted. If respondents had any questions about the questionnaire, we provided immediate assistance to maintain the validity and consistency of the questionnaire. The collected data were analyzed using SPSS version 20.0 and the ordered probit model [50]. This study analyzes the influence of different social backgrounds and recreational behaviors on the price of WTP through the ordered probit method. The theoretical model is given by

$$y = x^i\beta + \varepsilon, \text{ and } y = 0, 1, 2. \quad (1)$$

The payment price of this research is from the payment card method. After the questionnaire survey, different WTPs are obtained. The price of the WTP is first divided into low, medium, and high categories, which are defined as follows: low WTP (y = 0), middle WTP (y = 1), and high WTP (y = 2). Then, gender, age, education level, monthly income, whether it is local, whether to participate in environmental groups, visit frequency, and stay duration are used as the self-variables (x) to perform the ordered probit regression. The result can be used to analyze which type of group has a higher WTP.

We defined "amenities" as follows: natural landscape resources (such as forests, streams, and mountains), recreational locations (such as the Fording Trail and Frog Rock Trail examined by the present study), animals and insects (such as Urocissa caerulea and fireflies), and seasonal activities (such as cherry blossom season and firefly season). The variables employed in this study refer to previous research, as outlined in Table 1. The questionnaire comprised three parts: socioeconomic background, recreational experience at the HNFP, and WTP for the amenity.

The first part of the questionnaire collected information on the respondents' socioeconomic background, such as their gender, age, education level, place of residence, and monthly income. The interviewees were also asked if they had participated in environmental groups. By analyzing this information, we could determine whether the respondents adequately represented the general population [16,18]. Furthermore, we could evaluate whether the socioeconomic status of the respondents affected their WTP. The second part concerned the actual recreational experience of the respondents, including the number of times they had visited the HNFP in the previous 6 months and the number of times they expected to visit. The items regarding the respondents' purpose for visiting the HNFP were based on Jim and Chen [12]. The third part asked the respondents about their WTP for the amenity of the HNFP. The respondents could select how much they were willing to pay to maintain the current landscape quality. The options of WTP have taken the status of the HNFP and the psychological thoughts of tourists into consideration. We referred to Wu [51] and added an option called "other", which enabled the respondents to indicate their WTP; this improved the accuracy of the questionnaire.

To ensure that the respondents had sufficient background information on the HNFP, the HNFP's hypothetical funding situation was described before they completed the questionnaire. We assumed that the HNFP currently has a "HNFP Management Fund", which is raised from the public. The respondents were then asked how much they were willing to pay each year to maintain the current environment quality. The complete questionnaire is shown in Appendix B and the variables are described in Table 2.

Table 2. Description of the variables.

Aspect	Variable	Code	Description
Socio-economic	Gender	SEX	Dummy Variable (Male = 1; Female = 0)
	Age	AGE	Continuous Variable (Years old)
	Education	EDU	Dummy Variable (College degree or above = 1; others = 0)
	Monthly in come	INC	Continuous Variable (NT dollars)
	Residence	AREA	Dummy Variable (Local Residents = 1; other area = 0)
	Participate in environmental groups or not	ORG	Dummy Variable (Yes = 1; No = 0)
Recreation experiences	Times of visiting HNFP in past one year	EXPE	Continuous Variable (Times/year)
	Times of visiting HNFP in the future one year	TTIME	Continuous Variable (Times/year)
	Average times of visiting HNFP	VISIT	Continuous Variable (Times)
	Frequency for go to other green place	GREEN SPACE	Dummy Variable (less than once for a month = 1; 1–3 times for a month = 2; once a week = 3; 2–3 times a week = 4; over 4 times a week = 5)
	Stay period	STIME	Dummy Variable (less than 2 h = 1; 2–4 h = 2; 5–6 h = 3; 7–8 h = 4; One night stay = 5; Two nights stay = 6; over 4 days = 7)
	Frequency of coming to HNFP with different partners	ACCOMPANY	Likert five scale (Very disagree = 1; Disagree = 2; Normal = 3; Agree = 4; Very agree = 5)
	The purpose of coming to HNFP	AIM	
	The motivation of coming to HNFP	CHOICE	

The survey was conducted on weekdays and holidays during August, 2017. The questionnaires were distributed at places in which tourists frequently gather, such as the Fording Trail, on the lawn in front of the learning center, the coffee shop, and the Huisun restaurant. A total of 250 questionnaires were distributed, of which 223 were valid, translating to a valid response rate of 89.2%. The overall Cronbach's alpha of the questionnaire was 0.904, indicating that the reliability of the questionnaire was excellent (Table 3). Statistical analysis was performed to evaluate the respondents' purposes for visiting the HNFP. We first calculated the proportion of each important recreation purpose and weighted the proportion by referring to the weighting method of Jim and Chen [12]. The total scores were then calculated and compared. A total score higher than 0 indicates an important purpose. The weighting used in this study was as follows: very unimportant = −2; unimportant = −1; neither important nor unimportant = 0; important = 1; very important = 2.

Table 3. Reliability analysis.

