

Article

Local Willingness to Pay Survey for Rare and Endangered Species Protection in Qianjiangyuan National Park, China

Xiaoping Sun ¹, Jiamin Shen ¹, Ran Tao ², Yu Shen ^{2,*}, Mingchang Cao ^{3,*} and Yang Xiao ^{1,4,*} 

¹ Jiangsu Key Laboratory for Bioresources of Saline Soils, Jiangsu Synthetic Innovation Center for Coastal Bio-Agriculture, Jiangsu Provincial Key Laboratory of Coastal Wetland Bioresources and Environmental Protection, School of Wetland, Yancheng Teachers University, Yancheng 224001, China

² Co-Innovation Center for the Sustainable Forestry in Southern China, College of Biology and the Environment, Nanjing Forestry University, Nanjing 210037, China

³ Nanjing Institute of Environmental Sciences, Ministry of Ecology and Environment of the People's Republic of China, Nanjing 210042, China

⁴ China-Croatia "Belt and Road" Joint Laboratory on Biodiversity and Ecosystem Services and CAS Key Laboratory of Mountain Ecological Restoration and Bioresource Utilization and Ecological Restoration Biodiversity Conservation Key Laboratory of Sichuan Province, Chengdu Institute of Biology, Chinese Academy of Sciences, Chengdu 610041, China

* Correspondence: sheyttmax@hotmail.com (Y.S.); mingchangc@163.com (M.C.); yangxiao84@hotmail.com (Y.X.)

Abstract: The willingness to pay for the protection of rare and endangered species is information vital to the formulation of biodiversity protection strategies. Accordingly, this study used the contingent valuation method to evaluate the protection of Elliot's pheasant (*Syrnaticus ellioti*) in Qianjiangyuan National Park in Zhejiang, China. A questionnaire was administered to the residents of 19 villages in the towns of Qixi, Hetian, Changhong, and Suzhuang to examine their willingness to pay for the conservation of Elliot's pheasant. A logit model was adopted to calculate the monetary existence value of the species. The results showed that 38.1% of the respondents are willing to pay CNY 4.025 per month for the protection of Elliot's pheasant and that the total willingness payment per year is CNY 179,312. This willingness is influenced mainly by gender, education level, income level, and awareness regarding the protection of the species, which all have a significant positive correlation with willingness. The male respondents refuse to pay for protection fees, whereas respondents with high education levels, incomes, and awareness of the protection of endangered species are more willing to protect Elliot's pheasant. Among the respondents, 45.30%, 38.46%, and 28.21% are unwilling to pay for the protection of the species because of income constraints, poor awareness of species conservation, and perceptions regarding the role of government, respectively. The government should increase subsidies for conservation and guide the re-employment of residents as protectors of biological diversity in the study area to increase their incomes. It should also strengthen public awareness regarding biodiversity and nationally protected animals.

Keywords: Qianjiangyuan National Park; Elliot's pheasant; willingness to pay; contingent valuation method; conservation strategy



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1. Introduction

As an organic part of the ecosystem, wild animals are an essential link to maintaining the energy flow and material cycle in this environment, and they play an important regulatory role in the virtuous cycle of the ecosystem [1–3]. With the development of economy and society, the contradiction between the unreasonable demand of humans for wild animals and total wildlife resources has become progressively prominent [4,5]. Since the 1600s, 120 species of animals and 250 species of birds have become extinct [6], and approximately 100 species are estimated to be on the verge of extinction daily [7]. Some scientists predict that if the status quo remains, more than 50% of all organisms on earth will

become extinct or endangered. The current extinction rate of biological species is already 10 to 1000 times faster than their natural extinction rate [7,8]. These problems highlight the urgency of protecting our limited wildlife resources.

The conservation of rare and endangered species necessitates participation from the public [1–3], who have become increasingly aware of the importance of protecting such species under rapid societal and economic progress [4]. In China, in order to protect rare and endangered species, in situ protection and ex situ protection are usually adopted. In situ conservation is the effective protection of the original place where species are distributed. It is the most powerful, efficient and fundamental way to protect species and biodiversity. It not only protects the individual species, population or community, but also maintains the balance of material and energy flow in the regional ecosystem, and ensures the normal development and evolution process of species, as well as the ecological process between species and the environment. It protects the survivability and intraspecific genetic variation of the species in its native environment. Ex situ conservation is a supplement to in situ conservation. For species whose survival conditions no longer exist, the number of species is very small, and survival and reproduction are seriously threatened, they are transferred to breeding centers or animal (plant) parks for special protection and management. At the same time, ex situ conservation may have a deeper understanding of the growth and development laws, systems, evolution, reproduction and other biological laws of protected objects, so as to provide a relevant theoretical basis for in situ conservation. For species populations or communities developed and cultivated during ex situ conservation, when the time is ripe, they return to the wild and gradually establish wild populations [9]. However, these measures are based on governmental actions that emphasize land enclosure and light management, thus causing failure in the protection of certain rare and endangered wildlife [10]. To ensure better public participation in the conservation of such species, we first need to investigate the public's maximum willingness to pay (WTP) for this endeavor.

