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THE ROLE OF ECOTOURISM IN COMMUNITY DEVELOPMENT: THE CASE OF THE ZASAVICA SPECIAL NATURE RESERVE, SERBIA

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VLADIMIR DOBRETIC

Visitor center in the Zasavica Special Nature Reserve.

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The role of ecotourism in community development: The case of the Zasavica Special Nature Reserve, Serbia

ABSTRACT: This study explores local community attitudes toward ecotourism as a form of sustainable tourism in the Zasavica Special Nature Reserve in Serbia using the Sustainable Tourism Attitude Scale (SUS-TAS). Residents of the Zasavica Special Nature Reserve acknowledge the sociocultural and economic benefits of ecotourism development while recognizing the negative impacts of development on the natural environment. Low awareness of non-charismatic species among residents contrasts with strong awareness of them among large communities of scientists and naturalists in Serbia. This study shows the importance of local community support for ecotourism and conservation development. Moreover, the study revealed that the SUS-TAS scale can be successfully applied in ecotourism research.

KEY WORDS: ecotourism, sustainable development, local community, local residents, attitude, protected areas, Sustainable Tourism Attitude Scale

Vloga ekoturizma pri razvoju skupnosti: Primer posebnega naravnega rezervata Zasavica, Srbija

POVZETEK: V članku raziskujemo odnos lokalne skupnosti do ekoturizma kot oblike trajnostnega turizma v posebnem naravnem rezervatu Zasavica v Srbiji z lestvico odnosa trajnostnega turizma. Prebivalci posebnega naravnega rezervata Zasavica priznavajo družbeno-kulturne in gospodarske koristi razvoja ekoturizma, hkrati pa prepoznavajo negativne vplive razvoja na naravno okolje. Med prebivalci zaznavamo nizko ozaveščenost o pomenu nekarizmatičnih rastlinskih vrst, kar je v nasprotju s stališči velike skupnosti znanstvenikov in naravoslovcev v Srbiji. Članek kaže na pomen podpore lokalne skupnosti za razvoj ekoturizma in ohranjanja narave. Poleg tega je študija pokazala, da je mogoče lestvico SUS-TAS uspešno uporabiti pri raziskavah ekoturizma.

KLJUČNE BESEDE: ekoturizem, trajnostni razvoj, lokalna skupnost, lokalni prebivalci, odnos, zaščitena območja, Lestvica odnosa do trajnostnega turizma

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1 Introduction

Sustainable development and sustainable tourism are complementary (Stojanović et al. 2014; Espiner, Orchiston and Higham 2017). Sustainable development is a development concept that emphasizes the balance of economic, environmental, and social approaches. The main assumption is that preserving the environment will lead to an increase in tourist visits. Accordingly, it can be argued that a protected nature resort can prove to be a popular tourist destination and eventually develop toward ecotourism (Diamantis 1999; Hermon 2016; Putra et al. 2018). Ecotourism is growing rapidly worldwide and is predicted to be one of the main growth areas in the coming years (Arlym and Hermon 2019). Using the Zasavica Special Nature Reserve (SNR) in Serbia as an example, this article identifies local residents' attitudes toward sustainable tourism development. We applied the Sustainable Tourism Attitude Scale (SUS-TAS) developed by Choi and Sirakaya (2005) to assess local perceptions of conservation. It is important to emphasize that ecotourism differs from other forms of tourism by its objectives. It aims to form close links between natural and cultural environments, which makes it the most valuable form of sustainable tourism (Stefanica and Vlavian-Gurmeza 2010; Burgoyne and Mearns 2020).

Education and awareness raising among residents about the importance of ecosystems is crucial and can help local communities better appreciate the importance of protected areas. One way in which protected areas can have a positive social impact is by ensuring that the costs and benefits of conservation are shared equitably. If this is achieved, local communities can more readily recognize protected areas as important resources that can improve their livelihoods and contribute to the development of their communities – for example, through the development of ecotourism (Abukari and Mwalyosi 2020).

This article analyzes 1) local residents' attitudes about the importance of involving residents in ecotourism development, 2) whether respondents' socio-demographic characteristics influence their attitudes toward ecotourism as a form of sustainable tourism development, and 3) the extent to which the community has a positive attitude toward ecotourism development and residents' willingness to be involved in tourism planning and decision-making processes.

