

*Ilija ĐORĐEVIĆ,  
Nenad RANKOVIĆ, Ljiljana KEČA<sup>1</sup>*

## **STRUCTURE OF FINANCING REVENUES (2008-2012) OF NATIONAL PARKS IN REPUBLIC OF SERBIA**

### **SUMMARY**

Protected areas represent one of the most important natural resources of one country. Their management is of key importance and depends on national legislation that regulates establishment, financing and use of these good. Protected areas covers ~5.89 % of territory of Serbia while national parks involve ~30.57% of this land. Importance of national parks, related to ecological, social and economic feature, is very high since they include important natural ecosystems, landscapes and cultural features and their usage is oriented toward sustainable management. This research analyses different revenue structures in managing NPs as well as approaches in the financing in the region and abroad. The objective of the article is the structure of revenues in the financing five national parks in Serbia. Territorial framework of the research is the Republic of Serbia with the autonomous provinces. In order to determine the structure of revenues in the financing, statistical techniques based on analysis of time series is used. Non-reactive method is used for collection of data's. Results are showing that most of revenues are coming from incomes of sales and services, while least from other business revenues. Share of budget grants has increased and in 2012 is showing the highest involvement comparing to other years. The best average exponential trend has national park "Fruška gora" while national park "Đerdap" has negative exponential trend. Based on this, in all national parks, on revenue structure mostly influence revenues from sales of goods and fees.

**Keywords:** Serbia, protected area, financing, income, revenues, sources

### **INTRODUCTION**

Financial incomes in the management of national parks represent one of the important components in the system of managing protected areas (PA). This system involves various actors, rules and responsibilities that are interrelated and in constant interaction. The laws on the one hand define basic regulations, competent institutions implement some kind of monitoring while managers of PA implement all this within the area that they manage. Thus PA, as some kind of natural resource, represent separate component of mankind wealth, which is

---

<sup>1</sup> Ilija Đorđević, (corresponding author: djordjevic\_ika@yahoo.com), Institute of forestry-Belgrade, Srbija (Serbia); Nenad Ranković, Faculty of forestry, Belgrade, Srbija (Serbia); Ljiljana Keča, Faculty of forestry, Belgrade, Srbija (Serbia).

realized by economic, social cultural and political system of each country (Nevenić et al., 2009). Protection of certain areas, and by that nature protection, has a long history in Serbia, Europe and USA. On the territory of Republic of Serbia one of the oldest PA is "Obedska bara", protected 1874th year and today has one of the strictest regimes. One of the first law on nature protection in Serbia dates back to 1960th when first national park "Fruška gora" (NPFG) was declared, while law in 1977 defined exact boundaries of this NP (Đorđević, 2009). Many forest in the middle age had some protection but this was related on the use of aristocrats, for their own purpose. This purpose was usually connected with hunting activities (Martinić, 2007). In the world one of the oldest recorder forms of nature protection is NP "Yellowstone" which dates from 1872. Protection of nature in region also has a long history, protected area "Biogradska Gora" in Montenegro dates from 1878 and it belongs to the group of the oldest reserves in the world (Čurović et al., 2011).

In the system of managing PA in Serbia there are seven categories of PA and several categories of managing bodies (Đorđević, 2011). Today total area of PA in Serbia is around 5.89% of its territory, while national parks (NP) cover around 30.6% of this land. Therefore, revenues that are obtained through sustainable management of this resource are of huge importance and represent vital component of financing this type of PA. In the system of financing NP there are three types of financing sources (Đorđević, 2013). Direct funding through budget grants, as a first type, can be from the budget of Republic Serbia, autonomous provinces and local municipalities. Revenues obtained by the management body can be fees for using PA and funds obtained by their primary activity. The last category includes donations and grants, of international and domestic type. Protected area category, national park, is defined by the law on nature protection (2009) which also defines institutions that are involved and types of financing. Management of PA is given to special public enterprises (PE) which are registered for this purpose (Table 1).

In order to analyze revenue structure in financing NP, as PE, it is necessary to define this type of business. One of the earliest definition in literature of enterprise is „...any human activity that uses variety of forces to achieve particular goal“ (Seneuil, 1885). The enterprise is principal organizational form in the reproduction process whose function is related to satisfaction of social needs for different products or services (Ranković, 2008). Establishment of PE is on the state, autonomous and municipal level, they are formed to manage important state economic systems, which are of public interest. Though these form of management, state is protecting interest, in functioning vital industry (Paunović, 2013).

