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Forest Land Ownership Change in Estonia

COST Action FP1201 FACESMAP Country Report



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

Forest Land Ownership Change in Estonia

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.

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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

CAP	Common Agricultural Policy
CPR	Common property regimes
FACESMAP	Forest Land Ownership Changes in Europe: Significance for Management and Policy
FAO	Food and Agriculture Organization of the United Nations
FOA	Forest Owners Association
FRA	Forest Resource Assessment
FSC	Forest Stewardship Council
NFI	National Forest Inventory
NGO	Non Government Organisation
PEFC	Programme for the Endorsement of Forest Certification
RMK	State Forest Management Centre

1. Introduction

Estonia has quite long forestry traditions. Due to the moderate maritime climate the conditions for forest growth are very suitable. Of all the woodland 51% of the stands are dominated by deciduous species and 49% by coniferous species. Forests cover nearly half of the Estonian mainland territory. The general characteristics of forests have remained stable throughout the last decade. In 2012 the total forest area was 2.2 million hectares and total growing stock was 470 million cubic metres of solid volume. The most common stands (according to the dominant tree species) are Scots pine (*Pinus sylvestris*, 32.9% of the total area of stands), birch (*Betula ssp.*, 31.6%), Norway spruce (*Picea abies*, 16.2%) and grey alder stands (*Alnus incana*, 8.8%). By growing stock pine dominated stands prevail (37.2%) (Yearbook Forest 2013, 2014).

For the first time the possibility of buying out farms including forest land was introduced in the second half of the 19th century. As a result, private forest ownership was re-established. When the Soviet Union occupied Estonia in 1940 land was nationalized and once again all land including forests became the property of the state. Following the regaining of independence in 1991 re-introducing private property was one of the main objectives. Regarding forests and land in general this happened with the Land Reform Act. With the land reform former private forests were returned to their rightful owners or their heirs (Meikar and Etverk, 2000). In addition to restitution, privatization also took place and to some extent it is still ongoing¹. The land subject for privatization has been former private land where no claims were submitted.

Twenty years after regaining independence forests cover 2.2 million ha (50.6% of the total land area) in Estonia from which private ownership accounts for 47% and 41% to the

State Forest Management Centre and other state forests (Yearbook forest 2013, 2014). In 2011 there were 97,272 forest owners in Estonia i.e. 4,001 legal owners (legal persons) and 93,271 private individuals (Forinfo, 2011). The estates of these private individuals covered 72% of private forests (~750,000 ha) while legal forest owners (companies, NGOs, etc.) covered 28% (~300,000 ha) (Yearbook Forest 2013, 2014).

Forestry in Estonia is the responsibility of the Ministry of Environment so the legal framework is developed within the government. The fundamental policy document is the Approval of the National Forest Policy (1997) which initiated further development of the National Forest Program. Forestry is directly regulated by the Forest Act (2006) and its supplementary acts. However other legislative documents also influence the development of forestry including private forestry. Such documents or regulations include for example the Environmental Act (2004).

In forest management modernization has taken part in recent decades. During the Soviet period the main way to harvest was the whole-stem method. The cut-to-length method was largely introduced in the end of the 1980s when the first machines were imported (Muiste et al., 2006). Nowadays cut-to-length is the prevailing method for logging. Between 2012 and 2013 the total forest harvesting including all types of cuttings covered an area of ~140,000 ha according to the harvesting documentation. The estimated total volume was approximately 11,000,000 m³ out of which 35% came from state forest (Yearbook Forest 2013, 2014). It has also been identified that forest companies (legal owners) are twice as active in forest management compared to private individuals (Forinfo, 2011).

¹ According to the Yearbook Forest 2013 (2014) the forest land subject to privatization accounts for 12% of the total forest area.

2. Methods

2.1. General approach

According to the aim of the country report which is to give a comprehensive overview of forest ownership issues in a specific country, a mix of methods is applied. They include a literature review, secondary data, expert interviews as well as 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 of studies). The literature review explicates the state-of-knowledge in the countries and contributes to a European scale state-of-the-art report. Case examples are used for illustration and for gaining a better understanding of the mechanisms of change and of new forest owner types. Detailed analyses of collected data and case study analyses are done in subsequent work steps in the COST Action.

2.2. Methods used

This report is primarily based on the literature review and expert knowledge of the authors.

While research on this topic is quite new in Estonia not much relevant literature is available. However in recent years the situation has started to change. There are some research papers from the first half of the 2000s (e.g. Meikar and Etverk, 2000; Muiste et al., 2006), yet most of the relevant research for this report has been done in the second half of the 2000s and 2010s. Many of the early studies have mostly focused on the processes of ownership development. In recent periods however the focus has shifted more on the forest owners themselves. This has included also some empirical forest owners surveys (e.g. Toivonen et al., 2005). Also a number of statistical sources are used. For example the Yearbook Forest which is published by the Environmental Agency. Most of the data is based on the National Forest Inventory (NFI), but also harvesting documentation information is used. The first chapters are mainly based on available literature and existing statistical evidence. However chapters 5 and 6 are mainly based on literature and expert knowledge of the authors.

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 to 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, a detailed description of 10 most relevant publications, and a 1–3 page 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 given in the Annex. The literature review contains the following questions:

- Which research frameworks and research approaches are used in the 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

The observed studies are dealing mostly with forest ownership, its changes and forest owners' motivations or needs. Private forest

ownership is relatively new in Estonia, as private forestry has existed here for only ~25 years. The majority of private persons became forest owners as a result of the land reform, via restitution or privatization. The processes of restitution and privatization have not finished, so the detailed ownership structure is changing all the time. Therefore research has been often quite descriptive (e.g. Meikar and Etverk, 2000) and statistical (Forinfo, 2011). Yet there is a number of survey-based studies available as well (Põllumäe et al., 2014a; Põllumäe et al., 2014b; Toivonon et al., 2005). Teder (2014) and Urbel-Piirsalu and Bäcklund (2009) look at private forestry from a policy perspective. While the first one concentrates on FOA wood sales, the second one analyses the situation of private forestry from a sustainability perspective. In addition Bouriaud et al. (2013) compare the governance structures of private forestry. Overall the general approaches include mainly political sciences, sociology and economics.

