

# Organization of private forest sector in Timok forest area

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**Abstract.** Today, private forest owners (PFOs) in Serbia cooperate in form of private forest owners associations (PFOAs). Currently, there are 20 PFOAs, of which 15 are in Timok region. Initiatives of PFOs from Timok forest area, animated the owners from other parts of the country and led to foundation of Serbian Federation of Forest Owners' Associations. Twelve of PFOAs from Timok forest area are the founders of Serbian private forest owners' umbrella organization. Restructuring of Public Enterprise (PE) "Srbijasume", which started in 2001, led to development of private small and medium forest enterprises, engaged as contractors of PE for harvesting, timber transport and construction of forest roads. The objectives of this paper are to elaborate if there are differences between PFOs in Serbia and Timok region and to analyze organization of private forest owners in Timok forest area. In order to reach these objectives, results of PRIFORT project were used. This project focused on four countries of Western Balkans region: Bosnia and Herzegovina, Croatia, Serbia and Macedonia. The aim of this project was to explore precondition for formation of PFOs in this region. Quantitative survey ( $n = 350$ ) of randomly selected PFOs was conducted in nine municipalities in Serbia, of which two were in Timok region ( $n = 100$ ). The results show that there are differences between PFOs in Serbia and Timok region in number of PFOs, size of private property and in additional incentives. These results also indicate that economic interest is a motive for establishment of PFOAs and that state support is very important for their development. Since a number of PFOs are entrepreneurs, it can be assumed that, further development of their organizations could lead to development of SMEs clusters.

**Keywords :** forestry organization, private forestry sector, private forest owners, private forest owners' associations.

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## Introduction

### Forests in Serbia and Timok forest area

Forests in Serbia cover approximately 2.2 million ha, which corresponds to 29.1% of state

territory (Banković et al. 2009). Share of private and state forests are approximately equal (Table 1). Perspectives of private forest sector development in Serbia, corresponds to their abundance in total forest area, although legislative and forest policy framework, in past 60

**Table 1** Basic data on Serbian and Timok forest region private forests

Category	Serbia	Timok forest region
Total area	8,836,100 ha	833,205 ha
Forest area	2,252,400 ha	215,083 ha
Forest cover	29.1%	26.0%
Area of private forests	1,058,400 ha	132,433 ha
Total timber volume	141 million m <sup>3</sup>	15,110,759 m <sup>3</sup>
Estimated no of forest owners	500-800,000	30,000

Source: Bankovic et al. (2008), Nonic & Milijic (2008), Glück et al. (2009)

years did not provide climate for its development (Damnjanovic 1986, Nonic 2004, Nonic & Milijic 2008, Glück et al. 2009). Similar situation was, and still is present in the most of Eastern Europe (Mantau 1981, Ottitsch 2001, Kittredge 2003, 2005, Schraml 2005, Schlueter & Schraml 2006, Hirsch et al. 2007, Bouriaud 2007).

According to the Law on Forests from 1991, state forests are managed by public enterprises (PE hereafter): PE “Srbijasume”, PE “Vojvodinasume”, PEs of national parks. Private forest owners manage their forests,, while professional and technical tasks are entrusted to public enterprises. According to new law on forests, which was adopted in 2010 and will be in force from 2011, PEs gives professional and advisory support to private forest owners. Establishment of PFOAs is supported by new law. Article 71 states that PFOA can perform management of its forests, if it employs licensed forest engineer.

Law on forests from 2010, the same as law from 1991 defines 27 forest management areas and five areas of national parks. One of them, Timok forest management area is placed in the northeastern part of Serbia.

This management area consists of 82,650 ha of state owned forests and 132,433 ha of private forests (Table 1). Forestry has a long tradition in this forest area, dating from the second half of 19th century, continuing through the monarchy and socialistic period (Mihajlovic 1982).

The traditional significance of forests for residents of rural regions, primarily for satisfaction of their basic needs for firewood and timber, determined the forms of business in

forestry and related branches.