2 Theoretical background

Many researchers claim that ecotourism seems to meet most of the objectives set out in the definition of sustainable tourism because it is a tool for both social empowerment and long-term economic development of local communities (Weaver and Lawton 2007; Carić 2018; Ramón-Hidalgo et al. 2018; Graci et al. 2019). The involvement of local communities in ecotourism is one of its core rules (Senko et al. 2011; Kihima and Musila 2019; Albu 2020). There is an ethical dimension to the collaboration of these communities in ecotourism projects because local communities should benefit from such a relationship (Abdullah, Weng and Som 2011; Eshun and Tichaawa 2020). Local residents need to be involved in the planning and development of ecotourism projects from the early stages to maximize the positive effects of ecotourism. To fully participate in the planning process, they need to be aware of the impacts and supportive of the development. It is also important that the local community have »a basic level of awareness of the potential benefits and costs of tourism« to successfully participate in the planning process (Khoalenyane and Ezeuduji 2016; Thetsane 2019). Assessment of ecotourism awareness can be measured by understanding the host community's attitudes toward the positive and negative environmental, economic, and social impacts of ecotourism (Adetola and Adediran 2014; Milheiras 2019).

Community involvement is a process of working together (McCloskey et al. 2013). It has been found that the involvement and active participation of local residents plays a vital role in implementing conservation programs and helps conserve national heritage and take good care of protected areas (Jaafar, Noor and Rasoolimanesh 2015). Moreover, lack of resident participation reduces the value of heritage sites and protected areas (Buta, Holland and Kaplanidou 2014; Majid et al. 2019).

During the last decade, studies on residents' attitudes toward tourism development have increased (McGehee and Andereck 2004; Diedrich and García-Buades 2009; Soldić Frleta and Smolčić Jurdana 2020), and conceptual models and theories have sought to explain the relationship between residents' attitudes toward tourism development (Mohammadi and Khalifah 2014; Hsu, Chen and Yang 2019; Biju and Biju 2020). Protected areas managed as ecotourism sites play an important role in generating much-needed

revenue to finance biodiversity conservation and improve the income of local communities (Belete and Assefa 2005; Abeli 2017). When it comes to ecotourism planning and management, because local residents that interact directly with tourists are indirectly the most important stakeholders, it is essential to ensure their positive perceptions and attitudes toward tourism (Lee 2013; Bhat and Mishra 2020).

Previous studies on this topic have suggested that ecotourism and other types of sustainable tourism development initiatives would not succeed without the cooperation, support, goodwill, and participation of local residents (Chen, Li and Li 2017; Eusébio, Vieira and Lima 2018; McCaughey, Mao and Dowling 2018). In light of this, the involvement of local residents in decision-making and their positive attitude toward tourism is essential for tourism sustainability (Canalejo et al. 2015; Panyik 2015). Empowered communities are able to benefit more from tourism development opportunities and use these opportunities more constructively (Chen, Li and Li 2017; Bittar Rodrigues and Prideaux 2018).

3 Methods

3.1 Case study area

The Zasavica Special Nature Reserve (SNR) is located in the southern part of the province of Vojvodina, Serbia. It extends across the territories of the municipalities of Sremska Mitrovica and Bogatić and covers an area of 671 hectares, and the protected zone covers an area of 1,150 hectares (Decree ... 1997). The Zasavica area is a remnant of a once large wetland area in the Sava and Drina basins (Stanković 2014). In 2012, wider boundaries of the reserve were proposed, toward a total area of 1,128 hectares, with a protected zone of 3,462 hectares (Dobretić et al. 2012).

The Zasavica SNR is also an area of international importance, considering that it has the following listings: a Ramsar site (wetland of international importance), an IBA (Important Bird Area) as a patchwork and the best-preserved habitat of marsh birds in northwestern Serbia, an IPA (Important Plant Area) due to its floristic and vegetation value and its inclusion in the botanically important areas of central and eastern Europe (Stevanović 2005), a PBA (Prime Butterfly Area) as one of four in Vojvodina (Jakšić and Nahiranić 2011), an Emerald Network Area of Special Conservation Importance (ASCI) due to the presence of wetland, forest, and meadow habitats of the Pannonian landscape that are a priority for conservation, and a proposed NATURA 2000 area with twenty-three types of habitat priority for conservation recorded (Lazić et al. 2008). The Zasavica SNR is also part of the international networks Sava Parks and Dinarides Parks (Puzović et al. 2015). Finally, due to its good conservation and accessibility, it offers excellent conditions for the development of ecotourism.

3.2 Research design, instrument, and data collection

To achieve the objectives of the research, a survey in a form of a questionnaire was developed. It explores local residents' attitudes toward sustainable tourism development. The questionnaire consists of three parts.

