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Forest Land Ownership Change in Slovenia

COST Action FP1201 FACESMAP Country Report

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EUROPEAN COOPERATION
IN SCIENCE AND TECHNOLOGY

COST Action FP1201
Forest Land Ownership Change in Europe:
Significance for Management and Policy
(FACESMAP)

Forest Land Ownership Change in Slovenia

COST Action FP1201 FACESMAP Country Report

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COST (European Cooperation in Science and Technology) is a pan-European intergovernmental organisation allowing scientists, engineers and scholars to jointly develop their ideas and initiatives across all scientific disciplines. It does so by funding science and technology networks called COST Actions, which give impetus to research, careers and innovation.

Overall, COST Actions help coordinate nationally funded research activities throughout Europe. COST ensures that less research-intensive countries gain better access to European knowledge hubs, which also allows for their integration in the European Research Area.

By promoting trans-disciplinary, original approaches and topics, addressing societal questions, COST enables breakthrough scientific and technological developments leading to new concepts and products. It thereby contributes to strengthening Europe's research and innovation capacities.

COST is implemented through the COST Association, an international not-for-profit association under Belgian law, whose members are the COST Member Countries.

Background of the project

Forest ownership is changing across Europe. In some areas a growing number of so-called "new" forest owners hold only small parcels, have no agricultural or forestry knowledge and no capacity or interest to manage their forests, while in others new community and private owners are bringing fresh interest and new objectives to woodland management. This is the outcome of various societal and political developments, including structural changes to agriculture, changes in lifestyles, as well as restitution, privatization and decentralization policies. The interactions between ownership type, actual or appropriate forest management approaches, and policy, are of fundamental importance in understanding and shaping forestry, but represent an often neglected research area.

The European COST Action FP1201 FOREST LAND OWNERSHIP CHANGES IN EUROPE: SIGNIFICANCE FOR MANAGEMENT AND POLICY (FACESMAP) aims to bring together the state-of-knowledge in this field across Europe and can build on expertise from 30 participating countries. Drawing on an evidence review across these countries, the objectives of the Action are as follows:

(1) To analyse attitudes and constraints of different forest owner types in Europe and the ongoing changes (outputs: literature survey, meta-analyses and maps).
(2) To explore innovative management approaches for new forest owner types (outputs: case studies, critical assessment).
(3) To study effective policy instruments with a comparative analysis approach (outputs: literature survey, case studies, policy analyses).
(4) To draw conclusions and recommendations for forest-related policies, forest management practice, further education and future research.

Part of the work of the COST Action is the collection of data into country reports. These are written following prepared guidelines and to a common structure in order to allow comparisons across the countries. They also stand by themselves, giving a comprehensive account on the state of knowledge on forest ownership changes in each country.

The common work in all countries comprises of a collection of quantitative data as well as qualitative description of relevant issues. The COUNTRY REPORTS of the COST Action serve the following purposes:

- Give an overview of forest ownership structures and respective changes in each country and insight on specific issues in the countries;
- Provide data for some of the central outputs that are planned in the Action, including the literature reviews;
- Provide information for further work in the Action, including sub-groups on specific topics.

A specific focus of the COST Action is on new forest owner types. It is not so much about "new forest owners" in the sense of owners who have only recently acquired their forest, but the interest is rather on new types of ownership – owners with non-traditional goals of ownership and methods of management. For the purpose of the Action, a broad definition of "new forest owner types" was chosen. In a broad understanding of new or non-traditional forest ownership we include several characteristics as possible determinants of new forest owners. The following groups may all be determined to be new forest owners:

(1) individuals or organizations that previously have not owned forest land,
(2) traditional forest owner categories who have changed motives, or introduced new goals and/or management practices for their forests,
(3) transformed public ownership categories (e.g., through privatisation, contracting out forest management, transfer to municipalities, etc.), and
(4) new legal forms of ownership in the countries (e.g. new common property regimes, community ownership), both for private and state land.

This embraces all relevant phenomena of changing forest ownership, including urban, absentee, and non-traditional or non-farm owners as well as investments of forest funds or ownership by new community initiatives, etc. Although the COST Action wants to grasp all kinds of ownership changes it has to be noted that the special interest lies on non-state forms of ownership.

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Acronyms and abbreviations

CAFS	Chamber of Agriculture and Forestry of Slovenia
CEC	Comparable European Criteria
CPR	Common Pool Resource
EU	European Union
FALF	Fund of Agricultural Land and Forest
FAO	Food and Agriculture Organization
FMP	Forest Management Plans
FMR	Forest Management Region
FMS	Farm Structure Survey
FPP	Forest Property Plan
FRA	Forest Resource Assessment
GIS	Geographic Information System
NGO	Non-Governmental Organization
ReNGP	Resolution of the National Forest Programme
SFI	Slovenian Forestry Institute
SFS	Slovenian Forest Service
SMARS	Surveying and Mapping authority of the Republic Slovenia
SURS	Statistični Urad Republike Slovenije (Statistical Office of the Republic of Slovenia)

1. Introduction

1.1. Forests, forest ownership and forest management in Slovenia

More than half of Slovenia is covered by forests (58.4% or 1,183,433 ha). The average growing stock is 289.33 m^3/ha (132 m^3/ha conifers and 157 m^3/ha deciduous trees) (SFS, 2013). The forests are diverse in stand structure with prevailing private small-scale forest ownership. According to the official data (Medved et al., 2010), there are about 320,000 individual private forest owners (together with the co-owners almost 470,000) who own 75% of the total forest area. The ratio between conifers and deciduous trees is almost balanced, although beech forest sites prevail. The demand for wood is not stable and differs for different categories (round-wood, fuel-wood, which is described later); the mean annual harvest rate amounts to only 60% of the total increment. Weak and declining forest-based industry in the country and strong industry in the neighbouring countries contributed to a decline of wood production, although the production function should be respected in forest management together with the ecological and social functions. Mobilization of timber wood supply remains one of the main issue of forestry in Slovenia. Strong emphasis is constantly given to public interest, which is assured through several legislative regulations reflecting mainly through free access, clear-cutting prohibition and common forest management planning system for private and public forests. Disturbances such as windstorms or ice-breakages are frequent due to bioclimatic diversity of the territory, changing wind and snow patterns. The average salvage logging amounts to 30% of the total cut in the last twenty years. Recent country-wide ice-breakage in February 2014 damaged 9 million m^3 of wood which is more than the total annual increment of Slovenian forests.

Forest planning in Slovenia is organized in a hierarchical structure. The Slovenia Forest Service is in charge of planning of all forests. It is organized on the state level with a strong local structure (14 regional units and 69 local units). The SFS monitors the conditions and the development of forests, guides the management through forest management plans and silvicultural plans, keeps records and forestry databases and offers some forestry extension services (e.g. professional advice, organization of trainings for forest owners). There are more than one hundred forest enterprises in Slovenia. Only a few of them have the concession for forest management in state forests (cutting and skidding of timber, sale of wood assortments, protective and silvicultural work, forest infrastructure construction and maintenance). The current concession contract between the state and the enterprises is valid since 1996 and expires in 2016.

The major problems regarding forest management are related to private forest management. Some priority problems include mobilization of wood and improving the efficiency of forest management in private forests, balancing stakeholder demands on forests, improving the participatory planning system and meeting the demands of the urban forest owners. A great challenge for the policy is also the cooperation and association of forest owners in order to accelerate and stimulate better use of resource potentials for the vast majority of Slovenian forests. The challenges of modern forestry (i.e. mechanized cutting operation in sensitive ecosystems and domestic innovative wood processing, climate change adaptation and mitigation in practice) require the development of new and innovative approaches to secure efficient forest management also in the future.

1.2. Overview of the country report

The ownership structure of the forests has changed in recent years, mainly due to the restitution process, urbanization and deagrarization of population. In Slovenia, the small-scale private forest property has predominated for a long time due to the land reform in 1848, when the share of the small-scale private property exceeded 75% of the forests. In ex-Yugoslavia the share was 50%. Nowadays, 75% of forests are privately owned, 22% are state forests and 3% are owned by local communities. According to the

Farm Structure Survey (2010) the number of family farms is decreasing. The reason for this is the abandonment of farming on small family farms with forests. The decrease of family farms with forests resulted in the decrease in the overall share of forest in the context of agricultural holding. In the restitution processes the former forest ownership categories (e.g. Agrarian commons) has again become relevant in the contemporary management.

Presently, most of the privately owned forests are managed by natural persons, typically by individual owners and their family members. The majority of work in the forest is done by the owners. The traditional business models for wood supply may no longer be dominant in the next decades due to increasing numbers of non-farmer forest owners and consequently lack of skills.

The realized supply of wood from private forests is decreasing and on average reaches only 65% of the allowable cut. The major obstacle for wood mobilization from private forests in Slovenia is the small size and fragmentation of properties; in addition, there are objective, physical constraints, such as poor openness of forests with roads, unknown locations of plots, etc. Other constraints are transitory, such as low timber prices, no qualification for forest work or too expensive forest operations, and are not related to the general belief that management is worse for the ecosystem than non-intervention. Many business models such as long-term property lease, harvesting leasing, cooperatives, or contracting are still scarce. The role of forest owner associations is becoming more and more important. We expect that new forest owners will also need more organized and more user-friendly environment to manage their properties (e.g. E-Systems for access to data on forest property, centralized database of different service providers etc.). Recently, a lot of effort has been put into the adaptation of a forest planning concept towards a forest-owner-friendly and efficient forest management. Simultaneously, forest planning is trying to be more diversified at the operative level and adapted to an owner-oriented private forest property plan.

The most relevant issues in Slovenian forest policy as stated by the National Forest Programme in the field of forest ownership are: the (low) share of state forests and the fragmentation of private forest property.

Very little attention is paid to different types of forest owners and especially to new forest owners. We estimate that the most important reason for not addressing new forest owners as an emerging issue is the current system of forest management which does not differentiate between different types of ownership. In the absence of salient issues connected to forest owners, present forest policy does not deal with topics that are related to new forest owners. Different categories of forest owners have not been put on the forest policy institutional agenda. The reason for that could be the centralized forest management planning for all types of forests regardless ownership and lack of any salient issue related to ‘new forest owners’ as a target group which would stimulate dealing with topics related to new forest owners. Moreover, the impact of forest owners on forest policy is low because closed forest policy network and weak political power of forest owners and political parties connected to them. The main trigger of policy changes regarding forest ownership would be to empower forest owners by raising their awareness regarding their property rights.

2. Methods

2.1. General approach

According to the aims of the country report which is to give a comprehensive overview of forest ownership issues in the country, a mix of methods is applied. They include a literature review, secondary data, expert interviews as well as the expert knowledge of the authors.

Data include quantitative data (from official statistics and scientific studies) as well as qualitative data (own expert knowledge, expert interviews and results from studies). A literature review explicates the state-of-knowledge in the countries and contributes to a European scale state-of-art report. Case examples are used for illustration and to gain a better understanding of mechanisms of change and of new forest owner types. Detailed analyses of the collected data and case study analyses are done in subsequent work steps in the COST Action.

2.2. Methods used

The report was elaborated using the following methods:

Mainly, a literature review and official National Forest Inventory Data, managed by the Slovenian Forest Service, were used. Additionally, authors used their own expert knowledge as the basis for specific assessment which was not available in literature.

3. Literature review on forest ownership in change

The COST Action national representatives aimed to review and compile information on changes in forest ownership in their countries based on scientific and grey scientific literature, including reports and articles in national languages and official statistics, formal guidance or advisory notes from official websites, etc.

The scope of the literature review is as follows:

- Forest ownership change (with a specific focus on new forest ownership types), private forest owners' motives and behaviour, management approaches for new forest owner types, and related policies and policy instruments.

