

# MECHANISMS OF FINANCING THE PROTECTED AREA MANAGEMENT SYSTEM IN SERBIA

## MEHANIZMI FINANCIRANJA SUSTAVA UPRAVLJANJA ZAŠTIĆENIM PODRUČJIMA U SRBIJI

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### SUMMARY

The financing of protected area (PA) management includes the interaction of different actors that are involved in the process of management and financing, i.e., from the management framework to the mechanisms of financing. The management framework sets the basic preconditions for PA management, while the mechanisms of financing represent the ways of financing PAs based on the long-term and sustainable conditions. The management of PAs in Serbia has mostly been done by public enterprises (PE). It was given to non-governmental organizations (NGO) for the first time in the late 1990s. Today, the management is carried out by different managers from the public sector (PS) to the private sector (PrS). This research deals with different financing mechanisms present in PAs in Serbia. Additionally, it deals with the differences in the financing between different management actors (MA) in order to establish the best financing practices in the PA management system in Serbia. The results indicate that public enterprise “Srbijašume” (PES) has the lowest average number of financial sources, unlike public enterprise “Vojvodinašume” (PEV). Regarding the average amount of financing, other managers from the public sector (OPS) have the largest amount of financing, while other public enterprises (OPE) record the smallest amount of their own financing. In order to improve the use of mechanisms for the PA management system financing, additional training for the use of funds is proposed at national and international level, as well as external, i.e., additional engagement of agencies that would prepare projects at international level. It is also proposed to establish a specific mechanism – a fund intended for nature protection.

**KEY WORDS:** protected areas; mechanisms of financing; management actors; Serbia;

### INTRODUCTION

#### UVOD

PAs contribute to the environmental, social and economic goals of sustainable development through the support of

ecosystem functioning, promotion of sustainable use of renewable resources and provision of space for tourism and recreation (Philips 1998). They are defined as areas that have “...*specific geological, ecosystem and/or landscape di-*

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versity” (2009), while the International Union for Nature Conservation (IUCN) defines these areas as “...*clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long term conservation of nature with associated ecosystem services and cultural values*” (Emerton et al. 2006). The system of PA management represents the interaction between managers, i.e., organizations that are entrusted management and its environment. The environment in which the PA managers are located includes strategic, legislative and institutional frameworks that set the basic prerequisites for the functioning of this system. Additionally, one of the most important prerequisites for PA management is the interaction between PA managers and the local community, which is carried out through public participation. This participation has become a widely accepted principle of work in PA management institutions (Martinić 2010). At state level, the system of PA management is regulated directly through the Law on Nature Protection and responsible institutions (competent ministry, Institute for Nature Conservation, etc.), while at the level of European Union (EU), Natura 2000 represents the basic program (regulated through the Habitat and Bird Directive), whose aim is to provide favourable conditions for endangered species and habitats through establishing an ecological network of the most important areas for their preservation (Posavec et al. 2011).

PA management can be delegated to an organization, individual or community which operates according to a set of laws, rules and/or traditions (Chape et al. 2008). Additionally, PA managers can be classified according to their authority to make decisions and the degree of their accountability (Borrini-Feyerabend et al. 2013). According to the IUCN, governmental and non-governmental participants in PA management are distinguished. The governmental participants include local authorities, agencies, PEs, etc., while the non-governmental participants are individuals, local communities, NGOs, religious organizations, enterprises (privately-owned) and corporations (Đorđević et al. 2014, Borrini-Feyerabend et al. 2013).

One of the important components of PA management is sustainable financing, which represents the basis for the realization of nature protection. Sustainable financing is defined as “... *ability to provide sufficient, stable and long-term financial resources*” (Emerton et al., 2006). It is necessary to provide adequate financial resources at the appropriate time and form, in order to “...*cover the full PA costs, and ensure the effective and efficient management of the PA, in accordance with the objectives of protection and other objectives*” (Worboys et al. 2010). Sustainable financing can be provided through the diversification of revenues (Philips 1998, Eagles et al. 2002, Bowarnick et al. 2010, Avramov et al. 2012), i.e., by introducing innovative mechanisms and continuous financing of activities in the PA.

If we compare the ways revenues are collected and used, three categories of funding mechanisms can be distinguished (Emerton et al. 2006, Sprugeon et al. 2009):

1. external financing mechanisms (including government and donor budgets);
2. mechanisms for raising funds to encourage nature protection activities (including cost-benefit sharing, investment and company funds, fiscal instruments and arrangements for private and joint management of PA resources);
3. mechanisms that include market revenues for goods and services of PAs (including fees for using PAs and revenues from tourism and payment of ecosystem services).

### **Protected area management in Serbia – Upravljanje zaštićenim područjima u Srbiji**

The planned increase in the PA in Serbia envisages a double larger area than the current coverage (Đorđević et al. 2017). This fact will create an additional obligation for existing and new managers in the forthcoming period because the sustainable PA management has become a challenge, not only for the nature protection sector but for other sectors (Grujičić et al. 2008). Sustainable management also means sustainable financing mechanisms, which need to be improved, given the planned increase in the PA.

In the late '90s of the 20th century, PS was present as the main type of PA manager in Serbia. However, by adopting the Law on Environmental Protection (1991) the process of decentralization was started. It moved the focus of PA management to PrS. At the time, the management of PAs in Serbia was for the first time given to NGOs, i.e., PrS (Đorđević et al. 2014, Nonić et al. 2015). The research conducted so far point out the fact that besides the two types of PA managers (PS and PrS), there are numerous categories and subcategories of managers\* in Serbia (Đorđević et al. 2014, Nonić et al. 2015, Đorđević et al. 2017, Đorđević, 2018).

PA financing in Serbia is directly defined by the Law on Nature Protection (2009) and includes three sources (Đorđević et al. 2013/b): the budget of the Republic of Serbia, the revenues obtained by the organization that manages the PA, and donations. One of the main problems in financing PAs in Serbia is related to the unresolved issue of PA financing, since the funds are most often devoted to the basic functions (ranger service, marking, preparation of planning documents, etc.), while the financing of concrete activities of protection and monitoring is almost completely ignored in practice (Puzović 2008). It must be also emphasized that

\* On the basis of these categories and subcategories of managers, MAs are defined (Đorđević 2018).

when the state does not have an adequate budget and PA financing sources, it must find transitional solutions and compromising variants, which is not always good for the protection of the basic PA natural values (Puzović 2008).

Research on the mechanisms of financing the PA management system in Serbia has not been done so far. There have been some studies on the financing of national parks (Šumarac 2009, Đorđević et al. 2013/a, Đorđević et al. 2013/b), but no research dealing with other categories of PA or the differences in the financing of individual PA managers.

In this paper, we aim to determine the mechanisms of financing the PA system within different MAs. The subject of the research includes the mechanisms for the PA management system financing in Serbia. The purpose of the research is to create the basis for more detailed research of the mechanisms for the PA management system financing. On the basis of such knowledge, existing financing mechanisms can be improved and more assumptions can be developed to improve the financing mechanisms.