For domestic research mainly public funding on national level has been used. Due to the small area of Estonia, all the observed studies describe the situation on national level. As the domestic researchers' community is very small, several articles describe the situation in various EU countries with specific Estonian based samples or descriptions (e.g. Sarvašová et al., 2014). The majority of articles are based on different kinds of surveys which are carried out by the authors, some articles or reports are based on the analysis of available statistical data or literature review.

3.2. New forest ownership types

First of all, as the current history of private forestry has lasted a little bit more than 20 years (since 1991), one can say that all forest owners are new or non-traditional forest owners. The further classification of owners, especially in terms of traditions depends on the sample of respondents. National statistics has two main private forest ownership categories - physical persons and legal persons (companies, associations, NGOs). In

recent years the share of legal persons has been increasing (see table 3) which has partly been caused by the previous tax system (in force until the end of 2011), where private persons could not deduct silvicultural costs from forestry income.

3.3. Forest management approaches

One of the main changes in management approaches has been the establishment of forest owner associations. While the creation of FOAs started already in the early 1990s (Sarvašová et al., 2014) their development has been slow. FOAs have organized joint forest management activities, but there were only few organisations before 2009. The 2009

state support system motivated FOAs to carry out active forest management activities. One of the supported activities was the so-called “full service”, where the theoretical maximum support provided to an FOA is 1.554€/m³ per sold timber assortment. In this case the forest owner concludes a contract with an FOA, which on behalf of the owner organises the preparation of cutting areas, different types of felling, timber transport to buyers’ yards and timber sales. If that kind of system is used, then the forest owner does not have any other tasks, he/she can just wait for payment from the FOA. If needed, with other special agreements an FOA can arrange also the reforestation of the felling area. Põllumäe et al. (2014a) and Teder (2014) have looked at these aspects.

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 provide the most accurate information, it was decided to use national data sets in the country reports. In order to make this information comparable still, the information is collected in an international format which is used in the Forest Resources Assessments by the FAO. The transfer from national data sets to international definitions is, however, not always easy. This report therefore critically assesses to which extent the national categories and definitions may be transformed into the international FRA data structure or how many inconsistencies exist between them.

4.1. Forest ownership structure

4.1.1. National data set

Estonian forests cover an area of 2.2 million ha (Yearbook Forest 2013, 2014). The forest area estimation depends on the forest definitions and calculation methods. Table 1 shows the ownership structure according to the national data. According to the Estonian Forest Act (2006), the technical definition of forest is “a plot of land with an area of at least 0.1 hectares and woody plants with the height of at least 1.3 metres and with the canopy density of at least 30 per cent grow there”. As the Estonian Forest Act definition differs from international forest definitions, for statistical purposes the Estonian NFI report (Eesti metsad, 2010) gives also the comparison of some international datasets.

Table 1: National ownership categories in 2012 (NFI)

	Area (1000 ha)	Share (%)
State forest managed by RMK	848.8	38
Other state forest land, including municipalities	74.0	3
Physical persons' forest land	746.4	34
Legal persons' forest land, including churches	291.9	13
Forest land subject to privatization	272.8	12
	2 233.9	100

4.1.2. Critical comparison with national data in FRA reporting

Table 2 shows the differences between national data and the FRA 2010 report. According to national definitions, the Estonian

forest land is 2,233.9 thousand ha, but according to the Global Forest Resource Assessment definitions it is 2,322.6 thousand ha and according to the Kyoto protocol and Intergovernmental Panel on Climate Change (IPCC) it is 2,253.5 thousand ha.

Table 2: Comparison of national ownership data to FRA reporting

	FRA 2010 categories*		National data in 2012 (NFI)**			
	Area (1000 ha)	Share (%)	Area (1000 ha)	Share (%)		
Public ownership	894	40	State forest managed by RMK	849	38	
			Other state forest land, including municipalities	74	3	
Private ownership	978	34	Physical persons' forest land	746	34	
...of which owned by individuals			783	Legal persons' forest land, including churches	292	13
...of which owned by private business entities and institutions			195	Forest land subject to privatization	273	12
Other types of ownership			380	17		
Total	2252	100		2 234	100	

* For the FRA 2010 report forecasting for 2010 was made by linear extrapolation, using data reported for 2000, 2005 and the latest inventory – NFI 2007. Thus, the possibility of alterations in time is taken into consideration (FRA 2010 Estonian Report).

** Yearbook Forest 2013 (2014).

4.2. Unclear or disputed forest ownership

The biggest part of unclear ownership is related to the category which in national forest ownership statistics is called “forest land subject to privatization”. The land restitution process in Estonia started in 1991, based on the legal framework which was established also in 1991. According to the Land Reform Act (1991) natural persons or their legal successors, who were Estonian citizens as at 16 June 1940 and whose land had been unlawfully expropriated had the right to claim the return of or compensation for their land. In the beginning of the restitution process local governments restituted the land about which all the documentation was available and which did not involve any conflict situations. The land which was not reclaimed by legal successors or which was compensated for to the former owners or to their heirs was subject to privatization. Some land was not directly privatised, but given to the state, which started to sell the land in public auctions.

As the restitution and privatization process was slow, in February 2013, the Estonian Parliament changed several laws, which aimed to finish the restitution process by the end of 2016. According to the Estonian Land Board as at July 31, 2014, 95.6% of land in the land register database (Maa-amet, 2014), or around 190 thousand ha needs to be restituted or privatized. Public statistics of the Land Board on forest land restitution is not so detailed. At the end of 2013 the total restituted land area was 1.5 thousand ha and the area of “free privatized forest land” was 105 thousand ha (Maa-amet, 2014).