The literature review consists of the following three steps: collection of all literature as defined relevant, detailed description of 10 most relevant publications, and a 1-3 pages summary according to the structure given in the guidelines. The full list of literature includes grey literature, i.e. literature not easily accessible by regular literature search methods (unpublished study reports, articles in national languages, etc.). These references are listed at the end of the report. The 10 detailed descriptions of publications are found in the Annex. The literature review contains the following questions: Which research frameworks and research approaches are used by research? What forms of new forest ownership types are identified? Which specific forest management approaches exist or are discussed? Which policies possibly influence ownership changes in the country and which policy instruments answer to the growing share of new forest owner types?

3.1. Research framework and research approaches

In the literature review we have found 296 units of relevant literature. More than one third of literature is composed of different level thesis. From the set of literature reviewed we have selected most relevant reports or publications.

The literature comes from researchers employed in four different organizations. Many studies are the result of joint projects based on multilateral cooperation of the following organizations: University of Ljubljana, Biotechnical Faculty, Department of Forestry and Renewable Forest Resources, Slovenian Forestry Institute, Slovenian Forest Service and Institute for Adult Education.

It can be concluded that the majority of studies come from researchers' education process (master's theses, doctoral theses and articles from those theses). Some of the studies were done also in the frame of national projects or financing public forestry service funds.

With the exception of graduation theses, the studies are mainly done on national level, only few of them from international cooperation (comparative analyses). In some of the studies, theoretical approaches were used, for example a "theory of collective action" and "theory of commons". In the studies, the following methodologies are used: qualitative and quantitative research methods followed by statistical analyses (i.e. cluster analyses, logistic regression and non-parametric analyses) and GIS analyses. From the studies, we learn mostly about the issue related to private forest management, property and ownership structure, cooperation between owners and deagrarization of forest owners. Part of this issue originates from social and economic changes after the breakup of Yugoslavia, while other part from restitution processes in the 90s. In some of the studies the new type of forest owners does represent a research subject (Pezdevšek Malovrh, 2010) but generally a more in-depth approach is missing. There were studies done about the possibilities of cooperation between forest owners (Pezdevšek Malovrh et al., 2011) and studies about forest owner behaviour (Ficko, 2013, 2015). There is an increase in the studies published in international journals or in the proceedings of conferences in recent years. International research cooperation and lack of funding for research projects presents a challenge for Slovenian scientific community, especially as there are plenty of interesting research questions in relation to forest owners structural changes, behaviour, and attitudes.

3.2. New forest ownership types

The impact of long-term general socio-economic changes are seldom an interpretative frame and some more accent is given to the change of political system in the nineties. With this change, the reinstitution of previous ownership took place. Despite constant but dispersed literature on this topic on the issue of forest owners, an increase in publications related to new – old forest ownerships types can be traced after reinstitution. For example cases of ACs (Bogataj, 1990, Fučka, 1999 and Zavrtanik, 1994) and bigger forest owners (Nunar, 1995) were analysed and the reinstitution of previous "social property" into state property (Krajčič, 2000). However these categories cannot be attributed to new forest owners as they existed before the socialist Agrarian reform in 1947. Even though scholars in Slovenia recognise non-traditional forest owners - forest owners who are not farmers, with other financial means, mostly from the urban areas we have only one study related to this "non-traditional forest owners" category (Pezdevšek Malovrh, 2010, Pezdevšek Malovrh et al. 2011, Pezdevšek Malovrh et al., 2013).

Hence, understanding of the term "new forest ownership types" is related to the buying property (not its inheritance; Medved, 2005), 10% of absentees (Ficko, Bončina, 2010a, 2013b), insufficient professional competence, poor technical equipment, lack of links among them and low level of innovation (see Table 10, page 21).

3.3. Forest management approaches

Changing patterns in forest management can be recognized by comparing several indicator values in annual reports of the Slovenia Forest Service (e.g. SFS, 2012) and Statistical yearbooks of the Republic of Slovenia by Statistical office (SURS, 2014), such as average cutting intensity, property size etc. However, due to not always harmonized surveys and different sampling designs in small-scale and family farm studies, changes in forest management cannot be systematically monitored and detected statistically. There is not a national forest owner survey in Slovenia, which could serve as a basis for a review of changes in forest management. Individual studies dealing with adaptation of forest management were mostly focused on adaptations of planning (details, the content of the different level plans, participation etc.) to account for the demands for more efficient and participatory planning (e.g. Bončina, 2004). Some studied alternative silvicultural regimes to secure the minimum level of silvicultural measures, improve the cost-efficiency and maintain the desired stand structure even with low inputs (Diaci et al., 2006). One of new forest management approaches that was studied much is the modern private forest planning, which supposed to combine the traditional forest planning with business planning in a private forest property plan (Papler-Lampe et al., 2004; Ficko et al., 2005; Ficko and Bončina, 2010a).

3.4. Policy change / policy instruments

The adoption of The Denationalization Act in 1991 and Act on reestablishment of agricultural communities and restitution of their property and rights in 1994 are two regulations which have influence on the current forest ownership structure. With this legal basis the former forest ownership categories has become relevant again in the contemporary management. Two studies have been done which describe these political changes from the perspective of private forest owners (Winkler and Medved, 1994) and one from the perspective of state forest owners (Krajčič, 2000). In the first study authors found that the process of denationalisation will lead to an increase in the number of forest owners, though the average size of a private forest property will remain virtually unchanged and that the rightful claimants or their heirs are not farmers. The second study tackles the topic of reorganisation of management structure in state forests (forestry institutional organization is expected to change in the next two years). The author suggests that a public enterprise is the most appropriate management structure for state forests. To date, in Slovenia only one study have been carried out dealing with specific policy

instruments directed at forest ownership types. The study of Pezdevšek Malovrh et al., 2011 showed that forest policies in many southeast European countries have changed considerably in the past few decades due to the unprecedented scale of socio-political changes. Three owner clusters - active, supportive, and passive owners - were identified in each country, based on their willingness to cooperate and their expectations of this cooperation; actual harvesting performance; and the importance of ownership, property, and socio-demographic characteristics. Policy options for each group were then provided, based on Smart Regulation principles and requirements. The results reveal that several policy types are needed to reach the three private forest owners types and this variety of policy options covers a wide range of policy approaches.

4. Forest ownership

The aim of this chapter is to give a detailed overview of forest ownership in the country. The most detailed information on national level is often structured in different ways in different countries. In order to show the most accurate information, it was decided to use the national data sets in the country reports. In order to make this information comparable still, the information is also collected in an international format which is used in the Forest Resources Assessments (FRA) by FAO. The transfer from national data sets to international definitions is, however, not always easy. This report therefore critically assesses in how far the national categories and definitions may be transformed into the international FRA data structure or in how far there are inconsistencies between them.

4.1. Forest ownership structure

The ownership structure analysed on the basis of Forest Management plans (FMP) for the 2011-2020 period is presented in Table 1. According to the data the total area covered by forest amounts to 1,184,526 ha or 58.4% of the state's territory. The data about forest ownership structure showed that 75% of forests are privately owned, 22% are state forests and 3% are owned by local communities.

Table 1: Forest ownership structure of Slovenian forests in 2012 (SFS, 2013)

Ownership type	Size (ha)	Share (%)
State forests	262,569	22
Private forests	890,830	75
Municipality forests	31,127	3

In combination with the data gathered by the Farm Structure Survey (FMS), conducted in 2010 on farms comparable to European criteria (SURS, 2010), private forest ownership was analysed in detail (Figure 1). According to the data, private forests are owned by family farms (33%) and non-farm private owners (37%). The discrepancy between SFS data and FMS data is a result of the restitution activities and land use changes. The latest Farm Structure Survey (2013) shows that in comparison with 2010 the number of family farms decreased by almost 3%.

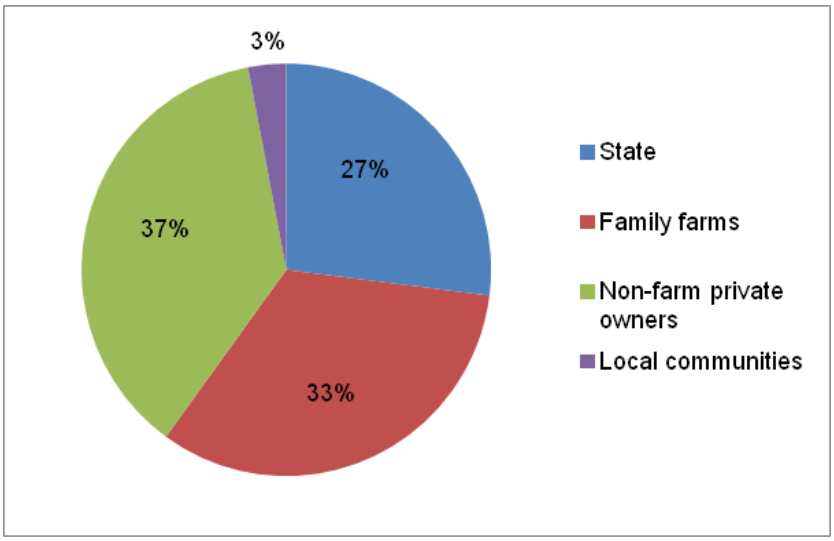

Figure 1: Ownership structure according to Farm Structure Survey 2010 (SURS, 2010)

According to the Farm Structure Survey (2013) the number of family farms decreased from 77,042 in 2005 to 72,600 in 2013. The reason for this is the abandonment of farming on small family farms with forests. The fall in the number of family farms with forest led to

the corresponding decrease in the overall share of forest in the context of agricultural holding (http://www.stat.si/eng/pub.asp).

4.1.1. National definitions

Private forest owners/co-owners – any natural person who individually or collectively owns a forest and whose property is recorded under his/her name or whose co-proprietorship share is registered in the Land Register of Republic Slovenia (Medved, 2004)

Family farm – in organizational and managing sense a complete, rounded-off unit (agricultural land, forests, buildings and premises, equipment) owned by one or several natural persons who in the framework of the same household work and manage for collective account and which also comply with Comparable European Criteria (CEC). These criteria are especially related to the area of land in direct use and to the number of larger farm animals (livestock units-LSU) or beehives. Conditions for complying with CEC are fulfilled by the farm that uses 1 ha of agricultural land or 0.1 ha of agricultural land and 0.9 ha of forests or that possesses at least 1 LSU or more than 50 beehives (Medved, 2004).

Non-family forest holding – all households that own only forest or do not meet the CEC (Medved, 2004).

State forests – are forests owned by a state whose property is recorded under the Republic of Slovenia in the Land Register of Republic Slovenia. The exploitation rights for the state forests have been given to different forest enterprises for a 20- year concession period (till 2016)

Municipality forests – are forests owned by municipalities. Historically some of land came under the municipalities´ authority (e.g. due to emigration shareholders of individual owners but also for other reasons). Recent forest management of municipalities is not homogenous and vary from direct involvement into forest management to taking only a representative role.

4.1.2. Critical comparison with national data in FRA reporting

When it comes to the definitions of ownership types, there is only a small difference between national definitions and those provided by the FRA. Otherwise definitions of ownership types tend to be clear; only the definition of local communities is not correct. It describes ACs and not local communities. In national data only local communities as an ownership type are represented separately and not as part of public ownership. The data from national reports are no comparable with the ones in FRA 2010. According to the SFS, the total forest area in 2005 was 1,169,196 ha, of which 303,778 ha are public forests, 832,343 ha are private forests. Therefore, according to the national data total forest area has increased and not decreased as seen from the FRA 2010 data for the year 2005. In the last decades considerable changes in ownership structure took place.