Today, although state forests are managed by PE “Srbijasume”, through Forest estate Timockesume, restructuring of PE “Srbijasume” lead to development of private small and medium forest enterprises, which are engaged as contractors of PE for harvesting, timber transport and construction of forest roads. Those enterprises are in most cases led by private forest owners, who combine utilization of their own forests with providing services in harvesting in both state and private forests.

#### Private forest owners associations in Serbia and Timok forest area

Organizations of private forest owners are very efficient instrument for small-scale forest management (Schraml 2005). They exist around the world and have similar functions and various benefits, in addition, new advantages of small-scale forestry and forest owners’ organizations are being recognized throughout the world (Corten et al. 1999, Hoen et al. 2000, Bliss 2003, Rikenbach et al. 2004, Kittredge 2005, Bliss et al. 2008, Bliss & Kelly 2009). In period 2006 - 2009, 19 PFOAs are established in Serbia. Forest community in Beocin was founded in 1903. In Timok region, there are 15 PFOAs. Private Forest Owners’ Associations are non-governmental organizations (NGOs) and their statutes and overall goals are very similar (Milijic 2007). They aim to represent the interests of their members and not on joint forest management. Every owner manages his own forests, while the association coordinates joint works like forest infrastructure, and joint

marketing activities. Training and cooperation with other associations and institutions is carried out jointly (Nonic & Milijic 2008).

Most recent activities supported by CEPF/PROFOR project led to establishment of Serbian Federation of Private Forest Owners' Associations (SFPFOA) in the end of May, this year. All PFOAs that exist in Serbia are members of SFPFOA.

Among representation of forest owners' interests, main goals of the Federation are: (i) promotion of local, regional, national and international cooperation between forest owners; (ii) support to establishing new local associations; (iii) facilitating links between forestry administration, public forest service and forest owners. Although the Federation is newly established, it is expected that it will eventually lead to further development of private forest sector and in improving the position of private forest owners in forest policy process (Nonic et al. 2009). However, PFOAs in Serbia are not developing equally across the country, and most of PFOAs are located in Timok forest area. This fact imposes a research question, which is to be elaborated in presented paper: What differs private forest owners in Serbia from owners in Timok region in propensity for PFOA establishment?

The two-year research project: Research into the Organizations of Private Forest Owners Associations in the Western Balkan region (PRIFORT)<sup>1</sup>, conducted from May 2007 till April 2009 tried to explain non existence of PFOAs in Western Balkans, and results of the mentioned project were used for elaborating previously mentioned question.

After these researches about PFOAs, currently in Serbia are conducted researches about SMEs. Ministry of Agronomy, Forestry and Water management - Directorate of Forests, supports the project "Development of small and medium enterprises in Timok forest area - System of support measures and model of organization". The main goals of this project are: i) proposal of the basic settings (goals and measure) of the system of support SMEs in the forestry sector, for their organization and

development of entrepreneurial initiatives, and ii) proposal of the organizational models and methodologies for their formation and development, primarily through the organization of clusters in the field of forestry. Project has just started and we expect first results at the beginning of 2010.

### Theoretical background

According to the Group theory (Bentley 1949, Lantham 1952), which claims that all people with shared interests will associate with each other for representation of those interests, it can be assumed that strong association of forest owners in Serbia should exist. However, situation is opposite, since the umbrella organization of forest owners in Serbia is established only recently. Olson (1965) tries to explain this phenomenon with the theory of collective action, which is similar to the theory of groups which claims that every associations exists to serve for members' interests. The theory of collective action, try to explain this phenomena. This theory suggests that small and large groups do not behave in the same manner. According to this theory, every association exists in order to serve the interests of its members. However, large and small groups do not behave the same during establishment of associations with the aim of providing common goods. The difference is that members of large groups, which Olson (1965) calls latent groups, do not see clear interest to make effort in providing common goods on their own expense, and often act as "free riders". Members of latent groups often expect that common good will be provided at the expense of someone else, which like them recognize the goods, but also expect for someone else to sacrifice for the common good. Members of large organizations have a problem to recognize needed contribution in provision of mutual benefit. Another fact is that a single member often thinks that, regardless of his efforts in provision of mutual benefits, because of big number of members, other members would not recognize his effort. Large latent groups have a

<sup>1</sup> Supported by the Austrian Ministry of Agriculture and Forestry, Environment and Water Management in concurrence with the European Forest Institute (EFI) and the Finnish FOPER project ("Forest Policy and Economics Education, Training and Research for the Western Balkan Region").

potential to become associations if a selective incentive is offered to single members.