Aspect	Number	Cronbanch's α Value
Recreation experience	6	0.713
Motivation of recreation	11	0.856
Purpose of recreation	8	0.801
WTP	12	0.976
Total	37	0.904

We performed analysis of variance (ANOVA) and t tests, using WTP as the dependent variable and sex, age, education level, monthly personal income, place of residence, participation in environmental groups, and stay period as the independent variables. Regarding the determinants of WTP, we first calculated the average WTP for the amenity of the HNFP and then divided the respondents into five groups based on their WTP: NT$0, NT$1–250, NT$251–500, NT$501–750, NT$751–999, and NT$1,000 or more. A cross analysis table was used to compare the average WTP for the five groups under different social background variables. The WTP values were then weighted as follows: NT$0 = 0; NT$1–250 =

100; NT$251–500 = 200; NT$501–750 = 300; NT$751–999 = 400; and NT$1,000 or more = 500. We then calculated the total scores and compared them. This weighting method avoids differences between WTPs that are caused by the sample size.

3. Results

3.1. Socioeconomic Background of Respondents

The results of statistical analysis are displayed in Table 4. Most of the respondents were female (57.0%), the most common age group was 50–64 years (38.6%), the majority of the respondents had a university or graduate institute education (56.5%), and the monthly income group with the most respondents was the 20,000–40,000 New Taiwan dollars (NT$) group (29.6%). Services occupations were the most common occupations (17.5%). Most of the respondents were married (68.2%), and the majority lived in the Zhongzhangotou district (Local residents) (57.4%). Only 6.7% of the respondents had participated in environmental groups.

Table 4. Socioeconomic background of the respondents.

Name of Variables	Classification	Numbers	Percentage (%)
Gender	Female	127	57.0
	Male	96	43.0
Age (years old)	18–29	51	22.9
	30–49	71	31.8
	50–64	86	38.6
	Over 65	15	6.7
Education levels	Elementary school	9	4.0
	Senior	50	22.1
	College	126	56.5
	Master or above	38	17.0
Monthly income (NT dollars)	Under 20,000	53	23.8
	20,000–40,000	66	29.6
	40,001–60,000	60	26.9
	60,001–80,000	28	12.6
	80,001–100,000	8	3.6
	Over 100,001	8	3.6
Career	Students	28	12.6
	Governments employees	35	15.7
	Industry	29	13.0
	Business	20	9.0
	Service industries	39	17.5
	Freelancer	19	8.5
	Agriculture, Forestry, Fishery and Husbandry	3	1.3
	Job seeking	3	1.3
	Retired	28	12.6
	Others	19	8.5
Marriage	Unmarried	71	31.8
	Married	152	68.2
Residence	Local	128	57.4
	Outsiders	95	42.6
Environmental groups	No	208	93.3
	Yes	15	6.7

3.2. Tourists' Recreational Behaviors

In this study, frequency of visiting other green spaces (such as parks and forests) was divided into five levels. The results of the questionnaire survey are displayed in Table 5. This discrepancy is presumably because the HNFP is not as convenient as other green spaces for tourists to visit, and most

of the respondents in this study were middle-aged or young people, most of whom are in employment, and thus have less time to visit green spaces.

Table 5. Average frequency of visiting other green spaces.

Frequency	Valid Respondents (%)				
	Less than Once a Month	1–3 Times a Month	Once a Week	2–3 Times a Week	Over 4 Times a Week
Green place	37.2	37.2	9.0	6.7	9.9

Second, we used a 5-point Likert [52] scale to evaluate the respondents' motivations for visiting the HNFP. The scale ranged from very unimportant (1 point) to very important (5 points). The average score for each motivation was then calculated. The average scores of "forest", "well-conserved", "abundant green space", "cleanness", "beautiful views", and "quietness" all exceeded 4 points, indicating that these six items were the main reasons for visits (Figure 2). The other reasons obtained average scores between 3 and 4 points, indicating that they are the second most important set of motivations for travel. These results were obtained because 85% of the HNFP is primary forest and has not yet been developed.

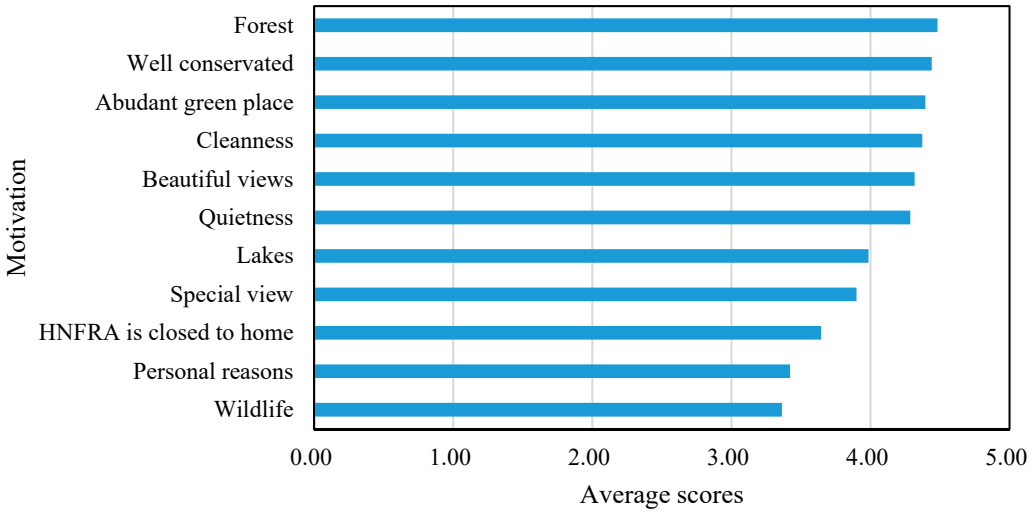

Figure 2. Attractive qualities of the HNFP.