State capital in PE represents financial goods invested by the state and right of use over property which is ownership of the state. Capital is divided into shares fixed par value and is entered in register (2012). PE for conducting activities in NP is defined by the law on national parks (1993) and in this case PE are present on state and autonomous level. Structure of revenue, that is subject of

research, further in the paper is shown through various categories of incomes involved in financing NP. They can be divided into: a) operating revenue; b) revenue from capital and c) extraordinary revenue (Živković, 2006, Ranković, 2008). As the last category of income, it will be considered total revenue that represents realized value of results of enterprise management (Kostić et al., 1996).

Table 1. National parks in the Republic of Serbia

National park	Area (ha)	Manager–Public enterprise national park (PENP)	Region of Serbia	Year of establishment	Year of establishment of current status	IUCN category
Fruška Gora	25393	PENP "Fruška gora"	AP Vojvodina	1960	1993	V
Đerdap	63608.45	PENP "Đerdap"	Central Serbia	1974	1993	IV
Tara	19175	PENP "Tara"	Central Serbia	1981	1993	II
Kopaonik	11809.91	PENP "Kopaonik"	Central Serbia	1981	1993	V
Šar Planina	39000	PENP "Šar planina"	AP Kosovo i Metohija	1986	1993	II
Total area	158986.4					

**Source:** Register of protected areas (2010) and amendments by author

The main objective of this paper is to determine the structure of revenues in the financing NP, income trends and determine cause-effect relationship between observed values. The purpose of the research is that by comparing the revenue structure in five national parks to define necessary facts that will enable finding the most appropriate option for financing these categories of PA in Serbia. The research topic is revenue structure involved in the financing NP in Serbia for period 2008-2012. Based on this one hypothesis is set:

-average growth rate of fees and budget grants are higher than growth rate of revenues from sales and goods.

## MATERIAL AND METHODS

In accordance on the needs and goal of research in this paper are applied varieties of general and specific scientific methods. As general scientific method, comparative methods and method of modeling is used (Šešić, 1984, Miljević, 2007) and as research method of trend. Methods and techniques of processing data's are ways in which data is collected and instruments that are used. In order to determine structure of revenues in the financing of the national parks statistical techniques based on the analysis of time series are used (Keča et al., 2012, Stojković, 2001). As a basic-parameters following parameters are used:

- a) absolute level of occurrence;
- b) mean absolute level of occurrence;
- c) average annual exponential growth rate (*Is*).

The method used for collection of financial data's on the territory of Republic of Serbia for NP is non-reactive (Neumann, 2006). This method involves research that doesn't involve collection of data directly from the subject of research and in this sense, it is opposite of research techniques such as interviews and surveys. The basic technique of non-reactive research method includes content analysis, use of existing statistics and their secondary analysis (Bulmer, 2003). In order to gain insight into incomes of NP, financial statements are analyzed for the period of five years, for all five NP.

## RESULTS AND DISCUSSION

Managers of PA increasingly are becoming aware of fact that successful management of PA, doesn't depend only on their understanding of biological and physical processes but also on their associated social and economic aspect (Thur, 2010). Total budget of PA in Europe per square km can be very different. In Slovakia they are around 199\$ while in Malta (134.507\$) per square km (James et al., 1999). In Serbia, in the case of all PA, there is no such data on total budget per square km but in the further analysis we can see how different revenue sources are involved in financing PA.

Among all analyzed revenues involved in financing NP mostly influence revenues from sales and goods (RSG) and fees revenue (RF). The share of RSG is 64.9% (Table 2) from total revenues, with average exponential growth rate (6.4%). Comparing to all NP, NPĐ only has negative *Is* (-52.1%) in this category of incomes. Within this NP, *Is* is increased comparing to period up to 2011 when it also had negative value (-35.1%) (Đorđević et al., 2013). The reason for reduction of this income probably lies in high proportion of protective forests, which aren't accessible for use and don't make high incomes from primary activity. From the other side in Montenegro, revenues of NP from forest assortments are negligible. This is probably because of strict protection regime of these forests. Influence on this has also structure of the forest complex that is much different from the theoretical normal (Čurović et al., 2013).