Studies have shown that selection value, existence value, and heritage value, which are not directly related to human use, can be reflected in their potential value through WTP [11–13]. The WTP for wildlife conservation is assessed through the contingent valuation method (CVM), which has been widely employed worldwide [3–5]. The CVM involves the use of a questionnaire to construct a hypothetical market to determine people's maximum WTP for environmental improvement or their minimum willingness to compensate for environmental degradation (willingness to accept) [14,15]. In China, the CVM has been used to ecologically assess water quality, biodiversity, ecosystem conservation, restoration, and recreation since the 1990s, and this usage is essentially at the experimental and reporting stage [4,7]. Although CVM is considered a preferred approach to environmental resource valuation, it has also been regarded as controversial since its inception, as it involves not only economics but also ethics, philosophy, and psychology [16–19]. Currently, it is used mainly in the valuation of non-use values of ecosystems, the improvement and restoration of ecosystems and environments, loss measurement and compensation, and species value [20–22]. Generally, species value evaluated using CVM have the following characteristics: (1) endangered wild animals and high social recognition; (2) lack of clear market prices, with the value of wildlife closely related to the ability of consumers to pay; (3) payment value highly correlated with the social awareness of a target species, and the WTP higher for species for which awareness is greater; (4) the geographical range of a target population investigated in different studies is inconsistent, resulting in considerable differences in species evaluation results, and the results of similar studies are incomparable [3,4].

Elliot's pheasant (*Syrnaticus ellioti*) belongs to the genus *Syrnaticus* in the family Phasianidae and is a typical ground-nesting forest bird. It is an endemic national first-level protected animal in China. It is listed as "near threatened" on the International Union for Conservation of Nature's Red List and "vulnerable" on China's Vertebrate Red List [23]. Elliot's pheasant has become a threatened species of widespread concern, as

the population has declined because of habitat fragmentation, deforestation, shrinking of suitable habitat areas, and massive hunting in the past [23]. The existence of the Elliot's pheasant is the prerequisite for its impact on ecosystems and economic systems and human utilization, and the protection of the Elliot's pheasant should be rooted in the existence value of the species. Therefore, the accurate evaluation of the existence value of the Elliot's pheasant is not only beneficial to the protection of the Elliot's pheasant, it is also the further clarification of other economic, social and ecological values attached to the existence value of the Elliot's pheasant. Therefore, the use of the CVM to assess the economic value of endangered species conservation provides an essential scientific basis for decisions on endangered species management [4]. In 2011, the China Wildlife Conservation Association awarded Kaihua County, Zhejiang Province the title "Hometown of Elliot's pheasant in China". In 2016, the National Development and Reform Commission officially approved the construction of the Qianjiangyuan National Park (QNP) System Pilot Area. Hence, QNP was the area examined in this study. This study assesses willingness to pay for Elliot's pheasant conservation, providing suggestions for management strategies for rare and endangered species in the study area. We specifically aimed: (1) to understand the level of local residents' support for Elliot's pheasant conservation and associated factors; (2) to analyze the conservation value of Elliot's pheasant by CVM, and (3) to clarify the factors affecting this WTP, and explore the influencing factors and underlying reasons of WTP.

2. Materials and Methods

2.1. Study Area

The QNP is located in Kaihua County (28°54'–29°30' N; 118°01'–118°37' E), western Zhejiang Province, and covers an area of about 252 km². Its management involves four townships in the county, namely Suzhuang, Changhong, Hetian, and Qixi, as well as 19 administrative villages (Hengzhong, Yucun, Tangtou, Xixi, Maotan, Suzhuang, Gutian, Xiachuan, Zhenzikeng, Kukeng, Gaosheng, Lulian, Tianfan, Longkeng, Liyangtian, Shangcun, Renzongkeng, Zuoxi and Qixi) and 72 natural villages (Figure 1) [24]. The area has a total population of 9744, and these residents primarily migrate for work or engage in farming for a living. The QNP has a mild subtropical monsoon climate, four distinct seasons, abundant precipitation, and a long frost-free period. It experiences an annual average rainfall of 1814 mm and uneven temporal and spatial distributions of precipitation, with rainfall concentrated in April to July [23,24]. It spans the Gutianshan National Nature Reserve, Qianjiangyuan National Forest Park, Qianjiangyuan Provincial Scenic Area, and ecological areas that connect these nature reserves, most of which are ecological public welfare forests with rich animal and plant resources. The QNP area is home to 2000 species, including 34 nationally protected animals, such as Elliot's pheasant, the leopard (*Panthera pardus*), the clouded leopard (*Neofelis nebulosa*), and the black muntjac (*Muntiacus crinifrons*), as well as 32 rare and endangered plants, including *Emmenopterys henryi* Oliv., *Michelia skinneriana* Dunn., and *Stewartia sinensis* Rehd. et Wils. [25].

