

Differences in willingness to pay for tourism sustainability in Croatian nature parks: Insights into visitors' perception of sustainable tourism and satisfaction

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Abstract

Determining the factors influencing behavioural intentions and visitor behaviour is significant for predicting sustainable tourism practices. The concept of Willingness to Pay (WTP) is studied as one of the dimensions of behavioural intentions, and it is increasingly researched in sustainable tourism literature. However, there is a lack of studies investigating the WTP for tourism sustainability in nature parks and determinants that can affect it differently. This study aims to determine whether visitors' WTP varies among dimensions of tourism sustainability in nature parks regarding their perception of sustainable tourism importance and satisfaction with nature parks' attributes. To ensure the robustness and diversity of the data, the research included 690 visitors in three nature parks in Croatia, dominated by domestic visitors (96.81%). Applying the non-parametric Kruskal-Wallis test, the study shows that visitors' WTP for certain dimensions of tourism sustainability differs regarding their perception of sustainable tourism importance, whereas no such differences were found with regard to satisfaction with nature parks' attributes. The highest WTP was detected for the dimension of improving the quality of the environment, and the lowest for the quality-of-life improvement of the local community, given visitors' positive perception of sustainable tourism importance. A specific contribution of the study is to deepen understanding of differences in willingness to support tourism sustainability from the perspective of predominantly domestic visitors, who form the foundation of year-round sustainable and resilient tourism.

Keywords: protected areas; nature parks; willingness to pay (WTP); tourism sustainability; visitor perception; visitor satisfaction, domestic visitors.

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1. Introduction

Protected areas (PAs) are important for mitigating the many ecological challenges of Earth, as well as for improving the quality of life of local communities. PAs store significant amounts of global carbon, help reduce deforestation and biodiversity losses, and provide local livelihoods to communities around the world, improve people's physical and mental health, etc. (Mandić *et al.*, 2025). Although PAs are primarily established for the protection and conservation of natural and cultural-historical resources, the benefits of their establishment are increasingly expected to outweigh the costs (Jaković, 2023), especially in conditions of limited and insufficient public funding for their management (Mandić, 2023; Weaver & Lawton, 2017). Given the impossibility or limited use of natural resources for certain economic activities, education, recreation and tourism play an important socio-economic role in PAs (Velmurugan *et al.*, 2021; Pearce & Dowling, 2018; Leung *et al.*, 2018), leading to stronger socio-political support for PAs (Oviedo-Garcia *et al.*, 2019; Thapa & Lee, 2017). It is evident that tourism is fundamental to the establishment and maintenance of PAs and their effective management, despite the complex and sometimes competing relationships between tourism and nature protection (Scharf, 2024; KC, 2022; Buckley, 2018). Today, PAs simultaneously preserve natural values and offer various services to visitors (Ozretic-Dosen *et al.*, 2019; Rodger *et al.*, 2015), which is a parallel challenge of PAs management to achieve the primary purpose of existence and provide an unforgettable experience to visitors (Taplin *et al.*, 2016) in order to increase the overall benefits (political, economic, socio-ecological) to all stakeholders of interest and strengthen the sustainability of PAs (Thapa & Lee, 2017).

Sustainable tourism in PAs should be based on the optimal relationship between the economic, socio-cultural and environmental dimensions with the support of all stakeholders (Nadalipour *et al.*, 2019), including visitors to be convinced to choose sustainable destinations and products instead of their unsustainable counterparts and demonstrate sustainable destination behaviour (Araújo *et al.*, 2022). In essence, the sustainability of tourism depends on sustainable practices and products of the private sector, supported by governmental and non-governmental organizations, and ultimately on the choice of visitors, because true sustainability cannot be achieved unless visitors are interested and show commitment to sustainable tourism (Agarwal *et al.*, 2024; Li *et al.*, 2023). Accordingly, there is a need to respect, identify and attract sustainable visitors, as key stakeholders of destination sustainability (Aydin & Alvarez, 2020).

Understanding the influential factors affecting sustainable visitor behaviour is crucial for tourism sustainability. Therefore, visitor behaviour and intentions have been the subject of numerous studies on sustainable tourism (He *et al.*, 2023; Passafaro, 2020; Alazaizeh *et al.*, 2019). In addition to studies examining specific behaviours and intentions that underpin sustainable tourism practices, research on the WTP a premium price to visit a sustainable tourism destination and/or use services that contribute to the destination sustainability is welcome (Araújo *et al.*, 2022). The concept of WTP is one of the key dimensions of consumer behavioural intentions (Martínez García de Leaniz *et al.*, 2018) and is questioned as a primary antecedent of actual behaviour in the decision-making process (Gao *et al.*, 2016; Martínez García de Leaniz *et al.*, 2018). Recent studies have increasingly examined visitors' WTP for tourism sustainability (e.g. in cultural, 3S tourism destinations, hotels). However, numerous calls have been identified in the literature to extend the research on visitors' WTP for sustainable tourism to other destination types (Aydin & Alvarez, 2020; Durán-Román *et al.*, 2021; Araújo *et al.*, 2022).