## MATERIAL AND METHOD

### MATERIJAL I METODE

A door-to-door survey was used in the data collection phase (Neumann 2014). This research technique was selected with an aim of maximizing the response rates and minimizing the problems that can arise when using the telephone or the email. The survey consisted of three sets of questions (basic characteristics, structural characteristics and financing mechanisms) and for this paper, the issues related to the mechanisms of PA financing were used. The statistical method was used for the primary data analysis (Šešić 1984) and the comparative method to determine the differences and similarities between the categories of PA managers.

The research was conducted in two phases. In the first phase, the research population was defined on the basis of the PA Register (ZZP 2012), from which 63 PAs were selected. The following criteria were used in PA sampling: the existence of a PA manager\*\*, PA size (areas smaller than 10 ha were excluded) and PA categories (all PA categories were included in the sample, except for nature monuments\*\*\* and protected habitats\*\*\*\*). The basic characteristics of PA managers included the name of the PA, the date and place

of the survey, the type of the legal status and the area in ha. Regarding the characteristics of financing mechanisms, data on types of financing mechanisms and amounts allocated to each type were collected. Based on the legal status of PA managers, MAs were formed and used to identify the differences in financing mechanisms. The results of the survey were then compared with the research results in the region.

The preparation of the questionnaire for data collection included some preparatory actions for the subsequent coding of the questionnaire. Each answer was given a code which was later used in the statistical analysis. (De Vaus 2002). Having been coded, data was entered into a single database. The collected data was entered into the software package for statistical processing SPSS (ver. 21) (Pallant 2011). In order to process the collected data, the following MAs were formed from the categories and subcategories of the PA managers:

1. PES – 27 responses;
2. PEV – 5 responses;
3. Public enterprise that manages a National Park (PENP) – 4 responses;
4. OPE – 12 responses;
5. OPS – 6 responses;
6. PrS\*\*\*\*\* – 9 responses.

This was done in order to determine the differences between the existing managers in the most appropriate way, since the defined category of PA manager (“enterprise”) is too wide, i.e., the largest PA managers (PES, PEV and PENP) are one category, while there are only a few respondents in other categories. On the other hand, the subcategories are too simplified and there were no respondents’ answers in all cases.

In the second phase, the research sample was defined based on the examples of “good practice” of PA managers and representatives of the public administration and service, as well as organizations in the PA management system. Examples of “good practice” were selected on the basis of the “purposive sampling”, which is used to select cases that are particularly informative (Neuman 2014). The total sample included 18 respondents (Annex 1). PA managers (7 respondents) included representatives from different PEs and PrS, while the public administration and service (5 respondents) included representatives from the ministry responsible for PA, Institutes for Nature Conservation (republic and provincial) and the main offices of PES and PEV. Organizations in the PA management system (6 respondents) included representatives from different scientific-research

\*\* In Serbia, certain PAs do not have a manager (Đorđević et al. 2014).

\*\*\* Nature monuments are the PA category with the largest number of PAs without a manager, areas smaller than 10 ha and PAs managed by individuals.

\*\*\*\* Protected habitats were not present in the PA Register from 2012 (ZZP 2012), which was used for this research. This PA category was established in the coming years.

\*\*\*\*\* PrS was not divided into smaller groups, but was seen as one group in order to be able to compare the characteristics of managers between MA.

**Annex 1: Codes of respondents within second phase of research****Prilog 1: Kodovi ispitanika u drugoj fazi istraživanja**

Code of respondent / Kod ispitanika	The name of the PA manager / public administration and service / organizations / Naziv upravitelja zaštićenog područja / javne uprave i službe / organizacije	Type of respondent / Tip ispitanika	Date / Datum
NCM	Nature Conservation Movement - Sremska Mitrovica / Pokret Gorana – Sremska Mitrovica	Manager / Upravitelj	12.04.2017
ILF	Institute of Lowland Forestry and Environment / Institut za nizijsko šumarstvo i životnu sredinu	Organization / Organizacija	12.04.2017
PENP	PE "NP Tara" / Javno poduzeće „Nacionalni park Tara“	Manager / Upravitelj	19.04.2017
CLR	Company with limited responsibility "Uvac" / Tvrtka sa ograničenom odgovornošću "Uvac"	Manager / Upravitelj	19.04.2017
PES1	PE "Srbijašume"-Main office / Javno poduzeće „Srbijašume“ - Direkcija	Public administration and service / Javna uprava i služba	20.04.2017
SOC	Serbian Orthodox Church – The Eparchy of Vranje / Srpska Pravoslavna Crkva – Eparhija Vranjska	Manager / Upravitelj	21.04.2017
PEPL	PE "Palić-Ludaš" / Javno poduzeće „Palić-Ludaš“	Manager / Upravitelj	25.04.2017
PES2	PE "Srbijašume" / Javno poduzeće „Srbijašume“	Manager / Upravitelj	26.04.2017
PINC	Institute for Nature Conservation of Voivodina Province / Pokrajinski zavod za zaštitu prirode	Public administration and service / Javna uprava i služba	28.04.2017
PEV	PE "Vojvodinašume" / Javno poduzeće „Vojvodinašume“	Public administration and service / Javna uprava i služba	28.04.2017
IF	Institute of Forestry / Institut za šumarstvo	Organization / Organizacija	29.04.2017
Futura	Futura / Futura	Organization / Organizacija	10.05.2017
IUCN	IUCN / IUCN	Organization / Organizacija	11.05.2017
PES3	PE "Srbijašume" / Javno poduzeće „Srbijašume“	Manager / Upravitelj	15.05.2017
WWF	World Wide Fund / Svjetski fond za zaštitu prirode	Organization / Organizacija	15.05.2017
INC	Institute for Nature Conservation / Zavod za zaštitu prirode	Public administration and service / Javna uprava i služba	17.05.2017
FF	The Faculty of Forestry / Šumarski fakultet	Organization / Organizacija	19.05.2017
MEP	Ministry of agriculture and environmental protection / Ministarstvo poljoprivrede i zaštite okoliša	Public administration and service / Javna uprava i služba	31.05.2017

**Annex 2: The Mann-Whitney U test (management actors and the number of financing sources)****Prilog 2: Man-Vitnijev-ev test (grupa upravljača i broj izvora financiranja)**