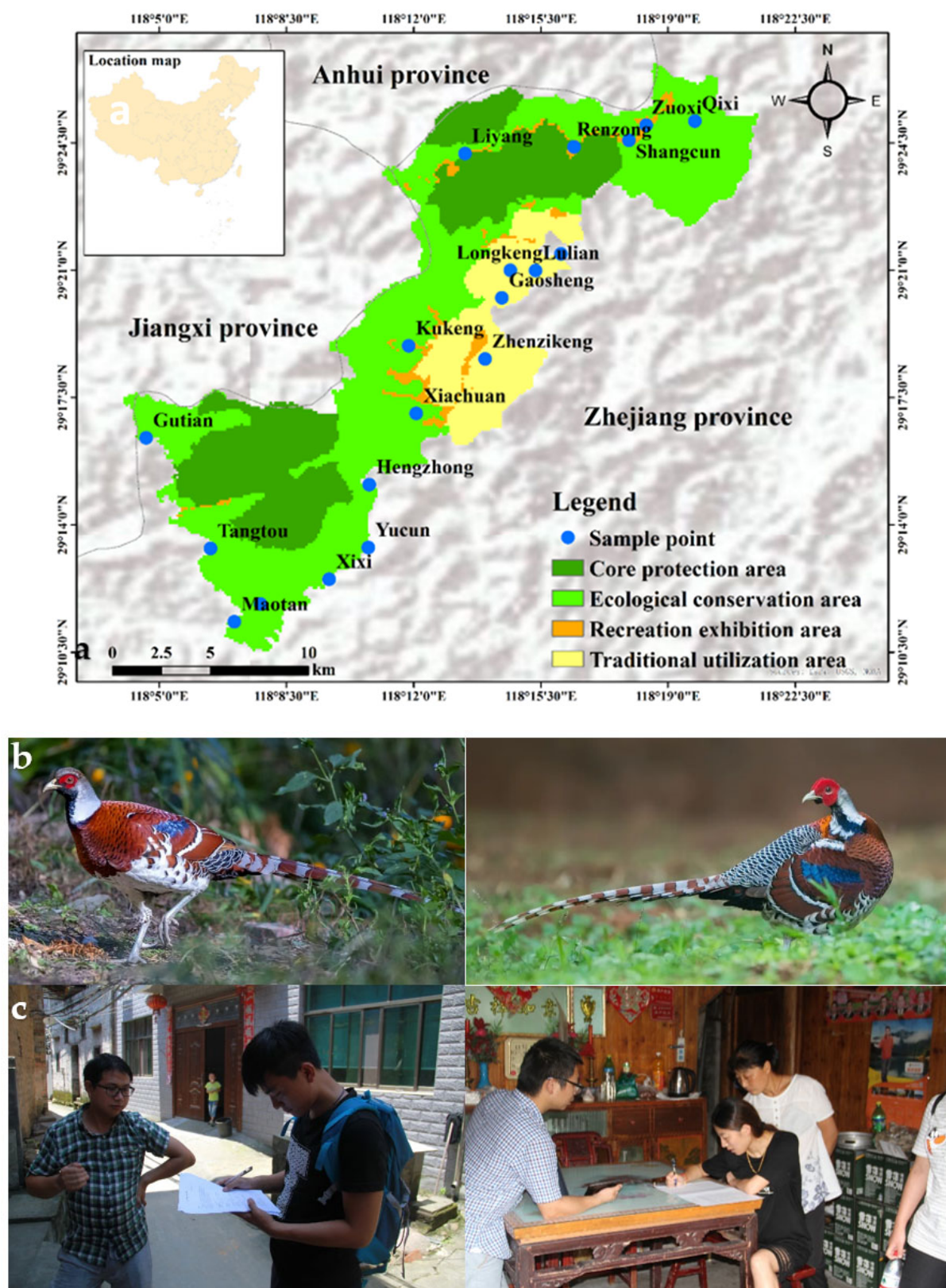


Figure 1. Location of the study area (a) sample point, (b) Elliot's Pheasant, (c) survey photos.

2.2. Research Methodology

As previously stated, the CVM is a survey tool for determining people's conservation awareness and WTP for rare and endangered species by using a hypothetical market

comprising non-market species resources or services, and respondents are asked to provide information about the market [4,15,26]. The main questionnaire formats used in the CVM are the open-ended, dichotomous choice and payment card (PC) formats, with the latter being the most common [13,19]. A payment card is further divided into an anchored payment card (APC) and an unanchored payment card (UPC). The UPC asks respondents to select the maximum amount that they are willing to pay from a series of given value data, or directly indicate the maximum amount. The APC provides respondents with some background information and inquiries about their WTP to provide some binding background data for an ongoing survey [13,14]. In this study, a UPC was administered, after which a logistic regression model was run in the Statistical Package for the Social Sciences (26.0) to construct the relationship between gender, age, education, occupation, income, and WTP [4,13]. The regression was intended to better explore the direct association between the WTP and social attributes of the residents [4,12]. The specific equation is used, as follows [11,12]:

$$P_i = \frac{1}{1 + e^{-(\alpha + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n + \varepsilon_i)}} \quad (1)$$

$$\text{logit}(P) = \ln\left(\frac{P}{1-P}\right) = \alpha + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n$$

where P is the probability that residents are willing to pay, taking values between 0 and 1, e is the natural logarithm, α is the constant; $\beta_1 \dots \beta_n$ are the coefficient, $x_1 \dots x_n$ are the vector of the explanatory variables (Table 1), and ε is the error terms. Residents' willingness to pay for species protection (RWTP):

$$RWTP_i = \frac{1}{1 + e^{-(\beta_0 + \beta_1(GEN) + \beta_2(AGE) + \beta_3(EDU) + \beta_4(INC) + \beta_5(HHS) + \beta_6(OCC) + \beta_7(SCA)) + \varepsilon_i}} \quad (2)$$

$$\text{Mean RWTP} = \frac{\sum_{i=1}^n RWTP_i(BP_i)}{\sum_{i=1}^n RWTP_i} \quad (3)$$

where $RWTP_i$ is the estimated respondents' probability of RWTP, n is the number of respondents who were willing to pay, and BP_i is the chosen bid prices in the i th respondents [2,4,10].

Table 1. Each variable assignment table.