This study examines the under-researched WTP for sustainable tourism in PAs, expanding existing knowledge in the context of sustainable tourism in PAs. The study aims primarily to determine whether visitors' WTP varies according to the dimensions of tourism sustainability of nature parks regarding their perception of sustainable tourism and satisfaction with the nature parks' attributes. Given that visitors' attitudes, behaviours, and intentions differ according to their socioeconomic status and cultural identity (Rodríguez *et al.*, 2020), especially in the context of supporting destination sustainability

(Nosrati, *et al.*, 2023; Lee *et al.*, 2020), studies focusing on domestic visitors make an irreplaceable contribution to the sustainable tourism literature. Domestic visitors raise the socio-economic status of a community (income, jobs, strengthen the socio-cultural identity and traditional values, etc.) and foster social resilience after crises (Bocci *et al.*, 2020), while their consumption significantly reduces economic vulnerability and shocks, especially in low and middle-income countries (Canh & Thanh, 2020).

The justification of the research aims stems from a literature review on the subject concepts, which are concisely and systematically presented in the context of sustainable tourism. To ensure a predominant representation of domestic visitors, as opposed to foreign visitors who dominate in PAs along coastal destinations in Croatia - over 80% foreign (Marušić *et al.*, 2007), the empirical research underpinning this study was carried out across three nature parks of continental Croatia: Lonjsko Polje, Papuk, and Žumberak-Samoborsko Gorje. A robust and diverse dataset was secured using both online and onsite data collection methods throughout 2022. By focusing on visitor perspectives, this study contributes to sustainable tourism literature, providing new scientific and practical insights for sustainable tourism management in PAs dominated by domestic visitors. In addition, based on previous research insights and the results obtained, the study provides recommendations for future research of visitors' WTP to strengthen tourism sustainability.

2. Theoretical background and research framework development

The concept of Willingness to pay (WTP) is the most commonly used method for valuing ecosystem services, goods and services when there is no customer behaviour data and as such is almost the only one for assessing non-use values (Nautiyal & Goel, 2021; Hanley & Czajkowski, 2019). Within management and marketing disciplines, knowledge of consumers' WTP is extremely important, especially in the context of creating new products, determining prices, etc. (Breidert *et al.*, 2006). Various methods are used in the literature to express WTP (Whynes *et al.*, 2005), applying different measurement instruments or approaches to formulating WTP questions. Specific amounts of WTP are determined through price or percentage, while a Likert scale can be used to determine whether there is a general WTP higher prices (additional amount or Premium price). WTP measurement has wide applications, from environmental economics, transportation, and health to various economic areas, including tourism. In tourism studies, research has been conducted on visitors' WTP in the field of natural resource management and conservation (Xiao *et al.*, 2020; Liu, *et al.*, 2020), ecotourism programs and services (Meleddu & Pulina, 2016; Cheung & Jim, 2014), green tourism products (Linnes *et al.*, 2022; Seetaram *et al.*, 2018), green hotels and restaurants (Fuentes-Moraleda *et al.*, 2019; Chang *et al.*, 2015; Nelson *et al.*, 2021), tourism products and experience (Lee *et al.*, 2019; Veréb & Azevedo, 2019) and climate change (Araña *et al.*, 2013). Studies focused on the protection and conservation of natural areas have investigated visitors' WTP for higher entrance fees (Witt, 2019; Bigerna *et al.*, 2019), residents WTP for protection and conservation (Subade & Francisco 2014), tourists' WTP for recreational activities (Asafu-Adjaye & Tapsuwan, 2008), tourists' WTP for the conservation of non-use values of maritime resources (Xiao *et al.*, 2020), etc.

In the last decade, WTP as one of the dimensions of consumer behaviour intentions (Boronat-Navarro & Pérez-Aranda, 2020), is considered more intensively in the sustainable tourism literature. WTP is crucial in sustainable tourism, especially in tourism of PAs. In the context of sustainable tourism, WTP demonstrates visitors' willingness to economically support both ecological and socio-economic aspects of tourism (e.g. nature and culture preservation, improving residents' quality of life and tourism supply etc.). The literature presents studies that consider WTP for the sustainability of the 3S tourism destination (Durán-Román *et al.*, 2021; López-Sánchez & Pulido-Fernández, 2017), WTP for sustainability of cultural tourism destinations (Göktaş & Çetin, 2023; Aydin & Alvarez, 2020), WTP for tourism experience (Durán-Román *et al.*, 2021; Pulido-Fernandez *et al.*, 2022) and WTP for sustainable

hotels (Boronat-Navarro & Pérez-Aranda, 2020). Previous studies have considered the influence of various antecedents on visitors' WTP, such as sociodemographic and visitor travel characteristics (Fuentes-Moraleda *et al.*, 2019; Liu *et al.*, 2019; Chen *et al.*, 2016; Casey *et al.*, 2010; Reynisdottir *et al.*, 2008), which also applies to studies in the field of sustainable tourism (Göktaş & Çetin, 2023; Pulido-Fernández *et al.*, 2022; Jurado-Rivas & Sánchez-Rivero, 2022; Durán-Román *et al.*, 2021; Jurado-Rivas & Sánchez-Rivero, 2019; López-Sánchez & Pulido-Fernández, 2017). However, limited use of determinants such as environmental beliefs, attitudes towards eco-travel and sustainability, and sustainable behaviour was observed (López-Sánchez & Pulido Fernández, 2016; Araújo *et al.*, 2022; Xu & Fox, 2014), and socio-demographic and travel characteristics of visitors (Göktaş & Çetin, 2023; Liu *et al.*, 2020; Chen *et al.*, 2016) has been observed in studies examining visitors' WTP for destination tourism sustainability. Similarly, the literature notes the lack of the impact assessment of other determinants on visitors' WTP (Araujo *et al.*, 2022), as well as the need to conduct studies that consider visitors' WTP in different contexts (Aydin & Alvarez 2020), such as PAs (eg. national parks and nature parks). The literature has detected a lack of research that considers the impact of visitor attitudes on their WTP to strengthen tourism sustainability in PAs, as well as the identification of differences in visitors' WTP for tourism sustainability, concerning attitudes towards sustainability. Last, visitor satisfaction as a determinant that can be reflected differently on WTP for sustainable tourism is an unexplored topic in the field of natural PAs.