As for the main purposes of recreational activities, Table 6 shows the total scores. Specifically, the total score for each recreation purpose was higher than 0, indicating that all the purposes are important for tourists visiting the HNFP. Among them, "being close to nature", "quietness", "relaxation", and "enjoying the beautiful scenery" were the most important.

Table 6. Recreation purposes.

Purpose	Valid Respondents (%)					Total	Standard Deviation
	Very Unimportant	Unimportant	Normal	Important	Very Important		
Relaxation	0.4	0.0	7.2	41.7	50.7	142.3	0.67
Quiet	0.0	0.9	6.3	40.4	52.5	144.5	0.65
Work out	1.8	3.6	24.2	40.8	29.6	92.8	0.92
Closed to nature	0.0	0.0	3.6	33.6	62.8	159.2	0.56
Beautiful view	0.4	0.9	9.0	43.5	46.2	134.2	0.72
Hidden	1.8	8.5	37.7	32.7	19.3	59.2	0.95
To be alone	4.0	11.7	36.3	28.3	19.7	48.0	1.06
Natural studies	10.8	13.5	35.9	24.7	15.2	20.0	1.18
Total	19.2	39.1	160.2	285.7	296.0		

3.3. Analysis of Amenity Value

This study evaluated the amenity value of the HNFP through the respondents' WTP. We selected the 10 most famous scenic locations in the HNFP in the calculations: the Song-Fong Mountain Trail (A), Frog Rock Trail (B), TanggongBen Trail (C), Fording Trail (D), Banana Trail (E), Tea Trail (F), medicinal botanical garden (G), Urocissa caerulea location (H), cherry blossom season (I), and firefly location (when the season) (J). The average yearly WTP of the respondents to visit the 10 locations is shown in Table 7. This study evaluated the amenity value of each recreational location in the HNFP. The location of Urocissa caerulea had the highest WTP (NT$447.3), followed by the firefly location (NT$362.1) and cherry blossom locations (NT$341.2), whereas the WTP for the Banana (NT$279.3) and Tea trails (NT$283.3) was relatively low. This is presumably because tourists know that Urocissa caerulea is protected by conservation laws, making their WTP (NT$309.3) higher.

Table 7. Average and Total amenity value of the HNFP.

	Song-Fong Mountain	Frog Rock	Tang Monument	Fording	Banana	Tea	Herb Garden	Urocissa caerulea	Cherry Blossom	Fireflies
Average WTP (NT$/year/per person)	302.5	292.4	300.7	328.3	279.3	283.3	309.3	447.3	341.2	362.1
Total WTP (NT$ 1000/year)	55,173	53,331	54,845	59,879	50,942	51,671	56,413	81,583	10,920	10,142
Amenity value in winter is 474,755,774 (NT$/year); amenity value in summer is 473,978,430 (NT$/year)										

The annual cherry blossom season in the HNFP is January and February, whereas the firefly season is April and May. Compared with the trails in the HNFP, the cherry blossom and firefly locations are more famous, so they had relatively higher WTP. The average WTP was multiplied by the total number of visitors to the HNFP in 2016, and the results are shown in Table 7. The total winter amenity value of the HNFP per year was NT$474,755,774 (including locations A to I), whereas that in summer (including locations A to H plus J) was NT$473,978,430.

The respondents were divided into two groups in each of the four categories: sex, educational level, place of residence, and participation in environmental groups. The average and total WTP for different locations in the eight respondent groups are listed in Table 8.

Table 8. Average WTP for different locations and socio characteristics (NT$ per year per person).

Spots	Gender		Education Level		Residence		Belong to Environmental Group	
	Male	Female	College or Above	Senior or Below	Local	Outsider	Yes	No
Song-Fong Mountain	301.04	407.09	304.27	297.46	269.92	346.32	406.67	294.95
Frog Rock	295.83	303.54	296.04	282.20	258.98	337.37	313.33	290.87
Tang Monument	280.21	289.76	301.83	297.46	270.31	341.58	376.67	295.19
Fording	319.79	316.14	332.01	317.80	296.48	371.05	436.67	320.43
Banana	270.31	334.65	283.72	266.95	247.89	321.58	310.00	277.07
Tea	275.52	286.06	286.71	273.73	242.34	338.42	376.67	276.54
Herb Garden	293.75	289.13	313.54	297.46	265.39	368.42	436.67	300.10
Urocissa caerulea	475.00	311.02	463.11	403.39	416.80	488.42	670.00	431.25
Cherry blossom	332.29	426.38	351.40	312.71	287.34	413.68	453.33	333.08
Fireflies	370.31	347.87	385.98	295.76	315.23	425.26	473.33	354.09
Total	3214.05	3311.64	3318.61	3044.92	2870.68	3752.10	4253.34	3173.57