Variable	Define and Value
Gender	1 = "Male", 2 = "Female"
Age	1 = "<18", 2 = "18–23", 3 = "24–33", 4 = "34–53", 5 = "54–63", 6 = "≥64"
Total household size (persons)	1 = "1–2", 2 = "3", 3 = "4", 4 = "5", 5 = "≥6"
Education level	1 = "Junior high school and below", 2 = "High School or technical school", 3 = "Bachelor or junior college", 4 = "Master or above"
Occupation	1 = "Public servant", 2 = "Self-employed", 3 = "Service personnel", 4 = "Farmer", 5 = "Student", 6 = "Worker", 7 = "Laid-off, unemployed", 8 = "Others"
Monthly income	1 = "<1000", 2 = "1000–2000", 3 = "2000–3000", 4 = "3000–4000", 5 = "4000–5000", 6 = "5000–6000", 7 = "6000–7000", 8 = "7000–8000", 9 = "8000–9000", 10 = "9000–10,000", 11 = "≥10,000"
Species conservation awareness	1 = "None", 2 = "Yes, don't want to know", 3 = "Yes, ask initiatively", 4 = "independently check relevant information, watch media reports", 5 = "Understand species habits and do relevant investigations"
Willingness to pay	1 = "Yes", 2 = "No"
Payment amount	¥0, 1, 2, 3, 4, 5, 10, 20, 50, 100, 200 or others"

2.3. Questionnaire and Sample

(1) Questionnaire design

The QNP is the main distribution area of Elliot's pheasant [23]. From July 14 to 21, 2021, a survey on the conservation of the species was administered to residents of the

19 administrative villages located within the park. The questionnaire was divided into two sections: (1) a section on basic information on the surveyed residents, including age, gender, total household size, education level, occupation, and monthly income, and (2) a section devoted to the willingness of the surveyed residents to pay for the conservation of Elliot's pheasant. It covered issues such as the degree of knowledge about the target species and whether the residents are willing to donate to its conservation, as well as the approximate amount of monthly donation, should they be willing to provide it, or the reason why they are unwilling to pay for such an initiative. To ensure the efficiency of questionnaire collection and the quality of answers, all the questionnaires were distributed during face-to-face interviews with participants chosen via random sampling. A total of 200 questionnaires were distributed, out of which 189 valid questionnaires were returned (94.5% response rate).

(2) Sample description

To ensure the validity of the statistical results, the survey was aimed at residents over the age of 18, whose basic information is shown in Table 1. Among the respondents, 76.72% were male and 23.28% were female, with composition by age concentrated in the 34- to 53-year-old group. The remaining 1.06%, 5.29%, and 17.99% of the respondents were 18 to 23, 24 to 33, and above 64 years old, respectively. The total number of family members was three to four. Of the participants, 81.48% completed junior high school or lower, and some were illiterate. The main occupation was farming, which accounted for 71.43% of the sample, and the monthly income fell between CNY 1000 and CNY 3000, consistent with official statistical reports. In 2020, the per capita disposable income of permanent rural residents was CNY 23,165. The proportions of residents with monthly incomes below CNY 1000, CNY 2000 to CNY 3000, and CNY 1000 to CNY 2000 were 28.04%, 21.69%, and 19.05%, respectively.

(3) Variable assignment

Before the logistic regression was carried out, relevant variables involved in the questionnaire were first assigned values [13,14,19] (Table 2). The response variable was the WTP for the conservation of Elliot's pheasant, with the willingness to contribute assigned a value of 1 and the unwillingness to donate given a value of 0. The independent variables were socioeconomic characteristics, such as gender, age, total household size, education level, occupation, and income level, as well as awareness of the conservation of Elliot's pheasant. The categorical variables were gender and occupation; the ordinal variables were age, total household size, education level, monthly income level, and awareness of species protection; and the distance variable was the amount of payment for the protection of the species of interest. The dummy variables were treated as such using indicator coding, in which the reference variables for gender and occupation were "female" and "other occupations." The values are presented in Table 3.

Table 2. Basic statistical information of the residents.

Variable		Sample Size	Percentage	Variables		Sample Size	Percentage
Gender	Male	145	76.72%	Farmer	Worker	135	71.43%
	Female	44	23.28%			18	9.52%
Age	<18	0	0	Occupation	Self-employed	17	8.99%
	18–23	2	1.06%		Public servant	0	0.00%
	24–33	10	5.29%		Service personnel	1	0.53%
	34–53	84	44.44%		Student	1	0.53%
	54–63	59	31.22%		Laid-off, unemployed	0	0.00%
	≥64	34	17.99%		Others	17	8.99%

Table 2. Cont.

Variable		Sample Size	Percentage	Variables		Sample Size	Percentage
Total household size	1–2 persons	10	5.29%	Monthly income	<1000	53	28.04%
	3 persons	49	25.93%		1000–2000	36	19.05%
	4 persons	49	25.93%		2000–3000	41	21.69%
	5 persons	44	23.28%		3000–4000	17	8.99%
	≥6 persons	37	19.58%		4000–5000	13	6.88%
Education level	Junior high school and below	154	81.48%		5000–6000	14	7.41%
	High school or technical school	32	16.93%		6000–7000	2	1.06%
	Bachelor or junior college	3	1.59%		7000–8000	3	1.59%
	Master or above	0	0.00%		8000–9000	5	2.65%
					9000–10,000	0	0.00%
					>10,000	5	2.65%

Table 3. Categorical variable coding.