The perception of visitors in the context of destination values is a relatively new concept in explaining consumer opinions and their subsequent responses and intentions (Castellanos *et al.*, 2016). Previous research has found that visitors' attitudes towards the natural environment affect resource use (Kastenholz *et al.*, 2018), which consequently affects not only tourism sustainability but also wider area in which tourism takes place. The Sustainable Travel Report identified that many international travellers (87%) want to travel sustainably (Ashraf *et al.*, 2020), so studies investigating visitors' commitment to sustainable tourism use of PAs are valuable. Previous studies that considered the influence of attitudes towards sustainable tourism on WTP have conflicting results. López-Sánchez & Pulido-Fernández (2017) found that Western Costa del Sol tourists with positive attitudes towards sustainable tourism are not WTP more to enhance the sustainability of the mass destination's tourism. On the contrary, Araujo *et al.* (2022) and Durán-Román *et al.* (2021) found that tourists' positive attitudes towards sustainable tourism significantly affected their WTP for destination sustainability. Considering the previous findings, the study assumes that visitors' positive perceptions of the sustainable resource use in tourism may positively reflect visitors' intentions to support sustainable tourism initiatives in natural PAs. Moreover, it is useful to understand whether visitors' willingness to economically support varies across dimensions of sustainable tourism in PAs (economic, environmental, social) concerning visitors' positive perceptions and attitudes towards sustainable tourism (TSIP). Based on detected research gaps, the following hypothesis is defined:

H-1: There are significant differences in visitors WTP between dimensions of nature parks' tourism sustainability regarding their positive perceptions of the sustainable resource use importance in tourism.

Tourism in natural surroundings is often marked by different experiences and outdoor activities, therefore natural resources are considered an important component of visitor satisfaction (Obradović *et al.*, 2023), as well as the facilities and services offered in PAs (Taplin *et al.*, 2016). In situations of ineffective resource management, PAs can potentially decrease visitor satisfaction (Gao *et al.*, 2016). To contribute to PAs' tourism sustainability, a better understanding of visitors' satisfaction with destination attributes is needed too. Such findings are useful for identifying elements that lead to excessive or, conversely, under-use of PAs tourism resources (Velmurugan *et al.*, 2021). Visitor satisfaction can be seen as a behavioural phenomenon arising from the emotional and cognitive aspects of tourism activities (Ghaderi *et al.*, 2018). It is considered a major aspect of tourism destination

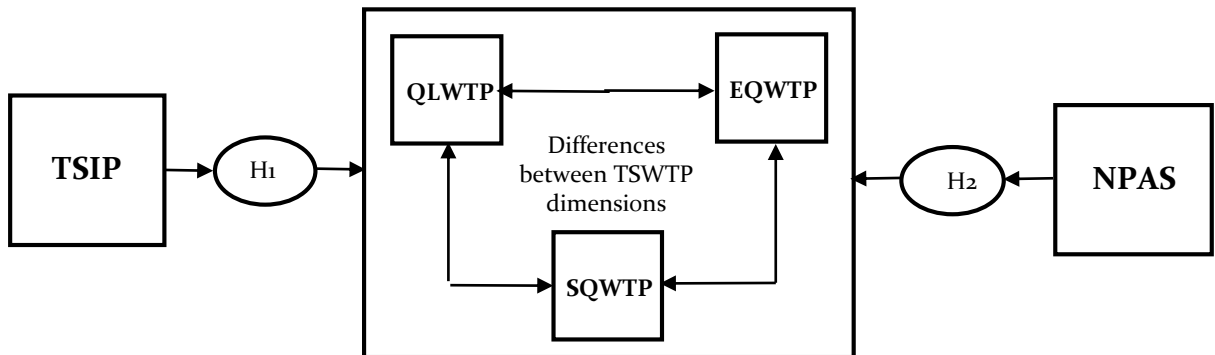
marketing (Králiková *et al.*, 2025), due to its impact on tourists' behaviour, consumption levels, tourists' re-purchase decisions, etc. (Meng & Cui, 2020; Zhang *et al.*, 2019).