4.3. Legal provisions on buying or inheriting forests

4.3.1. Legal restrictions on buying or selling forests

In Estonia not many restrictions apply for buying/selling forest properties, however some limits exist or have existed earlier. Since March 2012, the Restrictions on Acquisition of Immovables Act is in force. This law defines some cases where the law as such is not applicable, but the general statement is that an Estonian citizen has the

right to acquire forest land without restriction (“§ 4. (1) A citizen of Estonia or another country which is a contracting party to the EEA Agreement or a member state of the Organisation for Economic Cooperation and Development (hereinafter Contracting State) has the right to acquire an immovable which contains agricultural or forest land without restrictions”) (Restrictions on Acquisition of Immovables Act (ROAOIA), 2012). Also a legal person from Estonia or from a Contracting State has the right to acquire forest land of less than 10 hectares without restrictions. If the forest land is bigger than 10 hectares, the legal person from a Contracting State has the right to acquire an immovable when it has been engaged, for three years immediately preceding the year of making the transaction, in forest management within the meaning of the Estonian Forest Act. If the legal person from a Contracting State does not meet the described requirements, forest land of more than 10 hectares can be acquired only with the authorization of the county governor of the location of the immovable to be acquired.

A citizen of a third country (natural person who is not a citizen of a Contracting State) has the right to acquire forest land only with the authorisation of the county governor, if the citizen has resided in Estonia permanently for a period of at least six months immediately before applying for the authorisation or if the citizen has been engaged in Estonia, for one year immediately preceding the year of applying for the authorisation, as a sole proprietor in forest management. A legal person of a third country has the right to acquire forest land only with the authorisation of the county governor if the legal person has been engaged in Estonia, for one year immediately preceding the year of applying for the authorisation, in forest management and if a branch of the legal person is entered in the Estonian commercial register.

Restrictions arising from national defence reasons: “§ 10. (1) Any natural person who is not a citizen of a contracting party to the EEA Agreement or any legal person whose seat is not in a contracting party to the EEA Agreement is prohibited from acquiring immovables in the following areas” mainly on sea islands and in listed cities and rural municipalities which are close to the border of

the Russian Federation (ROAOIA, 2012). Before 2012 similar restrictions were established by other acts or by the Land Reform Act. To overcome the restrictions for legal persons, one of the simplest solutions is to start a company (legal person) in Estonia and then operate as a legal person of Estonia. Amendments to the Land Reform Act (1991) stated some restrictions for privatization of vacant forest land, which were used mainly in the period of 2002–2010, e.g. good (meaning following all the provisions of the Forest Act) forest management experience in the territory of a particular local government, ownership of forest land of less than 100 ha, and in this case up to 20 hectares (in special cases 10 additional ha) were allowed to be privatized. Depending on the selling price of privatized land, payment in instalments for a period of 5 to 50 years was allowed. Land which was privatized as vacant forest land cannot be sold (a) before the full payment of the redemption price and (b) before five years have passed since the contract of purchase entered into force.

In the case of sale of state land by public written auctions held by the Land Board, the owner of the bordering immovable, whose immovable also includes a forest land parcel and who participated in the auction, but did not win, has the pre-emption right for the acquisition of the land at the auction price (Public auction procedures, 2014).

4.3.2. Specific inheritance (or marriage) rules applied to forest ownership

In Estonia there are no specific inheritance or marriage rules which apply to forest ownership.

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

4.4.1. Changes in public and private ownership

To describe the development of the Estonian forest ownership structure, it needs to be started from the year 1940, the pre-Soviet era. In 1940 the total forest area was 1,473 thousand ha which was managed as follows:

717,021 ha (49%) were state forests, 734,661 ha (50%) were owned by farms and 21,369 ha (1%) by other owners. Additionally the farm forest area was divided as follows: 192,956 ha of cadastral forests, 170,836 ha of hayfields and grazing lands, and 370,969 ha of brushy lands (Meikar and Etverk, 2000). In 1988 the Estonian forest area was 1,916.4 thousand ha and all the forests were state-owned. The state forest enterprises managed 1,152.2 thousand ha (60%) of forest land, agricultural forests attributed to 717.6 thousand ha (38%) and the rest of forest land (mainly used by the Soviet army) encompassed 46.6 thousand ha (2%) (ibid). State forest enterprises managed the forest land which was in state ownership before 1940; agricultural forests were managed by collective farms and these were mostly former (before 1940) farm forests. After regaining independence in 1991 the restitution process started, where the primary aim was that all the formerly privately owned (forest) land be restituted to the heirs of former owners. The latest data about the forest ownership structure are given in table 1.

4.4.2. Changes in public ownership categories

As indicated in table 3 there has been a slight increase in the area of state forests. This is mainly due to the ongoing land reform process. Some smaller areas which would normally be subject to privatization have been given to the state. This has occurred in areas where the prevailing ownership is state ownership. One of the aims is to decrease ownership fragmentation.

4.4.3. Changes in private forest ownership

The changes within private ownership (as well as in forest area) between 2010 and 2012 are shown in table 3. The amount of forest land without owners (forest land subject to privatization) has decreased due to the land reform process. During privatization, mostly forest companies have bought such land. In addition, the area of forest land owned by private persons has also been decreasing, as some individuals have sold their forest to different legal persons (companies). It is important to mention that

overall the legal owners have gained forest ownership through the market, while most of the individuals have become forest owners in the process of restitution.