Variable		Original Value	Parameter Coding						
			(1)	(2)	(3)	(4)	(5)	(6)	(7)
Occupation	Public servant	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
	Self-employed	2.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
	Service personnel	3.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
	Farmer	4.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
	Student	5.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
	Worker	6.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
	Laid-off, unemployed	7.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
	Others	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gender	Male	1.00	1.00						
	Female	2.00	0.00						

3. Results

3.1. Willingness to Pay for Species Conservation

WTP for Species Conservation

Among the 189 respondents, 72 showed a WTP of a certain amount for the conservation of Elliot's pheasant and expressed support for such conservation. Put differently, 38.10% of the residents are willing to pay for the conservation of Elliot's pheasant (Figure 2). To analyze the factors affecting the residents' WTP for the protection of Elliot's pheasant, a binary logistic regression was carried out on the different variables, given that the response variables were assigned a value of 0 or 1. The results showed that gender, education level, monthly income, and species conservation awareness have varying degrees of influence on the residents' WTP (Tables 4 and 5). Specifically, the gender and monthly income of the respondents affect the WTP for species conservation ($0.01 < p < 0.05$), mainly because women are more caring than men. From the perspective of different gender selection of values, Pang (2020) believes that compared with men, women have more altruistic values. Altruistic value orientation is the basis of environmental concern. Women are socialized to be emotional, caring, ethical, compassionate, cooperative, and helpful family caregivers, while men are socialized to be more independent and competitive. As a result, gender norms lead women to be more helpful and altruistic than men [27]. The high-income earners have a certain specific economic base in comparison, and to improve their quality of life, they pay more attention to the conservation of the ecological environment and are, therefore, willing to provide financial support for species conservation. These results are similar to the findings of Zong et al. [28] and Fan et al. [29]. The age, total

household size, and occupation of the respondents in the current work exert no significant effect on their WTP ($p > 0.05$), which may be attributed to the fact that the study area is a labor-exporting region. Most young and middle-aged individuals in the study area migrate for work, and the remaining residents, who are older, are mostly farmers who have little understanding of species' protection. Education level and species conservation awareness have a very significant impact on the WTP for the conservation of Elliot's pheasant ($p < 0.01$). The positive correlation of these variables with WTP stems primarily from the more comprehensive education and understanding of ecological protection among the highly educated respondents. The higher the residents' awareness regarding the protection of Elliot's pheasant, the greater their comprehension of the importance of such conservation and the stronger their inclination to pay for such an endeavor. We also found that with each level of increase in educational attainment, the individual WTP increases by 4.758 times on average. As the respondents' awareness regarding the protection of the target species increases by one stage, their WTP to pay for its conservation becomes 2.055 times higher than the average. The education levels of the respondents and their awareness of the species of interest exert an important effect on its protection, indicating the need for the government to strengthen publicity and lectures on Elliot's pheasant conservation and improve residents' awareness of species protection in the study area.

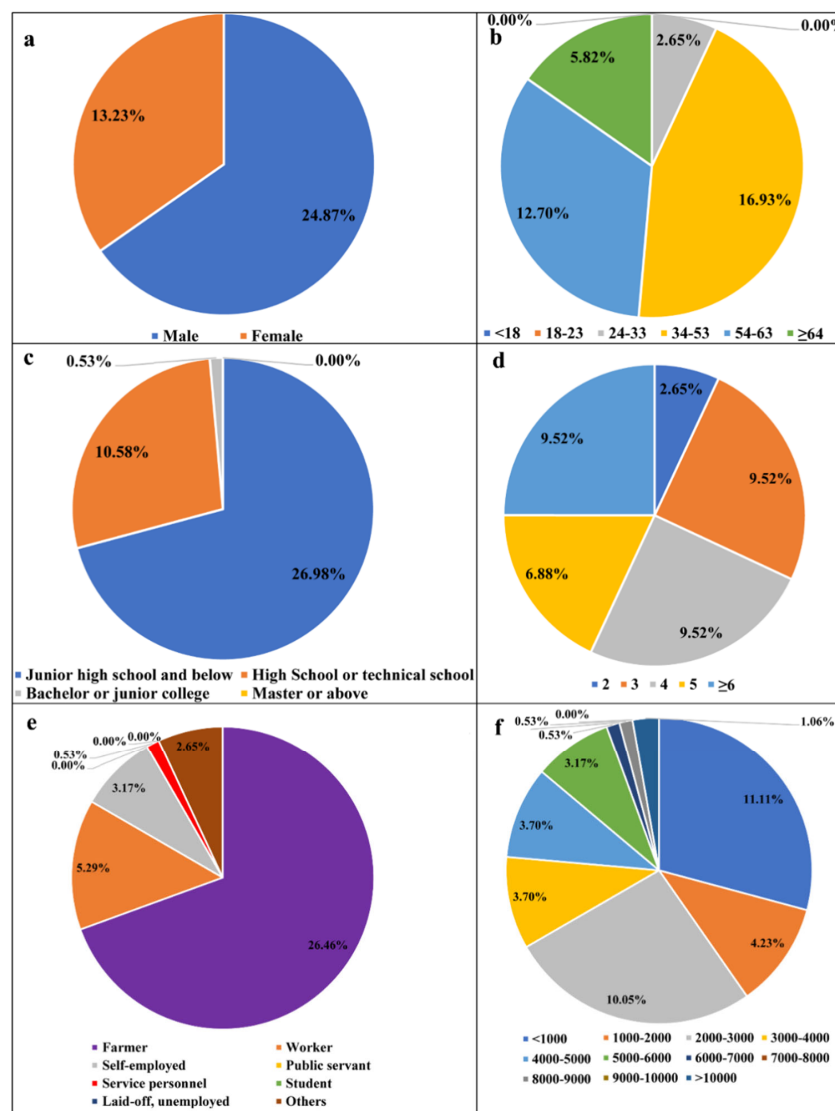


Figure 2. The Willingness to Pay of residents regarding Elliot's pheasant (a) gender; (b) age; (c) education level; (d) total household size; (e) occupation; (f) monthly income.