Previous studies have identified research gaps in a deeper understanding of the correlation between PAs' services, visitor satisfaction, and loyalty (Oviedo-Garcia, *et al.*, 2019; Rodger *et al.*, 2015). This shifts the measurement of overall visitor satisfaction towards measuring future behavioural intentions, which can result in sustained support for PAs (Pearce & Dowling, 2019). In this context, visitor satisfaction is considered one of the important factors that significantly affect the tourism sustainability of destination (Le, 2024; Rasoolimanesh *et al.*, 2023; Velmurugan *et al.*, 2021; Suhartanto & Triyuni, 2016; Bernini *et al.*, 2021), since it affects visitor behaviour that is desirable for the destination (longer stay, increased consumption, re-arrival, recommendation, WTP for sustainable products and destination sustainability, etc.). Moreover, studies have shown that sustainable tourism depends on the type of visitors attracted and their behaviour in the destination, reflecting that those with sustainable behaviour show a higher level of satisfaction and loyalty (Kastenholz *et al.*, 2018). In the existing literature, a positive influence of satisfaction on the WTP for the National Museum of Ghana was determined (Kofi Preko & Gyepi-Garbrah, 2021). Such a scenario has a positive impact on the acquisition of revenue for the management of the PAs (Weaver & Lawton, 2017; Oviedo-García *et al.*, 2019), as well as public support for PAs as they provide numerous services to visitors (Thapa & Lee, 2017), and other stakeholders.

To provide valuable knowledge for the management of PAs, further research on the relationship between visitors' satisfaction and sustainable behavioural intentions in natural PAs is welcome. This study aims to fill these research gaps by examining differences in visitors' WTP across dimensions of nature parks' tourism sustainability (TSWTP) concerning their satisfaction with nature parks' attributes (NPAS). In accordance with the above considerations, the following hypothesis is defined:

H-2: There are significant differences in visitors' WTP between dimensions of nature parks' tourism sustainability regarding their satisfaction with nature parks' attributes

In accordance with previously established hypotheses, the study's research framework consists of two independent variables (constructs) and three dependent variables - dimensions (Figure 1). After the conceptualization phase, the research design process is presented in detail, including a research approach, methods, techniques, procedures and procedures for conducting research.



Abbreviations of constructs: TSIP - Visitors' positive perceptions and attitudes towards sustainable tourism; NPAS - Visitors' satisfaction with nature parks' attributes; TSWP - Visitors' willingness to pay (WTP) for tourism sustainability; QLWTP - visitors' WTP for the local community's quality of life; EQWTP - visitors' WTP for environmental quality; and SQWTP - visitors' WTP for supply availability and quality.

Figure 1. Empirical research framework

3. Materials and Methods

3.1. Sampling design

The study was conducted in nature parks in continental Croatia, a geographical area that is less active in tourism compared to the region of Adriatic Croatia, which is dominated by large-scale tourism during the summer period. At each step in the data collection process, an approach was applied that ensures the robustness and diversity of data, while considering the efficiency and expediency in conducting research. The research included visitors of three nature parks of Continental Croatia - Nature Park Lonjsko polje, Nature Park Papuk and Nature Park Žumberak-Samoborsko gorje (Figure 2), which differ in terms of natural, geographical, demographic and socioeconomic elements. The main differences are natural-relief type, considering that Lonjsko polje is a nature park with a wetland feature, and the remaining two nature parks have mountain features. In addition, the nature parks covered in the survey differ in terms of international designations (membership in global networks). Considering the membership in the networks, the Nature Park Papuk is globally recognizable from a geological point of view (UNESCO Global Geopark), the Nature Park Lonjsko polje from the aspect of wetlands (Ramsar Site), while the Nature Park Žumberak - Samoborsko gorje is not a member of any globally recognized network.

The target population of the study consisted of people who have visited selected nature parks during 2022. The target population excludes visitors to seven nature parks located in Adriatic Croatia, due to significant attendance from tourists staying in coastal destinations and visiting nature parks along the way. The selection of nature parks in continental Croatia (Pannonian and Northern Croatia) was carried out in a way that nature parks that extend within the areas of large cities (LAU2 areas) - Kopački rit Nature Park (Osijek) and Medvednica Nature Park (Zagreb) - were excluded from the research.



Figure 2. Selected Croatian nature parks in the study. Source: Adapted from Jaković *et al.*, 2018, p. 23.

The sample selection followed the approach of Kothari (2004), where in the case of an unknown number of units (infinite population), a simple random sample can be applied. The application of a simple random sample is suitable in research conducted in electronic form (online, using a phone, etc.), as well as in research that requires face-to-face communication (Saunders *et al.*, 2019). By understanding the requirements of a simple random sample, online and field research was applied, covering all sample points of selected nature parks to increase validity and relevance. Although visitor-oriented surveys are dominated by onsite (on-field) surveys, some studies have used an online primary data collection methodology (Moreno-Llorca *et al.*, 2020; Ballantyne *et al.*, 2011; Wall-Reinius & Bäck, 2011), and a combination of onsite and online research (Jorgenson *et al.*, 2018; Barnes *et al.*, 2016; Wolf *et al.*, 2015).

3.2. Measurement and data collection

The study employed a quantitative, deductive methodological approach based on numerical data (Collis & Hussey, 2021). Consequently, data collection was conducted using a survey method, involving a structured questionnaire that respondents completed independently. The questionnaire was adapted from previous studies and contains three constructs, one of which is composed of three dimensions, and finally, the sociodemographic characteristics of the respondents. The constructs 1) visitors' perception of the tourism sustainability importance (TSIP) and 2) visitors' satisfaction with nature park attributes (NPAS) consist of 22 and 16 items, respectively. They were adapted from Aydın and Alvarez (2020) and Durán-Román *et al.* (2021) and were used as independent variables in the statistical analysis. The final construct, visitors' willingness to pay (WTP) for tourism sustainability (TSWTP) was used as the dependent variable in the analysis. It consists of 15 items adapted from Aydın & Alvarez (2020), arranged in three dimensions: 1) visitors' WTP for the local community's quality of life - QLWTP (7 items); 2) visitors' WTP for environmental quality - EQWTP (4 items); and 3) visitors' WTP for supply availability and quality - SQWTP (4 items). Before conducting the research, the items' internal consistency and validity and reliability of the constructs were checked. The constructs showed high reliability and validity, and the defined items of the constructs consistently measure the topic in question.