These selective incentives should provide private good to some active members and eventually this will stimulate other to provide collective goods for members of such organization.

Second way is to establish association with obligatory membership for all forest owners, which aim for provision of mutual goods. Obligatory membership can solve the issue of free riders, since all members will be obligated to contribute in provision of collective good, and no exceptions will be allowed in term of using collective good provided by someone else. Basic assumptions regarding these large organizations are characteristics of common and private goods. Every organization gives to its members certain common goods which in order to be available to someone must be available to everyone automatically. In our case, tax relief will be a common good or obligatory tree marking exceptions (Olson 1968).

Apart from group size, which has an important role in starting collective action, resource characteristics along with group characteristics, institutional solutions and external influences also have important role (Matta et al. 2006, Gibson et al, 2005). Because of shortcomings of research related to above mentioned characteristics of private forests, some of developed hypothesis refers to institutional and social characteristics related to private forest owners. Ostrom et al (1999), who claims that starting of an initiative in establishing association depends on group size, cultural characteristics and understanding between potential members, presents similar opinion. Moreover, with all factors included, action often misses. MacKean (1998) claims that in forming an association, beside group size it is very important to have institutional covering and propensity to preserve rules by which association is functioning and to support an association with subsidies and training provided for members, on field.

Gibson et al. (2005) claim that clearly defined borders of forest holdings and high level of social capital play an important role in

defining certain expenses, which are needed in starting a collective action, and increasing probability of starting this action. Mendes et al. (2006) suggest that beside selective initiatives as solution to cope with free riders, there is a triggering factor, which defines big political changes that demand reaction from those that are influenced by this. This demands mutual and not single action. Besides triggering factor, critical mass is also an important factor, which depends on production of common good, heterogeneity of a group and correlation of members and resource. However, it is insufficient to overcome free rider problem and coercion and financial selective incentives are offered as a solution (Mendes et al. 2006).

From all suggested in scientific and professional literature (Bentley 1949, Lantham 1952, Olson 1965, Matta et al. 2006, Gibson et al. 2005, Ostrom 1999, McKean 1998, Mendes et al. 2006, Glück et al. 2009) supportive and impeding factors for the establishment of PFOAs are defined. Most important supportive and impeding factors are: (i) selective initiatives, (ii) reformulation of existing legal acts related to private forests, obligatory membership, (iii) trainings and (iv) extension service. Most important impeding factors are fragmented forest holdings, large number of forest owners, numerous forest parcels, cadastral problems, forest characteristics (coppice forest dominating in private ownership) and in existing legislation, too many things are regulated by the state. Those factors were the starting point for defining hypothesis (Table 3).

The goal of basic research hypothesis verification was to test basic assumptions for slow development of forest owners' interest organizations in Serbia (special attention is given to Umbrella PFOA), and to define basic preconditions for development of private forest owners organizations.

## Materials and methods

Two-year research project "Formation of Private Forest Owners' Associations in the Western Balkan region (PRIFORT)" was a

product of larger, Finnish project “Forest Policy and Economics Education, Training and Research in the Western Balkan Region (FOPER)”. PRIFORT project was financed by Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management. The goal of this project was to explore the preconditions for the establishment of interest organizations of PFOs in Bosnia and Herzegovina, Croatia, Serbia and Macedonia. In this paper are used PRIFORT projects’ results for the territory of Serbia. In order to investigate the preconditions for the formation of PFOAs in these countries a quantitative door-to-door survey has been conducted (Neuman, 2006).