Table 4. Analysis of variance about different variable.

Variable	The Willingness to Pay	The Protection Awareness of Species
Gender	*	NS
Age	NS	NS
Total household size (persons)	NS	NS
Education level	**	NS
Occupation	NS	NS
Monthly income	*	NS
Species conservation awareness	**	/

Note: NS means no significance; *, ** indicate significant at the 5% and 1% levels, respectively.

Table 5. Parameter estimates of CVM model.

Variable	β^1	S.E. ²	Exp(β) ³	95% EXP(β) ⁴	
				Lower Limit	Higher Limit
Gender (Male) ⁵	−1.622	0.450	0.198	0.082	0.478
Age	0.040	0.240	1.041	0.651	1.666
Total household size (persons)	−0.1030	0.160	0.902	0.659	1.234
Education level	1.560	0.473	4.758	1.883	12.018
Occupation ⁶	/	/	/	/	/
Public servant	0.507	0.956	1.660	0.255	10.801
Self-employed	22.650	40,192.970	6,865,537,209.538	0.000	
Service personnel	0.748	0.814	2.113	0.429	10.422
Farmer	−23.687	40,192.970	0	0.000	
Student	1.765	0.974	5.842	0.866	39.405
Monthly income	0.028	0.093	1.029	0.857	1.235
Species Conservation awareness	0.720	0.141	2.055	1.558	2.710
Constant	−3.491	1.550	0.030		

Note: ¹ β means regression coefficient; ² S.E. means standard error; ³ EXP(B) means odds ratio; ⁴ EXP(B) (95%) means confidence interval; ⁵ Taking “gender female” as reference variable; ⁶ Taking “other occupations” as reference variable.

3.2. WTP for the Conservation of Elliot's Pheasant

As mentioned earlier, 38.10% of the respondents are willing to pay for the conservation of Elliot's pheasant. The amounts that they are prepared to pay were set at 0, 1, 2, 3, 4, 5, 10, 20, 50, 100, and 200 CNY/month. The highest proportion of respondents willing to provide financial support, 8.47%, want to pay CNY 5, while 7.94%, 3.17%, 5.29%, 1.06%, 6.35%, 3.70%, 1.06%, and 0.53% are ready to pay CNY 1, CNY 2, CNY 3, CNY 4, CNY 10, CNY 20, CNY 50, and CNY 100, respectively (Figure 3). The average WTP, as calculated using Equation (2), is CNY 4.025/month, indicating that the residents are willing to pay CNY 48.3/year for the conservation of Elliot's pheasant. This amount accounts for only 0.4% of the respondents' minimum wage income of CNY 1000. Furthermore, the study area has a population of 9744, and 38.1% of the respondents are willing to pay for the protection of the species. It was estimated that the total WTP of the residents for the protection of Elliot's pheasant in 2021 is CNY 179,312.

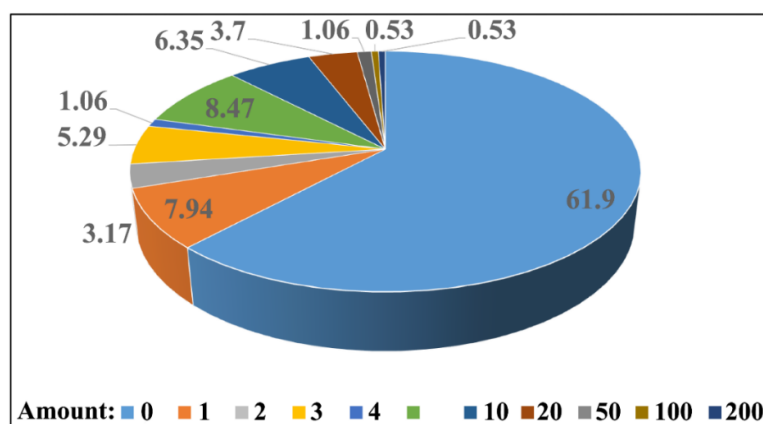


Figure 3. The percentage of Elliot's pheasant conservation payment amount.

To probe the influencing factors of the WTP for the protection of Elliot's pheasant, payment amount was used as a distance variable (Table 2), gender and occupation were taken as categorical variables and treated with dummy variables (Table 3), and WTP was analyzed via multiple linear regression. The results showed that the WTP of the respondents is positively correlated with their awareness regarding the conservation of the species ($\beta = 2.506$; $p < 0.01$). This indicates that the higher the respondents' awareness, the more willing they are to pay for the protection of the Elliot's pheasant. No significant relationship was found between the other influencing factors and the WTP for the protection of the species of concern (Table 6).

Table 6. Linear regression analysis of willingness of payment for *Syrnaticus ellioti*.