	PENP- -PES	PENP- -PEV	PENP- -OPE	PENP- -OPS	PENP- -PrS	PES- -PEV	PES- -OPE	PES- -OPS	PES- -PrS	PEV- -OPE	PEV- -OPS	PEV- -PrS	OPE- -OPS	OPE- -PrS	OPS- -PrS
Mann-Whitney U	7,000	6,500	13,000	5,000	11,000	,000	60,000	38,500	41,500	4,000	,000	4,000	30,000	50,000	20,000
Wilcoxon W	385,000	16,500	91,000	26,000	56,000	378,000	438,000	416,500	419,500	82,000	21,000	49,000	51,000	128,000	41,000
Z	-2,890	-,868	-1,386	-1,836	-1,109	-3,618	-3,229	-2,096	-3,037	-2,791	-2,879	-2,506	-,605	-,295	-,875
r	0,36	0,11	0,17	0,23	0,14	0,46	0,41	0,26	0,38	0,35	0,36	0,32	0,08	0,04	0,11
Asymp. Sig. (2-tailed)	,004	,385	,166	,066	,267	,000	,001	,036	,002	,005	,004	,012	,545	,768	,382

Source: original

**Annex 3: The Kruskal-Wallis test (management actors and amounts of PA financing)****Prilog 3: Kruskal-Wallis-ov test (grupa upravitelja i iznosi financiranja ZP)**

	Test Statistics <sup>a,b</sup>									
	Respon. Ministry for PA / Nadlež. minist. za ZP	Local comm. / Lok. zajed.	NGOs / Ne vladine udruge	Inter. inst. / Medj. inst.	Own revenues / Vlasititi prihodi	Fond for env. protection / Fond za zašt. okoliša	Forest directorate / Uprava šumarstva	Respon. secretariat for PA / Nadležna uprava. za ZP	Respon. secretariat for forestry / Nadležna uprava. za šumarstvo	
Chi-Square	10,520	28,518	15,221	18,063	7,769	34,816	31,724	35,634	32,504	
df	5	5	5	5	5	5	5	5	5	
Asymp. Sig.	,062	,000	,009	,003	,169	,000	,000	,000	,000	

a. Kruskal Wallis Test  
b. Grouping Variable: Grupe upravitelja

Source: original

**Annex 4: The Mann-Whitney U test (management actors and amounts of PA financing)**

**Prilog 4: Man-Vitnijev test (grupa upravljača i iznosi financiranja ZP)**

	Amoun. of sup. from resp. minis./Iznos podr. nadl. mini.	Amoun. of sup. from local comm./Iznos podr. lokalna zajednica	Amoun. of sup. from NGOs/Iznos podr. ne vladin. udr.	Amoun. of sup. from inter. inst./Iznos podr. medju. insti.	Amoun. of sup. from own reven. /Iznos podr. vlast. prih.	Amoun. of sup. from fund/Iznos podr. fond	Amoun. of sup. from fores. direct. /Iznos podr. upr. šumar.	Amoun. of sup. from resp. secret. for PA/Iznos podr. nadl. sekr. za ZP	Amoun. of sup. from secr. for fores./Iznos podr. sekr. za šum.
<b>PENP-PES</b>									
Mann-Whitney U	3,000	50,000	27,000	13,500	,000	27,000	2,000	40,500	40,500
Wilcoxon W	381,000	60,000	405,000	391,500	378,000	405,000	380,000	418,500	418,500
Z	-3,425	-,553	-3,735	-4,651	-3,185	-3,735	-3,253	-2,598	-2,598
r	0,43	0,07	0,47	0,59	0,40	0,47	0,41	0,33	0,33
Asymp. Sig. (2-tailed)	,001	,580	,000	,000	,001	,000	,001	,009	,009
<b>PENP-PEV</b>									
Mann-Whitney U	,000	8,000	5,000	6,000	,000	8,000	,000	5,000	6,500
Wilcoxon W	15,000	18,000	20,000	21,000	15,000	18,000	15,000	15,000	16,500
Z	-2,449	-,894	-1,677	-,997	-2,449	-,498	-2,558	-1,246	-,895
r	0,31	0,11	0,21	0,13	0,31	0,06	0,32	0,16	0,11
Asymp. Sig. (2-tailed)	,014	,371	,094	,319	,014	,618	,011	,213	,371
<b>PENP -OPE</b>									
Mann-Whitney U	,000	2,000	13,000	13,000	,000	12,000	,000	15,000	19,500
Wilcoxon W	78,000	12,000	91,000	91,000	78,000	90,000	78,000	25,000	97,500
Z	-3,041	-2,710	-1,957	-1,622	-2,934	-2,530	-3,824	-1,108	-,949
r	0,38	0,34	0,25	0,20	0,37	0,32	0,48	0,14	0,12
Asymp. Sig. (2-tailed)	,002	,007	,050	,105	,003	,011	,000	,268	,343
<b>PENP -OPS</b>									
Mann-Whitney U	6,000	8,000	6,000	5,500	,000	8,000	,000	12,000	9,000
Wilcoxon W	27,000	18,000	27,000	26,500	21,000	29,000	21,000	33,000	30,000
Z	-1,283	-1,225	-1,826	-1,561	-2,558	-1,049	-2,882	,000	-1,225
r	0,16	0,15	0,23	0,20	0,32	0,13	0,36	0,00	0,15
Asymp. Sig. (2-tailed)	,199	,221	,068	,118	,011	,294	,004	1,000	,221
<b>PENP-PrS</b>									
Mann-Whitney U	3,000	10,000	11,000	11,000	,000	9,000	,000	12,500	13,500
Wilcoxon W	39,000	20,000	56,000	56,000	36,000	54,000	45,000	22,500	58,500
Z	-2,212	-1,511	-1,319	-1,174	-2,722	-2,208	-3,392	-,635	-1,500
r	0,28	0,19	0,17	0,15	0,34	0,28	0,43	0,08	0,19
Asymp. Sig. (2-tailed)	,027	,131	,187	,240	,006	,027	,001	,526	,134
<b>PES- PEV</b>									
Mann-Whitney U	23,000	60,000	67,500	27,000	7,000	13,500	53,000	,000	13,500
Wilcoxon W	401,000	438,000	82,500	405,000	385,000	391,500	68,000	378,000	391,500
Z	-2,597	-,770	,000	-4,155	-3,143	-4,877	-,846	-5,542	-4,877
r	0,33	0,10	0,00	0,52	0,40	0,61	0,11	0,70	0,61
Asymp. Sig. (2-tailed)	,009	,442	1,000	,000	,002	,000	,397	,000	,000
<b>PES - OPE</b>									
Mann-Whitney U	140,500	36,500	148,500	135,000	138,000	162,000	90,000	27,000	148,500
Wilcoxon W	518,500	414,500	526,500	513,000	516,000	240,000	168,000	405,000	526,500
Z	-,780	-4,552	-1,500	-2,149	-,731	,000	-2,680	-5,352	-1,500
r	0,10	0,57	0,19	0,27	0,09	0,00	0,34	0,67	0,19
Asymp. Sig. (2-tailed)	,435	,000	,134	,032	,465	1,000	,007	,000	,134
<b>PES- OPS</b>									
Mann-Whitney U	44,000	62,000	81,000	67,500	13,000	67,500	45,000	54,000	81,000
Wilcoxon W	422,000	440,000	102,000	445,500	391,000	445,500	66,000	432,000	102,000