Table 2: FRA categories for Slovenia

Ownership type	**Forest area (1,000 ha)**	
	2005	**2012**
Public ownership	323	263
Private ownership	920	922
...of which owned by individuals	885	891
...of which owned by private business entities and institutions	n.a.	
...of which owned by local communities	35	31
...of which owned by indigenous / tribal communities	0	
Other types of ownership	0	
TOTAL	**1,243**	**1,185**

Ownership structure of the forest has changed in recent years, mainly due to the denationalization procedures. Since 1996, the area of State forests has been decreasing constantly and the area of private forests has been on the increase. The ratio of the areas of state and private forests (including local communities) changed from 33.9:66.1 in 1996 to 22.2:77.8 in 2012 (SFS, 2013).

4.2. Unclear or disputed forest ownership

In Slovenia official statistics or public forestry service do not publish data on unclear or disputed ownership in their annual reports. Therefore, it can be concluded that there are no areas where ownership is unclear or disputed.

4.3. Legal provisions on buying or inheriting forests

4.3.1. Legal restrictions for buying or selling forests

Forests can be freely traded taking into account restrictions from the Forest Act (Official Gazette of Republic of Slovenia No. 30/93 and its subsequent amendments) and the Agricultural Land Act (Official Gazette of Republic of Slovenia No. 59/96 and its subsequent amendments). The purchase of forest is conducted according to the procedure prescribed by the Agricultural Land Act.

Forest Act (1993, 2007) describes pre-emptive rights of forest owners. The owners of land which borders on forest which is being sold shall have priority right of purchase to this forest. If this priority right is not exercised, then the priority right of purchase shall fall to another owner whose forest is nearest the forest which is being sold.

Forest Act (1993, 2007) also adequately defines the pre-emptive rights of the Republic of Slovenia in order to enlarge the complex of state forests. The Republic of Slovenia has a pre-emptive right to purchase a protective forest and forests with a special purpose (Forest Act, 1993). Furthermore, the Republic of Slovenia has the pre-emptive right to purchase the forest in complex greater than 30 hectares (Forest Act, 2007). Also the local communities have a pre-emptive right to purchase forest if there is special stress in the functions for which the forest was declared a forest with a special purpose, in the interest of the local community. If the local community does not exercise its priority right to purchase, the right shall fall to the owner whose land borders the forest which is to be sold. Based on Agricultural Land Act (2011) the pre-emption right is given also to the farmers whose land borders the land that is being sold.

In Slovenia private forest properties are very fragmented. Therefore Forest Act prevents further fragmentation. According to the Forest Act (2010) forest plots of less than 5 ha are not permitted to split, except in the construction of public infrastructure, if the plot or part of the plot is not planned to be used as forest and if the plot is in joint ownership with the Republic of Slovenia or the local community.

4.3.2. Specific inheritance (or marriage) rules applied to forests

Inheritance law has an important impact on the land ownership structure. In 1868, Austro-Hungarian legislation permitted the division of farm households among heirs, which contributed to the substantial subsequent fragmentation of the farm property. The possibilities for farm partition were reduced in 1973 by adoption of the Law on Agricultural Inheritance which introduced the category of “protected farm” and prohibited the division of such units. The protected farm is defined as agricultural or agricultural/forestry unit owned by one or several persons linked by marriage or close affinity; its size should be no less than five but not more than 100 hectares of so-called “comparable agricultural land”. The 1995 Law on Farm Inheritance (Inheritance of Agricultural Holding Act) maintained the concept of protected farm and stipulated that such farm could be inherited by a single successor only. The law determines the procedure by which the successor of a protected farm is defined. If a protected farms owned by a single owner and there are several lawful successors, the farm is inherited by the one who intends to cultivate the land with the consent of all other successors. If agreement is not reached, preference is given to the spouse or descendants that are qualified or are being educated to undertake agricultural or forestry work. Among these candidates, preference is given to those who have grown up on the farm and have contributed to its development (Review of Agricultural Policies, Slovenia, 2001). In case of forest land, it is manly a subject of family heritage and inheritance is

regulated by Act on inheritance of agricultural land and private agricultural holding (1973).

4.4. Changes of the forest ownership structure in last three decades

Commons are not understood as particular type of ownership but as private ownership, state steered into co-ownership.

4.4.1. Changes between public and private ownership

Table 3 shows that the share of privately owned forest has increased during the last decades, due to denationalization process.

4.4.2. Changes within public ownership categories

There are no changes within public ownership categories.

4.4.3. Changes within private forest ownership

The changes in the private forest ownership are identified in the last decades (Table 3), as the share of family farms is decreasing and new types of forest owners have occurred.

4.4.4. Main trends of forest ownership change

Across Europe, the following drivers for ownership changes had been identified in the COST Action:

- Privatization, or restitution, of forest land (giving or selling state forest land to private people or bodies),
- Privatization of public forest management (introduction of private forms of management, e.g. state owned company),
- New private forest owners who have bought forests,
- New forest ownership through afforestation of formerly agricultural or waste lands,
- Changing life style, motivations and attitudes of forest owners (e.g. when farms are given up or heirs are not farmers any more).

The ownership structure has been constantly changing owing to a number of factors: property inheritance, land trading, land use changes etc. In Slovenia, the small-scale private forest property has predominated for a long time following the land reform in 1848, when the share of the small-scale private property exceeded 75% of the forests, which was the highest share in all countries under Austrian rule at that time (Žumer, 1976). In the early 20th century (Winker and Medved, 1994), the forests were still mostly owned by small private forest owners (52%), while a fairly high share of the forests was in the hands of large forest owners (30%). The state and administrative units owned approximately 4% of the forest, while the rest belonged to the church (6%) and municipality (8%). After the Second World War, large forest properties were nationalized whereas rural and other private property was limited by size (farmers were allowed to possess up to 45 ha, non-farmers up to 5 ha). In the period from 1945 until 1991, during the times of socialism, private property was restricted by law according to the size of the estate as well as with respect to its management (obligatory tree cut and sale of timber). After 1991, when Slovenia stepped on the path of democratisation and gained its independence, the Government adopted legislation on denationalisation of all expropriated possessions (e.g. farmers, agrarian communities, church) after the Second World War (Medved, 2004). Today the consequences of this law are reflected in the increased diversity of private forest ownership in the increased surface area of the private forests and the greatly increased number of (co)ownership relations due to the transfer of property rights to all eligible successors.

Table 3 presents the trend of changes in ownership in Slovenian forest after 1950. After 1951, when Slovenia had 67% of privately owned forest, the share gradually decreased until 1990. Owing to denationalization, however, a trend of their increase was eventually noticed.

Table 3: Development of ownership structure in the last six decades (Medved, 2009)

Year	Family farm forests (%)	Other private forests (%)	State forests (%)	Source
1951	64	3	33	Ivanek, 1954
1970	55	9	36	Winkler, 1970
1985	37	25	38	Winkler, Gašperšič, 1987
1995	62		38	FAO, 2010
2000	35	36	29	Medved, 2003
2010	30	47	23	Medved, 2010

Table 4: Trends in forest ownership change

Trends in forest ownership: New forest ownership through…	Significance*
• Privatization, or restitution, of forest land (giving or selling state forest land to private people or bodies)	3
• Privatization of public forest management (introduction of private forms of management, e.g. state owned company)	0
• New private forest owners who have bought forests	2
• New forest ownership through afforestation of formerly agricultural or waste lands	2
• Changing life style, motivations and attitudes of forest owners (e.g. when farms are given up or heirs are not farmers any more)	3
• Other trend, namely:	

** 0 (not relevant); 1 (to some extent); 2 (rather important); 3 (highly important)*

CASE STUDY 1: CHANGES IN THE FOREST OWNERSHIP STRUCTURE DUE TO DENATIONALIZATION AND THE IMPACT ON FOREST MANAGEMENT

Short Description: Winkler and Medved (1995) find in their research that political and economic change after 1990 brought about considerable changes in the ownership structure. Ownership structure of forests has been affected particularly by the process of nationalisation of forests after the Second World War. Under the Denationalization Act, which was adopted in 1991, approximately 180,000 ha of forest should be returned to former owners. The surveys show that for 60% of the owners, the return of a forest property means an increase in their property, whilst 40% of the claimants had not had a forest property so far. Half of the claimants are non-farmers. The average size of forest property returned to the private sector is 30 hectares, which is to be shared on average by three heirs. Approximately 50% of heirs have already agreed on how property would be shared. Most of them are of the opinion that the returned forest would be divided physically among the heirs, 15% want to manage the estate jointly and 27% share the opinion that one of the heirs would become the sole owner, who would buy out the other heirs in 2-3 years. The owners surveyed were asked about their opinions on some aspects of the management of a forest property. According to the analysis, forest property is important for farmers, especially the production of technical wood for sale and maintenance, and the production of wood for heating. On the other hand, forest is primarily regarded as a financial reserve by non-farmers or new owners. They give high importance to the sale of a forest under favourable conditions. Also new owners will not manage their forests - a quarter of them are going to hire a manager. Due to such a long tradition of private ownership and the already mentioned literature, a strong symbolic affiliation of population can be traced, predominantly positive, so the process of denationalisation will lead to an increase in the number of forest owners, though the average size of private forests will remain virtually unchanged.

4.5. Gender issues in relation to forest ownership

The gender structure of private forest owners shows that 51.3% of them are males and 48.7% females. While both genders are represented equally in terms of the number of forest owners, males are by far predominant in terms of forest area. Males own 61.6% of the private forest area, while females 38.4% (Medved et. al., 2010). According to Bogataj (2010) female forest owners became owners through inheritance. They are around 45 years old (only 1% of them are younger than 26 years), with low formal education, with a broad range of experiences, living in the countryside and prioritize social and ecological functions of forest.

4.6. Charitable, NGO or not-for-profit ownership of the forests

This section is concerned with forests owned by organisations such as conservation and heritage NGOs, self-organised community-based institutions and other philanthropic ("Characterized or motivated by philanthropy; benevolent; humane" Oxford English Dictionary) organisations. The management objective for these forests is usually to deliver

social or environmental aims with maximisation of financial or timber returns as a secondary concern. Most owners are corporate and may invoke at least an element of group or participatory decision-making on management objectives and high ethical standards. It is possible for such ownership to be entirely private. However, the provision of public benefits (services (e.g. biodiversity, amenity, recreation etc.) which are free for everyone to enjoy or provide benefits to local communities (employment for disadvantaged people etc.) are sometimes recognised in the form of charitable registration. This in turn puts restrictions on the rights of the owners to use profits and to dispose of assets in exchange for tax exemptions and access to charitable funding.

After the Second World War a radical agrarian reform was carried out in Slovenia. Private ownership was limited by the agricultural land maximum, which was established separately for farmers (20-35 ha of agricultural land and 10-25 ha of forests, with the overall maximum of 45 ha) and non-farmers (up to 3 ha of land in lowlands and up to 5 hectares of forest in forest area). One of the main goals of agricultural land policy at that time was to increase the share of state and later socially owned[1] land (Avsec, 2005). As Commons are neither of them, a separate Act is provided, usually amended (ZPVAS, 1994).

The Denationalization Act from 1991 settles the privatization of that part of social property that was created as a result of nationalisation of private property after the Second World War. The nationalised property was returned primarily in kind. Beneficiaries of denationalization are individuals whose property was nationalised and their heirs as well as legal persons (e.g. church and religious communities) (Avsec, 2005). So the potential for getting new ownership categories (like charitable, NGO or not-for-profit) was low. Nevertheless, for identification of this ownership categories Land and Property Register from the Surveying and Mapping authority of the Republic Slovenia (SMARS, 2007) was used.