Variable	β	t-Test	p Value
Constant	−9.334	−0.833	0.406
Gender	0.217	0.074	0.941
Age	0.448	0.289	0.773
Total household size (persons)	0.109	0.107	0.915
Education level	4.731	1.689	0.093
Occupation	−0.833	−1.006	0.316
Monthly income	1.008	1.779	0.077
Species conservation awareness	2.506	2.875	0.005

4. Discussion

4.1. The Reasons for Respondents' Reluctance to Pay

Under the process of the construction of the National Park, the results showed that a total of 117 respondents (61.9%) are unwilling to pay for conservation (Table 7). The proportion of unwilling residents is considerably lower than the 70.4% of tourists and community residents in Wolong National Nature Reserve who are unwilling to pay for conservation [28], and close to the 42.4% of residents who display the same unwillingness to pay for the protection of Chinese sturgeon in the Yangtze River Nature Reserve [30]. The reasons for such unwillingness, which were set as multiple choices in the questionnaire, were analyzed. It was also necessary to assign scores to the reason options, that is, 1 for selected reasons and 0 for unselected reasons. The respondents who chose income constraints, poor awareness of protection, governmental responsibility, and other reasons for their unwillingness to pay for protection account for 45.30%, 38.46%, 28.21%, and 2.56%, respectively. As can be seen, income constraints are the main deterrent to WTP, similar to the findings of Xiao et al. [31] and Kang et al. [32]. Correspondingly, we suggest that during the construction of the QNP, the government should refine the ecological protection compensation mechanism for the residents in the QNP, expand the scope of compensation, raise the compensation standard, and improve the compensation policy as

it establishes the principles of restriction and prohibition on industrial development. For example, it should establish a forest ecological protection compensation system, wherein all national-level public welfare forests are included in the compensation scope, and special compensation funds are arranged. The government should also promote market-oriented ecological protection compensation, guaranteeing that whoever benefits from this program will be compensated, such as carbon emission trading in combination with the national carbon sink market [33,34]. It should guide the ecological re-employment of the residents as protectors of biological diversity in the area and create more high-quality ecological products, increase the ecological compensation of the residents, and effectively improve their incomes [33]. These measures favorably affect the ecological environment and species protection in the national park. They also coincide with Chairman Xi Jinping's belief that "lucid waters and lush mountains are invaluable assets." In addition, the investigation revealed that the residents know little about Elliot's pheasant as a national first-class protected animal. Most of them think only of the animal as a type of pheasant. When they were asked whether they were willing to pay to protect the species, most of them expressed unwillingness. Therefore, as the QNP is constructed, efforts should be exerted to vigorously publicize knowledge regarding national animal protection and improve residents' awareness of species protection. For example, the "Biodiversity Conservation Prize Knowledge Contest: (1) jointly with scientific research institutions, the "Biodiversity Conservation Prize Knowledge Contest" was conducted to enhance residents' awareness of the importance of biodiversity conservation, enhance residents' awareness of biodiversity conservation, and identify winners and award certificates and prizes; (2) to carry out the biodiversity protection essay contest, evaluate the outstanding essay contest, and award certificates and prizes to the outstanding essay contest units or individuals; (3) to carry out the publicity of ecological civilization construction demonstration counties, and experience the transformation results when "lucid waters and lush mountains are invaluable assets"; (4) to organize environmental protection volunteers to visit the national park science popularization and education base, and publicize the knowledge of biodiversity and COP15 on the WeChat public account of "Kaihua Ecological Environment".

Table 7. The proportion of causes for unwillingness to pay of residents.

Explaining Variable	Variable Definition	Observed Value	Percentage
Income constraints	Low income, unable to pay	53	45.30%
Poor awareness of protection	Not interested in protecting the <i>Syrmaticus ellioti</i> .	45	38.46%
Governmental responsibility	Species conservation should be funded by government departments	33	28.21%
Other reasons	Others	3	2.56%

4.2. Influence on the WTP to Pay for the Protection of Elliot's Pheasant

Key species have a significant impact on communities, ecosystem structures, and ecosystem functions, and their impact is disproportionate to species richness [1,4]. Most other species can be conserved through the protection of rare and endangered wildlife [4,9]. A necessary task, therefore, is to improve the public's awareness of the conservation of species, especially nationally protected species. This work's analysis of the respondents' reluctance to pay for the conservation of Elliot's pheasant and the categorization of WTP on the basis of socioeconomic characteristics (gender, age, total household size, education level, occupation, and income level) uncovered that WTP varies by gender, age, education level, and income level (Table 8). The core findings are summarized thus:

- (1) There were significant differences in the WTP between males and females, with the former being more likely to show reluctance.

- (2) The awareness of the conservation of the species of concern differs by age, with young adults being better able to understand the conservation of rare and endangered species, thus influencing their willingness to pay extra for this initiative.
- (3) The ability to pay is an important essential constraint on WTP [2,5], as the respondents generally earn low incomes and are reluctant to pay extra for the conservation of Elliot's pheasant.
- (4) The respondents' education levels directly affect their WTP. The lower the education level, the more restricted the career choice and the lower the corresponding income. This ultimately renders some of the respondents reluctant to pay for conservation.
- (5) The respondents with low education levels believe that the cost of protecting Elliot's pheasant should be shouldered by the government.

Table 8. Proportion of causes for unwillingness to pay under residents' different socioeconomic characteristics.