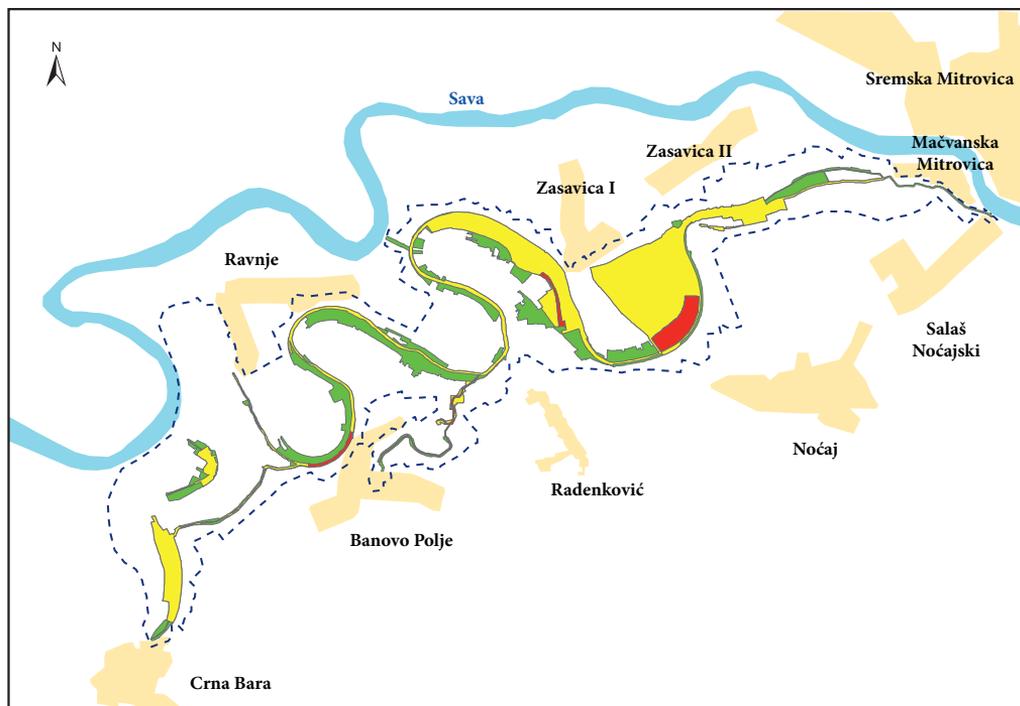
The first part contains demographic data about the participants.

In the second part, participants were asked to respond to 42 statements about sustainable tourism development using the SUS-TAS scale (Choi and Sirakaya 2005). Choi and Sirakaya (2005) developed the Sustainable Tourism Development Scale (SUS-TAS) to measure residents' attitudes toward the current sustainability status of tourism development and the expected level of sustainability. This study adopts the SUS-TAS with only minor modification in wording. For the questionnaire, the SUS-TAS scale was translated into Serbian. Responses in the second part were measured using a five-point Likert scale (1 = absolutely disagree, 2 = partially disagree, 3 = neutral, 4 = partially agree, and 5 = absolutely agree) as in several previous studies on sustainable tourism development (Choi and Sirakaya 2005; Gidebo 2019; Rathnayake and Darshi 2020).

In the third part, participants were asked about nature conservation in the area studied. We asked participants the following questions:

- Do you know any plant species in the Zasavica SNR?
- Do you know any animal species in the Zasavica SNR?

Figure 1: Map of the Zasavica SNR. ►



Legend

-  Protection zone border
-  I degree of the protection regime
-  II degree of the protection regime
-  III degree of the protection regime



Scale: 1:100.000

Content by: Institute for nature conservation of Vojvodina Province

Map by: Vladimir Stojanović, Marija Cimbaljević

Source: Institute for nature conservation of Vojvodina Province; d-maps.com

- In your opinion, are there any problems related to nature protection in the Zasavica SNR?
- Are you involved in any programs connected with nature protection in the Zasavica SNR?
- Would you like to contribute as a volunteer to nature protection in the Zasavica SNR?

The data were collected in August 2020. The study sample consisted of 399 respondents. Part of the respondents (seventy-six participants) were surveyed through an online questionnaire (at Google Forms), which was distributed through social media (Facebook). The rest of the responses were collected through a face-to-face interview. For this portion, a pen-and-paper questionnaire was conducted by giving paper questionnaires to individuals in person and asking them to complete them by hand and return them to the researcher. Respondents were informed that the survey was anonymous, that participation was voluntary, and that the results of the survey would be used for research purposes only.