FOUNDATIONS OR TRUSTS: There exists at least one foundation. It is called 'The Pahernik Foundation'. This foundation manages 552 hectares of forests. The revenue is used for funding research activities at the Biotechnical Faculty, Department of Forestry and Renewable Forest Resources and for scholarships for faculty students.

NGO: There are 174 hunting and fishing clubs/societies that own forest in Slovenia. With the exception of some hunting clubs, they own just a small size/area of forest around the club house. Furthermore, we have another 121 associations that own forests but their share is not important.

SELF-ORGANISED LOCAL COMMUNITY GROUPS: Traditional ACs, here represented as self-organized local community groups, are present in Slovenia and there are presented in chapter 4.7.

FOREST CO-OPERATIVES/FOREST OWNER ASSOCIATIONS: Cooperatives (n= 86) own in total 1564 ha of forests. The biggest share of forest is owned by *Zgornje savinjska* cooperative (388 ha), followed by *Mozirje-Ptujska* cooperative with 164 ha, *Ruše* cooperative with 144 ha and agriculture-forestry cooperative Lesce (114 ha). Forest owners' association does not possess forest land.

OTHER: Slovenian Roman Catholic Church with its monasteries, parishes and dioceses is an important forest owner. They own in total almost 30.000 ha of forest, which represents 3% of all forests in Slovenia. As an organisation with charitable activities, we can classify it under the category of charities.

[1] Social ownership is usually comparable with state ownership. Yet, the term was used in the former Yugoslavia to refer on the model of cooperative enterprise.

Table 5: List of different Charitable, NGO or not-for-profit forest ownerships

Forests owned by…	Yes	No	Uncertain
Foundations or trusts	X		
NGO with environmental or social objectives	X		
Self-organised local community groups	X		
Co-operatives/forest owner associations	X		
Social enterprises		X	
Recognized charitable status for land-owners	X		
Other forms of charitable ownerships, namely:	X		

4.7. Common pool resources regimes

In Slovenia an official term of "agrarian commons" is used to describe Commons, which exist for centuries under diverse terms. Agrarian commons have been re-established since Slovenian independence on the basis of legislative restitution (ZPVAS, 1994). AC's in Slovenia have similar principles of management as other forms of CPR management known in neighbouring countries and worldwide.

Slovenian AC's share typical characteristics with commons in neighbouring countries and worldwide. They share experience of nationalization and restitution with other post-communist countries like Czech Republic and Slovakia.

According to the Register there are 547 commons in Slovenia. Members in these ACs manage slightly less than 80,000 hectares of land, mainly forest and pasture land. They are facing some problems in relation to legal system and restitution process and some problems regarding the statutory changes in membership – appearance of non-farmers and non-resource users' members - as result of the restitution model (Premrl, 2013) and (Premrl, 2014). However, their revival from the nineties is obvious (Bogataj and Krč, 2014), so recent studies (e.g. Rodela, 2012) contribute not only to filling up the gap of using their experience in forest management, but also to public recognition of their practice. Moreover, they extend beyond resource management which is particularly relevant due to fragmented property and goals, not linked to production.

CASE STUDY 2: AGRARIAN COMMON RAVNIK ORLOVŠE

AC Ravnik Orlovše. This common has 112 members who own in total 657 ha of land; 630 ha of forests and 27 ha of pasture land. AC was reinstituted after political changes in the 90s. The majority of members are citizens of nearby towns. Half of them regularly harvest fuel wood from commons' forest for household needs. Annually they harvest around 2.000 m^3 with subcontractors and sell wood. The income from harvesting is needed for some silvicultural works, investments in forest roads network, donations to the local community. But the majority of income is distributed among members of the AC (Premrl and Krč, 2010).

5. Forest management approaches for new forest owner types

The Action is interested if there are any new forest management approaches that specifically address new forest owner types, or that could be particularly relevant for new forest owner types. We are aware that there is not much awareness for this and that there is not much literature available, however, we are convinced that this is an issue: if owners have different goals for their forests there must be new kinds of management, if they have not the skills any more to do it themselves then there must be new service offers, etc. There are assumingly implications in silvicultural, technology, work organisation, business models, etc. Such new approaches may be discussed under the key word of new ownership types but often not.

5.1. Forest management in Slovenia

Most of the privately owned forests are still managed by natural persons, typically by individual owners and their family members. The prevalent working model of active private forest owners is for the workers to do the work by themselves, although the number of family farms with forests and their round-wood production has gradually decreased in the last 10 years (SURS, 2014, table 6). There was an increase in the fuel-wood production for sale from family farms by the index of 1.20 from 2000 to 2010. In addition to the decrease of family farms with forests (table 6), the proportion of forests in the total farm size decreased as well. In 2003 and 2007, the proportion of forests in the total farm size was 1.5% and 2.9%, respectively, less than in 2000. The number of farms living from forestry decreased in the last decade (Figure 2). Conversely, there has been a rising trend in private companies offering services of forest operations for more than a decade; the proportion of proprietorship and companies slightly increased indicating gradual professionalization of forest work in private forests (Figure 2).

Table 6: Reported cut of the family farms and their number in the period 2000-2010 (SURS, 2014)

	Year	Total cut	Round-wood for domestic purposes	Round-wood for sale	Fuel-wood for domestic purposes	Fuel-wood for sale
Cut (m3)	2000	1,286,868	107,578	362,341	658,810	72,538
	2003	1,316,431	102,166	344,998	701,666	90,855
	2005	1,423,074	107,088	370,669	774,147	103,263
	2007	1,557,151	126,554	498,843	728,342	122,176
	2010	1,357,867	87,449	346,298	705,447	144,264
Number of family farms with forests	2000	51,571	7,687	9,746	47,528	3,106
	2003	46,909	5,763	8,072	43,215	3,855
	2005	50,480	5,903	8,213	47,041	4,051
	2007	47,713	6,212	8,334	43,798	4,313
	2010	42,624	4,938	5,930	38,901	4,643

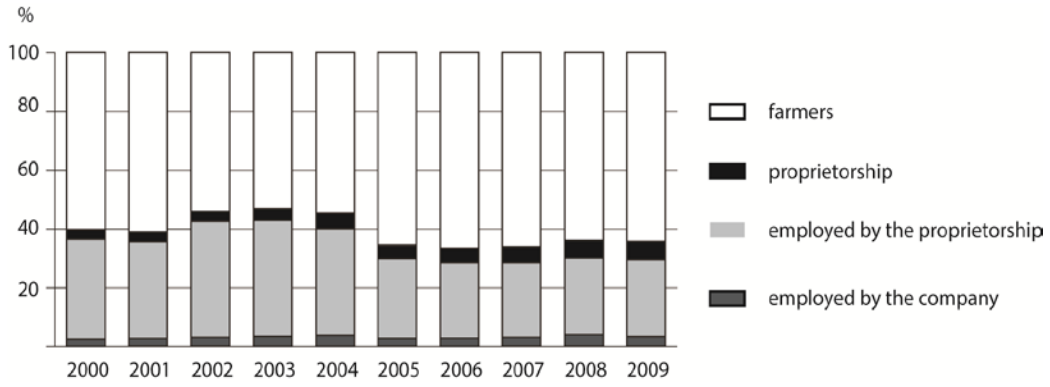

Figure 2: Employment structure in forestry in Slovenia (adapted after Gale et al., 2011)

There are no reliable data on the proportion of absentee owners for the last 30 years and the definition of the absentee owner is rather broad. However, two case studies from two forest management areas in the north-west of Slovenia (Ficko and Bončina, 2010a, 2013b) indicate that the proportion of the owners not personally managing their properties is significant; it amounts to approximately 10%.

Given the fact that the realized supply of wood from private forests is on the decrease and on average reaches only 65% of the allowable cut (Figure 3) and that we are being faced with the urbanization of the lifestyle (e.g. Hogl et al. 2005), it may be expected that the traditional business models for wood supply will no longer be dominant in the next decades.

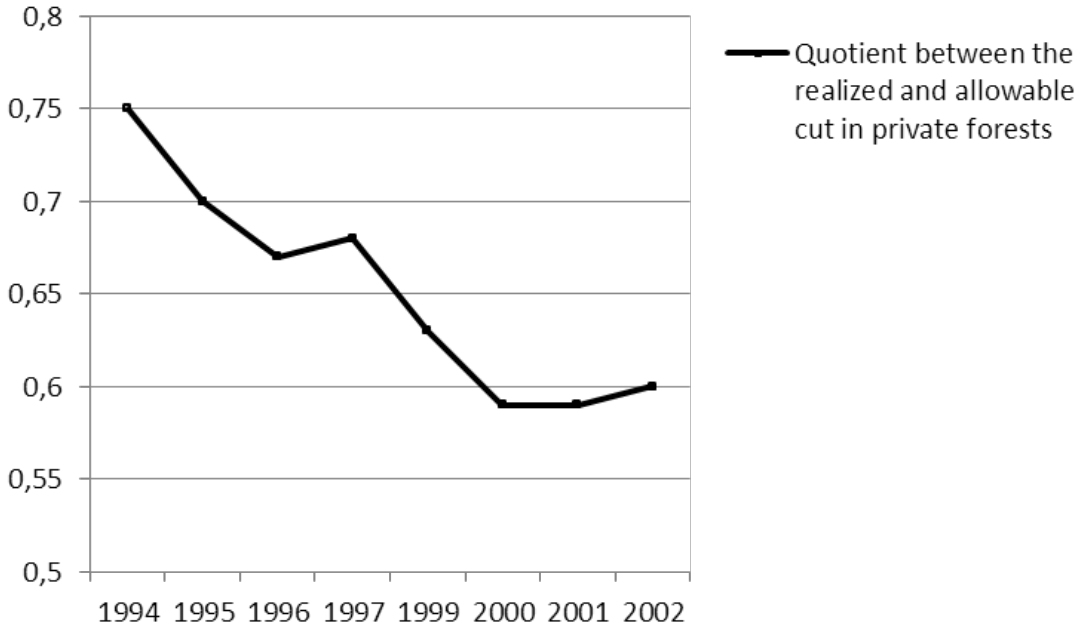

Figure 3: Quotient between the realized and allowable cut in private forests (adapted after Tavčar, 2005)

Forest owner associations typically do not formally possess forests. They were formed on a voluntary basis in the 2000s to better serve the interests of their members and to secure certain benefits, such as networking, education, common organization of the cut and selling including high quality auctions, taking care of building forest roads in fragmented ownership etc. The number of forest owners associations is increasing, with the first one established in 1999. They can be seen as the pioneers of several new management approaches in fragmented small-scale forest properties. Alliance Of Private Forest Owner Associations established in 2006 helps forest owners to promote their wood more efficiently by organizing high-quality timber auctions, taking care of the promotion of new forest mechanization among the members, and keeping the owners informed by establishing and maintaining the Web portal *Moj gozd* ("*My Forest*") (Moj gozd, 2014). *Moj gozd* portal provides information about the current wood selling prices and forest operation services, lists open contracts and tenders, and informs about the events related to forest management and forest operations.

State Forest Enterprises which were responsible for forest management of state-owned forests and planning before 1992, were partly succeeded by the Slovenia Forest Service (planning), and partly by private companies (forest operations), which gained 20-year concessions for wood exploitation in state-owned forests. State-owned forests are officially owned by the Farmland and Forest Fund of the Republic of Slovenia (OG RS, 2010a). The concessions will expire in 2016. This may bring new impetus in the development of private forestry, particularly the segment of mountain farms, which was secured to have the priority right to apply for the concession for state owned-forests (OG RS, 2010b). As a result, more professionalization in terms of technical

equipment, work organization and business orientation of private forestry is expected for the larger forest properties in the mountainous areas.