Revenues from fees recorded positive *Is*, except NP „Šar planina“ (NPŠP) and in contrast to the period up to 2011, revenues of NPĐ also show positive *Is*. If we compare two years 2011 and 2013, we can see that fee revenues are doubled, which is probably result of introduction of efficient mechanism for collection of fees and similar situation is in NP „Tara“ (NPT). All RF counts share of 12.4% and slight decrease of *Is* (13.8%-comparing to period up to 2011) (Đorđević et al., 2013). Impact on this have decreasing revenues from NP „Fruška gora“ (NPFG). Greater diversification of RF in NP can influence on their overall income. Thus, by application of different roads fee NP can increase their revenues in this category, which represent efficient fee mechanism for collection. In Serbia, these fees goes directly to NP that manage the area, while in Croatia

this fee is collected by the relevant ministries (Porej et al., 2009). In Spain, for example, the share of income (5-10%) of the highway that passes through the PA, are given to specific programs to protect species and habitats (Spurgeon, 2009). Fees from tourism activity in PA worldwide represent huge source of revenues. In studies, conducted in the 90s, it was found that nearly half of all PAs charge entering in the PA (Giongo et al., 1994) and during the last decade this trend increased (Spurgeon, 2009). Although NPs in Serbia are one of the main destinations for sightseeing of PAs there is no record of this type of income. In Slovenia, the entry into the PA, is charged and makes 26% of all revenues, in Montenegro 7.5%, Greece 35%, Croatia 63% (Mansourian et al., 2008). In order to enter some sort of tourism fee it is necessary to conduct some research concerning the impact on the tourism activity. There are numerous of papers that are dealing with the concept of willingness to pay for some fee ( Dharmaratne et al., 2000, Arin et al., 2002, Verbič et al., 2009, Togridou et al., 2006), but such research in the case of NP in Serbia hasn't been conducted.

Table 2. Annual exponential revenues growth rate of national parks in Serbia in period from 2008-2011. (%)

	Overall business revenues	Revenues from sales and goods	Revenues from budget grants	Revenues from fees	Other business revenues	Revenue from capital	Financial revenues	Overall revenues
NPĐ	10.1	-52.1	14.2	6.0	8.2	30.1	79.8	-15.3
NPFG	11.9	7.9	20.3	13.5	134.0	5.4	9.0	11.4
NPK	6.7	8.5	16.0	10.6	*	-26.5	8.7	4.0
NPT	5.1	6.3	3.8	22.2	-12.7	2.7	-15.9	4.3
NPŠP	4.6	54.7	-4.4	*	*	58.7	*	14.6
<i>Is</i>	7.0	6.4	14.1	10.0	8.9	2.2	18.4	5.1
Share	89.8	64.9	7.4	12.4	5.1	10.0	0.3	100

\* due to the lack of data in some years of observation in this category of *Is* isn't possible to calculate - Source: Financial statements 2008-2012

Revenues from budget grants have the highest *Is* and changes concerning the previous period occur in grants toward NPFG and NPŠP. Specifically NPFG records highest *Is* while NPŠP lowest value, although in previous case (up to 2011) this was different. This indicates on fact that NP don't have grants on equitable level and that on them influence projects that are conducted in specific time period. If we compare total amount of budget grants to the budget of Republic of Serbia we can see that they aren't of even character which is in correlation with changes in trend of financing (Figure 2). Average exponential growth rate counts positive trend (7.4%) with unevenly grants, given as percentage.

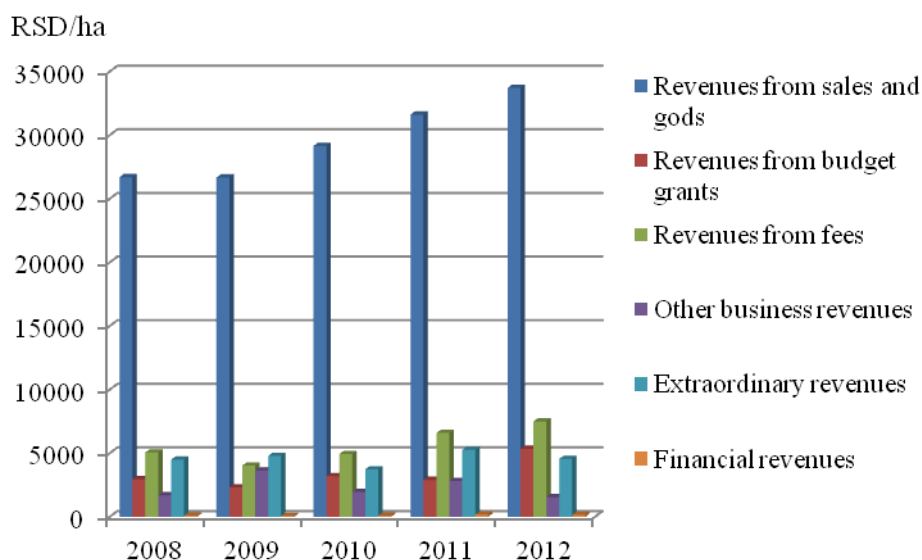


Figure 1. Share of revenues in all NP in Serbia for period 2008-2012 (Source: Financial statements 2008-2012)