Table 3: Changes in forest ownership in 2010 and 2012

Forest land category	NFI 2010		NFI 2012		Difference 1000 ha
	Area (1000 ha)	Share (%)	Area (1000 ha)	Share (%)	
State forest managed by RMK	806.1	36.4	848.8	38.0	42.7
Other state forest land, including municipalities	75.7	3.4	74.0	3.3	-1.7
Physical persons' forest land	757.3	34.2	746.4	33.4	-10.9
Legal persons' forest land, including churches	245.0	11.1	291.9	13.1	46.9
Forest land subject to privatization	327.9	14.8	272.8	12.2	-55.1
Total	2 212.0	100	2 233.9	100	21.9

Table 4: Number of private forest owners and private forest land area by ownership type and size of forest ownership in Estonia

Area class	Physical person		Legal person		Total	
	Number	Area (ha)	Number	Area (ha)	Number	Area (ha)
0.1–0.5 ha	9 489	2 534	362	103	9 851	2 637
0.5–1 ha	7 467	5 366	306	227	7 773	5 592
1–2 ha	12 265	17 904	433	627	12 698	18 531
2–5 ha	22 755	75 450	733	2 413	23 488	77 864
5–10 ha	18 809	134 306	763	5 524	19 572	139 830
10–20 ha	14 047	195 624	543	7 611	14 590	203 235
20–50 ha	7 273	211 001	450	13 912	7 723	224 913
50–100 ha	942	61 869	179	12 424	1 121	74 293
100–500 ha	214	36 466	165	36 674	379	73 140
> 500 ha	10	7 307	67	183 445	77	190 752
Total	93 271	747 827	4001	262 960	97 272	1 010 788
Average area (ha)	8.0		65.7		10.4	
> 2 ha of forest land	64 050	722 024	2 900	262 003	66 950	984 027
Average area (ha)	11.3		90.3		14.7	
Share (%)	68.7	96.5	72.5	99.6	68.8	97.4

4.4.4. Main trends in forest ownership changes

Across Europe, the following drivers for ownership changes were 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 companies)

- 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)

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 companies)	1
• New private forest owners who have bought forests	3
• New forest ownership through afforestation of formerly agricultural or waste lands	1
• Changing lifestyle, 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: COMPANIES AS FOREST OWNERS

As a result of the land reform, restitution started in 1991. Some persons who got back their land lacked specific forestry knowledge, they did not have sufficient financial resources or an interest in forest management, and they sold their land. Also the income tax regulations, which were in use in the beginning and middle of the 1990s, supported the sale of forest land instead of managing the forests as a private person. In the beginning of land sales local firms were buying the land and the price was rather cheap. Later, when the forest land market became more active foreign investors started buying the forest land and the prices also increased. As shown in table 3, in recent years the share of companies as forest owners has been increasing.

CASE STUDY 2: NEW TYPE OF FOREST OWNERS – FOREIGN CITIZENS

Generally, foreign citizens became forest owners as a result of restitution, if they were heirs of Estonian citizens, who were landowners as at June 16, 1940. In recent years forestry advisors have reported a new type of owners – foreign citizens who have bought some forest land (e.g. 20–50 ha) in Estonia, some of them are actively using the services of forestry advisors. As reported by the advisors, awareness of that type of forest owners is generally higher. Thanks to using the services of the advisors, they are better prepared and their questions are more specific compared with forest owners of local origin. It is still a rather small group of forest owners.

4.5. Gender issues in relation to forest ownership

According to the Forinfo study (2011) there were a total of 93,271 private individual (physical person) forest owners in 2010.

Gender linked data are available for approximately 92% of them, i.e. 86,047 persons of whom 48,035 are male forest owners and 38,012 are female forest owners. Table 5 gives ownership information by gender and age classes.

Table 5: Forest ownership by owners' gender and age class (Forinfo, 2011)

Age	Women			Men		
	Number	Area (ha)		Number	Area (ha)	
		Total	Avg		Total	Avg
101-110	14	77	5.5	6	33	5.4
91-100	280	1 983	7.1	105	836	8
81-90	2 507	16 357	6.5	1 574	13 353	8.5
71-80	5 810	41 547	7.2	5 243	46 824	8.9
61-70	7 411	54 274	7.3	8 466	80 850	9.5
51-60	7 723	53 022	6.9	10 820	104 792	9.7
41-50	7 155	45 469	6.4	11 145	118 278	10.6
31-40	4 968	26 873	5.4	7 673	65 223	8.5
21-30	1 742	7 325	4.2	2 491	13 263	5.3
10-20	329	1 201	3.6	447	1 965	4.4
1-10	73	216	3	67	214	3.2
Total	38 012	248 344	6.5	48 035	445 631	9.3

4.6. Charitable, NGO or not-for-profit ownership of 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" OED) 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.

In 2010, there were 97,272 forest owners in Estonia i.e. 4,001 legal entities (companies etc.) and 93,271 private persons (Forinfo, 2011). These private persons covered 74% of private forests (~750,000 ha) while legal forest owners covered 26% (~260,000 ha).

Out of the 4,001 legal owners most are private limited companies or joint-stock companies (altogether ~3,600–3,650). The rest of the owners (approximately 350–400) own about 5,000 hectares and they include associations (cooperatives), e.g. agriculture, dairy, machinery, and forestry; trust

companies (commandite), farms (self-employed entrepreneurs), non-profit organizations (some FOAs, hunting clubs, nature and animal protection unions, sports clubs etc.), religious organizations (the largest forest owners as a whole in this other group of legal owners).

Forests owned by ...	Yes	No	Uncertain
• Foundations or trusts	X		
• NGOs 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:			

As the real estate market of forest holdings is relatively active in Estonia, in some cases trusts or foundations have invested in Estonian forests. Generally, it is not done directly but via different companies. One of the known funds investing in Estonian forests is the Estonian Timberland Fund, which has been used also for pension funds and is managed by two of the biggest Estonian banks. As at July 2014, the Estonian Financial Supervision Authority database only contains a few investment funds, which specialise in timberland investments in Estonia.