	Amoun. of sup. from resp. minis./ Iznos podr. nadm. mini.	Amoun. of sup. from local comm./Iznos podr. lokalna zajednica	Amoun. of sup. from NGOs/Iznos podr. ne vladin. udr.	Amoun. of sup. from inter. inst./ Iznos podr. medju. insti.	Amoun. of sup. from own reven. /Iznos podr. vlast. prih.	Amoun. of sup. from fund./Iznos podr. fond	Amoun. of sup. from fores. direct. / Iznos podr. upr. šumar.	Amoun. of sup. from resp. secret. for PA/Iznos podr. nadl. sekr. za ZP	Amoun. of sup. from secr. for fores./Iznos podr. sekr. za šum.
Z	-2,004	-1,564	,000	-2,121	-3,176	-2,121	-1,950	-3,047	,000
r	0,25	0,20	0,00	0,27	0,40	0,27	0,25	0,38	0,00
Asymp. Sig. (2-tailed)	,045	,118	1,000	,034	,001	,034	,051	,002	1,000
PES- PrS									
Mann-Whitney U	51,000	80,500	94,500	81,000	85,500	121,500	67,500	40,500	121,500
Wilcoxon W	429,000	458,500	472,500	459,000	463,500	166,500	112,500	418,500	166,500
Z	-2,529	-2,307	-2,484	-3,086	-,885	,000	-2,351	-4,357	,000
r	0,32	0,29	0,31	0,39	0,11	0,00	0,30	0,55	0,00
Asymp. Sig. (2-tailed)	,011	,021	,013	,002	,376	1,000	,019	,000	1,000
PEV- OPE									
Mann-Whitney U	15,000	3,000	27,500	20,000	4,000	6,000	24,000	24,500	8,500
Wilcoxon W	93,000	18,000	42,500	98,000	82,000	84,000	102,000	39,500	86,500
Z	-1,639	-2,883	-,645	-1,308	-2,759	-3,399	-1,549	-,580	-2,812
r	0,21	0,36	0,08	0,16	0,35	0,43	0,20	0,07	0,35
Asymp. Sig. (2-tailed)	,101	,004	,519	,191	,006	,001	,121	,562	,005
PEV - OPS									
Mann-Whitney U	14,000	12,000	15,000	10,000	10,000	6,500	12,000	1,000	3,000
Wilcoxon W	29,000	27,000	36,000	31,000	31,000	27,500	33,000	22,000	24,000
Z	-,183	-,699	,000	-1,057	-,913	-1,692	-1,095	-2,616	-2,538
r	0,02	0,09	0,00	0,13	0,12	0,21	0,14	0,33	0,32
Asymp. Sig. (2-tailed)	,855	,484	1,000	,290	,361	,091	,273	,009	,011
PEV- PrS									
Mann-Whitney U	16,000	15,000	17,500	19,000	4,000	4,500	18,000	17,500	4,500
Wilcoxon W	31,000	30,000	32,500	64,000	40,000	49,500	63,000	53,500	49,500
Z	-,586	-1,167	-1,094	-,517	-2,345	-3,006	-1,342	-,369	-3,006
r	0,07	0,15	0,14	0,07	0,30	0,38	0,17	0,05	0,38
Asymp. Sig. (2-tailed)	,558	,243	,274	,605	,019	,003	,180	,712	,003
OPE - OPS									
Mann-Whitney U	23,000	14,000	33,000	35,000	10,000	30,000	36,000	9,000	33,000
Wilcoxon W	101,000	35,000	54,000	56,000	88,000	108,000	57,000	30,000	54,000
Z	-1,302	-2,084	-,707	-,144	-2,452	-1,414	,000	-2,576	-,707
r	0,16	0,26	0,09	0,02	0,31	0,18	0,00	0,32	0,09
Asymp. Sig. (2-tailed)	,193	,037	,480	,885	,014	,157	1,000	,010	,480
OPE - PrS									
Mann-Whitney U	24,000	19,000	45,500	46,000	42,000	54,000	54,000	38,000	49,500
Wilcoxon W	102,000	64,000	123,500	124,000	120,000	99,000	99,000	74,000	94,500
Z	-1,942	-2,519	-,992	-,761	-,467	,000	,000	-,778	-,866
r	0,24	0,32	0,12	0,10	0,06	0,00	0,00	0,10	0,11
Asymp. Sig. (2-tailed)	,052	,012	,321	,447	,641	1,000	1,000	,437	,386
PrS - OPS									
Mann-Whitney U	22,000	26,000	21,000	22,000	8,000	22,500	27,000	12,000	27,000
Wilcoxon W	58,000	47,000	42,000	43,000	44,000	67,500	72,000	33,000	72,000
Z	-,261	-,133	-1,195	-,756	-2,068	-1,225	,000	-1,654	,000
r	0,03	0,02	0,15	0,10	0,26	0,15	0,00	0,21	0,00
Asymp. Sig. (2-tailed)	,794	,894	,232	,450	,039	,221	1,000	,098	1,000

Source: original

institutes and international institutions involved in the PA management.

For the purpose of data processing, descriptive statistics, frequency analysis, the Kruskal-Wallis test and the Mann-Whitney U test were used. The Kruskal-Wallis test was used to determine the differences between all MAs, while the Mann-Whitney U test determined the differences between specific MAs (Pallant 2011, Đorđević 2018).

**RESULTS**  
**REZULTATI**

In the first phase of research, the mechanisms of the PA management system financing were observed through the average number of financing sources and the average amount of financing (EUR·ha<sup>-1</sup>). Observing the average number of financing sources of PAs within MAs, statistically significant differences were found using the Kruskal-Wallis test ( $\chi^2=30.53$ ,  $df=5$ ,  $p=0.00$ ). In order to determine between which MAs this difference occurs, the Mann-Whitney U test was used (Annex 2).

**Table 1:** Average number of financing sources within MAs

**Tablica 1:** Prosječan broj izvora financiranja u okviru grupe upravitelja

Management actors / Grupe upravitelja	Average number / Prosječni broj
PENP	5
PES	2
PEV	6
OPE	3
OPS	3
PrS	3

Table 1 shows the differences between the MAs. The average number of financing sources for PENP (5) significantly differs from PES (2). The difference was also determined between PES (2) and PEV (6), OPE (3), OPS (3) and PrS (3). Additionally, statistical differences were observed

between PEV (6) and OPE, OPS, PrS, which had the same average number of financing sources (3).