A questionnaire for the door-to-door survey of private forest owners comprises 42 questions on silvicultural, sociological, economic and institutional aspects as well as attitudes of private forest owners towards interest associations. Also research hypotheses (Table 3) have been tested through developed questionnaire, during the field survey.

Proportion method (Malhotra 2007), was applied for determination of the sample size ( $n$ ). According to formula:

$$n = \frac{\pi \cdot (1 - \pi) \cdot z^2}{D^2} \quad (1)$$

under the assumption that between 60% and 70% of private forest owners miss an interest organization ( $\pi$ ), with level of confidence 1.96 ( $z$ ) and 0.05 level of precision ( $D$ ), a total of 350 forest owners in the whole territory of Serbia were involved in the field survey.

For the random selection of the 350 respondents the cluster sample method has been chosen consisting of: (i) determination of overlapping areas regarding percentage of forest area and percentage of private forest area, (ii) determination of settlements in overlapping areas, (iii) selection of individual respondents from population of forest owners.

The data source for the first step is the results of the National Forest Inventory (NFI), which was conducted from 2004 to 2006. For this purpose a list with the top 40 municipalities regarding percentage of forest area and a second list with the top 40 municipalities regard-

ing percentage of private forest area were made.

Nine municipalities appeared on both lists; they were taken as overlapping areas for the settlement selection. For the second step a list of all settlements within the chosen municipalities was made. The name of each settlement was separately written on a piece of paper and the paper was put in a box. Then 35 settlements were blindly drawn from the box. Finally, a list of randomly selected settlements was made. In the third step, between 30 and 60 persons (depending on whether in a rural or urban region) were randomly chosen for each settlement from election lists that are available in municipality and settlement offices. From that list, 10 private forest owners for each settlement were randomly drawn for each settlement.

Questions were processed in SPSS software by the structure, which was applied in the questionnaire (support to private forest owners, membership in PFO organizations, silvicultural, economical, institutional and sociological aspects of the research). Data were processed by each question using the basic elements of frequencies or descriptive statistics, depending on characteristics of the data’s, which are processed by SPSS software (SPSS ver. 16.0).

Out of 350 respondents from Serbia, a 100 were from Timok region. Results from Timok region were processed separately, with the purpose of comparison with results for the whole Serbia. Serbia and Timok result comparison in this paper was made according to results of three questions, find as crucial for owners propensity for joining PFOAs: forest property size, a way in which an owner uses its forest property and owners readiness to engage him/her self in the establishment of PFOA in the region he/she live in.

## Results

Majority of Serbian forest owners (35%) owns properties sized from 1-3 ha. More than 26% owns properties smaller than 1 ha, and same percent owns from 3-7 ha. Only 11.2% owns properties sized from 7-20 ha, and only 1.9%

owns more than 20 ha of forests.

On the other hand, in Timok region, a larger percent (62%) than in whole Serbia owns properties sized from 1-3 ha. Only 13% owns forest properties smaller than 1 ha. More than 15% owns properties sized from 3-7 ha, 4% from 7-20 ha, and 6% owns properties larger than 20 ha.

Structure of main use of privately owned forests in Serbia (Figure 1) shows that 98% of all PFOs use their forests for fuel wood production, while 39% use it for sawlog production. Only 20% use it for production of fuel wood for sale, and only 11% use it for industrial wood production, for sale. 19% of PFOs in Serbia use their forests for non wood forest products utilization, 18% for hunting, 15% for recreation 12% for nature conservation and 11% for pastures.

In Timok forest region (Figure 1) majority of PFO uses their forests for fuel wood production for own consumption (94%) and saw log production for own consumption (47%).

However, 35% of private forest owners use their forests for production of fuel wood for

sale, and 21% of forest owners use their forests for production of saw logs for sale. Around 33% of PFOs use their forests for hunting, and equal share of owners use their forests for non-wood forest products, while 37% use forests for nature conservation, 24% for pastures and only 6% for recreation.