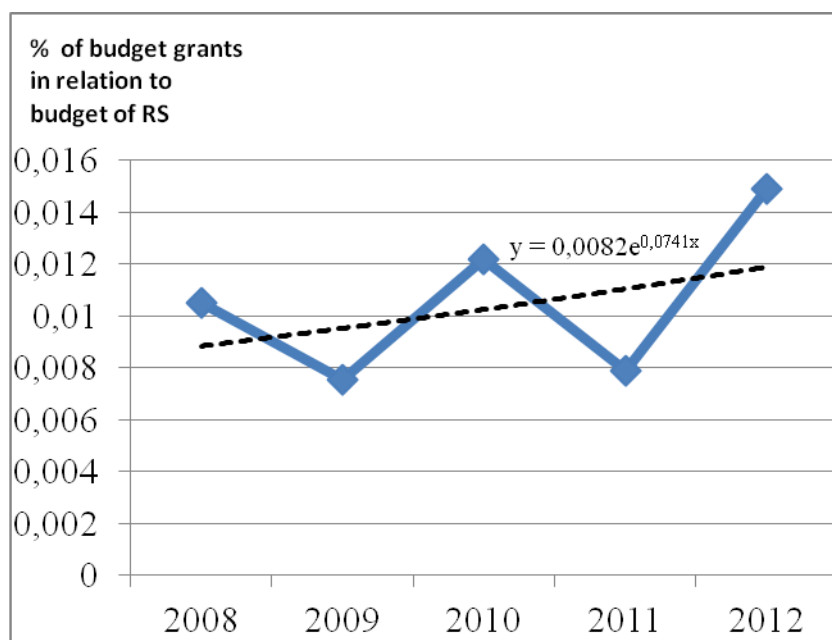


Figure 2. Share Budget grants in relation to budget of Republic of Serbia (RS) (Source: Budget of RS and financial statements of NP)

During this period, the highest allocations are present in 2012th year and lowest in year 2009th. In Croatia NP funding is provided through the responsible ministry and it amounts are 31% of all revenues (Spurgeon, 2009). Financial support, comparing to gross domestic products, is also very small, and if we compare to situation in Croatia where this amount is almost double, recent changes in funding, though closure of Fund for environmental protection, has further reduced possibility of financing PA (Đorđević et al., 2013).

Other business revenues (RB) have share of 8.9% and *Is* (5.1%). The highest growth rate recorded NPFG (134%) and on this revenue influence increased values from activating performance and goods as well as rents that are generated at the territory of NPFG. High average exponential growth rate for NPFG, is due to the effect of lowering the value of goods of about 21 million RSD in 2008<sup>th</sup>. Although in 2012<sup>th</sup> we have the same effect, this didn't influence on *Is*, which is the highest from all observed variables. Revenues from capital (RC) counts lowest *Is* and by share are behind RF. On this category primary affect income from valuation adjustment and suspension of long term reservations, which occurs as a result of unpaid claims and release of reserved funds for a particular purpose. From all observed categories, revenues from capital have the highest *Is* (18.4%) but with very low share in total revenues (0.3%).

## CONCLUSIONS

The results indicate that most incomes are earned in the sale of goods and services (64.9%) followed by RF income of 12.4% and RC (10%). Looking at structure of *Is* NPFG counts the best results and only has positive values in all categories. If we look at absolute values NPFG in all segments records the highest incomes which reflects on total *Is* of 11.4%. Negative *Is* of total revenues is only present within NPĐ (-15.3%) and this is for sure because of negative *Is* from sales of goods and services (-52.1%). NPT and NPK have similar *Is* which is the result of positive overall business revenues. NPK in *Is* segment of overall business revenues shows results just after NPFG but because of negative *Is* of RC (important because of 10% share) reduce the overall significance. Looking at the *Is* of NPŠP it can be said that it has a best position but this is not the true, because of very low income per hectare in various categories (RF and RE).