5.2. New or innovative forest management approaches relevant for new forest owner types

We identify the following processes in private forest management as relevant:

1) A decrease in silvicultural measures: The number of silvicultural measures applied in private forests has decreased (Table 7), despite the incentive schemes available for some of the measures. Diaci and Grecs (2003) identify the decrease in silvicultural activities as one of the major problems in Slovenian forestry. However, the problem may have more to do with low profitability of forest work in general than being a direct consequence of new forest owner types with no forestry or agricultural background. Recently, when the prices and the demand for fuel wood increased, the cut increased as well, but it did not lead to an increase in the number of silvicultural measures (Table 7). New silvicultural approaches have been studied mostly for state-owned forests (Diaci et al., 2006) in a project searching for cost-efficient tending. The recommendations for the improvement in silvicultural are given in Roženbergar et al. (2008).

A general conclusion of these two studies was that German and French tending models for beech forests (which prevail in Slovenia) with the reduced number of crop trees (100, 80, respectively vs. the conventional number of approximately 130) could also be applied in Slovenian forests. In addition, natural automation and biological rationalization were considered to be an additional option for improving the silvicultural faced with rising tending and labour costs. Krč and Diaci (2001) studied tending priorities of young stands using multiple criteria aiming for an increase of productivity and reducing the costs. Krajčič and Kolar (2000) surveyed forestry workers to determine their acceptance of minimal tending techniques. The study showed high determination of forest workers on the positive effects of minimal tending evidenced by saved time in both marking crop trees and felling the competitor trees. However, the study showed that minimal tending is not a less time consuming technique than the classical tending. Triplat (2010) published a research on the effects of different thinning regimes in private forests. However, the study was carried out in an ex-state-owned forest that was later reinstituted to a private forest owner, meaning that there was no direct involvement of private forest owners in the study design. Thus we have no evidence that private forest owners have significant interest in accepting new silvicultural approaches.

Table 7: Regeneration, tending and protection in private forests in the period 1980-2012 (after denationalization in 1993, private forests of natural and legal persons are taken into account) (Source: Statistical Yearbook 1995, 2013)

Year	Regeneration (ha)	Tending (ha)	Protection (hours)
1980	1,999	11,187	-
1985	2,995	13,116	-
1990	1,491	8,247	-
1991	915	7,619	5,107
1992	1,139	4,197	4,768
1993	741	2,546	9,074
1994	358	2,554	19,148
1995	511	2,974	52,296
2000	1,573	6,777	69,073
2005	1,201	4,646	132,630
2008	1,054	3,180	93,650
2009	940	2,310	78,403
2010	909	2,628	82,316
2011	961	3,443	78,129
2012	589	1,958	37,250

2) Professionalization of forest work: Figure 2 shows that the forest work market is slowly developing, though innovative approaches in work organization and business models are still scarce. There is an evident shift from the self-work to outsourcing.

3) Forest owner-oriented forest management planning: In the late 2000s, the idea of forest management planning in private properties proliferated, though the idea of private forest property plan (FPP) had been introduced earlier (e.g. Bončina, 2003). Some district foresters at the Slovenia Forest Service initiated the voluntary campaign to activate the owners. They started making silvicultural plans extended with economic evaluation for a selected number of forest owners in the district they were in charge of. Approximately 20 to 30 private property plans of a rather simple form were made to stimulate the owners to manage their forests more regularly. It is important to note that such efforts of district foresters were fully voluntary and not officially encouraged by the SFS or resulting from a policy initiative. The content of such plans was rather simple and limited to the silvicultural/operational plan for the property and the calculation of the costs. The idea of the FPP was first formalized in the context of participatory planning techniques (Papler-Lampe et al., 2004). Ficko et al. (2005) presented two proposals for the adaptation of forest planning that relate to forest-owner oriented planning. The first one deals with the content and possible spatial categories of detailed planning, which should be more diversified. The second proposal introduces the Forest property plan (FPP) as a planning instrument within the current forest planning concept. The FPP may differ in content and complexity depending on the size of the property and the owner´s interests. Problems with different interpretations of such plans which are expected due do different interests of the participants in forest planning were also discussed. The feedbacks from the owners in terms of their interest for a FPP and their willingness to pay for it have already been collected by the surveys in 2010 and 2013 and partly published (Ficko and Bončina 2010a, 2011). However, detailed WTP analyses were finalized in August 2014 and should be available publicly in 2015.

5.2.1. Other phenomena related to innovative forest management

In the last few years, we have been facing increased pressures on forests especially in suburban areas but also in the rural areas with intensive agriculture. Many applications for consent to interventions in the forests in the last few years illustrate this. In 2012, the SFS recorded 2,405 interventions in forests with a total area of 415 ha, which is approximately twice as much as in the period 1995-2005. By far the most important cause for the intervention in the forest was agriculture (76%), far behind was infrastructure (9%), and the third factor/cause was urbanization (5%) (SFS, 2012). This indicates that the traditional family-run farms, having the potential to grow into a small production facility, increased their production substantially also by converting low productivity forests or forest remnants into agricultural land.

Additional concern regarding forest management by new owners is related to the non-approved cut in private forests. Though we have no reliable evidence that this phenomenon is specifically associated with new forest owner types, the problem will likely increase in the future with rising demands for wood and increasing numbers of non-traditional forest owners. In the period 1994-2005, the registered cut in predominantly privately-owned forest management units (n= 13) captured only 45.7% of the realized cut, which yielded 4.3% higher cut than the one approved in FMPs (Medved and Matijašić, 2007). A similar conclusion was reached by Medved et al. (2005), who compared the official statistics on cut in private forests for the period after 1990 with the results of family farms surveys from 1990, 1995, and agricultural census in 2000. They found that the realized cut in private forests slightly exceeded the planned one in the period before 1990. They also found a substantial discrepancy between the official cut statistics and the realized cut in the early 1990s, which is the period of forestry reorganization. However, they estimate that the realized cut did not exceed the planned cut.

5.3. Main opportunities for innovative forest management

We identify the following opportunities for forest management in private forests in the future:

1. *Mobilization of wood resources by activating new work and business models*

The innovativeness of private sector and particularly of the owners themselves is low (Šinko, 2009). The cooperation of forest owners is mostly limited to voluntary and ad-hoc networking. There is almost no long-term strategic cooperation and new forms of property governance develop only slowly. In the next decades, many business models from abroad could be applied in Slovenia such as long-term property lease, harvesting leasing, cooperatives, or contracting.

2. *Better organization and the transparency of woodlot market and round & fuel-wood market*

Many surveys (e.g. Tavčar and Winkler, 2005; Veselič et al., 2010, see Table 8) show that the obstacles to wood mobilization from private forests in Slovenia are related either to objective, physical constraints, such as poor openness of forests with roads, not knowing plot locations, etc., or to other constraints, which can be considered transitory, such as low timber prices, no qualification for forest work or too expensive forest operations. The constraints are not related to conceptual reasons such as extreme forms of nature protection. The non-intervention forest management, which is reported to be the prevalent conceptualization of forest management by forest owners in some European countries (e.g. Lawrence and Dandy, 2014), is not adopted by the Slovenian forest owners (Ficko and Bončina, 2015). However, new forest owners will likely need more organized and transparent environment to manage their properties efficiently or in cooperation (e.g. new e-tools for easier decision-making, more advanced communication) unless we want the management of private forests to be left under-controlled.

3. *Marketing of non-wood products and services*

Many properties are too small and in addition their owners have no production goals. Some private forests are of no special importance for wood production. Demands for natural environment and convenient livelihoods may be compensated with the use of different types of financing instruments for ecosystem services that private forest owners offer in such popular areas. This might contribute to a spin-off of a new dwelling culture, particularly in the sub-urban areas, while at the same time help to preserve the land from deforestation.

5.4. Obstacles for innovative forest management approaches

We report some conclusions of the recent surveys on management constraints in private forest management as perceived by private forest owners (Table 8). Though not all surveys used the same study design and the same set of variables for identifying possible constraints, and some of them were case studies, we can draw some conclusions on the major reasons for inefficiency. Private forest owners underuse their wood resources mostly due to objective constraints (physical constraints in forest work, dissatisfaction with the timber market, lack of skills, unclear borders, not knowing plot locations, lack of time to manage). This indicates that although family farms represent only 33% of all forests, the new owners who no longer belong to a socio-economic type of family farms (i.e. 37%, Medved et al. (2005), still maintain some relation to their properties in terms of traditional forest management. Looking from another point of view this could also be the reason why the innovativeness of private forest owners is so low.

Table 8: Comparison of main constraints for the underuse of wood resources in private forests based on selected surveys (results transformed to ranks, given also principal components and item loadings for (Ficko and Bončina, 2010b; 2013c)

	Tavčar and Winkler (2005)	Veselič et al. (2010)	Ficko and Bončina (2010b)				Ficko and Bončina (2013c)			
	N=86[1]	N=648[2]	N=67[3]				N=103[3]			
	Rank	Rank	Rank	Factors[4]			Rank	Factors[4]		
				1	2	3		1	2	3
I don't need wood	1	N/A	7	.209	.782	-.054	10	.216	-.022	.662
I have my forest as a reserve	2	N/A	1	.087	.637	.004	7	.345	-.067	.635
Forest operations take too much costs	3	N/A	3	.477	.390	-.100	5	,608	,104	,023
Timber prices are too low	4	N/A	2	-.211	.003	.439	9	,420	,208	,207
No cut is necessary	4	N/A	8	-.111	.643	.293	13	-,003	,067	,651
I don't need money from wood	6	N/A	15	.212	.284	.148	14	,112	,230	,607
I am not qualified for forest work	7	N/A	11	.900	.004	.134	3	,685	,295	,204
I am not properly equipped to work in forest	8	N/A	13	.923	.052	.105	4	,789	,275	,130
The work in forest is life dangerous	N/A	N/A	10	.899	.105	-.039	2	,866	,066	,100
The work in forest is physically demanding	N/A	N/A	9	.855	.063	-.062	1	.810	.048	.169
My forest property is too small to be efficient	9	7	5	.422	.453	.048	6	.505	.144	.274
I was not called for cutting	10	8	14	.744	.052	.197	11	.254	.446	.359
The openness of forests with forest roads is poor	11	1	4	.263	.086	.468	8	.249	.506	-.172
The boundary lines are partly unclear	12	3-5	16	-.071	.156	.844	15	.081	.771	.112
I don’t know the exact locations of the parcels	13	N/A	17	.177	.165	.774	16	.007	.849	.110
I don’t have time to manage the forest	N/A	N/A	6	-.161	.765	.252	12	.135	.566	.278
The allowable cut is below my desire	N/A	N/A	12	-.220	-.030	.097	17	.340	.639	-.083
Fear against tick-borne diseases and wild animals	13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ungulates	N/A	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Distance between my residence and my forest	N/A	3-5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

[1] *Case study: a combined telephone, face-to face, and postal survey, ranking.*

[2] *Representative sample: postal survey, ranking.*

[3] *Representative samples: N= 380 (face-to-face interviews in 2010), and N= 754 (telephone interviews), of which only the self-perceived inefficient owners rated the relevance. Transformed to ranks.*

[4] *Extraction Method: Principal Component Analysis, rotation method: Varimax with Kaiser Normalization*

CASESTUDY 3: PRIVATE FOREST PROPERTY PLAN

The Department of Forestry and Renewable Forest Resources, Biotechnical faculty, the Chair of Forest Management and Planning also researches forest-owner oriented management planning. The research should serve as a basis for adaptation of forest planning concept towards forest-owner friendly and efficient forest management. The vital part of the research is the series of surveys on forest owners' attitudes towards private forest property plan (FPP). The results from the 2004 survey show that most of the forest owners have never heard of the forest property plan, although some practical examples have already been made available for private properties of different size and socio-economic statuses. In 2004, 11.3% of the interviewed owners were familiar with the FPP in forest management region Bled, and in 2009 13.9% were familiar with the FPP in Forest Management Region (FMR) Kranj and 14.0% in FMR Slovenj Gradec. Forest owners possessing more than 30 ha of forest land are significantly better informed about the FPP than all the other forest owners in all management regions. Nearly 43% of the interviewed shared the opinion that FPP might nevertheless be useful for management. On the other hand, 71% would not share the costs for the elaboration of the FPP. The FPPs should be produced as modern forest property plans and act as new supportive instruments for strategic and operative planning at the level of forest owner. The concept has recently been theoretically developed (Papler-Lampe et al. 2004; Ficko et al., 2005). The aim of a FPP is to help the owners to manage their properties and to support them in business oriented activities. It emphasizes private interests while taking all public interests into account. The research consists of 4 basic steps: (1) analysis of forest owners' conceptualization of forest management and resource-efficiency; (2) analysis of forest owners' decision-making types; (3) willingness-to-pay analysis for FPP; (4) analysis of forest owners' experiences with FPP prototypes.