3.3 Sampling procedure

The sample includes residents from towns and villages surrounding the Zasavica SNR. Data were collected in eight cadastral municipalities (total population 14,437). A representative targeted sampling was used to select respondents in each cadastral municipality: Ravnje (population 1,142), Radenković (946), Zasavica Ravnje (1,142), Radenković (946), Zasavica (1,330), Nočaj (1,866), Salaš Nočajski (1,751), Mačvanska Mitrovica (4,116), Crna Bara (1,924), and Banovo Polje (1,362). The total sample numbered 399, which is 2.76% of the total population.

3.4 Data analysis techniques

For data analyses, IBM SPSS 25.0. Statistics was used. The statistical methods used in this research include descriptive statistical analysis to determine the sociodemographic profiles of the respondents, principal component analysis (PCA) to determine the dimensions of the SUS-TAS, Cronbach's alpha to test the internal consistency of the items measuring each factor, and correlation to determine associations between the responses of respondents belonging to different age groups based on the SUS-TAS factors. An ANOVA test was conducted to determine the differences in the respondents' answers in terms of their employment, education, type of settlement, and nationality, and a *t*-test was performed to compare the data reported by respondents of different sexes in terms of sustainable tourism development factors.

4 Results

4.1 Respondents' sociodemographic profiles

A total of 399 questionnaires were submitted. A descriptive summary of the respondents (Table 1) shows that females (55.39%) slightly outnumbered males (44.61%). The majority of the respondents were under 30 (age \leq 19: 26.06%; 20–29 years: 29.57%) and had a high-school education (55.39%) or above (university education: 37.09%). The household size in the area studied is above the Serbian average, 2.88 (according to the 2019 census). About half of the respondents (49.37%) earn more than the average monthly income in Serbia (€450). In terms of duration of residence, the majority of respondents had lived locally between 10 and 19 years (38.34%) and between 20 and 29 years (20.81%).

4.2 Factor analysis of local communities' attitudes toward sustainable tourism development

First, a principal component analysis (PCA) was conducted with a varimax rotation on forty-two items to delineate the dimensions of the SUS-TAS, and it loaded within seven domains. Almost all communalities were above 0.300, further confirming that each item shares some common variance with other items. Only the statements »Sometimes it is acceptable to exclude a residents of a community from tourism development« and »Residents of a community should have an opportunity to participate in tourism development and management« were 0.120 and 0.285, respectively, and they were not included in further analysis. Given these overall indicators, the factor analysis was considered appropriate for 40 out of the 42 items.

Table 1: Socio-demographic characteristics of respondents (n = 399).

| Category | | <i>n</i> | % |
|---------------------|----------------------|----------|-------|
| Sex: | Male | 178 | 44.61 |
| | Female | 221 | 55.39 |
| Age (years): | ≤ 19 | 104 | 26.06 |
| | 20–29 | 118 | 29.57 |
| | 30–39 | 79 | 19.80 |
| | 40–49 | 57 | 14.29 |
| | 50–59 | 22 | 5.52 |
| | ≥ 60 | 19 | 4.76 |
| Education: | Elementary school | 30 | 7.52 |
| | High school | 221 | 55.39 |
| | University and above | 148 | 37.09 |
| Household size: | < 3 | 78 | 19.55 |
| | 3–5 | 258 | 64.66 |
| | > 5 | 61 | 15.29 |
| Monthly income (€): | < 250 | 67 | 16.80 |
| | 250–450 | 132 | 33.08 |
| | > 450 | 197 | 49.37 |
| | No response | 3 | 0.75 |
| Residence (years): | ≤ 9 | 40 | 10.02 |
| | 10–19 | 153 | 38.34 |
| | 20–29 | 83 | 20.81 |
| | 30–39 | 49 | 12.28 |
| | 40–49 | 26 | 6.52 |
| | ≥ 50 | 48 | 12.03 |

The Kaiser–Meyer–Olkin measure of sampling adequacy was 0.87, above the generally recommended value of 0.6 required for valid factor analysis (Kaiser 1970; 1974; Tabachnick and Fidell 1989; 2007), and Bartlett's test of sphericity was significant ($\chi^2(780) = 10,582.367, p = 0.000$). Using the eigenvalue criterion (greater than 1), we confirmed seven significant factors totaling 65.68% of the explained variance (Table 2).

In this study, Cronbach's alpha coefficients for each SUS-TAS domain ranged from 0.603 to 0.884 with an overall scale reliability of 0.871, indicating that the variables had strong to moderate correlation with their factor grouping and were internally consistent.

The highest level of agreement was for environmental sustainability (90%), followed by visitor satisfaction (85.8%) and community-centered economy (85.2%), and the lowest level of agreement was for perceived social cost (42.2%).