As shown in Table 2, the highest average amounts of financing are from the own revenues of PA managers and the lowest from the NGO sector, environmental protection fund and forest directorate. Regarding the own revenues, OPS have the highest (1.714 EUR·ha<sup>-1</sup>) and OPE the lowest (76 EUR·ha<sup>-1</sup>) level of financing. Observing the average amount of financing per ha, significant differences were found using the Kruskal-Wallis test between MAs in terms of financing amounts (Annex 3). Statistically significant differences were found for the amounts of financing for the local community, NGOs, international institutions, environmental protection fund, forest directorate, responsible PA and forest secretariat. The obtained results shows the differences, according to the Mann-Whitney U test (Annex 4) conducted, between different MAs in the amount of financial support obtained from:

- the ministry responsible for PAs and NGOs - there are no significant differences in the amounts of financing;
- the local community – OPEs (426 EUR·ha<sup>-1</sup>) record significantly higher support than other MAs;
- international institutions – PES (0) does not record any support, unlike other MAs;
- the environmental protection fund – PENP (6 EUR·ha<sup>-1</sup>) and PEV (3 EUR·ha<sup>-1</sup>) record significantly higher support than PES which does not record any support;
- the ministry responsible for forestry – PENP (17 EUR·ha<sup>-1</sup>) record significantly higher support than other MAs;
- the secretariat responsible for PAs – PES (0 EUR·ha<sup>-1</sup>) and OPS (5 EUR·ha<sup>-1</sup>) record the lowest support compared to other MAs;
- the secretariat responsible for forestry – PEV (6 EUR·ha<sup>-1</sup>) records financial support, unlike other MAs.

Based on the results of the first phase of the research, the elements of the PA management system improvement are proposed with regard to the mechanisms of financing. Ta-

**Table 2:** Average amounts of financing PA within MAs (EUR · ha<sup>-1</sup>)

**Tablica 2:** Prosječni iznosi financiranja u okviru grupe upravitelja (EUR · ha<sup>-1</sup>)

	Respon. ministry for PA/ Nadlež. minist. za ZP	Local comm./ Lok. zajed.	NGOs/ Ne vladine udruge	Inter. inst./ Medj. instit.	Own revenues/ Vlasiti prihodi	Envir. protection fund/ Fond za zašt. okoliša	Forest directorate / Uprava šumarstva	Respon. secretariat for PA / Nadležna uprava. za ZP	Respon. secretariat for forestry / Nadležna uprava. za šumarstvo
PENP	14	0	1	1	388	6	17	12	30
PES	31	81	0	0	208	0	1	0	0
PEV	7	0	0	1	199	3	0	9	6
OPE	18	426	0	15	76	0	0	58	0
OPS	28	18	0	1	1714	3	0	5	0
PrS	122	32	3	62	165	0	0	100	0

**Table 3:** Proposals of solutions and activities for improving the mechanisms of PA financing**Tablica 3:** Prijedlozi rješenja i aktivnosti za unaprjeđenje mehanizama financiranja ZP

Elements of improvement / Elementi unaprjeđenja	Proposals of solutions / Prijedlozi rješenja	Proposals of necessary activities / Prijedlozi potrebnih aktivnosti
Improvement of the legislative framework / Unaprjeđenje zakonodavnog okvira	Improvement of the current mechanisms of financing the management system of current PAs and establishment of new PAs / Unaprjeđenje postojećih mehanizama financiranja sustava upravljanja postojećim ZP i uspostava novih ZP	Establishment of the mechanisms (special fund for nature protection) for financing the management system of the current PAs and establishment of new PAs / Uspostava mehanizama (posebnog fonda za zaštitu prirode) za financiranje sustava upravljanja postojećim ZP i uspostava novih ZP
	Improvement of the use of domestic and international sources of financing / Unaprjeđenje korištenja domaćih i međunarodnih izvora financiranja	Determination of the model for sustainable financing of PAs (defining the involvement of responsible institutions, funds, local municipalities and PA managers) / Određivanje modela za održivo financiranje ZP (definiranje uključivanja odgovornih institucija, fondova, lokalnih općina i upravitelja ZP)
Improvement of the mechanisms of the PA management financing / Unaprjeđenje mehanizama financiranja upravljanja ZP	Improvement of the fee collection / Unaprjeđenje naplate naknada	Determination of the funds that are needed to finance the current system of PA management and establishment of new PAs / Utvrdjivanje sredstava koja su potrebna za financiranje postojećeg sustava upravljanja ZP i uspostava novih ZP
		Defining a list of possible mechanisms of financing at national and international levels / Definiranje popisa mogućih mehanizama financiranja na nacionalnoj i međunarodnoj razini
		Training and capacity building for the project preparation at national level / Obuka i izgradnja kapaciteta za pripremu projekta na nacionalnoj razini
		Training and capacity building for the project preparation at international level / Obuka i izgradnja kapaciteta za pripremu projekta na međunarodnoj razini
		External/additional engagement of agencies in the preparation of projects at international level / Vanjski / dodatni angažman agencija za pripremu projekata na međunarodnoj razini
		Encouraging the collection of fees for the use of PAs / Poticanje naplate naknada za korištenje ZP

ble 3 shows the proposals of the solutions and activities for the improvement of the mechanisms of PA financing, while the text below presents the attitudes of the representatives of PA managers and the representatives of the public administration and service, as well as the PA management system organizations.

The representatives of the Nature Conservation Movement (NCM) think that the problem in establishing a specific financing mechanism is related to the misunderstanding of the state and decision-making policies, while the representatives of the Institute of Forestry (IF) and the Institute for Nature Conservation of Voivodina Province (PINC) believe that there is a political influence on the formation of such a fund and recall the example of the green tax, which was abolished shortly after the establishment (Ministry of Agriculture and Environmental Protection-MEP). The representatives of the Institute for Nature Conservation (INC) also think that the problem is related to the absence of a strategic proposal how to solve this issue. Furthermore, the representatives of the Serbian Orthodox Church (SOC) believe that large PA managers would receive more funds, while smaller PAs would be left without sufficient financial resources.

Regarding the establishment of a model of sustainable financing, representatives of all PA managers believe that the problem is that local governments are already poor enough and that they do not have additional fundings to finance PAs, while the representative of the Institute of Lowland Forestry and Environment (ILF) thinks that financing is

already defined by the existing management programs. According to SOC, PEV and IUCN, this is not feasible, given the insufficient interest of local governments and other institutions. Additionally, there is a problem of internal and cross-sectoral disagreements (PINC).

Regarding the problems in the determination of the funds needed to finance the current system of PA management and establish new PAs, PA managers find the identification of potential funds a very ungrateful task since PAs are very complex systems (PES1), the representatives of the PINC and the MEP think that there is no political readiness, while the representative of the Faculty of Forestry (FF) stresses the absence of a clear methodology, validity and availability of data.

The proposal to improve the financing mechanisms of PAs by defining a list of possible mechanisms of financing at national and international levels was made by the PE "Pa-lić-Ludaš" (PEPL) representative, who stressed the problem of the risks of an incomplete list. On the other hand, the representative of the IF thinks that it is necessary to conduct research on this issue and that nature protection must be recognized by the existing Green Fund (PEV). Furthermore, the representative of the World Wild Fund (WWF) states that the problem lies in the applicability of certain mechanisms in relation to the type of manager, while the representative of the IF states that the list itself does not guarantee a good-quality implementation.