According to the results, the female respondents had higher WTP. Respondents who lived locally had lower average WTP. Finally, the respondents who had participated in environmental groups had higher WTP. This may be because people who join environmental groups have a deeper understanding of the preciousness of natural resources. This study also performed chi square tests, the results of which are listed in Table 9. The results confirmed that the WTP of the women was higher than that of the men. The respondents older than 65 years had the highest WTP among all age groups. Older respondents and those with a college education tended to have higher WTP, perhaps because 56.5% of the respondents in this study had a college education. The respondents with a monthly income of NT$60,000–80,000 tended to have higher WTP than those with other incomes. Finally, the respondents who visited the HNFP 2 or 3 times a year had higher WTP than those who visited with other frequencies, and those who stayed in the HNFP for 1 night had higher WTP than those who stayed for other durations.

Table 9. Cross Analysis of WTP.

Variables	WTP (%)						Total
	0	<250	251–500	501–750	751–999	Over 1000	
Gender							
Male	8.3	44.8	22.9	16.7	2.1	5.2	175.0
Female	5.5	42.5	32.3	10.2	5.5	3.9	179.5
Age							
18–29 years old	2.0	68.6	17.6	9.8	2.0	0.0	141.2
30–49 years old	4.2	43.7	31.0	15.5	0.0	5.6	180.3
50–64 years old	11.6	29.1	34.9	10.5	7.0	7.0	193.0
Over 65 years old	6.7	40.0	13.3	26.7	13.3	0.0	200.0
Education levels							
Junior	11.1	44.4	33.3	11.1	0.0	0.0	144.4
Senior	14.0	38.0	30.0	8.0	6.0	4.0	166.0
College	4.8	46.0	23.8	15.1	4.0	6.3	186.5
Master	2.6	42.1	39.5	13.2	2.6	0.0	171.1
Monthly income (NT$)							
Below 20 thousand	5.7	50.9	22.6	15.1	3.8	1.9	166.0
20–40 thousand	10.6	47.0	24.2	9.1	3.0	6.1	165.2
40–60 thousand	6.7	40.0	33.3	13.3	3.3	3.3	176.7
60–80 thousand	3.6	21.4	39.3	17.9	10.7	7.1	232.1
80–100 thousand	0.0	50.0	25.0	25.0	0.0	0.0	175.0
Over 100 thousand	0.0	62.5	25.0	0.0	0.0	12.5	175.0
Residence							
Local	7.0	48.4	28.9	10.2	3.1	2.3	160.9
Outsider	6.3	36.8	27.4	16.8	5.3	7.4	200.0
Environmental groups							
Yes	0.0	46.7	13.3	20.0	13.3	6.7	220.0
No	7.2	43.3	29.3	12.5	3.4	4.3	174.5
Average times of visiting							
Once a year	9.6	47.4	24.4	10.9	3.2	4.5	164.1
2–3 times a year	0.0	34.2	36.8	18.4	5.3	5.3	210.5
Over 4 times a year	0.0	34.5	37.9	17.2	6.9	3.4	206.9
Stay period							
Below 2 h	18.2	27.3	27.3	18.2	9.1	0.0	172.7
2–4 h	9.5	59.5	11.9	7.1	7.1	4.8	157.1
4–6 h	3.3	55.0	30.0	6.7	1.7	3.3	158.3
6–8 h	15.8	42.1	21.1	21.1	0.0	0.0	147.4
Stay one night	5.7	22.9	38.6	18.6	5.7	8.6	221.4
Stay two nights	0.0	75.0	25.0	0.0	0.0	0.0	125.0
Over 4 days	0.0	52.9	29.4	17.6	0.0	0.0	164.7

The results of ANOVA are presented in Table 10. Specifically, the results of an independent sample t test revealed highly significant differences in WTP regarding age, place of residence, and stay period ($p < 0.05$). We used the Scheffe method after these tests and discovered that the respondents aged 50–64 years had higher WTP than those aged 18–29 years. Older people are willing to pay a higher price. Those who stayed for two days and 1 night were again discovered to have higher WTP than those who stayed for 4–6 h.

Table 10. Analysis of Variance (ANOVA) of WTP.

Variables	F Value	Significance	Scheffe Post Hoc Test
Gender	0.024	0.878	–
Age	3.284	0.022 *	50–64 years old > 18–29 years old
Education levels	0.272	0.845	–
Monthly income	1.637	0.151	–
Residence	5.639	0.018 *	–
Environmental groups	2.880	0.091	–
Average times of visiting	1.367	0.254	–
Stay period	3.386	0.003 **	Two-day trip > 4–6 h trip

* $p < 0.05$, ** $p < 0.01$

Last, this study used the ordered probit model to predict correlations between the different locations for WTP and social background variables (sex, age, education, monthly income, place of residence, participation in environmental groups, HNFP visit frequency, and stay period). First, we calculated the average WTP for each location; then, we used WTP as the dependent variable and the socioeconomic variables as the independent variables. The results of ordered probit regression are shown in Table 11.