4.3 ANOVA test: respondents' age, education status, and correlation analysis

Respondents over 19 (Table 4) are more likely to consider environmental sustainability than the youngest respondents ($F = 5.813; p = 0.000$), whereas the youngest respondents are more concerned about perceived social costs than other groups ($F = 4.956; p = 0.000$). Significant differences were found based on the educational status of the respondents regarding six factors of sustainable tourism development, except in the case of community participation.

Educational status correlated significantly (mostly positively) with almost all SUS-TAS factors except community participation (Table 5). Residents' age and length of residence also showed a significant positive correlation with environmental sustainability as well as community-oriented management. Furthermore, a significantly negative correlation was found between perceived social costs and age, educational status, and length of residence.

Table 2: Factor analysis for host community attitudes toward sustainable tourism development.

| Factors and statements | Value |
|--|-------|
| Environmental sustainability ($\alpha = 0.869$) | |
| 1. The community's environment should be protected now and for the future | 0.825 |
| 2. The diversity of nature must be valued and protected | 0.819 |
| 3. The development of tourism should increase efforts to protect the environment | 0.744 |
| 4. Tourism must protect the community environment | 0.732 |
| 5. Tourism must be developed in harmony with the natural and cultural environment | 0.709 |
| 6. Appropriate tourism development requires wildlife and natural habitat protection at all times | 0.642 |
| 7. Tourism development must promote positive environmental ethics for all tourism stakeholders | 0.562 |
| 8. Regulatory environmental standards are needed to reduce impacts of tourism development | 0.301 |
| 9. Tourism must improve the environment for future generations | 0.312 |
| Perceived social costs ($\alpha = 0.884$) | |
| 10. Tourists in my community are disrupting my quality of life | 0.831 |
| 11. My quality of life has deteriorated because of tourism | 0.820 |
| 12. I often feel irritated because of tourism in the community | 0.818 |
| 13. The community's recreational resources are overused by tourists | 0.739 |
| 14. My community is overcrowded because of tourism development | 0.734 |
| 15. I do not feel comfortable or welcome in local tourism businesses | 0.664 |
| 16. Tourism is growing too fast | 0.651 |
| 17. The quality of social interaction in my community has deteriorated because of tourism | 0.551 |
| Perceived economic benefits ($\alpha = 0.884$) | |
| 18. I like tourism because it brings new income into our community | 0.760 |
| 19. Tourism makes a strong economic contribution to the community | 0.721 |
| 20. Tourism generates significant tax revenue for local government | 0.681 |
| 21. Tourism is good for our economy | 0.666 |
| 22. Tourism creates new markets for local products | 0.626 |
| 23. Tourism diversifies the local economy | 0.554 |
| 24. Tourism is beneficial to other industries in the community | 0.512 |
| Community participation ($\alpha = 0.603$) | |
| 25. Tourism decisions need to be made by everyone in my community regardless of background | 0.864 |
| 26. The whole community must participate in decisions for successful tourism development | 0.837 |
| Long-term planning ($\alpha = 0.703$) | |
| 29. The tourism industry must plan for the future | 0.616 |
| 30. Successful management of tourism requires an advanced planning strategy | 0.839 |
| 31. We need to take a long-term perspective when planning tourism development | 0.811 |
| 32. Residents must be encouraged to take a leadership role on tourism planning committees | 0.686 |
| 33. Tourism development needs well-coordinated planning | 0.641 |
| 34. Tourism development plans should be continuously improved | 0.601 |
| Visitor satisfaction ($\alpha = 0.782$) | |
| 35. Tourism businesses have a responsibility to provide for visitors' needs | 0.777 |
| 36. Community attractiveness is the core element of environmental attractiveness to visitors | 0.750 |
| 37. Tourism enterprises need to monitor visitor satisfaction | 0.614 |
| 38. The tourism industry must ensure high-quality tourism experiences for future visitors | 0.604 |
| Community-centered economy ($\alpha = 0.837$) | |
| 39. The tourism industry should obtain at least half its goods and services locally | 0.749 |
| 40. Tourism should hire at least half its employees from the local community | 0.687 |
| 41. Local community residents should receive a fair share of the benefits from tourism | 0.686 |
| 42. The tourism industry must contribute to community improvement funds | 0.467 |

Table 3: Respondents' attitudes to sustainable tourism development.

| Sustainable tourism development factors | Mean | SD | Agreement level (%) |
|---|------|------|---------------------|
| Environmental sustainability | 4.50 | 0.54 | 90 |
| Perceived social cost | 2.11 | 0.84 | 42.2 |
| Perceived economic benefits | 3.97 | 0.74 | 79.6 |
| Community participation | 3.77 | 0.66 | 75.4 |
| Long-term planning | 4.07 | 0.72 | 81.4 |
| Visitor satisfaction | 4.29 | 0.65 | 85.8 |
| Community-centered economy | 4.26 | 0.68 | 85.2 |