The study employs a less commonly used hybrid approach to data collection. The research used an electronic and paper questionnaire, and data collection was carried out onsite and online via Google Forms. Online and onsite access includes visitors who are currently visiting or staying longer in the nature park and those who have already visited the nature park (within 12 months of the visit) and are currently located in a wider geographical area. The distribution of the questionnaire and the survey of visitors were carried out under the prior consent of the Nature Parks Administration. The distribution of the online survey questionnaire was carried out using a combined approach, whereby the link to the online survey questionnaire was shared through Facebook and the Nature parks website, and a QR code was used, which was set up at all sites. The survey was also conducted onsite, with questionnaires filled out in paper form. Data collection was carried out in accordance with the EU General Data Protection Regulation 2016/679, ensuring complete privacy and anonymity for research participants and that the collected data was used solely by the authors for scientific purposes. The study included 722 respondents, most of whom were interviewed online (463 respondents). However, the analysis was carried out on a sample of 690 respondents, since during the data verification irregularities in filling in (yea-saying, outliers and missing value) were found and such questionnaires were excluded from further data analysis. Measurement of the main research constructs was conducted using the Likert scale, and data processing was performed using a non-parametric statistical analysis method. Given that reliability (from 7 to 11 degrees) and validity increase (from 6 to 11 degrees) with the number of answers offered (Preston & Colman, 2000), a 7-point Likert scale was used in the research, which is considered optimal, since the differences from 6 to 11 are not significant (Taherdoost, 2019). Descriptive statistical analysis (average values and deviations from the average) and multivariate Kruskal-Wallis test was used in data analysis to determine significant differences between the proposed constructs of the research framework. Statistica 13.3 software package and MS Office Excel were used for statistical data analysis.

4. Results and discussion

4.1. Data verification

Data review and verification was carried out to determine whether there are missing data, whether there are errors in data entry, as well as outliers, and whether there are respondents who inadequately answered the questions in the survey questionnaire. Since the collection of primary data was carried out by means of a combined survey, a physical check showed that 13 questionnaires had missing values, therefore, such questionnaires were excluded from the statistical analysis, resulting in 709 valid questionnaires. After checking inappropriate answers to the questions (yea-saying), 19 survey questionnaires were additionally excluded, so the final sample included in the further univariate and multivariate statistical analysis consisted of 690 respondents.

4.2. Sociodemographic characteristics of the respondents

Of the total number of respondents to the survey ($n=690$), 331 (47.97%) are visitors to the Nature Park Papuk, 195 (28.26%) are visitors to the Nature Park Lonjsko Polje, while the remaining 164 (23.77%) are visitors to the Nature Park Žumberak – Samoborsko gorje. Although the research included visitors to the three nature parks in question, the data were analysed as a single entity. Within socio-demographic characteristics, sex, age, education, occupation, place of residence and country of origin and monthly household income of respondents were determined (Table 1). In terms of gender, the sample is dominated by men (62.90%), and the age group 35-49 years (40.15%), followed by the age group 25-34 years (30.15%), while the least represented age groups are up to 18 years (1.01%) and 65 years and above (1.30%). In the study, respondents with a university degree predominate (58.70%), while the expected lowest level of education is primary education (0.43%). When determining occupations, most of them are employed (76.09%), while the smallest number of respondents is in the status of students (1.74%). Regarding the country of origin, in line with the focus, domestic visitors predominate, as expected (96.81%), compared to foreign visitors (3.19%). Using the EU methodology, the degree of urbanisation (DEGURBA), we classified the place of residence into cities, towns, or rural areas, with the largest share

of respondents coming from smaller towns (43.77%). Finally, half of the respondents have a household income between 1.000 and 2.000 euros (50.29%) per month, which corresponds to two minimum household salaries or one in the range of the average net salary in Croatia.

Table 1. *Sociodemographic characteristics of visitors to Nature Parks*

Characteristic		Sample (n=690)	
		Absolutely	%
Sex	male	434	62.90
	female	256	37.10
Age	(16)-18	7	1.01
	18-24	81	11.74
	25-34	208	30.15
	35-49	277	40.15
	50-64	108	15.65
	65 – (70)	9	1.30
Country of origin	Croatia	668	96.81
	overseas	22	3.19
Education	Primary school	3	0.43
	secondary school	197	28.55
	Faculty	405	58.70
	Master's/PhD	85	12.32
Occupation	pupil	12	1.74
	student	52	7.53
	unemployed	30	4.35
	employed	525	76.09
	self-employed	46	6.67
	pensioner	25	3.62
Place of residence	rural area	181	26.23
	small town	302	43.77
	big city	207	30.00
Monthly household income (€)	up to 1000	144	20.87
	1 000 - 2 000	347	50.29
	2 001 - 3 000	145	20.01
	More than 3,000	54	7.83