Regarding the training for the preparation of domestic and international projects, the representatives of PA managers (PENP, Company with limited responsibility – CLR, PES2, PEPL and MA7) see the lack of personnel capacities as a problem for both proposals, while the representative of PEPL emphasizes the problem of insufficient knowledge of information systems. There is a similar situation with the representatives of the IF who think that training does not guarantee the quality of the implementation, while the representative of the WWF points out that there is a problem of people's availability to be trained in continuity and the representative of the FUTURA who points to the problem of insufficient networking with other PAs in the region.

The representatives of CLR, SOC and PES2 state that there is a lack of agencies for the preparation of projects at international level, while the representative of PENP and PEPL stress the insufficient funds for such activities. A representative of the INC believes that managers show a lack of interest to hire these agencies, while the representative of the PINC state that international projects are most often reduced to training, equipment and salaries, without real activities in nature protection.

Regarding the last proposal for improvement which refers to the encouragement of fee collection, the representatives of PA managers (PENP, CLR, PES2 and PEPL) see the resistance of the area users to pay the fees and the payment through court cases as the main problems (PENP, CLR and PEPL). The representatives of the IF, PINC, PEV and ILF also recognize these problems and state that there is a risk of losing the credibility due to the unintended use of the funds. There is also a danger of reducing the number of visitors (WWF).

## DISCUSSION RASPRAVA

The mechanisms of the PA management system financing are a very important component of the PA management system because “...without regular investments in the PA, it is impossible to achieve active management of PA and processes, nor achieve the planned goal of preserving the natural heritage” (Puzović 2008). Through the provision of stable and diversified sources of financing, it is possible to provide long-term sustainable financing of PAs, which is a prerequisite for sustainable management of PAs. In Croatia, PA financing is implemented through allocations at republic, regional local levels, but tourism revenues account for 6-80% of the total revenues (Spurgeon et al. 2009). In Slovenia, in half of the cases, PA managers have a problem with the uncertainty about future funding by the state, while annual allocations are sufficient in most PAs (Veenviet and Sovinc 2008). The situation is the same in Croatia (Porej and Rajkovic, 2009). The World Bank funding survey for

the developed and developing countries carried out in 1999 points to large differences in the mean values since it amounts to 20.6 US\$•ha<sup>-1</sup> in developed countries and 1.6US\$•ha<sup>-1</sup> in developing countries (James et al. 1999). Furthermore, the research carried out in developed countries shows that tourism revenues increase every year (Nevenić 2006). In Croatia, nature protection is mostly financed from the state budget and it accounts for 0.06% of the total state budget fund of the Republic of Croatia. The financing from local municipalities is much smaller (DZZP 2017).

With regard to the financing of PAs in Serbia, the average number of financing sources was found to be significantly higher with PEV than other MAs. The financing of PAs in Croatia is carried out through the Ministry of Environment and Energy, regional and local self-governments and EU funds (Martinić 2010). A previously conducted research in Serbia indicates that the revenues in national parks are mostly generated by the sale of goods and services, while the income from fees makes up only 12.4% of the total revenue (Đorđević et al. 2013/b). The research on the income generated by MAs of PAs has not been done, but some studies indicate that the tourism income in PAs is of increasing importance (Dahmaratne 2000, Eagles et al. 2002, Nevenić 2006, Eagles and Hillel 2008). In addition, one of the sources of PA financing can be the funds intended for the Natura 2000 network. Thus, there are several funds or programs used to finance this network in EU countries (Kettunen et al. 2014). In the future, these sources of funding can be used as a basis for the establishment of the Natura 2000 network, as well as additional financing sources for various activities in PAs, from research to education. However, they require partnership cooperation between different PAs. Looking at the case of Serbia, it is obvious that international grants are scarce. In the case of Croatia, financing from international sources, including grants and loans, are an increasingly important source of financing nature protection, while in the sector of nature protection, analyses show that significant number of institutions from nature protection did not use international funds at all (2017). Besides, the fund for environmental protection and energy efficiency has significant resources, but only 1.5% of this fund is spent on nature protection (2017). In Serbia, this kind of analysis has not been done yet. Therefore, it makes an important issue for further studies.

The representatives of PA managers, public administration and service, and organizations believe that the political will of decision-makers and the lack of understanding of the state for the needs of PA financing have the major impact on the improvement of the existing financing mechanisms. Besides, the representatives of all three groups believe that local governments are not sufficiently involved in the financing of PAs and there is insufficient interest of other insti-

tutions. The representatives of PA managers believe that it is necessary to get involved in the process of legislative drafting, while the representatives of the public administration and service, as well as the organizations, emphasize the need for the harmonization of legislative documents.

Regarding the use of domestic and international funding sources, the problems stressed by the representatives of PA managers are the need for additional research and insufficient training of managers for submitting project ideas related to their insufficient information literacy. The representatives of organizations consider that there is a lack of networking with other PAs and insufficient willingness of people to be trained in continuity, while the representatives of the public administration and service, state that managers are not ready to hire agencies to prepare projects. Regarding the improvement of the fee collection, the basic problem lies in the difficulty of fee collecting due to the resistance of the area users to pay the compensation, which results in long-lasting judicial proceedings.

## CONCLUSION ZAKLJUČCI

Regarding the mechanisms of PA management system financing within the observed MAs, it was found that the average number of financing sources is the lowest for PES, unlike PEV. The largest differences in financing amounts are present in the financing of OPEs, which record a significantly higher support from the local community, unlike other MAs, while OPS records significantly higher amounts of financing from its own revenues than other MAs.

In order to improve the mechanisms for PA management system financing, it is proposed to improve the use of domestic and international sources of funding, as well as the collection of fees. Improving the mechanisms of management system financing implies the improvement of the use of the existing mechanisms at republic, provincial and local levels through defining all the possible sources of funding and training of PA managers for the use of these funds. The collection of fees should be improved by encouraging the management of PAs to use all the benefits defined by the Law on Nature Protection more efficiently.

Future research on this topic should address the amount and frequency of PA funding by the relevant institutions at republic, provincial and local levels for all PAs, as well as the identification and analysis of the possibilities for PA financing at national and international level, i.e., identification of all available financing mechanisms, their constraints, and project application procedures. It is also necessary to identify and analyse the conflicts that arise from non-compliance with the decision on fee collection that can be achieved by PA managers.