There are around 200 hectares that belong to different NGOs with environmental objectives. It is unclear yet how and if these forests are being managed. Also it is not clear from the available data if any other NGOs or trust companies can be considered self-organised local community groups. If there are any, there are only a few and they are small. In addition only a few forest owner associations are forest owners. There is at least one commercial cooperative that focuses on joint forest ownership (e.g. the case example).

CASE STUDY 3: CO-OPERATIVE EESTI ÜHISMETS (ESTONIAN JOINT FOREST)

Several FOA activists, who got considerable forest management experience from joint sales of FOAs in 2012 started to think how to get additional profits from forest management in a way of co-operative ownership with the aim of buying forest land and managing it. The co-operative Eesti Ühismets was established in April 2013 and in October 2013 the first holding was purchased. The members of the association have to pay a membership fee and also make payments to the forest capital fund of the association. The fund is the source for buying forest land. In addition to the monetary payments to the fund, the members of the co-operative can give their forest land (or other real estate) to the co-operative. By this scheme the forest owner gives away his rights to the forest, but becomes a full member of the co-operative.

CASE STUDY 4: METSAHOIU SIHTASUTUS (FOUNDATION FOR FOREST CONSERVATION)

Private initiatives for protecting forest ecosystems also aim for land ownership. Metsahoiu Sihtasutus as a private foundation was established in 2002 by private persons and owns more than 50 ha of forests in strict nature reserves. This ensures that natural processes are protected irrespective of political decisions. These forests are not managed and people are not allowed to enter these areas.

4.7. Common pool resources regimes

Commons - forest common property regimes (CPR) are resource regimes where property is shared among users and management rules are derived and operated on the basis of self-management, collective actions and

self-organization (of rules and decisions). Examples of a traditional CPR regime are pastures, forest land communities in Sweden, Slovakia, Romania Italy and other European countries or irrigation systems in Africa or Asia. The number of new common property regimes is growing and it is a challenge of this Action to transfer knowledge and skills of

traditional CPRs to new CPRs and vice versa. An example of the new CPR regime is community woodlands in the UK, established within the last 20 years mainly in Scotland and Wales. Our interest in “traditional” and “new” common pool resources regimes (CPRs) in European forests is based on the understanding that robust resource regimes are critical for sustainable forest management regardless of property rights. An ongoing practice shows that local land users’ (without ownership share) leased use agreement may also be considered a CPR regime if they have the rights to determine management rules typical of commons (e.g. self-organisation and shared rights and responsibilities).

Thus proper rules on management (harvesting, decision making and a conflict resolution mechanism, cost/benefit sharing, sanctioning etc.) are key for sustainable use of CPR regimes.

However in Estonia there are no CPR systems that particularly address forest resources. But linked to forest ownership and management is wildlife management (policy) which somewhat corresponds to the definition of a CPR. It might be of further interest to compare this situation with some other countries (especially the CEE countries and western European countries). This has been a subject for a small-scale study overview by Põllumäe (2011).

5. Forest management approaches to 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 of this and that there is not much literature available, however, we are convinced that this is an issue: if owners have different objectives for their forests there must be new kinds of management; if they lack the skills to do it themselves then there must be new service providers, etc. There are presumably implications in silviculture, technology, work organisation, business models, etc.

5.1. Forest management in Estonia

State forests are mostly managed by the State Forest Management Centre – RMK (*Riigimetsa Majandamise Keskus* in Estonian), which is a profit-making organization under the Ministry of Environment. Some state forests are also managed by educational institutions. The RMK is managing only state forests. Exemptions are some silvicultural works for nature protection purposes in forest land without owners (subject to privatization), which are organised by specialists of the Environmental Board and implemented by the RMK.

During the last three decades state forest management has been reformed several times, the last biggest reform was introduced in the summer of 2008. Currently the major forestry operations in state forests are outsourced to private companies or entrepreneurs (the majority of thinnings, clear-felling, timber transport to buyers' yards, etc.), some forestry operations are done by the RMK's own workers in combination with outsourcing (forest planting, some types of thinning (e.g. cleaning), etc.). The importance and extent of private companies (outsourcing) in state forest management is described by the fact, that in 2010 the RMK employed 851 people (including 345 workers), but according to RMK estimates the total number of persons employed in state forests was around 4,000 (RMK, 2011). One new practice in the RMK is

that timber assortments are sold and delivered to buyers' yards, but the actual measurement as well as quality inspection is the buyers' task.

Private forest owners manage their forest by themselves (usually owners with very small forest plots) or by using private companies/entrepreneurs. This is done directly (the owner contacts the private company) or indirectly (via a forest owners association (FOA)). The FOAs usually do not have any workers besides forestry specialists or certified consultants who plan the work. Instead, FOAs usually have long-term contracts with certain entrepreneurs, which gives assurance both for the forest owners and the private contractor. The use of FOAs in forest management activities started to increase after 2009, when the new set-up of regulations of state support for private forestry was established. The RMK in state forests uses much more regulated procurement procedures. Private forest owners usually, while contacting the contractors directly, agree on a object-based way. In case forest owners contact the FOA it is most possible that the FOA uses long-term contractors. Official forestry consultants have special licences (valid for at least 5 years) for doing consultations.

According to the Yearbook Forest 2011 (2013) there are almost 2,300 ha of municipal forest holdings, while according to the land cadastre there are 4,110 ha of municipal forests. All those municipalities have forest management plans (outsourced from special companies), but generally financial incentives are not primary decision goals.

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

5.2.1. Forest Owner Associations

For Estonia and Estonian forest owners there are a lot of new and innovative things in forest management approaches. For instance one new approach is managing forests through/with the help of forest owners

associations (FOA). In Estonia FOAs started to develop in the beginning of the 1990s. The development of FOAs has been influenced by structural changes in the public sector. In the past, a variety of services (e.g. advice) was given to forest owners by state officials and only during the recent decade the importance of FOAs has risen. Nowadays approximately 7,500 - 8,000 forest owners are members of these organizations (~8% of forest owners). It is usually the larger forest owners who have made the decision to become a FOA member because the 8% of owners cover a little more than 300,000 ha of private forest land (roughly a quarter of the total private forests in Estonia). The Forest Act (2006) defines FOAs as non-profit or commercial associations whose main activity, according to the statutes, is forest management and whose members are natural persons or private legal entities who own forest.