Table 11. Determinates of Amenity value for different location.

Variables	Song-Fong Mountain	Frog Rock	Tang Monument	Fording	Banana	Tea	Herb Garden	Urocissa Caerulea	Cherry Blossom	Fireflies
Gender										
Male	–	–	–	–	–	–	–	–	–	–
Female	0.198	0.230	0.361 *	0.201	0.214	0.255	0.257	0.056	0.219	0.130
Age	0.013 *	0.008	0.008	0.011	0.012 *	0.013 *	0.013 *	0.002	0.005	0.001
Education levels										
College or above	–	–	–	–	–	–	–	–	–	–
Senior or below	−0.241	−0.140	−0.161	−0.272	−0.190	−0.194	−0.216	−0.210	−0.223	−0.356 *
Monthly income	6.901×10^{-6}	9.324×10^{-6}*	8.852×10^{-6}*	4.426×10^{-6}	4.026×10^{-6}	5.601×10^{-6}	4.197×10^{-6}	5.801×10^{-6}	3.732×10^{-6}	2.816×10^{-6}
Residence										
Local	–	–	–	–	–	–	–	–	–	–
Outsider	0.240	0.257	0.247	0.252	0.330 *	0.338 *	0.303	0.263	0.446 **	0.459 **
Environmental group										
Yes	–	–	–	–	–	–	–	–	–	–
No	−0.349	0.013	−0.169	−0.339	−0.102	−0.250	−0.304	−0.773 *	−0.339	−0.329
HNFP visit frequency	0.229 **	0.159 *	0.196 **	0.205 **	0.233 **	0.237 **	0.210 **	0.226 **	0.234 **	0.238 **
Stay period	0.004	0.007	0.008 *	0.010 **	0.007	0.007	0.007	0.004	0.003	0.005

* $p < 0.05$, ** $p < 0.01$

4. Discussion and Conclusions

This study concludes that the average WTP value for amenities in the HNFP in winter is NT$2884 per person per year, whereas it is NT$2905 per person per year in summer. The respondents in this study valued the environmental amenity investigated (the HNFP) more highly than participants valued similar amenities in other studies [12,15,41,45,53]. The total WTP value for the amenities of the HNFP in winter (NT$474,755,774 per year) and summer (NT$473,978,430 per year) was obtained by multiplying the number of visitors to the HNFP in 2016 (182,390 in total) [2] by the average WTP value in winter and in summer; the result indicates that the HNFP has higher amenity value in winter than in summer. Regarding the motivation of tourists visiting the HNFP, the area's forest, well-preserved environment, abundant green space, environmental cleanliness, beautiful scenery, and quietness were the main reasons. All of the reasons for visiting the HNFP were deemed similarly important, with the most important listed as follows: being close to nature, enjoying the quietness, relaxation, and enjoying the beautiful scenery. These results are in agreement with the findings of Jim and Chen [12] and Chen [54].

As for the socioeconomic background and tourist behavior, our findings indicate that place of residence and stay period also significantly influenced WTP, also in agreement with Chen et al. [41]. The older tourists (50–64 years) were willing to pay higher money than younger tourists aged 18–29 years, which was consistent with a previous study [41] on landscape value [53]. Consistent with Tseng and Lee [53] and Huang's [55] findings, females also had higher WTP on landscape value. In addition, the most common frequencies of green space visits were less than once a month and 1–3 times a month, which is different from the result obtained by Jim and Chen [12], who discovered that the most common frequency was 2 or 3 times a week. Our results are the same as those obtained by Bennett et al. [56], Grahn [57], Jensen [58], Tyrväinen [15], Jim and Chen [12], and Chen et al. [54].

The result of ordered probit regression analysis revealed that various social and economic variables affected the WTP of the respondents for the recreational locations in the HNFP. Women had higher WTP than men; this result exhibits consistency with those of previous studies. The older respondents had higher WTP, in agreement with Tseng and Lee [53] and Chen et al. [41], who respectively investigated the WTP associated with grain field landscapes and traditional forests. Those with a higher educational level were more likely to have higher WTP, in agreement with the literature [47,55,59]. According to Tyrväinen and Väänänen [47], tourists with higher levels of education already regard green spaces, which are non-market commodities, as a basic condition for life; hence, they tend to have lower WTP. Consistent with prior studies [12,54,55], the respondents with higher income tended to have higher WTP. In terms of residence, the non-local respondents had higher WTP than the locals, as was discovered previously [42,53]. Those who had participated in environmental protection groups had higher WTP for the amenities of the HNFP, in agreement with other studies [54,55]. In addition, the tourists who visited more frequently also tended to have higher WTP; this result was consistent with that of Chen et al. [54], who investigated the value of forest trails. Finally, those who stayed for a longer period had higher WTP. The described consistent or inconsistent findings identified in this study should contribute to reducing the gaps in the literature.