The results of the Table 2, show following. In Serbia, only 20% of PFOs consider that their interests are represented “very well” or “well”, while 55% consider that their interests are represented “a little bit” or “not at all”. This question did not answer 25% of PFOs. Only 3% of respondents in Timok forest region consider that their interests are represented “very well” or “well”. 76% of PFOs consider that their interests are represented only “a little bit” or “not at all”, while 21% of respondents gave “don’t know” answer to this question.

Regarding advisory assistance in forest management, 51% of respondents in Serbia consider that they miss such an interest organization of PFOs “very much” or “much”. 35% miss it “a little bit” or “not at all”, while 15% gave “don’t know” answer. In Timok forest region,

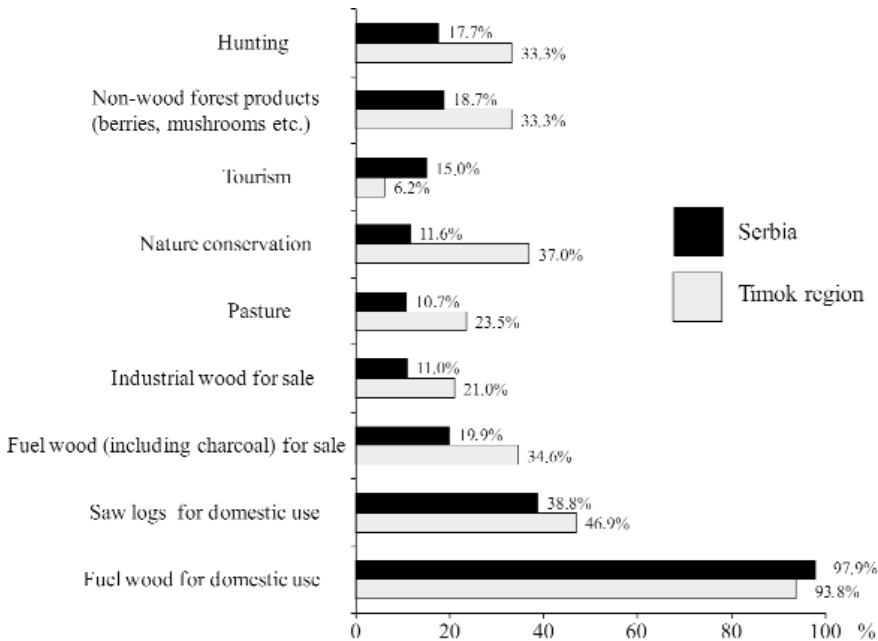


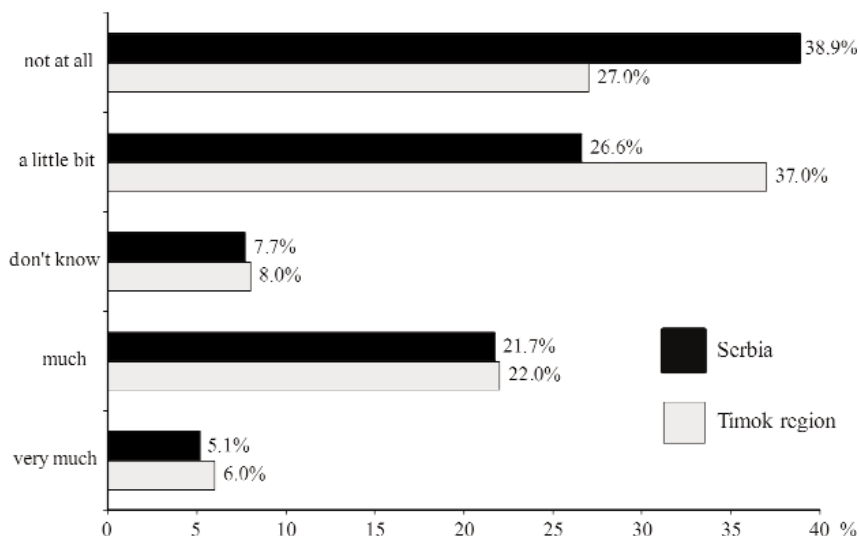
Figure 1 What is the main use of your forests? Results of the questionnaire