4.3. Determination of differences using the multivariate Kruskal-Wallis test

For testing hypotheses (H_1 and H_2), the Kruskal-Wallis test is used to estimate differences between three or more independent groups of samples when the criterion of normality of data distribution is not met (Guo *et al.*, 2013; Cohen *et al.*, 2018). Therefore, the Kruskal-Wallis test compares ranks (McKight & Najab, 2010) when testing differences between three or more independent samples that do not have to be of the same size, however each must have more than five units (Horvat & Mijoč, 2019). The Kruskal-Wallis test examines the zero (H_0) and alternative hypothesis (H_1), where H_0 assumes that 'k' (three or more independent random samples) comes from an identical population (no difference), as opposed to H_1 which assumes that the mean values of 'k' populations are not equal, i.e. that there are differences (Kothari & Garg, 2019). The Kruskal-Wallis test tests the zero hypothesis that samples are drawn from distributions with equal medians. Interpretation of the Kruskal-Wallis test is like a single-factor analysis of variance, which is based on ranks instead of environments. The data in the sample must be continuous or ordinal. The median raw test is the version of the Kruskal-Wallis test, which is limited to calculation in terms of contingency tables. The procedure consists in counting the cases in each sample that are above and below the common median and calculates the chi-square value of the resulting contingency table (2x3 samples). If the zero hypothesis is true that all samples come from

populations with the same medians, approximately half of all cases in each sample are expected to fall above and below the common median, respectively.

The first approach is to test the hypothesis aimed at determining variations in visitors' WTP between the dimensions of nature parks' tourism sustainability given their positive perceptions of the sustainable resource use importance in tourism. In order to examine the existence of differences in visitors' WTP between three dimensions of nature parks' tourism sustainability (WTP for improving the quality of life of the local community - QLWTP, WTP for improving the quality of the environment - EQWTP and WTP for improving the availability and quality of the tourist offer - SQWTP), with regard to the positive perceptions of the sustainable resource use importance in tourism (TSIP), Kruskal-Wallis (H-value) and the median test (chi-square) were carried out for each of the 22 TSIP particles. Accordingly, a zero and alternative hypothesis is set:

Ho: Visitors' WTP to improve the quality of life of the local community, WTP to improve the quality of the environment and WTP to improve the availability and quality of the tourism supply do not differ from each other, given their positive perceptions of the sustainable resource use importance in tourism (they have the same median values).

H1: There is a difference in visitors' WTP for nature parks' tourism sustainability at least two dimensions, given their positive perceptions of the sustainable resource use importance in tourism (at least two medians differ from each other).

Table 2 shows the results obtained from the tests of differences conducted on visitors' WTP for each of the dimensions of nature parks' tourism sustainability, given their positive perceptions of the sustainable resource use importance in tourism.

Table 2. Results obtained from the differences tests - Kruskal-Wallis test and Median test (H-1)

independent variable	variable	Median	X ²	p-value	H (df=6, N=94)	p-value
TSIP	QLWTP	6	19.179	0.004 ^b	28.856	0.000 ^a
	EQWTP	6	19.991	0.003 ^b	33.246	0.000 ^a
	SQWTP	6	19.534	0.003 ^b	31.004	0.000 ^a

^a significance level 1%; ^b significance level 5%

Since the obtained results (Table 2) show that the empirical level of significance for the Median test and Kruskal-Wallis test (p-value) is less than 0.05, the conducted tests show that with the level of significance of 5% there is a statistically significant difference between at least two observed dimensions of visitors' WTP for nature parks' tourism sustainability, given their positive perceptions of the sustainable resource use importance in tourism. Accordingly, Ho is rejected and H1 is accepted and ultimately H-1 is accepted.

Furthermore, to examine the impact of visitor satisfaction with nature parks' attributes (NPAS) on visitors' WTP between the three dimensions of nature parks' tourism sustainability (WTP to improve the quality of life of the local community - QLWTP, WTP to improve the quality of the environment - EQWTP and WTP to improve the availability and quality of the offer - SQWTP), the Kruskal-Wallis test (H-value) and the Median test (chi-square) were carried out for each of the 16 NPAS construct plots. Accordingly, a zero and alternative hypothesis is set, as follows:

Ho: Visitors' WTP for nature parks' tourism sustainability to improve the quality of life of the local community, WTP to improve the quality of the environment and WTP to improve the availability and quality of the tourism supply do not differ from each other, given their satisfaction with nature parks' attributes (they have the same median values).

H1: There is a difference in visitors' WTP for nature parks' tourism sustainability between at least two dimensions, given their satisfaction with nature parks' attributes (at least two medians differ from each other).

According to the defined frameworks for testing the research hypothesis (H-2), Table 3 shows the results of the differences tests performed on visitors' WTP for each of the dimensions of nature parks' tourism sustainability, given their satisfaction with nature parks' attributes.

Table 3. Results obtained from the differences tests - Kruskal-Wallis test and Median test (H-2)

independent variable	variable	Median	X ²	p-value	H(df=6, N=40)	p-value
NPAS	QLWTP	6	1.376	0.967^b	0.000	1.000^a
	EQWTP	6,25	5.539	0.477^b	0.000	1.000^a
	SQWTP	5.63	2.137	0.907^b	0.000	1.000^a

^a significance level 1%; ^b significance level 5%

Since the obtained results (Table 3) show that the empirical level of significance for the Median test and Kruskal-Wallis test (p-value) is greater than 0.05, the conducted tests show that with the level of significance of 5% there is no statistically significant difference between at least two observed dimensions of visitors' WTP for nature parks' tourism sustainability with regard to their satisfaction with nature parks' attributes. Accordingly, H₁ is discarded and H₀ is accepted, therefore H-2 is discarded.