5.2.2. Species and technology

Some new species have been introduced in private forest management. For example the growing importance of *Populus x wettsteinii* and *Larix x eurolepis* has emerged but the amount is still quite marginal. The machinery and other instruments used in the management of private forests (as well as state forests) have changed. Muiste et al (2006) underline: *“The distinctive feature of the 1990s was the rapid growth of harvesting volumes and the transition from the tree-length method to cut-to-length method in harvesting. Also the share of mechanized harvesting started to grow.”*

5.2.3. International support

The use of EU and state funds has been a very important part of the development of private forestry. EU and state subsidies are concentrating on various forest management activities. EU support comes through the II pillar (Rural Development) of the Common Agricultural Policy (CAP). Although the Ministry of Environment is responsible for forestry, the implementation of CAP measures is the responsibility of the Ministry of Agriculture (www.agri.ee). EU support measures like young stand tending, reforestation of damaged areas, Natura 2000 payments (a first step towards a PES

system), investments in infrastructure development etc., have been rather popular among forest owners and have made them more active in forest management. The majority of the above-mentioned support measures are managed by a state foundation formed in 1999 and called the Private Forest Centre (PFC; www.eramets.ee). Since this foundation is governed by the Ministry of Environment (www.envir.ee) it is also used to implement forest policy e.g. support to forest owners associations (FOA) depends on the number of individual members in the organization. The aim is to influence FOAs to increase their membership either by joining together or recruiting new members.

5.2.4. Forest Certification

Forest certification has been an innovative development in Estonia. Both PEFC and FSC schemes are in use; the PEFC is most commonly used in private forests (~110,000 hectares of private forests certified). As an example of new practices, Metsä Forest Estonia (a part of the Finnish Metsä Group) agreed with the Estonian Private Forest Union (an umbrella organization for private forest landowners and the holder of the PEFC group certificate) to pay an extra euro for birch pulpwood if it had the PEFC certificate (Eesti Erametsaliit, 2014).

5.3. Main opportunities for innovative forest management

The most important opportunities for innovative (new/improved) forest management in Estonia would be:

- The development of new and innovative markets/products e.g. carbon markets, biodiversity protection (PES), biomass/energy production, etc. An increased demand for these products could make the sector thrive towards innovation.
- Diversification of policy tools is needed and a more holistic approach in subsidizing private forestry would be necessary.
- There is still room for development in forest planning. The innovative use of the GIS could be enhanced.

- New organizational models are needed as the current concept of FOAs seems to become exhausted. The FOAs are quite limited by definition, they largely rely on state support and usually they are non-profit organizations because starting up a cooperative is made rather difficult. According to Estonian legislation (FOA as) a non-profit organization is not meant for profit earning, but direct reorganization from a non-profit association to a commercial association is impossible.
- There is still a huge number of forest owners who are not aware about their forest property. Further development of the private forest advisory system might be one solution to improve the situation.

5.4. Obstacles for innovative forest management approaches

The biggest obstacle for developing new or innovative forest management approaches in Estonia is the low profitability of forest

management, which in one hand is linked to fragmented ownership but is also very strongly linked to modest activities by the private sector (i.e. FOAs) to change political courses. This could be partially because of weak participatory policy processes (i.e. people are used to “top-down” approaches).

Another part of obstacles includes the limited (or non-existing) knowledge of forest owners about not only forest management in general but sometimes also the actual location of the forest is unknown to owners. Naturally limited knowledge about the value of forest (harvesting potential), services that FOAs provide, extension and advisory possibilities, etc. are major factors. But it is not only the forest owners who lack some knowledge. Policy makers, forestry specialists, decision makers and extension foresters have operated in an environment of limited knowledge about forest owners, their motivations and values, ownership objectives and ownership structures. A major part of the policy decisions during the last two decades have been based on expert opinion or even some kind of “political will” rather than actual facts and analysis results.

CASE STUDY 5: PROTECTION CONTRACTS FOR WOODLAND KEY HABITATS

The establishment of woodland key habitats started in 1999. A woodland key habitat is an area up to 7 hectares which needs protection but which is outside of a nature protection area and which has a high occurrence probability of narrowly adapted, endangered, vulnerable or rare species. For protecting these areas in private forests the state has proposed a volunteer approach which means that a contract will be signed between both parties setting the area aside from management for 20 years. The state will reimburse the losses and expenses the owner must bear for the restrictions. It is a rare example of introducing a PES system. The problematic side of it is the fact that the compensation is not very large and it is calculated using the current market values of that particular site. The calculated flat rate is usually used for the whole 20 years. Forest owners are quite cautious in using such rigid schemes or they are not at all aware of these schemes. The scheme is operated by the state foundation Private Forest Centre (www.eramets.ee)

CASE STUDY 6: SUPPORT SYSTEMS TO MOTIVATE FOAS

Until 2009 the FOAs were relatively small, economically rather inactive, and they mostly organised knowledge transfer and mediated different support measures between forest owners and supporting institutions. In 2009 a special state support system was launched with the aim of motivating small non-industrial private forest owners as well as FOAs to engage in active forest management and timber sales. One of the preconditions for FOAs to get the support was the (yearly increasing) minimum number of members, which motivated interested FOAs to actively recruit new members, which was also one reason why some FOAs merged. As FOA support is a relatively bureaucratic process, some FOAs decided to operate in a way they did earlier (“small is beautiful”), without any support and they did not make any special efforts for increasing membership or starting new management models.