The forest offers amenities and provides ecological and educational goals for tourists, leading to sustainable development practices. On the basis of our study results and the questionnaire responses obtained when visiting the HNFP, a number of suggestions are put forward for the reference of related government agencies in formulating policies or conducting management plans. These suggestions should be taken into account at reginal and national levels when implementing sustainable forest management through a constructive approach that brings relevant stakeholders together.

(1) The HNFP Management are Advised to Develop Recreational Activities for Spring and Autumn, Creating Themed Activities for All Four of the Seasons, Which Will Attract Visitors.

According to our results, the amenity value of the HNFP is higher in winter than in summer. The forest trails can be enjoyed year round, but the most popular landscape resources are seasonal, namely the firefly season in summer and cherry blossom season in winter (January and February).

Season-oriented activities in spring and autumn do not yet exist. The HNFP management are, thus, advised to grow plants that can be appreciated in spring and autumn; by diversifying the scenery around forest trails, the HNFP can fascinate tourists visiting in every season. Furthermore, the main motivation for tourists' visits were found to be as follows: being close to the forest, abundant green space, environmental cleanliness, being close to nature, quietness, relaxation, and enjoying the beautiful scenery. Therefore, understanding tourists' motives and monitoring their travel behavior has become necessary for forestry practitioners, marketers, and policy-makers and HNFP. The HNFP management should maintain the quality of the forest trails and consider limiting the number of visitors when necessary to ensure that the environmental carrying capacity of the HNFP is not exceeded. Proper management not only avoids degradation of the forest landscape due to overloading but also maintains the scenery, and thus results in the continual attraction of visitors to the HNFP.

(2) The HNFP Management are Advised to Conduct Marketing Campaigns Aimed at Specific Groups to Attract More Tourists.

According to the results of ordered probit regression analysis, people of different socioeconomic backgrounds have significantly different WTP for amenities. Women, older people, those with a high education level, those with high personal income, non-locals of the HNFP, those who visit frequently, and those staying for 1 night attached a significantly higher value to their WTP for the amenities of the HNFP, indicating that this group of people have higher preference for, and a more positive attitude toward, the amenities of the HNFP. Therefore, the HNFP management should target their advertising at these groups of potential tourists. For example, more challenging forest trails can be designed for middle-aged tourists, whereas relatively gentle trails are specialized for elderly tourists. Such a design would enable tourists to enjoy themselves regardless of their age when visiting the HNFP. For those who have participated in environmental protection organizations, related units can promote activities associated with environmental protection, attracting tourist groups and increasing the number of visitors to the HNFP.

(3) The HNFP Management are Advised to Promote the Conservation of Wildlife and Prohibition of Damage to the Landscape, as well as Emphasize the Concept of Environmental Protection During Seasonal Activities.

All the scenic locations in the HNFP have high amenity value according to the present study. Among the amenities, the presence of Urocissa caerulea and the cherry blossom and firefly seasons have the highest value, indicating that these three natural resources are the most precious to tourists and should be given proper care and protection. The HNFP management should ensure visitors are aware that feeding the wildlife, such as Urocissa caerulea, is prohibited. Tourists should also be aware that they should not approach wildlife. During the cherry blossom and firefly seasons, visitors should be strictly prohibited from picking cherry blossoms or catching fireflies while they are enjoying the view and taking photographs; such measures will ensure that these natural resources continue to exist.

(4) The HNFP Management are Advised to Plan 2-Day, 1-Night Tour Packages and Develop Diverse Recreational Activities to Increase the Staying Period of HNFP Visitors.

According to our findings, the average tourists staying period was two days and one night (31.4%). There are still many tourists whose staying period is less than two days and one night (59.2%). The respondents in our study who stayed for two days and one night had the highest WTP, indicating that this is the optimal length of a tour in the HNFP. The HNFP management should, thus, design 2-day, 1-night tour packages and deals. In addition, numerous respondents stated that they were unaware of the existence of the accommodation service in the HNFP according to our sent-questionnaire experience; hence, we suggest that this service is advertised more extensively to make tourists aware of the possibility of overnight stays and 2-day, 1-night tours. This will not only boost the park's income but also improve the recreational experience for visitors.

According to previous literature, the CVM has been commonly used to analyze heritage conservation and habitat conservation, recreation benefits, and ecosystems. However, forest landscape has an important intangible value, but almost no literature evaluates the amenity value of forest

landscape. The main contribution of this study is to quantify the landscape value of forests, to analyze the main activities of the people visiting the forests, and to further assess the factors affecting the amenity value of the landscape. The research outcomes can be used as a reference for the relevant management sectors. The research limitations include the sampling time span, and the participants' residences, leading to concerns of sample representativeness. This survey was conducted in the summer season in 2017, but the forests have a variety of landscapes across different seasons. Also, more than half of the participants live in in central Taiwan. It is suggested to extend the study period and to distribute questionnaires over four seasons to collect more data.

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Appendix A

Amenities of the HNFP are shown in Table A1.

Table A1. Attractive qualities of the HNFP.