4.4. Summary of study results

The results of the analysis indicate that there are significant statistical differences between the dimensions of visitors' WTP for nature parks' tourism sustainability, given their positive perceptions of the sustainable resource use importance in tourism (QLWTP, p=0.004; EQWTP, p=0.003; SQWTP, p=0.003), and H-1 was accepted. On the other hand, it was found that there are no statistically significant differences between dimensions of visitors' WTP for nature parks' tourism sustainability, given their satisfaction with nature parks' attributes (QLWTP, p=0.967; EQWTP, p=0.477; SQWTP, p=0.907) and H-2 was discarded. Furthermore, according to the H values of the indicator (QLWTP=28.856; EQWTP=33.246; SQWTP=31.004) and chi-square test (QLWTP=19.179; EQWTP=19.991; SQWTP=19.534), it is observed that respondents show the greatest WTP to improve the quality of the environment, and the smallest to improve the quality of life of the local community, given their positive perceptions of the sustainable resource use importance in tourism.

5. Conclusion

The European perspective of the study contributes original insights to WTP literature, enhancing tourism sustainability in PAs and setting the stage for future research. The study is of particular importance for EU countries due to relatively uniform regulations and evident research gap in the topic in question. The study's specific contribution is a profound understanding of the differences in willingness to support PAs' tourism sustainability of predominantly domestic visitors.

5.1. Theoretical and methodological contributions

Determining the factors that can influence visitors' WTP is important for predicting sustainable tourism practices. While previous studies have generally used different determinants of WTP, such as environmental beliefs, attitudes towards eco-travel and sustainability, and sustainable behaviour (Araújo *et al.*, 2022; López-Sánchez & Pulido Fernández, 2016), further research is needed to better understand the impact of these predictors on WTP for sustainable tourism in different contexts and destinations (Göktaş & Çetin, 2023; Durán-Román *et al.*, 2021; Liu *et al.*, 2020; Aydin & Alvarez 2020). To date, no studies have been conducted that consider whether visitors' WTP varies between the dimensions of the destination's sustainable tourism, with a focus on variables influencing visitors' WTP (attitudes, beliefs, satisfaction, sociodemographic characteristics, etc.). Such research would significantly contribute to understanding visitors' intentions and behaviours influence towards supporting the economic, sociocultural, and environmental sustainability of tourism destinations. To address the research gap, this study provides new findings on the relationships between visitors' willingness to pay (WTP) for each dimension of the tourism sustainability in nature parks, considering their attitudes towards sustainable tourism and satisfaction with nature parks' attributes. As a basis for formulating a conceptual framework, this study parallel provides a systematic and structured insight into the literature on WTP for tourism sustainability from a visitor-centred perspective. Moreover, it provides a detailed insight into previous research on the relationship between visitor attitudes towards sustainability and satisfaction, and their WTP for destination's tourism sustainability.

Furthermore, the findings of the study have a special contribution in the context of domestic tourism literature. Given that willingness to support sustainable tourism can differ depending on socioeconomic characteristics of the community, especially in the context of adherence to ecological and social norms and economic status (Rodríguez *et al.*, 2020; Juvan & Dolnicar, 2016; Leonidou *et al.*, 2015), this research lays the groundwork for future comparative studies in different national or cultural contexts, considering the Croatian national context of the study focused on domestic visitors. First, Croatia is a transitional country with a high tourism share of its national economy - approximately 20% in 2022 (Tkalec, 2024), and the highest among EU countries, according to the World Travel & Tourism Council (WTTC, 2025). It also experiences high seasonality and spatial concentration of tourism in the coastal area, which increases its vulnerability to global shocks and crises, such as the COVID-19 pandemic (Stojčić *et al.*, 2022). Second, regional socioeconomic disparities between Adriatic and Continental Croatia have been emphasised (Lovrinčević *et al.*, 2021), along with negative demographic indicators (such as negative natural growth, youth emigration, and population ageing) that threaten overall development and national security (Šterc, 2023). Third, Croatia reflects traditional sociocultural values and regional identity of its population.

Finally, this study complements the literature by providing a conceptual framework for future research examining behavioural intentions that support sustainable tourism to destinations with different socioeconomic and environmental characteristics. Such a conceptual framework is suitable for determining differences in hypothetical behavioural intentions on a large sample, using probabilistic sampling methods and multivariate statistical analysis methods. An additional significance of the study results is reflected in the methodological approach to data collection, which is based on a less commonly used hybrid method (combining electronic and paper questionnaires, online and onsite).

5.2. Practical implications

The research findings indicate that there are statistically significant differences between the support for certain dimensions of sustainable tourism regarding their attitudes, in contrast to satisfaction with the attributes of nature parks, where no significant differences were found. The highest willingness to pay was determined for improving the quality of the environment, and the smallest for improving the quality of life of the local community. Such research findings have certain implications for sustainable

tourism planning in PAs and can be useful for tourism policy makers, tourism destination managers, tourism suppliers and others. The results of the study provide insight into the differences in visitors' WTP for certain dimensions of sustainable tourism regarding attitudes towards sustainable tourism, which enables policy and management to plan and organize tourism that will optimally contribute to the sustainability of the PAs and the local community. Although it is recognized that sustainable visitors intend to contribute equally to all aspects of the destination's sustainability, the results indicate the need for effective strategies that will provide greater benefits to the local community through a sustainable supply and the consequent consumption of visitors, following positive attitudes towards sustainable tourism.