The (joint) forest management activities organised by FOAs were practised only by few organisations before 2009. The 2009 state support system motivated FOAs for active forest management activities. One of the supported activities was the so-called “full service”, where the maximum support for an FOA can be 1.554€/m³ per sold timber assortment quantity. In this case the forest owner concludes a contract with an FOA, which on behalf of the owner organises the preparation of cutting areas, different types of fellings, timber transport to buyers’ yards and timber sales. If that kind of a system is used, the forest owner does not have any other tasks; he/she can just wait for payment from the FOA. If needed, FOAs can arrange also the reforestation of felling areas according to other special agreements.

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

The development of forest ownership has been very rapid during the last 20 years. It has been **directly influenced** by the Land Reform Act of 1991 (the key pillar of the change) which started the process of restitution and privatization (an overview provided by Meikar & Etverk 2000). While restitution has finished, there are still some privatization developments occurring. The Ministry of Environment is aiming to conclude these processes by 2017. In addition, there are more **indirect influences** that shape the development of forest ownership in Estonia. For example, the reactive and unstable forest policy environment, which might make forest owners feel unsafe in managing their property. Since 1991, there have been 3 different forest acts with several amendments: 1993 (4 amendments), 1998 (12 amendments) and 2006 (14 amendments, the last one entered into force on 1 August 2014). Some of those changes have had just some kind of political importance, where the representatives of forest owners have not participated in the preparatory process.

Also, strict environmental restrictions (different environmental policies) on the use of forest land could influence the development of ownership, encouraging some forest owners to sell their property. In some cases the forest owners have had the possibility of exchanging their forest land (if under strict protection) for alternative properties (Environmental Act, 2004).

Obviously, taxation policy has had a very big influence on forest ownership. In Estonia two

important taxes are used in forestry – the land tax and income tax. The final rate of the land tax is determined by the council of a rural municipality and in several municipalities the forest land tax is higher compared to agricultural land. The income tax system for forest owners has passed several different stages; the general tax rate has decreased from 26% to 20%. From taxation point of view, there are differences between three groups of forest owners: physical persons, self-employed persons and legal persons (companies).

The simplified picture is that in the 1990s private forest owners as physical persons could not deduct silvicultural costs. The deduction of some documented felling costs in timber sales was possible, but they had to pay income tax from timber sales value. An exemption was made for forest owners who have got back their restituted property, for them the sales were tax free (see also Urbel-Piirsalu and Bäcklund, 2009). This was one financial motivation for some forest owners to sell their forest properties and somehow it was also a good starting point for trade with the forest properties market. Since 2004, it was possible to deduct also reforestation costs, but only in the case of transferring the cutting rights of forests, not when a forest owner was doing/organising the felling and timber sales (Aun, 2008). A self-employed person as an entrepreneur had more possibilities to deduct business related expenses, but in addition to income tax they had to pay also social taxes. Since 2008, self-employed persons have a right to deduct additional 2,877 EUR from their income from the sale of unprocessed timber received from the property which is belonging to him (Income Tax Act, 1999). Legal persons (mainly companies) as forest owners can deduct all the expenses from their income; until 1999 companies had to pay income tax on their profit, but starting from 2000 companies have to pay income tax only when their profit is distributed as dividends or in the case of other profit distributions in monetary or non-monetary form (Marastu, 2007; Income Tax Act, 1999).

The general opinion of small forest owners was that the Estonian tax system did not support sustainable forest management, e.g. the Estonian Private Forestry Development Plan 2006–2009 (Eesti Erametsaliit, 2006) stated the need for development of the tax system, which supports forestry needs. In February 2011, the parliament approved the Estonian Forestry Development plan until 2020 (Keskkonnaministeerium, 2010), which also stated the needs for changing the tax system. In July 2011 the Estonian Parliament passed the amendments to the Income Tax Act (Income Tax Act, 1999), which accepted special arrangements for the sale of cutting rights or timber assortments (entered into force on 1 January 2012). Currently the forest owner has a right to deduct forest management costs from sales income during the same year or within the following three years. Finally, the forest owner as a physical person can now legally deduct basic silvicultural costs and there is no need to manage the forest as a small company.

Forest ownership has been also influenced by agricultural policies (and subsidies). While some former agricultural areas started to be afforested (and some were afforested by the owners) during the 1990s, in the light of rising agricultural direct payments there was pressure to start producing crops. This might lead to deforestation in these areas which were formerly agricultural land. It might be possible that the ownership has been influenced also by wildlife/hunting policies to some extent. Hunting rights have been *de jure* given to landowners but *de facto* in recent decades landowners have not had much to say about hunting on their property.

6.2. Influences of policies on forest management

The biggest policy areas that influence forest management are forest and environmental policies. After regaining independence, the first Forest Act was entered into force in 1993. Before that the Soviet Estonian Forest Code was valid. The general principles of forest policy were approved by the parliament in 1997 (Approval of the Estonian Forest Policy, 1997).

In addition to the Forest Act several other legislative documents influence the

management of private forests e.g. the Regulation on Forest Management laying down specific rotation ages (see also Korjus et al., 2011) and rules for various other activities. Despite all those different changes forest management plans have almost always been necessary for forest owners. In principle management planning is voluntary, but nowadays forest owners, if they want to conduct management operations, have to have adequate forest inventory data in the Forest Register (a management plan is more a tool for the owners themselves). All the inventories and planning are done at the request of the owner by licensed companies. Private forest owners are eligible for support in financing the inventory/management plan. Also, the Nature Conservation Act applies to a significant amount of forests since roughly one third of the forests are covered with management restrictions (Sirgmetts et al., 2011). The majority of different restrictions are being compensated for either by national funds (e.g. in the case of woodland key habitats) or by using EU funds (Natura 2000 payments).

Indirectly also agricultural policies influence forest management, mainly by the Common Agricultural Policy (CAP) and Rural Development policies. A range of different support measures is implemented which surely influence the management of private forests.