## REFERENCES LITERATURA

- Avramo, S., A. Bagočienė, Z. Fábíán, E. Greimas, K. Kiskova, M. Kotulak, D. Norkuniene, P. Pawlaczyk, G. Poznikova, Lj. Vavrova, N. Zableckis, A. Zolyomi, 2012: Financing Nature in Central and Eastern Europe Experiences on financing Natura 2000 and conservation activities from the CEE region - Cases from Bulgaria, Hungary, Lithuania, Poland, Slovakia, CEEweb for Biodiversity, 25., Budapest
- Borrini-Feyerabend, G., N. Dudley, T. Jaeger, B. Lassen, N. Pathak Broome, A. Phillips, T. Sandwith, 2013: Governance of Protected Areas: From understanding to action, Best Practice Protected Area Guidelines Series No. 20, IUCN, 125., Gland
- Bovarnick, A., F.J. Baca, J. Galindo, H. Negret, 2010: Financial Sustainability of Protected Areas in Latin America and the Caribbean: Investment Policy Guidance, United Nations Development Programme and The Nature Conservancy, 160., New York
- Chape, S., M. Spalding, S. Jenkins, 2008: The World's Protected Areas: Status, Values and Prospects in the 21st Century, UNEP-WCMC, 388., Cambridge
- de Vaus, D., 2002: Surveys in social research, 5th edition, Taylor & Francis Group, Routledge, 379., London
- Dharmaratne, S.G., Y.F. Sang, J.L. Walling, 2000: Tourism potentials for financing protected areas, *Annals of Tourism Research*, Vol. 27 (3), 590-610., Amsterdam
- Đorđević, I., Z. Poduška, R. Nevenić, R. Gagić-Serdar, S. Bilibajkić, G. Češljarić, T. Stefanović, 2013/a: Assessment of the system of funding of protected areas in the Republic of Serbia, *Sustainable Forestry*, Vol. 67-68, 161-175., Belgrade
- Đorđević, I., N. Ranković, Lj. Keča, 2013/b: Structure of financing revenues (2008-2012) of national parks in Republic of Serbia, *Agriculture & Forestry*, Vol 59 (4), 173-183., Podgorica
- Đorđević, I., D. Nonić, J. Nedeljković, 2014: Management of protected areas in Serbia: Types and structure of managers, *Agriculture & Forestry*, Vol. 60 (2), 7-26., Podgorica
- Đorđević, I., N. Ranković, D. Nonić, J. Nedeljković, M. Zlatić, J. Tomićević, 2017: Analiza kretanja veličine površine zaštićenih područja u Srbiji u periodu od 1948. do 2016. godine, *Glasnik Šumarskog fakulteta*, Br. 115, 65-88., Beograd
- Đorđević, I., 2018: Organizacija sistema upravljanja i tipovi upravljača zaštićenih područja u Srbiji, *Disertacija*, Šumarski fakultet Beograd
- Državni zavod za zaštitu prirode (DZZP), 2017: Izvešće o stanju prirode u Republici Hrvatskoj za razdoblje od 2008. do 2012. godine, *Vlada Republike Hrvatske*, 68., Zagreb
- Eagles, P.F.J., S.F. McCool, C.D.A. Haynes, 2002: Sustainable tourism in protected areas: guidelines for planning and management, IUCN, 191., Gland
- Eagles, P.F.J., 2008: Governance models for parks, recreation and tourism, In Hanna K. S., D.A. Clark., D.S. Slocombe, (Eds.), *Transforming parks: Protected area policy and management in a changing world*, Routledge, 39-61., London
- Emerton, L., J. Bishop, L. Thomas, 2006: Sustainable Financing of Protected Areas: A global review of challenges and options, IUCN, 97., Gland
- Grujičić, I., D. Jović, D. Nonić, 2008: Upravljanje šumskim zaštićenim dobrima u Srbiji, *Zaštita prirode*, Br. 60 (1-2), 49-60., Beograd

- James, N.A., 1999: A Global Review of Protected Area Budgets and Staff, WCMC Biodiversity Series No.10, World Conservation Monitoring Center, 55., Cambridge
- Kettunen, M., P. Torkler, M. Rayment, 2014: Financing Natura 2000 Guidance Handbook, Part I – EU funding opportunities in 2014-2020, European Commission DG Environment, Publications Office of the European Union, 88., Luxembourg
- Martinić, I., 2010: Upravljanje zaštićenim područjima prirode, Planiranje, razvoj i održivost, Sveučilište u Zagrebu - Šumarski fakultet, 367., Zagreb
- Neuman, W.L., 2014: Qualitative and Quantitative Approaches, 7th edition, Pearson Inc., 599., Harlow
- Nevenić, R., 2006: Integrated management of natural resources in the domain of forest policy, Sustainable forestry, Vol 54-55, 111-125, Belgrade
- Nonić, D., N. Petrović, M. Medarević, P. Glavonjić, J. Nedeljković, M. Stevanov, S. Orlović, Lj. Rakonjac, I. Djordjević, Z. Poduška, R. Nevenić, 2015: Forest Land Ownership Change in Serbia. COST Action FP1201 - FACESMAP Country Report, European Forest Institute Central-East and South-East European Regional Office, 64., Vienna
- Pallant, J., 2011: SPSS Priručnik za preživljavanje: Postupni vodič kroz analizu podataka pomoću SPSS-a, prevod 3. izdanja, Mikro knjiga, 348, Beograd
- Philips, A., 1998: Economic Values of Protected Areas, Guidelines for Protected Area Managers, Task Force on Economic Benefits of Protected Areas of the World Commission on Protected Areas (WCPA) of IUCN, in collaboration with the Economics Service Unit of IUCN, 52., Gland
- Porej, D., Ž. Rajković, 2009: Effectiveness of Protected Area Management in Croatia: Results of the First Evaluation of Protected Area Management in Croatia Using the RAPPAM Methodology, Ministry of Culture of the Republic of Croatia, 57., Zagreb
- Posavec, S., K. Beljan, M. Lovrić, 2011: Model of compensation payment to the owners on NATURA 2000 forest sites, Annales Experimentatis Silvarum Culturae Provehendis, Vol. 44, 19–28., Zagreb
- Puzović, S., 2008: Zaštita i upravljanje prirodnim dobrima u Srbiji, Zaštita prirode, Br. 60, 17-26., Beograd
- Spurgeon, J., N. Marchesi, Z. Mesic, L. Thomas, 2009: Sustainable financing review for Croatia protected areas, Program on Forests-World Bank, 151., London
- Šešić, B., 1984: Osnovi metodologije društvenih nauka, Naučna knjiga, 239., Beograd
- Šumarac, P., 2009: Improving of Financing Aspects of Management in the National Park Kopaonik, Master paper, Forest Faculty, Belgrade
- Veenviet, K.J., A. Sovinc, 2008: Protected area management effectiveness in Slovenia, Final report of the RAPPAM analysis, Ministry of the Environment and Spatial Planning of the Republic of Slovenia and WWF Mediterranean Programme, 56., Ljubljana
- Zavod za zaštitu prirode (ZZP), 2012: Registar zaštićenih područja, Zavod za zaštitu prirode Srbije, interni dokument, Beograd
- Worboys, G.L., W. Francis, M. Lockwood, 2010: Connectivity Conservation Management: A global guide, Earthscan, 416., Londo