Variable	Variable Attributes	Income Constraints	Poor Awareness of Species Conservation	Government Responsibility	Other Reasons
Gender	Male	77.36%	93.33%	87.88%	100%
	Female	22.64%	6.67%	12.12%	0%
Age	<18	0%	0%	0%	0%
	18–23	1.89%	0%	0%	0%
	24–33	3.77%	4.44%	9.09%	0%
	34–53	41.51%	40.00%	39.39%	100%
	54–63	28.30%	33.33%	33.33%	0%
	≥64	24.53%	22.22%	18.18%	0%
Total household size (persons)	2	5.66%	2.22%	6.06%	0%
	3	22.64%	35.56%	33.33%	0%
	4	30.19%	17.78%	24.24%	33.33%
	5	28.30%	31.11%	21.21%	0%
	≥6	13.21%	13.33%	15.15%	66.67%
Education level	Junior high school and below	84.91%	95.56%	87.88%	66.67%
	High school or technical school	11.32%	4.44%	9.09%	33.33%
	Bachelor or junior college	3.77%	0%	3.03%	0%
	Master or above	0%	0%	0%	0%
Occupation	Farmer	79.25%	71.11%	63.64%	66.67%
	Worker	1.89%	11.11%	9.09%	0%
	Self-employed	7.55%	4.44%	12.12%	33.33%
	Public servant	0%	0%	0%	0%
	Service personnel	0%	0%	0%	0%
	Student	1.89%	0%	0%	0%
	Laid-off, unemployed	0%	0%	0%	0%
	Others	9.43%	13.33%	15.15%	0%
Monthly income	<1000	32.08%	17.78%	24.24%	0%
	1000–2000	32.08%	24.44%	24.24%	0%
	2000–3000	22.64%	13.33%	12.12%	66.67%
	3000–4000	7.55%	11.11%	12.12%	0%
	4000–5000	1.89%	8.89%	9.09%	0%
	5000–6000	1.89%	11.11%	12.12%	0%
	6000–7000	0%	2.22%	3.03%	0%
	7000–8000	0%	4.44%	0%	33.33%
	8000–9000	1.89%	4.44%	3.03%	0%
	9000–10,000	0%	0%	0%	0%
	>10,000	0%	2.22%	3.03%	0%

On the basis of the above-mentioned results, the government needs to strengthen or change its environmental protection policy. First, it should reinforce its natural ecosystem conservation strategy by providing high-quality habitats for species. The establishment of national parks in China was initiated in 2015 by the National Development and Reform Commission, with a view to protecting nationally representative natural ecosystems. At the 2021 Kunming Biodiversity Conference, China announced the establishment of five national parks, and the QNP administration should learn from its successful experience and build a national park as soon as possible. Second, the government should ensure that the main protection objects and the ecological environment are undamaged, in accordance with relevant laws, regulations, and policies. Certain production and business activities are allowed, such as ecotourism and cultivation of organic agricultural products such as camellia oil and eucommia tea. While a national park is built, the government can provide high-quality ecological products and increase residents' incomes. Such an initiative can also reflect the harmonious coexistence between human beings and nature. Third, public awareness should be enhanced to improve species conservation. Various publicity activities, such as the International Day for Biological Diversity, World Wetlands Day, World Wildlife Day and related project cooperation can strengthen biodiversity conservation and environmental management awareness among local governments and the public. These would increase the public's recognition of the importance of conservation, enabling them to realize that the protection of biodiversity is the responsibility of an entire society. Finally, the popularization of national higher education expands opportunities for the public to receive higher education, and the improvement of education levels enables the public to receive increased environmental education and develop a deeper understanding of ecological environmental protection. Furthermore, these measures afford the public a wider choice of occupations, increase their incomes, and improve their willingness to pay for conservation programs. It is also necessary to improve transparency when it comes to environmental issues, specifically how such matters are handled, to enhance public trust in the government. The government should regularly announce the status of protection efforts directed toward rare and endangered species, provide progress reports on related issues and strengthen interactions with the public, and the feedback can also help the public exercise their rights, and supervise the government, such as by reporting violations of biodiversity protection by units or individuals to the administrative department of environmental protection, or calling "12345" to make complaints, protect the legitimate rights and interests of informants, and encourage the establishment of reporting funds with awards. These strategies can improve the mobilization of the public to enthusiastically participate in the protection of the ecological environment and their willingness to independently carry out conservation activities.

5. Conclusions

This research used the CVM to evaluate the WTP for the protection of Elliot's pheasant in the QNP and analyzed the factors affecting such willingness. The results are summarized below:

- (1) The proportion of respondents willing to pay for the protection of the target species is 38.10%, and the average amount that they are prepared to contribute is CNY 4.025/month. For the year 2021, the annual amount that they are willing to pay is CNY 179,312.
- (2) The respondents' education levels, awareness of the conservation of Elliot's pheasant, and income levels significantly affect their WTP. These variables are positively correlated; that is, the respondents with high education levels, high awareness of protection, and high-income levels show a strong WTP for species protection.
- (3) The analysis of the respondents' reluctance to pay for the protection of Elliot's pheasant showed that this reluctance stems mainly from income constraints, poor awareness regarding the protection of Elliot's pheasant, and governmental responsibility. During the construction of the QNP, the natural ecosystem should be well protected,

the supply of high-quality ecological products should increase, and the residents' incomes should be augmented. The central government distributes special compensation funds every year and establishes a compensation system for forest ecological protection. These policies can clear the way for gradually increasing subsidies for ecological protection among locals, guiding residents in their search for jobs, and enabling people to benefit from the construction of national parks. Additionally, strengthening conservation advocacy can improve public awareness of biodiversity conservation.

This study has some deficiencies that need to be noted: (1) the number of questionnaires is only 200, which should be increased in the later study. (2) the survey objects are mainly male, and the sampling should be strengthened in the later investigation to ensure the equality of gender types.

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