Table 4: ANOVA test: Factors of sustainable tourism development by respondents' age and education.

| | Factors | F-value | LSD post-hoc test |
|--------------|------------------------------|---------|--------------------|
| By age | Environmental sustainability | 5.813* | 2, 3, 4, 5, 6 > 1 |
| | Perceived social cost | 4.956* | 1 > 2, 3, 4, 5, 6 |
| | Perceived economic benefits | 3.042 | / |
| | Community participation | 0.241 | / |
| | Long-term planning | 2.675 | / |
| | Visitor satisfaction | 1.691 | / |
| | Community-centered economy | 4.225* | 3 > 1, 2, 5; 4 > 1 |
| By education | Environmental sustainability | 12.295* | 3 > 1, 2; 2 > 1 |
| | Perceived social cost | 3.955* | 1 > 3 |
| | Perceived economic benefits | 10.400* | 3 > 1, 2; 2 > 1 |
| | Community participation | 0.105 | / |
| | Long-term planning | 10.403* | 3 > 1, 2; 2 > 1 |
| | Visitor satisfaction | 5.274* | 3 > 1, 2; |
| | Community-centered economy | 4.000* | |

* $p < 0.01$; $F > 3.32$

Table 5. Correlation analysis: age of respondents, educational status, household size, and sustainable tourism development factors.

| Factors | Pearson correlation coefficient (r) | | |
|------------------------------|---|------------------|---------------------|
| | Age | Education status | Length of residence |
| Environmental sustainability | 0.202** | 0.240** | 0.163** |
| Perceived social costs | -1.810** | -0.126* | -0.147** |
| Perceived economic benefits | 0.048 | 0.218** | 0.006 |
| Community participation | -0.013 | -0.009 | -0.062 |
| Long-term planning | 0.046 | 0.219** | -0.070 |
| Visitor satisfaction | 0.052 | 0.150** | 0.015 |
| Community-centered economy | 0.101** | 0.140** | 0.023 |

*Correlation significant at $p = 0.05$, **Correlation significant at $p = 0.01$

4.4 Respondents' attitudes toward nature protection

In general, respondents expressed a very positive attitude toward nature protection in the study area. Two-thirds of the respondents (68%) stated that they knew some plant species, and similar responses were found for respondents' knowledge of animal species. Although managers of the nature reserves informed the public about the importance of the presence of endangered plant species, locals mainly recognized yellow and white water lilies and reeds. Unfortunately, 91% of the respondents indicated that the most popular animal species in the study area was the domestic donkey, and only 0.5% of the respondents knew about the European mudminnow (*Umbra krameri*), an endangered fish species.

A significant number (75%) of the respondents are aware that there are problems related to nature protection, but no one named them. Also, only 8.5% of the respondents answered that they have been involved in some programs related to nature protection – but, again, without specific answers regarding the capacity to which they are involved in such programs. Fortunately, half of the people surveyed (55%) would be happy to contribute to nature protection and tourism development in the Zasavica SNR without receiving any compensation.

5 Discussion

The results obtained show that inhabitants of the Zasavica SNR have a positive attitude toward sustainable tourism development, ecotourism, sociocultural and economic impacts of ecotourism, and nature conservation in the area studied. Furthermore, our findings reinforce previous research and support the position that SUS-TAS is also a reliable and valid instrument for measuring residents' attitudes toward sustainable tourism development in ecotourism research (Nunnally and Bernstein 1994; Gidebo 2019). In this study, the SUS-TAS scale was applied in the Zasavica SNR, where tourism is underdeveloped, whereas previous studies were conducted in tourist destinations and in countries where tourism is one of the most important economic sectors; for example, in Izmir, Turkey (Sirakaya-Turk, Ekinci and Kaya 2007; Sirakaya-Turk, Ingram and Harill 2008), Cyprus (Kvasova 2011), and the United States (Hawaii, Indiana, South Carolina, Texas, and rural counties in the Midwest; Choi and Sirakaya 2005; Yu et al. 2011; Assante, Wen and Lottig 2012; Sirakaya-Turk and Gursoy 2013; Zhang, Cole and Chancellor 2015).

SUS-TAS has also been applied to hotels (Prayag, Dookhony-Ramphul and Maryeven 2010), and some studies have been conducted in national parks (Gidebo 2019) and outstanding natural landscapes (Obradović and Stojanović 2021), which are also protected natural areas. In the study by Obradović and Stojanović (2021), it was confirmed that this scale can be used in different cross-cultural settings (confirmatory factor analysis, or CFA, was used) and in municipalities and protected areas where tourism has not yet emerged as a significant economic area of activity.