5.3. Limitations and future research

Although domestic visitors' focused studies in the context of willingness to support sustainable tourism are welcome, they limit the generalizability of the results from a sociocultural perspective. Therefore, besides comparative studies in different national and cultural contexts, future research could consider the inclusion of both domestic and foreign visitors, as well as the representation of visitors from several different countries. Furthermore, given the fact that the data were collected from nature parks' visitors, the generalization to all PAs, as tourist destinations is also limited. Ultimately, the study considers only two variables for which it is observed whether there are differences in WTP for tourism sustainability, ignoring other potentially influential variables and predictors from testing. Therefore, similar research can be conducted based on a conceptual framework, examining relationships and possible differences in supporting the sustainability of destination tourism concerning other predictors (sociodemographic and visitor travel characteristics, etc.). Generally, future research can be established based on the highlighted gaps to contribute to the generalization of the findings and new insights into WTP for tourism sustainability.

Appendix A. Constructs and scale items used in empirical research

Visitors' perception of the tourism sustainability importance (TSIP)	
Green areas, fauna and flora in the nature park are preserved	TSIP ₁
Cultural and historical assets in the nature park are preserved	TSIP ₂
Green areas are not reduced or damaged (urbanisation and the level of tourism development are appropriate)	TSIP ₃
The environment, water and air in the nature park are unpolluted	TSIP ₄
Knowledge about the natural values, history and culture of the destination is acquired through the visit	TSIP ₅
Visits to attractions are also possible for residents	TSIP ₆
Residents benefit from the facilities that visitors enjoy	TSIP ₇
The local community quality of life in the destination is increased due to tourism	TSIP ₈
Local authorities respect the culture and values of the local community through their actions	TSIP ₉
Positive cultural exchange between tourists and hosts	TSIP ₁₀
Residents are employed in better-paid jobs in tourism	TSIP ₁₁
The nature park management develops tourism while respecting the local community's culture and values	TSIP ₁₂
Tourist facilities are available in the Nature Park.	TSIP ₁₃
Services are of high quality in the Nature Park.	TSIP ₁₄
Access to the Nature Park is convenient	TSIP ₁₅
Access to the Nature Park for visitors is year-round	TSIP ₁₆
Local and traditional products are available in the Nature Park	TSIP ₁₇
Services are provided by residents instead of large companies and international chains	TSIP ₁₈
The Nature Park and other tourist facilities use renewable resources	TSIP ₁₉
The Nature Park and other tourist facilities sustainably manage resources.	TSIP ₂₀
The Nature Park and visitor areas are not overcrowded	TSIP ₂₁
The Nature Park limits the number of visits as needed	TSIP ₂₂
Visitors' satisfaction with nature parks' attributes (NPAS)	
Safety of visitors and their valuables	NPAS ₁
Cleanliness and orderliness of the area	NPAS ₂
Transport infrastructure and transport services	NPAS ₃
Visit to main visitor sites and attractions (no crowds or overcrowding)	NPAS ₄
Preservation and maintenance of thematic trails and paths	NPAS ₅

Preservation and maintenance of visitor centres and other visitor facilities	NPAS6
Preservation and maintenance of natural tourist attractions	NPAS7
Preservation and maintenance of cultural and historical buildings	NPAS8
Availability and quality of guiding and interpretation services	NPAS9
Prevalence and quality of additional facilities	NPAS10
Availability and quality of accommodation capacities	NPAS11
Availability and quality of tourist information services	NPAS12
Availability and quality of Internet connections	NPAS13
Residents' participation in the tourism supply	NPAS14
Direct contact with residents' culture, tradition and customs	NPAS15
Preservation and improvement of the position of culture, tradition, life and work of the residents.	NPAS16
Visitors' willingness to pay (WTP) for tourism sustainability (TSWTP)	
WTP higher price in a nature park where local people are employed in better-paying jobs	TSWTP1
WTP higher price in a nature park where tourism improves the local community's quality of life	TSWTP2
WTP higher price in a nature park where residents can benefit from tourism facilities	TSWTP3
WTP higher price in a nature park that develops tourism while respecting the local community's cultural values	TSWTP4
WTP higher price in a nature park that provides positive cultural exchange between tourists and hosts	TSWTP5
WTP higher price in a nature park where services are provided by residents instead of international companies	TSWTP6
WTP higher price in a nature park where local products are sold	TSWTP7
WTP higher price in a nature park where green areas, fauna and flora are protected	TSWTP8
WTP higher price in a nature park where environmental pollution is effectively managed	TSWTP9
WTP higher price in a nature park where its historical and cultural resources are preserved	TSWTP10
WTP higher price in a nature park where renewable resources are used, and waste is properly managed	TSWTP11
WTP rates higher for the nature park as a more accessible destination that is not overcrowded	TSWTP12
WTP higher prices for a nature park as a destination that offers a greater number of additional services and facilities	TSWTP13
WTP higher prices for the nature park as a destination that offers a higher quality of services	TSWTP14
WTP higher prices for the nature park as a destination where the negative effects of tourism are minimal	TSWTP15

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