Amenity	Photograph	Description
Song-Fong Mountain Trail		The trail is 2.5-km long (one-way), the path has low difficulty, and it takes approximately 2 h.
Frog Rock Trail		This trail was once the most famous scenic spot in the HNFP. In 2004, Typhoon Mindulle caused extreme flooding of the Beigang stream, resulting in the disappearance of the eponymous frog stone. Hence, the site was renamed as the Frog Stone Ruin Trail. With a steep and twisting path, the trail is 2.2-km long (return) and takes approximately 2 h to complete.
TanggongBen Trail		This trail mainly comprises steep slopes. Along the route, there are Cunninghamia lanceolata plantations, a planted Chamaecyparis obtusa forest, natural Schima superba Gard. and Champ var. superba conservation areas, and a natural Calocedrus formosana conservation area. The trail is 7.5-km long (one- way) and takes 6 h to complete.

Table A1. *Cont.*

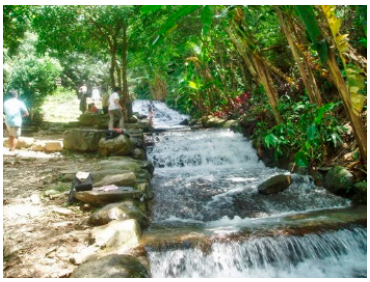
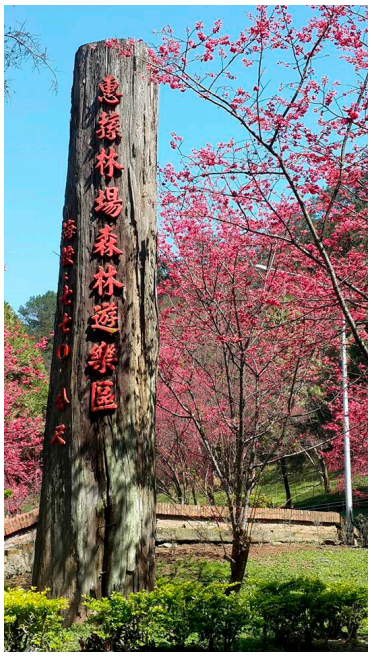
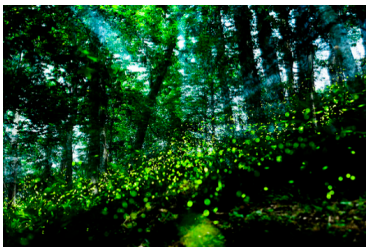
Amenity	Photograph	Description
Fording Trail		The trail, which follows a stream, is a great place to cool off during summer.
Banana Trail		Various types of bananas can be found along this trail. The bananas are derived from the long-term natural evolution and hybridization of two species: Musa acuminate and Musa balbisiana.
Tea Trail		Along this trail, visitors can admire various species of camellia, plants that belong to Theaceae family. The main use of these plants is in tea, and the Theaceae family is native to Taiwan. The scenery is breathtaking during the flowering season.
Medicinal botanical garden		Numerous medical plants can be found in this garden, including Camptotheca, Lindera aggregata, Orange jessamine, and Spiraea prunifolia.
Urocissa caerulea location		This bird is endemic to Taiwan and a protected species.

Table A1. *Cont.*

Amenity	Photograph	Description
Cherry blossom location		The cherry blossom trees in the HNFP are in full bloom in January and February, and many tourists visit at these times to enjoy their beauty.
Firefly location		Hundreds of thousands of fireflies inhabit and breed in this location between spring and summer. The sight is considered spectacular by visitors, and fireflies in the forest have been likened to seeing the milky way against the blackness of space.

Appendix B

Questionnaire employed in this study is shown in Table A2.

Table A2. Questionnaire employed in this study.

Name of Variables	Answer	Reference
Part 1: Scio-Economics Background		
1. Gender	□Male □Female	Jim and Chen [12]
2. Age	□18–29 years old □30–49 years old □50–64 years old □over 65 years old	Zhang et al. [42]
3. Education levels	□Elementary school □Junior high school □Senior high school □Under graduate □Graduate	Tyrväinen et al. [60]
4. Monthly income (NT dollars)	□below 20 thousands NT dollars □20–40 thousands NT dollars □40–60 thousands NT dollars □60–80 thousands NT dollars □80–100 thousands NT dollars □over 100 thousands NT dollars	Wu [61]
5.Career	□Students □government employees □Industry □Business □service industries □freelancer □Agriculture, Forestry, Fishery and Husbandry □Job seeking □Retired □Others	Liu [36]