**Table 2** PFOAs attitudes about missing an interest organization (Serbia and Timok region)

Answers	Very much		Much		Don't know		A little bit		Not at all	
	Serbia	Timok	Serbia	Timok	Serbia	Timok	Serbia	Timok	Serbia	Timok
Questions	%									
Do you think that the interests of PFOs are appropriately represented in your country?	2	1	18	2	25	21	36	37	19	39
Do you miss an interest association of PFOs, which supports you in managing your forest properly?	9	1	42	61	15	17	14	10	21	11
Do you miss an interest association of PFOs in your region which represents the interests of all PFOs by lobbying political parties, civil servants in ministries or government?	9	2	43	59	14	17	15	11	19	11

62% of PFOs consider that they miss such an organization “very much” or “much”. Only 21% of respondents consider that they miss it “a little bit” or “not at all”. “Don’t know” answers was given by 17% of PFOs.

Considering representation of PFOs interests at national level, in Serbia, 52% consider that they miss an organization that will lobby for PFOs interests “very much” or “much”, while 34% consider that they miss such an organiza-



**Figure 2** Are you prepared to engage yourself in establishment of forest owner' interest association, in the region you live in? Results of the questionnaire

tion “a little bit” or “not at all”. “Don’t know” answer was given by 14% of respondents. In Timok forest region, 61% consider that they miss an organization that will lobby in their favor “very much” or “much”. 22% consider that they miss such an organization “a little bit” or “not at all” and 17% gave “don’t know” answer.

Results of the last question used for comparison (Figure 2) show that about 40% forest owners in Serbia consider that they are not at all prepared to engage themselves in the establishment of PFOA in the region they live in, and 8% gave a “don’t know” answer. The rest 52% are prepared, and 27% of those are only “a little bit prepared”, 22% are “much prepared” and only 5% are “very much prepared”. On the other hand, 27% of owners from Timok region consider that they are not prepared at all to engage themselves in PFOA establishment, 8% gave “I don’t know answer”. Rests of 67% are prepared “at some point”, from which 37%

are prepared “a little bit”, 22% are “prepared much” and 6% are “prepared very much”.

## Discussion

All hypothesis are confirmed, nevertheless differences between PFOs in Serbia and Timok region do exist (Table 3).

In regard of Hypothesis 1, results for both Serbia and Timok, proved the hypothesis. However, the obvious difference between Serbia and Timok are in the number of private forests owners. Total number of PFO in Serbia is around 800,000, while in Timok it is only 300,000.

Closely related to previous hypothesis, the second hypothesis has a more economic significance - size of individual property/economy. For both Serbia and Timok, second hypothesis is proved, however the difference between two areas do exists. Properties in Timok forest area

**Table 3** Hypothesis scrutiny (Serbia and Timok region)

Hypothesis	Scrutiny		Differences
	Serbia	Timok	
If <u>the historical and political circumstances</u> influenced development of land ownership pattern in a way that the number of private forest owners is large, then the perceived need <u>for establishing associations of private forest owners</u> is less.	x	x	Less PFOs in Timok than Serbian average
If <u>the private property</u> is either too small or fragmented into dislocated areas or in a poor conditions so that individual owners have no economic advantages to manage it, then the possibility to create voluntary interest organizations is small.	x	x	Larger properties in Timok than Serbian average
If <u>political will</u> does not exist and <u>public forest administration</u> does not support organization of self-supporting private forest owners' interest organizations, then they will not be established voluntarily.	x	x	None
If the interest association with large number of members <u>provides some additional incentives for potential members</u> , then probability to increase the number of members is higher.	x	x	Recognized more in Timok, than other parts
If <u>the national forest policy</u> supports the interests of private forest owners, then the <u>establishment of their interest organization</u> is easier.	x	x	More activities in PFOA promotion



are larger than in Serbia. Average forest property in Serbia, determined by this research is 4.01 ha, while average property in Timok is 7.06 ha. This difference in size determined a difference in way of forest utilization. From the presented results, it can be concluded that owners from Timok region are more oriented to the market than Serbian average. They do use their forests for producing fuel wood, timber, and non-wood forest products for sale more than Serbian average.