This study seeks to promote the development of ecotourism in communities and raise awareness of the need to create programs that engage local communities. So far, educational programs have mostly been periodic and related to specific projects, but there is a need to ensure their continuity. Their goal should be continuous education and promotion of awareness of the potential of the Zasavica SNR to protect and preserve it through ecotourism as a form of sustainable tourism development. The development of such a form of tourism requires the participation of three groups of stakeholders: the local community, the management of the protected area, and the tourism industry. If the local community is informed and educated, this will lead to increased investment in the tourism industry. This approach can increase the involvement of local residents as entrepreneurs and employees in tourism development and encourage young people to remain in the area. This can in turn lead to the creation of employment opportunities for local people, reduce unemployment, and improve living standards, making the residents much more supportive of tourism development.

In general, community members show agreement with seven factors of sustainable tourism development, with the exception of perceived social costs, which is consistent with previous studies (Gidebo 2019; Rathnayake and Darshi 2020). Our presumption is that the community in the study area has experienced lower social costs associated with tourism development at this time, which mitigates the negative impacts on the local community. This would explain the lowest level of agreement in the case of perceived social costs. Furthermore, the results obtained show a predominantly positive correlation between residents' educational status and almost all SUS-TAS factors. The positive correlation of high education level with support for tourism development is consistent with the literature consulted (Teye, Sirakaya and Sönmez 2002; Chen and Qui 2017). The group of respondents with completed high school education is more likely to consider environmental sustainability, perceived economic benefits, and long-term planning than the group with only primary school education. Perceived social costs as a factor of sustainable tourism development are more thoroughly considered by locals with completed primary school. Older respondents with higher levels of education were found to have more positive attitudes toward environmental sustainability and a community-based economy. The results of this study are consistent with previous research (Teye, Sirakaya and Sönmez 2002; Chen and Qui 2017), which suggests that people with higher levels of education are

more aware of the potential benefits of tourism than people with lower levels of education. Furthermore, the survey results show that respondents with higher levels of education strongly believe that tourism development needs well-coordinated planning, similar to a study conducted in Sri Lanka (Rathnayake and Darshi 2020). On the other hand, younger respondents with lower educational status were more likely to perceive social costs than older ones, which is associated with a critical attitude toward the negative environmental impact caused by tourism development, which was confirmed in a study conducted by Kuvan and Akan (2005).

According to a number of researchers, length of residence in a geographic location may be a better predictor of residents' attitudes toward tourism impacts (Walpole and Goodwin 2001; Gu and Ryan 2008). In this study, length of residence was positively correlated with attitudes toward environmental sustainability, which is consistent with similar research (Khoshkam, Marzuki and Al-Mulal 2016). Furthermore, some previous studies confirmed that length of residency was positively correlated with attitudes toward the economic impacts of tourism development (Liu and Var 1986; Haralambopoulos and Pizam 1996; Khoshkam, Marzuki and Al-Mulal 2016).

General public awareness about nature and environmental protection is still insufficient in Serbia (Tomićević, Shannon and Milovanović 2010). To our knowledge, this is the first time that this type of survey has been used in nature protection to investigate the level of knowledge of the local population. Although respondents expressed a very positive attitude toward nature protection, key species for conservation of the Zasavica SNR are poorly recognized by the local population. For the globally threatened aquatic water-wheel plant (*Aldrovanda vesiculosa*), Zasavica is the only remaining habitat in Serbia (Tomović et al. 2009). This species has the status of a globally threatened species (EN; Cross and Adamec 2020), and in Serbia it is designated as critically endangered (IUCN 2001). Extant populations of *A. vesiculosa* are rare in Europe, and only a few sites remain in the Balkans. *A. vesiculosa* was promoted as one of the »flagship species« of the reserve (Stanković 2014). However, only the staff of the Zasavica SNR knew about the existence of this species. The low level of knowledge about non-charismatic plant species among residents contrasts with the awareness of large communities of scientists and naturalists from Serbia, who recognize *A. vesiculosa* as one of the most important species in the reserve. Moreover, only 0.5% of respondents knew about the endangered European mudminnow (*Umbra krameri*). This species is a relict, and it is the only native species in the genus *Umbra* in Europe. In particular, the Zasavica SNR is one of two remaining habitats in Serbia (Sekulić et al. 2013).