Table A2. *Cont.*

Name of Variables	Answer	Reference
Part 1: Scio-Economics Background		
6. Marriage	□Unmarried □Married	Zhang et al. [42]
7. Residence	□local residents(Taichung city, Nantou city and Changhua city) □outsiders	Chen et al. [41]
8. Whether participate in environmental groups or not	□Yes □No	Wu [61]
Part 2: Recreation Experience		
1. Times of visiting HNFP in past one year	□1(means this time) □2 □3 □over 4	Zhang et al. [42]
2. Predicted times of visiting HNFP in the future for one year	□0 □1 □2 □3 □over 4	Chen and Chiuch [62]
3. Average times of visiting HNFP	□once a year □2–3 times a year □over 4 times a year	Jim and Chen [12]
4. How often do you visit other green places, such as parks, forest and so on	□less than once for a month □1–3 times for a month □once a week □2–3 times a week □over 4 times a week	
6. How long you (plan to) stay in HNFP	□below 2 h □2–4 h □4–6 h □6–8 h □One night stay □Two nights stay □over 4 days	Zhang et al. [42]
7. How often do you come with different partners:		Jim and Chen [12]
I often come to HNFP with my family	□Very disagree □Disagree □Normal □Agree □Very agree	
I often come to HNFP with my friends	□Very disagree □Disagree □Normal □Agree □Very agree	
I often come to HNFP alone	□Very disagree □Disagree □Normal □Agree □Very agree	
8. The purpose of coming to HNFP		Jim and Chen [12]
Relaxation	□Very unimportant □Unimportant □Normal □Important □Very important	
Silence	□Very unimportant □Unimportant □Normal □Important □Very important	
Work out	□Very unimportant □Unimportant □Normal □Important □Very important	
To be closed to nature	□Very unimportant □Unimportant □Normal □Important □Very important	
Views	□Very unimportant □Unimportant □Normal □Important □Very important	
Hidden	□Very unimportant □Unimportant □Normal □Important □Very important	
To be alone	□Very unimportant □Unimportant □Normal □Important □Very important	
Natural studies	□Very unimportant □Unimportant □Normal □Important □Very important	

Table A2. *Cont.*

Name of Variables	Answer	Reference
Part 2: Recreation Experience		
9. Attractive qualities of the HNFP		Jim and Chen [12]
Wildlife	□Very unimportant □Unimportant □Normal □Important □Very important	
Lakes	□Very unimportant □Unimportant □Normal □Important □Very important	
Forest	□Very unimportant □Unimportant □Normal □Important □Very important	
Well-conserved	□Very unimportant □Unimportant □Normal □Important □Very important	
Special views	□Very unimportant □Unimportant □Normal □Important □Very important	
Much of green space	□Very unimportant □Unimportant □Normal □Important □Very important	
Quiet	□Very unimportant □Unimportant □Normal □Important □Very important	
Beautiful views	□Very unimportant □Unimportant □Normal □Important □Very important	
Cleanness	□Very unimportant □Unimportant □Normal □Important □Very important	
Private reasons	□Very unimportant □Unimportant □Normal □Important □Very important	
Closed to my house, school, and so on	□Very unimportant □Unimportant □Normal □Important □Very important	
Part 3: WTP for Amenity		
1. To conserve the views of "Song-Fong Mountain trail", how much are you willing to pay for one year (NT dollars)	□0 □100 □150 □200 □250 □300 □500 □700 □900 □over 1,000 □others_____	Chen et al. [54]
2. To conserve the views of "Frog Rock Trail", how much are you willing to pay for one year (NT dollars)	□0 □100 □150 □200 □250 □300 □500 □700 □900 □over 1,000 □others_____	
3. To conserve the views of "Tang Monument Trail", how much are you willing to pay for one year (NT dollars)	□0 □100 □150 □200 □250 □300 □500 □700 □900 □over 1,000 □others_____	
4. To conserve the views of "Fording Trail", how much are you willing to pay for one year (NT dollars)	□0 □100 □150 □200 □250 □300 □500 □700 □900 □over 1,000 □others_____	
5. To conserve the views of "Banana Trail", how much are you willing to pay for one year (NT dollars)	□0 □100 □150 □200 □250 □300 □500 □700 □900 □over 1,000 □others_____	
6. To conserve the views of "Tea Trail", how much are you willing to pay for one year (NT dollars)	□0 □100 □150 □200 □250 □300 □500 □700 □900 □over 1,000 □others_____	
7. To conserve the views of "Herb Garden", how much are you willing to pay for one year (NT dollars)	□0 □100 □150 □200 □250 □300 □500 □700 □900 □over 1,000 □others_____	
8. To conserve the habitats of *Urocissa caerulea* (a kind of protected bird in Taiwan) and its views, how much are you willing to pay for one year (NT dollars)	□0 □100 □150 □200 □250 □300 □500 □700 □900 □over 1,000 □others_____	

Table A2. *Cont.*

Name of Variables	Answer	Reference
Part 3: WTP for Amenity		
9. To conserve the views of " cherry blossom season", how much are you willing to pay for one year (NT dollars)	□0 □100 □150 □200 □250 □300 □500 □700 □900 □over 1000 □others_____	Lin and Liu [63]
10. To conserve the views of "Firefly", how much are you willing to pay for one year (NT dollars)	□0 □100 □150 □200 □250 □300 □500 □700 □900 □over 1,000 □others_____	
11.If you answered "0" for any one question, what is your reason	□I already paid the tax □Now the view quality of HNFP is bad □Government should pay for these □To me, the view is worthless □The view is public property, so I can use it without paying money □Others: _____	Chiang [64]

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