Hypothesis 3 relates to owners attitudes about political will for support to PFOs. This hypothesis is confirmed by the results presented in the Table 2 (results chapter) and differences between Serbia and Timok do not exist. Although owners express the need for private forest owners associations, they feel that their interests are not well represented.

After almost 10 years of democratic changes in Serbia have passed, the position of public forest administration and predominance of state forest enterprise have not been changed. This problem especially relates to legislative limitations of Law on forests from 1991, which limits property rights and does not prescribe any measures of support for private forest owners. However, adoption of Serbian Forest Development Strategy and certain initiatives of local PFOA and first concrete financial support measures, given by Directorate of forests during 2008, toward some local associations, for forest road construction (Nonic & Milijic 2008), shows first signs of clear political will to support the process of organizing private forest owners in Serbia. Those incentives are viewed in the lights of hypothesis 4, which is also confirmed in both sites. Nonetheless, those incentives, along with support are more recognized in Timok, than other parts of Serbia. This claim can be supported by the results presented in Figure 2, which shows that owners from Timok region are more ready to be engaged in the establishment of PFOA in region they live. Therefore, they clearly show more propensities to join PFOAs and owners from Timok region see more benefits and ways to serve their interests through PFOA than owners in other parts of Serbia.

Hypothesis 5, is similar to Hypothesis 3, as it relates to support of the state administration. Results presented in Table 2, and Figure 2 con-

firm this hypothesis in Timok and the rest of Serbia. However, the difference lies in the fact that more activities aimed in PFOA promotion are done in Timok, than in other parts of the country, and first measures of support (e.g. road construction subsidies) are provided to Timok private forest owners and their associations. Those were triggering factors for intensive associating of PFOs.

## Conclusion

Organizations of private forest owners represent an efficient forest policy instrument aimed in prevailing problems of small-scale forest management (Schraml 2005), however beside similar problems and needs owners' share, it is not easy to establish forest owners' interest organizations. As this research has shown basic characteristics of small-scale forest properties and social characteristics of their owners are different between forest regions of Serbia. Those differences determined difference in owner's propensity for establishment of interest associations.

More favorable climate for entrepreneurship development, more favorable structure of private forest properties, and more economic significance of private forest lots along with provided additional incentives provided more favorable climate for PFOA development in Timok forest region than in other parts of Serbia.

Timok PFOs speeded up the process of PFOA establishment in Serbia since they find clear interest to do so. But, small and fragmented forest properties, which can not offer significant economic benefits, reduce the possibilities of establishing the interest organization. This research has shown that not everywhere PFOA can be established. Clear economic interest, as a motif, is only successful starter of interest organizing process, and it can lead to PFOA formation and development if it is followed by additional incentives provided by the state administration.

For formation and successful development of forest owners' organizations, two basic conditions have to be fulfilled: (i) political will of the state to support establishment and development of owners' organizations and (ii) the will

of the owners to participate in the work of their organization. It is necessary to adjust public interests, proclaimed by the state and owners personal interests. Concrete reasons of association development may be different but in almost all cases without public and personal interest and creation of partnership relations between the state and forest owners, it is not possible to realize all the potentials of forest owners' organizations. In order to develop more PFOAs across the country system of direct (financial) and indirect (advisory) support to PFO has to be established.

In existing PFOAs, there is a number of private owners who are entrepreneurs. Development of local PFOAs, as a basis for entrepreneurial activities in forestry, could lead to development of SMEs clusters in future. Those perspectives might encourage private forest sector development in Serbia as well, if followed by support of state forest administration and adequate forest policy and organizational changes.

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