6. Policies influencing ownership development / Policy instruments for new forest owners

Policy and ownership are related in various ways: policies directly or indirectly influence ownership development or even encourage or create new forms of ownership; and policy instruments are emerging that answer to ownership changes, including instruments addressed to support new types of owners e.g. through advisory services, cooperative or joint forest management, etc.

6.1. Influences of policies on the development of forest ownership

For a description of the contents of forest policy dealing with forest ownership, we use the approach which divides the content of public policy into problems, objectives and instruments (Pal, 1997) and is presented in Table 9 for state forests and in Table 10 for private forests.

The description of the contents of the forest policy was designed according to the Resolution of the National Forest Programme (2007) (ReNFP), which is the basic strategic and non-binding forest policy document and which defines the national forest policy. The contents of forest policy in columns 1 to 3 (Table 9 and 10) are presented in ReNFP and in the fourth column of the respective tables are the instruments of forest legislation.

Table 9: Issues connected to ownership of state forests

Resolution on national forest programme			Legislation
Problem	**Aims**	**Guidelines**	**Instruments**
Low share of state forests	Increase the share of state forests.	Adequately define the pre-emptive right of the Republic of Slovenia with regulations in order to enlarge the complex of state forests.	Low share of state forests
Make criteria for priority purchase of forests with emphasized ecological and social functions and implement active purchase policy.	Forests act (1993)		Make criteria for priority purchase of forests with emphasized ecological and social functions and implement active purchase policy.

Table 10: Issues connected to ownership of private forests

Resolution on national forest programme (ReNGP)			Legislation
Problem	**Aims**	**Guidelines**	**Instruments**
Private forest holdings are very fragmented (with the average size of 2.6 ha),	Stop further fragmentation of forest holdings	Amend regulations which will prevent fragmentation of holdings and stimulate their association.	Private forest holdings are very fragmented (with the average size of 2.6 ha),
Forest owners on average have poor technical equipment	Efficient timber production	Accelerate the use of modern technologies and organisation forms	Forest owners on average have poor technical equipment
Only 60% of the possible timber removal determined in FMPs is implemented silvicultural works are difficult to be implemented even in the scope which is financed by state and European Union (EU) funds.	Provide implementation of necessary cultivation and protective works in forests.	Only 60% of the possible timber removal determined in FMPs is implemented silvicultural works are difficult to be implemented even in the scope which is financed by state and EU funds.	Provide implementation of necessary cultivation and protective works in forests.
Private forest owners are insufficiently professionally competent, which results in frequent accidents at work.	Intensify education of forest owners and counselling.	Increase the number of educational workshops for the work in forest and with forest and expand their content (in particular in the area of economy	Forests Act – Art. 53

Lack of links among forest owners in the implementation of works in forests and sale of wood			Lack of links among forest owners in the implementation of works in forests and sale of wood
Insufficient competence of forest owners for the work in forests	Provide implementation of works in technologically modern and safe way.		Insufficient competence of forest owners for the work in forests
Low level of innovation in the marketing of other functions of forests, related to non-wood forest products and services provided by forests;	Improve marketing of forest wood products, other forest products and functions of forests.	Provide education and marketing counselling to forest owners.	Low level of innovation in the marketing of other functions of forests, related to non-wood forest products and services provided by forests;

The two most relevant issues in the field of forest ownership are: the (low) share of state forests and the fragmentation of private forest property. The ReNFP also tackles the issue of distribution of private forest owners on farmers and non-farmers, but it is less relevant to the content of forest policy (e.g. instruments). Other types of forest property (e.g. municipal, common) are not formally subject to specific forest policy instruments.

Denationalisation in Slovenia began in 1992 and until 2014 99% of nationalized property was returned to their rightful owners. Specific data on forests are not available, but we estimate that the return of nationalized forests is practically completed.

After completing the denationalization of forests there will be around 20% of state forests, which is perceived in Slovenia as too low and as such an important problem. Before the transition there were about one-third of publicly-owned forests. The aim of forest policy is to increase the share of state forests, so the Fund of Agricultural Land and Forest (FALF) buys forests and increases the share of state forests. Area of purchased of forests depends on the profit for the year, strategy and the decisions made by FALF. FALF also sells smaller state forests due to rounding its possession and ensuring efficient management. The country has a pre-emptive right to purchase forest complexes larger than 30 ha and protective forests and forests for special purposes, when they are declared as such by the state.

Forest area in Slovenia is constantly increasing, mainly due to spontaneous afforestation (overgrowth) of abandoned agricultural land. Therefore, there is no program for afforestation of agricultural land in Slovenia.

6.2. Influences of policies in forest management

Forest management plans are mandatory for all forests in Slovenia irrespective of the type of ownership or size of the forest and are the basis for the management of all forests (private and public). Therefore, the ownership of the forest is not a very important factor for the goals of forest management. FMP are made at three levels (regional unit, forest management unit and silvicultural plan). Public forest service makes plans free of charge for forest owners. Plans are adopted by the Ministry of Agriculture and the Environment and the Government of the Republic of Slovenia. The validity of the plans is ten years.

FMP identify the fundamental objectives of forest management (also in private forests). Private forest owners have the opportunity to influence the content of plans in the process of participation, but the owners do not often choose to participate although Forestry law provides a detailed procedure for participation of forest owners in the forest management planning process. The draft forest plans are presented on public display for 14 days, followed by a public hearing. Participation is organized by the public forestry service, which, in cooperation with the Ministry of Agriculture and Environment, ensures proper informing of forest owners and other stakeholders. Participation of forest owners is small (probably less than 1% of owners).

The reasons for the low participation of forest owners in public hearings and public displays of drafts of plans may be:

- non-adjustment of topics and information in the presentation and draft FMP to non-expert audiences (crowded with specialist vocabulary and figures, graphs);
- hearings are moderated by public forest service;
- a lot of comments and contributions of forest owners and stakeholders are rejected by forest experts (public forest service) after the participation process;
- forest owners have low interest in forest management;
- they trust in the professional judgment of the public forestry service;
- small relevance of contents of FMPs in terms of liabilities (except the maximum allowable cut);
- the possibility of forest owners to influence the implementation of the FMPs.

Silvicultural plan is the basis on which the public forest service issues an administrative order to forest owners, after prior consultation and a joint selection of trees for possible felling.

The order defines:

- necessary silvicultural measures for reforestation and tending seedlings up to the care of saplings;
- necessary forest protection measures;
- guidelines and time limits for implementation and repetition of silvicultural and protective measures;
- quantity and structure of trees for the maximum possible felling;
- guidelines and conditions for felling and skidding timber;
- guidelines and conditions for obtaining resin and decorative trees.

A complaint against the order, lodged with the ministry responsible for forestry, shall be permitted. A complaint against an order does not delay its implementation.

The FMPs set the maximum allowable cut, which is mandatory for forest owners. Forest owners are entitled to compensation for restrictions on forest management, if forest management is affected by the social functions of forest (e.g. a forest of special purposes). State subsidies for silvicultural work in private forest are a form of compensation for restrictions on forest management of private forest owners.

The SFS affects the objectives of forest owners primarily through information instruments. The owners of forests are also influenced by non-financial incentives such as a prize for the best forest owners, although the criteria for the selection of the winners are not clearly defined.

6.3. Policy instruments specifically addressing different ownership categories

In Slovenia, the management of forests is equal and common for all types of property. The Forests Act (1993) explicitly defines the equality of all types of property. Thus, FMPs are produced as overall plans for all forests irrespective of ownership, taking into consideration only the particularities of individual regions (Forests Act, art. 9)

According to Forests Act (1993) rights of ownership to forest are exercised in such a manner that ensures their ecological, social and productive functions. The owner of a forest must:

- manage the forest in accordance with regulations, FMPs and administrative acts issued on the basis of the Forests Act;
- allow free access to and movement in the forest to others; except in cases of profitable tourist or profitable recreational activities;
- allow beekeeping, hunting and the recreational gathering of fruits, herbal plants, mushrooms and wild animals in accordance with regulations.

Owners of forests have the right to participate in procedures for preparing forest management and hunting plans and in the preparation of silvicultural plans. Their needs, proposals and requests shall be respected as far as it is possible and consistent with ecosystem and legal restrictions.

Forestry legislation of Slovenia does not deal with special categories of forest owners and therefore different categories of forest owners, which would be subject to the activities of forest policy, do not exist.

In Slovenia, two organizations deal with advising forest owners, the Public forest service since 1993 and the Chamber of Agriculture and Forestry of Slovenia (CAFS) since 1999: Slovenian Forest Service, in accordance with the Forests Act ensures education and provision of advice to forest owners (art. 56). The CAFS provides its members with generally expert advice and general technical assistance in the field of agriculture, forestry and fisheries. The CAFS also promotes, organizes and coordinates measures to improve working conditions and agriculture, forestry and fisheries (art. 4). Consulting CAFS is limited to only some areas of Slovenia and only to its members, who are mostly farmers.

Consulting of SFS and CAFS is free of charge but the extent of advisory activities depends mainly on the internal decisions of both organizations and government financing. In Slovenia there are no other providers of advisory services what can be a result of free services offered by SFS and CAFS, which may also prevent the development of market of consulting services for private forest owners.

ReNGP deals with issues, objectives and guidelines related to forest owners, but the implementation is unplanned, since there are no systematic programs to integrate forest owners. The Slovenian Forest Service is engaged in organizing private forest owners although this is not mentioned by law as their activity. An important instrument for the promotion of association of forest owners is technical assistance of the SFS. SFS employees are important in the assistance of administrative procedures in the establishment of associations of forest owners; they prepare programmes of work and often lead societies. The establishment of associations of forest owners often takes place in the direction from top (SFS) to bottom.

Promoting the association of forest owners was regulated in 2007 in amendments of Forest Act because of the impact of the EU and its Rural development policy. State can support the start of the associations of forest owners. The measure was not implemented in the period from 2007 to 2013 but its implementation is expected during the next EU financial perspective.

6.4. Factors affecting innovation in policies

Dealing with different categories of forest owners in the Slovenian forest policy has not yet been placed on the forest policy institutional agenda. Important reasons could be centralized forest management planning for all types of forests irrespective of ownership and lack of any salient issue, which could be connected to ‘new forest owners’ as a target group of forest policy. In Slovenia, for forest management formally does not matter whether the forest is public or private property. And therefore in the making of FMPs there is no systematic research of objectives of forest owners nor are they explicitly presented and discussed. Public forestry service is not committed to the success of the implementation of FMPs, which may require specific treatment of individual categories of forest owners. Therefore, we assume that there is a lack of need to detect differences between different types of owners among private forest owners.