Previous studies show that the most attractive and secure species receive the highest public support compared to less attractive and more threatening ones (de Pinho et al. 2014; Liordos et al. 2017). Furthermore, physical size (Metrick and Weitzman 1998) and phylogenetic similarity to humans (Tisdell, Wilson and Swarna Nantha 2006) also increase support in efforts to save threatened species. In our study, *A. vesiculosa* and *U. krameri* do not meet these parameters, and this is probably why they are not recognized by the locals. One of the solutions could be found, for example, in Greece, where campaigns to increase public interest in the less charismatic species, conducted by the WWF and NGOs have so far promoted successful management and conservation of the black vulture for more than twenty-five years (Liordos et al. 2017).

Moreover, in the area studied, one of the famous attractions is donkeys, together with liqueur and soap made from donkey milk. This is the only place in the region where people can see and buy such products. This is probably why the respondents said that the most popular animal in the reserve is the domestic donkey. The Zasavica SNR is involved in a genetic resources conservation program, and the donkeys are part of the breeding stock of a special native Balkan breed. The Zasavica SNR hosts a population of a few hundred Balkan donkeys, Podolian cattle, and Mangalitsa pigs, which roam freely in large pastures in the central part of the reserve, and they contribute to the management of grasslands and wetlands. Although kept as domestic animals, these are perceived as valuable representatives of local biodiversity and part of native ecosystems.

On the other hand, the examples of *U. krameri* and *A. vesiculosa* show that, despite intensive promotion and education campaigns (e.g., the tourist boat on the Zasavica River is named *Umbra* after the endangered fish), managers have not succeeded in raising awareness of non-charismatic wildlife among local people, most of whom recognize the Zasavica SNR as a preserved natural habitat with traditional livestock management. Similar results on local perception toward conservation have been found in other parts of the world (de Albuquerque and de Albuquerque 2005; Abukari and Mwalyosi 2020). Therefore, it would be good to investigate how locals learn about biodiversity and conservation in other protected areas. The results of the survey suggest that long-term educational programs on conservation should be

devised for locals. Over time, their knowledge will accumulate, multiply, and spread to eventually achieve a better balance with nature.

The large number of respondents that want to contribute to nature protection and sustainable development is important because of the scope of tourism development in the Zasavica SNR. This protected area is one of the most frequently visited in northern Serbia. The Zasavica SNR stands out for its level of tourism development and tourist services (a visitors' center, educational and eco-trails, restaurants, and a camp), and it has strategies and plans according to which it is developing as a destination (Stojanović, Lazić and Dunjić 2018). Revenue from tourist visits from tickets alone is about €21,000 a year. The profit from catering services is also significant, and from the sale of souvenirs and ethnic food: goat milk, cheeses, and processed meat from Mangalitsa pigs (Jovanović et al. 2019).

On the whole, the residents are aware of the importance of nature and protecting it even if they differ in material status or education level. Interestingly, Tomičević, Shannon and Milovanović (2010) came to a similar conclusion in Tara National Park in Serbia. Moreover, our results show that a significant number of respondents would like to contribute to nature conservation and tourism development in the Zasavica SNR. In conclusion, as indicated in a study conducted by Tomičević, Shannon, and Milovanović (2010), a comprehensive, participatory management program is undoubtedly necessary to reach people that already feel connected to a protected area to develop tailored plans and increase community participation in management of the protected area.

6 Conclusion

According to the literature in this area, sustainable tourism relies heavily on stakeholder participation, and efforts must be made to improve the links between conservation, local community development, and the tourism industry (Wearing and Neil 2009). This study emphasized the importance of local community support and participation. The results of this case study reinforce the findings of similar previous studies (Lundberg 2017; Wang 2019) and show that SUS-TAS can be used to measure residents' attitudes toward sustainable tourism development in communities and protected areas where tourism has not yet emerged as a significant economic activity.

According to the study by Jaafar, Noor, and Rasoolimanesh (2015), local residents' involvement and active participation plays a vital role in implementing conservation programs that contribute to preserving heritage sites and protected areas. This study shows that half of those surveyed would like to contribute to nature conservation and tourism development in the Zasavica SNR. Lack of local participation diminishes the value of heritage sites and protected areas (Buta, Holland and Kaplanidou 2014; Majid et al. 2019), but this research has confirmed that community participation and active involvement are necessary for nature protection and tourism development. Attitudes toward tourism development and protecting nature vary among individuals in the Zasavica SNR. Moreover, the results of this study have a practical application for the local authorities in designing and planning future tourism development and nature protection in the Zasavica SNR as well as in other protected areas in Serbia and the wider region. Finally, it is important to emphasize that the residents of the area studied recognize the benefits of sociocultural and economic impacts of development, while acknowledging the negative impacts of development on the natural environment.

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