Accordingly to all aforesaid, we can say that on the revenue structure in great measure influence *Is* of RSG, RF and budget grants. Actually revenue grants have the highest exponential growth rate (14.1%) which is in correlation with positive *Is* (budget grants to the RS budget). Although this *Is* is small, it indicates willingness of local and national governments to support work in NP, despite bad economic situation. This willingness is particularly pronounced in 2012th year when we have the highest amount set aside for this purpose. In order to claim with certainty all of the above (because of relatively short period of five years), these elements of financing is necessary to observe in further period.

Therefore, in next period it will be necessary to introduce various fees which NP can obtain, especially in the field of tourism. One of the important financing components of PA, in the region and the world, is for sure tourism which represents the most import revenue source. For such activity some research should be done concerning the concept of willingness to pay, in order to know for what are people willing to pay and to what amount. Further research should seek to identify the needs of NP to improve touristic potential and by that their source of financing. In order to create more efficient financing mechanism it is necessary, on the level of responsible ministries, to form stable and long-term sources of financing, which would allow continuous improvement of the management in National parks.

### REFERENCES

- Arin T, Kramer RA (202): Divers' willingness to pay to visit marine sanctuaries: an exploratory study. *Ocean and Coastal Management* 45, p. 171–83.
- Bulmer M. (2003): Sociological research methods, An introduction, second edition, Transaction Publishers, USA.
- Čurović, M., Spalević, V. and Medarević, M. (2013): The ratio between the real theoretically normal number of trees in mixed forests of fir, beech and spruce forests in the national park "Biogradska Gora. *Agriculture and Forestry*; Vol. 59, issue 1, p. 7-17.
- Čurović, M., Danijela Stesević, Medarević, M., Cvjetičanin, R., Pantić, D., Spalević, V. (2011): Ecological and structural characteristics of monodominant montane beech forests in the National Park Biogradska Gora; *Archives of Biological Sciences*; Vol. 63, issue 2; p. 429-440; Belgrade.
- Dharmaratne G. S., Sang Y. F., Walling L. J. (200): Tourism potential for financing protected areas, *Annals of Tourism Research*, Vol. 27, p. 590-610.
- Đorđević I., Nevenić I., Poduška Z. (2009): Reflection of different financing mehanisms within the national park „Fruška gora“, *Sustainable Forestry, Collection Tom* 59-60, Institute of forestry, p.159-170 .
- Đorđević I., Nevenić I., Poduška Z., Gagić R., Češljarić G., Bilibajkić S., Stefanović T. (2011): Assessment of the system for managing protected areas in the Republic of Serbia, *Sustainable Forestry, Collection Tom*, 63-64, Institute of forestry, p. 151-159
- Đorđević I., Ranković N., Keča Lj. (2013): Analysis of revenue structure in financing national parks in Serbia, IV International Symposium "Agrosym 2013", *Proceedings*.
- Emerton L., Bishop J., Thomas L. (2006): Sustainable Financing of Protected Areas: A global review of challenges and options. IUCN, Gland, Switzerland and Cambridge, UK.
- James A. N., Green M.J.B., Paine J.R. (1999): A global review of protected area budgets and Staff, World Conservation Monitoring Centre.



- Keča Lj., Marčeta M., Bogojević M. (2012): Komerzijalizacija nedravnih šumskih proizvoda na teritoriji AP Vojvodina, Glasnik Šumarskog Fakulteta br. 105, Beograd, p.99-116.
- Koteen, S. (2004): Financing Species Conservation: A Menu of Options. Center for Conservation Finance, WorldWide Fund for Nature: Washington, DC.
- Kostić, Ž., Milojević, M. (1996): Ekonomika preduzeća, Institut za ekonomiku i finansije, Beograd.
- Martinić I. (2010): Management of protected natural areas, planning, development and sustainability, University of Zagreb, Faculty of forestry, Zagreb.
- Miljević M. (2007): Metodologija naučnog rada – skripta, Filozofski fakultet, Univerzitet u Istočnom Sarajevu, Pale.
- Mansourian S., Dudley N. (2008): Public funds to protected areas, World Wild Fund, International.
- Nevenić R., Poduška Z., Đorđević I., Gagić R. (2009): Qualitative approach in conflict research forestry vs. nature protection, Sustainable Forestry, Collection Tom 59-60, Institute of forestry, p. 141-157.
- Neuman W. L. (2006): Social research methods: Qualitative and Quantitative Approaches (6th Edition), Pearson Inc.
- Paunović B. (2013): Ekonomika preduzeća-preduzeće, okruženje i ulaganja, Centar za izdavačku delatnost Ekonomskog fakulteta, Beograd.
- Porej D., Rajković Ž. (2009): Effectiveness of Protected Area Management in Croatia: Results of the First Evaluation of Protected Area Management in Croatia Using the RAPPAM Methodology.
- Ranković N. (2008): Ekonomika šumarstva, Šumarski fakultet, Univerzitet u Beogradu, Beograd.
- Sekulić G. (2011): Overview of the national system of protected areas in Serbia-Recommendations for the Implementation of IUCN protected area management categories, Department of Economics, University of Klagenfurt.
- Seneuil C. (1855): „Traite des enterprise privees“, Galimard, Paris.
- Stojković M. (2001): Statistika, Ekonomski fakultet Subotica, Univerzitet u Novom Sadu, Subotica.
- Spurgeon J., Marchesi N., Mesic Z., Thomas L. (2009): Sustainable financing review for Croatia protected areas, Program on Forests-World Bank, United Kingdom.
- Šešić B. (1984): Osnovi metodologije društvenih nauka, Naučna knjiga, Beograd.
- Šumarac P., Saković B. (2012): Entrance fees as revenue source for nature protection in the national park Kopaonik, International Scientific Conference, Forest in Future-Sustainable use, risks and challenges, Institute of forestry-Belgrade, Republic of Serbia.
- Thur M.S. (2010): User fees as sustainable financing mechanisms for marine protected areas: An application to the Bonaire National Marine Park, Marine Policy 34, p. 63-69.