In terms of forest policy we cannot detect explicit conditions related to the ownership of the forests, which would be perceived as a salient public policy issue or public problem and would require a public intervention and would initiate policy changes.

We have neither experienced the pressure from the bottom up for changes related to forest management of different types of private ownership, since private forest owners are still in the process of learning about their property rights.

In Slovenia, the forest policy is formulated in closed policy subsystem, and currently there is no indication that external factors can cause the formation of policy changes. Even the financial crisis, as an important external factor for forest subsystem in recent years, has no significant impact on forest policy. We estimate that only new information is not enough to affect a change in the goals and strategies of policy actors in the policy subsystem.

Policy actors who advocate the interests of private forest owners in the policy subsystem are less important because of lack of power. There is only one political party in the parliament that after the snap elections of 2014 represents the interests of private forest owners. It is not a member of governmental coalition and therefore has small structural power to influence forest policy making. An important actor in Slovenian forest policy is the CAFS, which represents the interests of private owners of forests and agricultural land. Its role is currently less important but here are some indicators that forest owners have become aware of how to promote their interest through CAFS. Creating a forest policy that would also address the new forest owners can be a problem because of competition between forest owners, who are farmers, and others.

7. Literature

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Veselič, Ž., Mikulič, V., Ogrizek, R. 2010. Lastniki gozdov o gozdarstvu, njihovem delu v gozdu in o delu Zavoda za gozdove Slovenije (Private forest owners about forestry, work in the forest, and work of the Public forest service). Gozdarski vestnik 68, p. 435-441.

Winkler I. 1970. Zasebni gozdovi v SR Sloveniji kot družbeno-ekonomski problem (Private forests in Slovenia, as a socio-economic problem), Strokovna in znanstvena dela, 31. Ljubljana, Biotehniška fakulteta, 133 p.

Winkler I., Gašperšič F. 1987. Zasebni gozdovi v sloveniji – stanje in novejša gibanja (Private forest in Slovenia- current state and modern trends). Ljubljana. Univerza v Ljubljani, Biotehniška fakulteta, VTOZD za gozdarstvo, Inštitut za gozdno in lesno gospodarstvo, 166 p.

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Zavrtanik, Z. 1994. Agrarne skupnosti kot specifična oblika lastnine kmetijskih zemljišč in gozdov : diplomska naloga = Agrarian communities as a specific form of ownership of farmland and woodland. Ljubljana.

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8. Annexes

8.1. Tables with detailed description of 10 most important publications

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	**Medved, M., Matijašič, D., Pisek, R. (2010) *Private property conditions of Slovenian forests in 2010*. In: Medved, M. (ed.) Small scale forestry in a changing world: opportunities and challenges and the role of extension and technology transfer. Conference proceedings. Slovenian Forestry Institute, Slovenia Forest Service, Ljubljana, p. 457-472**
English language summary/abstract	The paper deals with the property structure of private small-scale forests (three quarters of all forests) in Slovenia. In the last decades, the number of holdings has increased by more than 50,000, especially in the category of up to 1 ha. In the same period, rural populations have decreased, while the areas of private forests have increased. Family farms are in possession of less than a third of all forests. The rise in the number of other private owners has been generated mostly by inheritance and denationalisation processes, which began in 1991. Denationalisation has almost been completed and has had significant effects on the property structure of Slovenian private forests. Overgrowing of agricultural land by forests has also substantially contributed to the increase in the number of forest owners and holdings. The elaboration of fourteen regional forest management plans for the 2011-2020 period is an opportunity to analyse the actual situation in the private property structure. The plans will define specific guidelines and strategic measures for the management of private forests. The analysis has been done regarding the holding size category, regional distribution, sex, age, number of co-owners and some other parameters. In Slovenia, 313,000 holdings are privately owned, whereas 461,000 holdings are in single (42.8% holdings and 65.9% forests) or joint ownership. No less than 88% of private holdings are owned by people living in Slovenia, 48.7% of which are females who own 38.4% of all forests. The average male owner is 58 years old, while the average female owner's age is estimated at 62 years. The analysis and comparison of the data per forestry management regions (FMR) have shown that the average private holding has increased. In the future, the presented data calculation method will enable a permanent monitoring of the forest property structure.
Language of the study/publication	English
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	☐ University ☑ Public Research Insitiute ☐ Private Research Institute ☑ Other (please name below) Slovenia Forest Service (go
Type of funding used (multiple answers allowed)	☐ Private Industry ☐ Private other ☑ National ☐ Public Sub-National ☐ Public EU/cross-national Europe ☐ Public International beyond Europe ☐ Public other

Regional scope	☐ Sub-national ☑ National ☐ Cross-national Europe ☐ International beyond Europe
Theoretical approach	Socio-Organizational approach
Methodical approach	GIS and data base
Thematic focus	☑ ownership change (incl. on changes in quantitative terms, emerging new ownership types, etc.) ☐ motives and behaviour of ownership types ☐ new management approaches ☐ policy instruments addressing ownership
Web link	http://www.iufro.org/publications/proceedings/proceedings-meetings-2010/

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	**Winkler, I. (1989) *Nastanek in razvoj kmečke gozdne posesti v Sloveniji* (Creation and development of farm forest property in Slovenia...). Zbornik gozdarstva in lesarstva, 33, p. 153-184.**
English language summary/abstract	Farmers forests present one of the foundations on which our civilization and culture has developed through the centuries. Farm or peasant forest property has developed together with the development of the economy in general. Each period of time has a certain milestone. For each period it typical that present forest property was developed under the pressure of constant fights for property rights. Farmers without forests could not manage their property either rationally, or successfully.
Language of the study/publication	Slovenian
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	☑ University ☐ Public Research Insitiute ☐ Private Research Institute ☐ Other (please name below)
Type of funding used (multiple answers allowed)	☐ Private Industry ☐ Private other ☑ National ☐ Public Sub-National ☐ Public EU/cross-national Europe ☐ Public International beyond Europe ☐ Public other
Regional scope	☐ Sub-national ☑ National ☐ Cross-national Europe ☐ International beyond Europe
Theoretical approach	Political science
Methodical approach	Literature source review
Thematic focus	☑ ownership change (incl. on changes in quantitative terms, emerging new ownership types, etc.) ☐ motives and behaviour of ownership types ☐ new management approaches ☐ policy instruments addressing ownership
Web link	http://eprints.gozdis.si/414/

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	**Winkler, I. Medved, M. (1994) Spremembe lastninske strukture gozdov zaradi denacionalizacije in njihove gozdnogospodarske posledice (*Changes in the forest ownership structure due to denationalisation and the impact on forest management)*. *Zbornik gozdarstva in lesarstva*, 1994, vol. 44, p. 215-246.**
English language summary/abstract	After 1990, political and economic changes were introduced in Slovenia, which in turn are bringing about marked changes in the ownership structure. The ownership structure of forests will be affected particularly by the process of undoing the nationalisation of forests that followed the Second World War. Recent surveys say that the average size of a forest property returned to the private sector is 30 hectares, which is to be shared on an average by three heirs. Forty percent of the rightful claimants or their heirs have not had a forest property so far. The process of denationalisation will lead to an increase in the number of forest owners, though the average size of a private forest property will remain virtually unchanged. Half of the rightful claimants or their heirs are non-farmers.
Language of the study/publication	Slovenian
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	☑ University ☑ Public Research Insitiute ☐ Private Research Institute ☐ Other (please name below)
Type of funding used (multiple answers allowed)	☐ Private Industry ☐ Private other ☐ National ☐ Public Sub-National ☐ Public EU/cross-national Europe ☐ Public International beyond Europe ☑ Public other
Regional scope	☐ Sub-national ☑ National ☐ Cross-national Europe ☐ International beyond Europe
Theoretical approach	
Methodical approach	Questionnaire survey, literature review
Thematic focus	☑ ownership change (incl. on changes in quantitative terms, emerging new ownership types, etc.) ☑ motives and behaviour of ownership types ☐ new management approaches ☐ policy instruments addressing ownership

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	**Premrl, T. (2013)** ***Analiza stanja agrarnih skupnosti v Sloveniji na podlagi podatkov upravnih enot - ekspertiza.(*****Analysis of the situation of agrarian commons in Slovenia on the basis of administrative units data – report) Gozdarski inštitut Slovenije, Ljubljana.**
English language summary/abstract	Administrative units hold a register of agrarian commons in Slovenia. In 2013 we have made analyse of this register. We have found out information about reinstitution and reestablishment process, information about number of agrarian commons and their holdings. According to this Register there is 547 agrarian common which were re-established and reinstituted. Together they cover almost 80.000 ha of lend what presents something less than 4% of Slovenia territory.
Language of the study/publication	Slovenian
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	☐ University ☑ Public Research Insitiute ☐ Private Research Institute ☐ Other (please name below)
Type of funding used (multiple answers allowed)	☐ Private Industry ☐ Private other ☐ National ☐ Public Sub-National ☐ Public EU/cross-national Europe ☐ Public International beyond Europe ☑ Public other
Regional scope	☐ Sub-national ☑ National ☐ Cross-national Europe ☐ International beyond Europe
Theoretical approach	Publication is a report
Methodical approach	Analyse of data base
Thematic focus	☑ ownership change (incl. on changes in quantitative terms, emerging new ownership types, etc.) ☐ motives and behaviour of ownership types ☐ new management approaches ☐ policy instruments addressing ownership

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	**Krajčič, D. (2000) Državni gozdovi v Sloveniji kot lastninska kategorija in objekt gospodarjenja : doktorska disertacija (Slovenia's state forests as an ownership category and the subject of management). Dissertation thesis, Biotehniška fakulteta Ljubljana, XVII, 221 p.**
English language summary/abstract	Changes in social conditions, transfer of public forests to state ownership and changes in the organization of the management of state forests require a more detailed analysis of the formation and development of state forests, an evaluation of the present organizational scheme and the preparation of guidelines for an efficient forest management. The analysis of social development shows that social and ecological functions of the forest, which are the responsibility of the whole society, are steadily increasing. Consequently, more and more restrictions are being placed on ownership rights over the forest. This has brought about an increase in compensations for forest owners as well as conflicts between society and forest owners. State ownership of forests may also have an impact on the policy of state forestry. In addition to experiences obtained in other countries, the existence of state forests is thus justified as a special ownership category. Most of Slovenia's state forests emerged after the Second World War. The highest proportion of state forests was reached in 1990 (407,000 ha). Forest funds, too, increased all the time. The growing stock rose from 165 m^3/ha in 1956 to 218 m^3/ha in 1990, and the increment increased from 3.5 m^3/ha to 5.3 m^3/ha. The latest studies show even higher values. Timber production rose steadily to reach its peak in the mid-1980s with the annual cut of over 1.6 million m^3, but in the 1990s it fell to the level of the 1950s. Except in planned periods, the annual cut was always lower than the increment. A similar trend has been characteristic of forest investments. Slovenia's state forests meet most of the EU measures and criteria required for sustainable forest management. To ensure efficient management of state forests within the framework of the present organizational scheme it is crucial to enforce all relevant regulations. In Europe forest management based on concessions is practiced only in exceptional circumstances. Therefore the author suggests that a public enterprise be founded by taking into account ecological and social functions of the forest. It is pointed out that forest management will be efficient only if the scope of both annual cut and forest investments will be increased.
Language of the study/publication	Slovenian
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	☑ University ☐ Public Research Insitiute ☐ Private Research Institute ☐ Other (please name below)
Type of funding used (multiple answers allowed)	☐ Private Industry ☐ Private other ☐ National ☐ Public Sub-National ☐ Public EU/cross-national Europe ☐ Public International beyond Europe ☑ Public other