## SAŽETAK

Financiranje upravljanja zaštićenim područjima (ZP) uključuje interakciju različitih dionika koji su uključeni u proces upravljanja i financiranja, tj. od okvira upravljanja do mehanizama financiranja. Upravljački okvir postavlja osnovne preduvjete za upravljanje ZP, dok mehanizmi financiranja predstavljaju načine financiranja ZP na temelju dugoročnih i održivih uvjeta. Upravljanje ZP može se delegirati organizaciji, pojedincu ili zajednici, koja funkcionira u skladu s nizom zakona, pravila i / ili tradicijom. Isto tako, upravitelji ZP mogu se podijeliti na temelju toga tko donosi odluke i može se smatrati odgovornim. Jedna od važnih komponenti upravljanja ZP predstavlja održivo financiranje, što predstavlja temelj za ostvarivanje zaštite prirode. Održivo financiranje definira se kao sposobnost pružanja dovoljnih, stabilnih i dugoročnih financijskih izvora. Upravljanje ZP u Srbiji uglavnom provode javna poduzeća, dok je krajem devedesetih godina u Srbiji upravljanje ZP po prvi put dodijeljeno nevladinim organizacijama. Danas upravljanje provode različiti upravitelji iz javnog sektora i privatnog sektora. Planirano povećanje ZP u Srbiji uključuje skoro dvostruko veću površinu od sadašnje pokrivenosti i ta će činjenica stvoriti dodatnu obavezu za postojeće i nove upravitelje u budućem razdoblju, jer je održivo upravljanje ZP postalo izazov, kako sa upravljačkog, tako i sa financijskog gledišta. Ovo istraživanje bavi se različitim mehanizmima financiranja koji su prisutni u ZP u Srbiji. Također, bavi se razlikama u financiranju između različitih grupa upravitelja, kako bi se uspostavile najbolje prakse financiranja u sustavu upravljanja ZP u Srbiji. U fazi prikupljanja podataka korištena je anketa od vrata do vrata. Istraživanje se provodilo u dvije faze. U prvoj fazi, populacija za istraživanje definirana je na temelju registra ZP, od čega su izdvojena 63 ZP. U drugoj fazi, uzorak za istraživanje definiran je na temelju primjera „dobre prakse“ upravitelja ZP i predstavnika javne uprave i službi, kao i organizacija u sustavu upravljanja ZP. Za obradu podataka korištena je deskriptivna statistika, frekvencijska analiza, Kruskal-Wallis-ov test i Mann-Whitney-jev U test. Kruskal-Wallis-ov test korišten je za određivanje razlika između svih grupa upravitelja, dok je Mann-Whitney-jev U test korišten za određivanje razlika između pojedinih grupa upravitelja. Rezultati pokazuju da javno poduzeće “Srbijašume” ima najmanji prosječan broj izvora financiranja, za razliku od javnog poduzeća

“Vojvodinašume” (tablica 1). Što se tiče prosječnih iznosa financiranja, najveći dio financiranja imaju ostali upravitelji iz javnog sektora, dok ostala javna poduzeća bilježe najmanji iznos vlastitog financiranja (tablica 2). Na temelju rezultata prve faze istraživanja predloženi su elementi unaprjeđenja sustava upravljanja ZP za mehanizme financiranja (tablica 3). Predstavnici upravitelja ZP, javne uprave i službi, kao i organizacija, smatraju da politička volja donositelja odluka, kao i nepostojanje razumijevanja države za potrebe financiranja ZP, ima velik utjecaj na unaprjeđenje postojećih mehanizama financiranja. Također, predstavnici sve tri skupine vjeruju da lokalne vlasti nisu ni uključene u financiranje ZP-a i da postoji nedovoljna zainteresiranost drugih institucija. Kao problem u unaprjeđenju korištenja domaćih i međunarodnih izvora financiranja, predstavnici upravitelja ZP vide potrebu za dodatnim istraživanjima i problemom nedovoljne izobrazbe upravitelja, za podnošenje projektnih ideja, koje su vezane uz nedovoljnu informatičku pismenost.

**KLJUČNE RIJEČI:** zaštićena područja; mehanizmi financiranja; grupe upravitelja

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## PRIJE STO GODINA: ŠUMARSKI LIST 11–12/1919.

Kaže autor da će trebati puno vremena da ovo novo gospodarenje nađe odziva i oživotvorenja u struci. Sigurno ni u snu nije mislio da će isti prigovori na iste argumente stručnjaka i znanstvenika čuti i sto godina kasnije.

Ključna teza je da *ovo novo gospodarenje šumom znači pregaranje mnogoga što je jednostavno i lagodno,...* što nas ne čudi. Izgleda da šumari stoljećima ustraju i uporno preferiraju lagodnost pred svim drugim argumentima.

Čudi naprotiv zadnja rečenica. U današnjim šumarskim krugovima uobičajena je teza da nam eto sad i ti neki zeleni i ti neki certifikati nameću nekakve priče o nekavoj turbo modernoj izmišljenoj ekologiji. Eto vam Leusteka 1919. prije točno STO GODINA: *Novo gospodarenje šumama donaha ... sigurnost šume proti svim mogućim prijetećim opasnostima, a milijonima ljudi, koji posjećuju šumu, daje ona priliku, da se u njoj odmore i nauže ljepota, koje im pruža estetska raznolikost vrsta drveća i povratak pernatih stanovnika, koji bijahu jednoličnom šumom protjerani iz svog naravnog doma.*

Dugo će vremena biti potrebno, dok ovi prijedlozi za novo šumsko gospodarenje, kojemu ne manjka primjera ni u literaturi a ni u prirodi, nađu odziva i oživotvorenja. Ovo novo gospodarenje šumom znači pregaranje mnogoga što je jednostavno i lagodno, kano što je čista sječa i prorde potištenog dijela sastojine, te konačno šumske vrtove i njihovu njegu; ona znači kraj prednostima pojedinih omiljenih vrsta drveća i kulturnih metoda, te osuđivanje drugih vrsta; donaha nam pako veću dobit drvne mase razne kvalitete u kraćem vremenu, smanjenje troškova kod osnutka i uzgoja šuma, održavanje dobrote tla, zaštita pomladka, pravovremeno uživanje stare sastojine, povratak dosada zabačenih i zanemarenih vrsta drveća, sigurnost šume proti svim mogućim prijetećim opasnostima, a milijonima ljudi, koji posjećuju šumu, daje ona priliku, da se u njoj odmore i nauže ljepota, koje im pruža estetska raznolikost vrsta drveća i povratak pernatih stanovnika, koji bijahu jednoličnom šumom protjerani iz svog naravnog doma.