- Togridou A., Hovardas T., Pantis J. D. (2006): Determinants of visitors' willingness to pay for the National Marine Park of Zakynthos, Greece, *Ecological Economics*, 60, p.308-319.
- Verbič M., Erker R. S. (2009): An econometric analysis of willingness to pay for sustainable development: A case study of the Volčji potok landscape area, *Ecological economics* 68, p.1316-1328.
- Živković M. (2006): *Ekonomika poslovanja*, Megatrend Univerzitet primenjenih nauka, Beograd.
- (2009): *Zakon o zaštiti prirode*, Službeni glasnik Republike Srbije, br. 36/09 i 88/2010.
- (2012): *Zakon o javnim preduzećima*, Službeni glasnik Republike Srbije, br.119/2012.
- (1960): *Zakon o osnivanju Fruške gore kao Nacionalnog parka retkosti*, Službeni glasnik Narodne Republike Srbije 53/1960.

***Ilija ĐORĐEVIĆ,***  
***Nenad RANKOVIĆ, Ljiljana KEČA***

## **STRUKTURA FINANSISJKIH PRIHODA (2008-2012) NACIONALNIH PARKOVA U REPUBLICI SRBIJI**

### **SAŽETAK**

Zaštićena područja predstavljaju jedan od najvažnijih prirodnih resursa jedne zemlje. Upravljanje za zaštićenim područjima je od ključnog značaja i zavisi od nacionalnog zakonodavstva koje reguliše osnivanje, finansiranje i korišćenje ovog dobra. Zaštićena područja pokrivaju ~5.89 % teritorije Republike Srbije a nacionalni parkovi obuhvataju ~30.57% ovog područja. Značaj nacionalnih parkova, koji se odnosi na njegovu ekološku, ekonomsku i socijalnu funkciju, je veoma visok, jer oni sadrže važne šumske ekosisteme, predeone i kulturne karakteristike, sa kojima se upravlja na održivi način. Ovo istraživanje analizira različite strukture prihoda u upravljanju sa nacionalnim parkovima, kao i pristup u finansiranju kod nas i u regionu. Cilj rada je utvrđivanje strukture prihoda u finansiranju pet nacionalnih parkova. Teritorijalni okvir istraživanja je Republika Srbija sa autonomnim pokrajinama. U cilju utvrđivanja strukture prihoda u finansiranju, statističke tehnike na osnovi analize vremenskih serija se koriste a metoda za prikupljanje podataka je ne-reaktivna. Rezultati ukazuju da većina prihoda dolazi od prodaje robe i usluga a najmanja od ostalih poslovnih prihoda. Učešće budžetskih izdvajanja je porastao i u 2012. godini pokazuje najveće učešće u odnosu na ostale godine. Najveću prosečnu eksponencijalnu stopu rasta beleži nacionalni park „Fruška gora“ a nacionalni park „Đerdap“ ima negativnu eksponencijalnu stopu rasta. Na osnovu svega analiziranog, u svim nacionalnim parkovima, na strukturu prihoda najviše utiču prihodi od prodaje i naknade.

**Ključne riječi:** Srbija, zaštićena područja, finansiranje, prihodi, izvori