Regional scope	☐ Sub-national ☑ National ☐ Cross-national Europe ☐ International beyond Europe
Theoretical approach	Political and economics theoretical approach
Methodical approach	Questionnaire survey
Thematic focus	☑ ownership change (incl. on changes in quantitative terms, emerging new ownership types, etc.) ☐ motives and behaviour of ownership types ☑ new management approaches ☐ policy instruments addressing ownership
Main results should be given here if not yet included in the summary.	Click here to enter text.
Web link	http://www.dlib.si/details/URN:NBN:SI:DOC-RM08OOL0

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	**Ficko, A., Bončina, A. (2013a) Probabilistic typology of management decision making in private forest properties. Forest Policy and Economics, 27, 34-43.**
English language summary/abstract	We conducted a quantitative study of private forest owner management behaviour based on face-to-face interviews with 380 randomly selected private forest owners in Slovenia. Forest owners were asked to rate the relevance of nineteen factors representing information related to the social, ecological, and economic aspects of decision making based on a five-point Likert scale. This information was consolidated into major categories with Principal Component Analysis. Expectation maximization (EM) clustering was used to build a probabilistic private forest owner decision making typology. Six major categories of information determined 64% of the variability in decision making: non-wood goods and services, forest economics, property administration, optimization of wood production, forest protection, and minimum cutting restrictions. EM clustering revealed two decision making types differing in their attitude towards the total economic value of forests: Materialists, whose decisions are mainly related to the extractive value of forests and Non-materialists, who manage for non-extractive value. Full-time farmers, owners living within 2 km of their holdings, and owners who permanently cooperated with the public forest service were much more likely to be Materialists. The uncertainty in private forest owner typology building and the applicability of probabilistic models of private forest owners to end-users is discussed.
Language of the study/publication	English
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	☑ University ☐ Public Research Insitiute ☐ Private Research Institute ☐ Other (please name below)
Type of funding used (multiple answers allowed)	☐ Private Industry ☐ Private other ☑ National ☐ Public Sub-National ☐ Public EU/cross-national Europe ☐ Public International beyond Europe ☐ Public other
Regional scope	☐ Sub-national ☑ National ☐ Cross-national Europe ☐ International beyond Europe
Theoretical approach	Descriptive behavioural models
Methodical approach	Quantitative study, 400 face-to-face interviews, probabilistic clustering, logistic regression

Thematic focus	☑ ownership change (incl. on changes in quantitative terms, emerging new ownership types, etc.) ☑ motives and behaviour of ownership types ☐ new management approaches ☐ policy instruments addressing ownership
Web link	http://www.sciencedirect.com/science/article/pii/S1389934112002493

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	**Pezdevšek Malovrh, Š., Hodges, D.G., Marić, B., Avdibegović,M. (2011) Private forest owner expectations of interest associations : comparative analysis between Slovenia and Bosnia-Herzegovina. Šumarski list,135, 11/12, p. 557-566.**
English language summary/abstract	Private forests in Slovenia and Bosnia-Herzegovina are important resources for national economic development. Based on differences in the proportion of private forests, the countries differ substantially with regard to the role of private forest owners, as well as the conditions of owner interest associations in the forest policy processes. Since private forest owners are so diverse, there is a need to better understand their expectation for interest associations. Surveys were conducted in 2008 on random samples of private forest owners in Slovenia and Bosnia-Herzegovina to examine the factors affecting their expectations. The study examined seven categories of expectations: silvicultural advice, harvesting advice, information about timber markets, information about legal regulations, information about strengthening entrepreneurship, support of forest road construction/maintenance and forest management training. Seven models were developed to examine the factors affecting each category of expectations. The results reveal that socio-demographic characteristics of private forest owners, ownership structure, and property conditions were associated with expectations. Three models (silvicultural advice, strengthening entrepreneurship and support of forest road construction/maintenance) were statistically significant in both countries. The strongest factor that influences the expectations for Slovenian private forest owners was education while in Bosnia-Herzegovina it was property size. Gender did not influence expectations of private forest owners in either country. Understanding the underlying factors influencing private forest owner expectations could aid in developing appropriate forest policy instruments to support owner cooperation within interest associations and improve private forest management.
Language of the study/publication	English
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	☑ University ☐ Public Research Insitiute ☐ Private Research Institute ☐ Other (please name below)
Type of funding used (multiple answers allowed)	☐ Private Industry ☐ Private other ☐ National ☐ Public Sub-National ☐ Public EU/cross-national Europe ☐ Public International beyond Europe ☑ Public other
Regional scope	☐ Sub-national ☐ National ☐ Cross-national Europe ☑ International beyond Europe
Theoretical approach	Theory of collective action

Methodical approach	Survey, logistic regression
Thematic focus	☑ ownership change (incl. on changes in quantitative terms, emerging new ownership types, etc.) ☑ motives and behaviour of ownership types ☐ new management approaches ☐ policy instruments addressing ownership
Web link	http://www.sumari.hr/sumlist/sadrzaj.asp?gb=B11-12/2011

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	**Pezdevšek , Š., Zadnik Stirn, L., Krč, J. (2012) The influence of forest cooperatives on private forest management. In: HUMAR, Miha (ed.). Gozd in les : gozd in les - izjemni znanstveni dosežki in učinki : znanstveno srečanje: zbornik predavanj ob znanstvenem srečanju Gozd in les: izjemni znanstveni dosežki in učinki, Les, Ljubljana: Zveza lesarjev Slovenije, 64, 5, p. 151-155.**
English language summary/abstract	The study analyses the challenges and prospects of private forest owners' cooperation in forest cooperatives in Slovenia applying the strengths, weaknesses, opportunities and threats approach (SWOT analysis) in combination with the analytic hierarchy process (AHP). The data from interviews with directors of forest cooperatives were used to develop and to analyse the strategies for forest owners' cooperation within cooperatives. Results reveal that the members of forest cooperatives are satisfied with the operation of the existing forest cooperatives and that the activities of forest cooperatives meet the members' interests related to forest management, timber sale and timber marketing. The directors of forest cooperatives perceive the tradition of cooperatives, as well as organized management activities as major strengths of forest cooperatives. Further, providing national and EU funds for private forest management and extension of activities are recognized as an important opportunity. The focus on local markets is identified as a weakness for forest cooperatives, and the non-cooperation between owners is identified as a critical threat. However, the rank of importance of the SWOT groups leads to defensive approach in the strategic planning where forest cooperatives have to minimize weaknesses in order to avoid threats. These results provide important insights in the future development of forest owners' cooperation within forest cooperatives.
Language of the study/publication	Slovenian
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	☑ University ☐ Public Research Insitiute ☐ Private Research Institute ☐ Other (please name below)
Type of funding used (multiple answers allowed)	☐ Private Industry ☐ Private other ☑ National ☐ Public Sub-National ☐ Public EU/cross-national Europe ☐ Public International beyond Europe ☐ Public other
Regional scope	☐ Sub-national ☑ National ☐ Cross-national Europe ☐ International beyond Europe
Theoretical approach	n.a
Methodical approach	SWOT analysis, AHP, strategic planning

Thematic focus	☐ ownership change (incl. on changes in quantitative terms, emerging new ownership types, etc.) ☑ motives and behaviour of ownership types ☐ new management approaches ☐ policy instruments addressing ownership
Web link	

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	**Medved, M., Košir, B., Robek, R., Veselič, Ž. (2005) Spremljanje gospodarjenja z zasebnimi družinskimi gozdovi v Sloveniji (Forest management on family farms and the management of other small private forests in Slovenia) In;. Adamič M.V., and Winkler, I. (eds.). Prihodnost gospodarjenja z zasebnimi gozdovi v Sloveniji (Future of private forest management in Slovenia). Strokovna in znanstvena dela, 123. Biotechnical Faculty, Department of Forestry and Renewable Forest Resources, Ljubljana, p. 61-85**
English language summary/abstract	The paper aims to present the importance, role and results of statistical research into private forest management through studies conducted in 1990, 1995, 2000 and 2003. The first of these studies was carried out just before the important social changes in the country and transformation of the economic order, while the second – in 1995 – was conducted after the new economic order was already in place and functioning. In 2000, the first census among forest owners was carried out on a national level, but it only included those with the status of family farms. In 2003, sample research was done on family farms. The share of private forest owners in Slovenia is 70%, and family farms own 33% of these forests. The number of –farm holdings is increasing, while the average estate size is declining. Comparison of the volume and structure of the wood cut indicate inconsistency between the official national data and the research results. The intensity of the wood cut in private forests varies strongly and is conditioned by the estate size and the socio-economic situation of owners. The share of fuel wood on family farms is 60%. The structure of the wood cut and intensity of management of other private forests may only be assessed. The estimate of the total cut in private forests does not exceed the cut set in forest management plans. The reasons of statistical research of management of all private family forest property on the national level are given. The initiative for the research was presented at the Statistical Advisory Committee for Forestry at the Statistical Office of the Republic of Slovenia in 2003.
Language of the study/publication	Slovenian
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	☑ University ☑ Public Research Insitiute ☐ Private Research Institute ☑ Other (please name below) Slovinian Forest Service
Type of funding used (multiple answers allowed)	☐ Private Industry ☐ Private other ☐ National ☐ Public Sub-National ☐ Public EU/cross-national Europe ☐ Public International beyond Europe ☑ Public other

Regional scope	☐ Sub-national ☑ National ☐ Cross-national Europe ☐ International beyond Europe
Theoretical approach	Economics and political science
Methodical approach	questionnaire survey and analyse of forest inventory data
Thematic focus	☑ ownership change (incl. on changes in quantitative terms, emerging new ownership types, etc.) ☐ motives and behaviour of ownership types ☑ new management approaches ☐ policy instruments addressing ownership
Web link	

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	**Pezdevšek Malovrh, Š., Avdibegović, M., Hodges, D.G. (2011) Private forest policy in Southeastern Europe: targeting divergent owner groups. Journal of Forestry, 109, 8, p. 513.**
English language summary/abstract	Forest policies in many southeast European countries have changed considerably in the past few decades due to the unprecedented scale of socio-political changes. We evaluated private forest owners in two southeast European countries, Bosnia-Herzegovina and Slovenia, and classified them by actual management behaviour, willingness to cooperate and the expectations of this cooperation and the importance of ownership, property, and socio-demographic characteristics in the classification. Based on the results, appropriate strategies were identified to target each owner group with a different combination of regulatory, incentive-based, and informational policy approaches. Three owner clusters - drivers, supporters, and free riders - were identified in each country, as were their characteristics, motivations, and needs. Policy options for each group were then provided, based on Smart Regulation principles and requirements. The results reveal that several policy types are needed to reach the three private forest owners types and this variety of policy options covers a wide range of policy approaches.
Language of the study/publication	English
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	☑ University ☐ Public Research Insitiute ☐ Private Research Institute ☐ Other (please name below)
Type of funding used (multiple answers allowed)	☐ Private Industry ☐ Private other ☑ National ☐ Public Sub-National ☐ Public EU/cross-national Europe ☐ Public International beyond Europe ☐ Public other
Regional scope	☐ Sub-national ☐ National ☑ Cross-national Europe ☐ International beyond Europe
Theoretical approach	n.a.
Methodical approach	Survey, cluster analysis
Thematic focus	☐ ownership change (incl. on changes in quantitative terms, emerging new ownership types, etc.) ☐ motives and behaviour of ownership types ☐ new management approaches ☑ policy instruments addressing ownership

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