The taxation policy was hindering mainly reforestation in the case of which the majority of forest owners could not deduct silvicultural costs, especially when the planting was done 1 or 2 years after felling. The influence of the taxation policy existed until the year 2012 (described in the previous sub-chapter in more detail)

6.3. Policy instruments specifically addressing different ownership categories

Ownership categories are most often divided into two: private individual owners and private legal owners (companies). This is the most common way how a difference is being made. Rules have been adopted according to which support for companies/legal owners is a bit

more limited and private individual owners are being favoured when providing financial support for forest management. There are also some consultants or forestry advisers who get funding from the state to reach forest owners and consult them, but their numbers are low and usually for most of them it is a second job. In addition, forest owners themselves should contact the advisers not the other way around. There are no other specific instruments which address different ownership categories (in particular new forest owners).

For reaching new or absentee forest owners most often larger campaigns are used. About 2013 a small project was launched by the Private Forest Centre in cooperation with a regional FOA to address forest owners who live in cities (e.g. the capital Tallinn). They launched a commercial on national television but the results or effectiveness of the whole project are still unknown. Also, specialists write newspaper articles but often these articles are published only in forestry related journals which these absentee or new forest owners do not come across. Some associations take part also in regional fairs. There is public interest in private forest management, but current policies do not really consider the diversity of forest owners (Põllumäe et al., 2014b).

6.4. Factors affecting innovation in policies

There is a great need for scientific understanding about forest ownership and forest owners. As mentioned before the majority of policy decisions have been made based on expert opinions. This could be one of the main accelerating factors for policy

innovation. Nowadays we also have a good idea about the current ownership structure (a positive aspect for developing policies) yet it would be even greater to know in depth the trends in forest ownership changes. The amount of hindering factors is unfortunately large. The “tradition” of top-down implementation is still somehow influencing policy developments. The main initiator of policy developments is the state and participatory processes are still in their initial stages. It is very difficult for the private forest sector to have a clear say in different policy processes since the sector itself depends quite much on state support. This is also somewhat linked to the preconceptions of people about political lobbying i.e. it is not a very common practice in/among smaller-scale organizations or “traditional” sectors (e.g. forestry) or it is rather weak. Ownership fragmentation and the wide range of forest owners’ different needs and objectives do not stimulate innovation in policies. A good example would be one of the aims of the current National Forestry Development Programme until 2020 (Keskonnaministerium, 2010). It stresses the importance of forest owners’ cooperation and sets ambitious goals for 2020 regarding forest owners’ joint wood sales through FOAs without even mentioning the possibility of having forest owners with multiple objectives. The document underlines among other things that the annual harvested volume is ~2/3 of the optimum and most of the “shortage” can be accounted to private forests. Policy objectives and needs are therefore more production-oriented. Mainly support schemes are used to stimulate the management of private forests. Teder (2014) has focused, for example, on the joint wood mobilization support.

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8. Annexes

8.1. Tables with a detailed description of 10 most important publications

Full reference of the study/publication	Bouriaud L., Nichiforel L., Weiss G., Bajraktari A., Curovic M., Dobsinska Z., Glavonjic P., Jarský V., Sarvasova Z., Teder M., Zalite Z., 2013. Governance of private forests in Eastern and Central Europe: An analysis of forest harvesting and management rights. Ann.For.Res. 56 (1):199-2015, 2013.
English language summary/abstract	A property rights-based approach is proposed in the paper to underline the common characteristics of the forest property rights specification in ten ECE countries, the specific patterns governing the harvesting of timber in private forestry and the role of forest management planning in determining the content of property rights. The analysis deals with the private forests of individuals (nonindustrial ownership) from ten countries, covering 7.3 million ha and producing yearly some 25 million m ³ of timber. The study shows that forest management rights in private forests belong to the state and that the withdrawal rights on timber, yet recognized in forest management plans, are in reality strongly restricted from an economic view point. Forest management planning is the key instrument in the current forest governance system, based on top-down, hierarchically imposed and enforced set of compulsory rules on timber harvesting. With a few exceptions, forest owners have little influence in forest planning and harvesting. The rational and state-led approach to private forest management has serious implications not only on the economic content of property rights, but also on the learning and adaptive capacity of private forestry to cope with current challenges such as the climate change, increased industry needs for wood as raw material, or the marketing of innovative non-wood forest products and services. The study highlights that understanding and comparing the regime of forest ownership require a special analysis of the economic rights attached to each forest attribute; and that the evolution towards more participatory decision-making in the local forest governance cannot be accurately assessed in the ECE region without a proper understanding of the forest management planning process. Keywords: forest management planning, private forests, governance, owners' participation, harvesting, Eastern, Central and Baltic Europe, property rights.
Language of the study/publication	English
Type of organization conducting the study	University, Public Research Institute
Type of funding used	Public EU/cross-national Europe
Regional scope	Cross-national Europe
Theoretical approach	Political sciences
Methodical approach	Literature and legislation review in the form of standardised data protocol collection
Thematic focus	New management approaches, policy instruments addressing ownership
Main results should be given here if not yet included in the summary.	The article summary describes the general situation in the observed countries. The Estonian situation seems to be more liberal in some points: An FMP (forest management plan) is compulsory only when a forest owner wants to do active forest management, owners' preferences are considered a priority in planning, and a forest owner has a right to cut a certain amount of timber without a permit from authorities.
Web link	http://www.editurasilvica.ro/afr/56/1/bouriaud.pdf

Full reference of the study/publication	Weiss G., Tykkä S., Nichiforel L., Dobšínská Z., Sarvašová Z., Mizaraite D., Nedelkovic J., 2011. Innovation and sustainability in forestry in Central and Eastern Europe: challenges and perspectives (SUSI-CEE). Final Report. Bundesministerium für Wissenschaft und Forschung, 250 p. (In some chapters Estonian co-authors are Meelis Teder and Priit Põllumäe).
English language summary/abstract	
Language of the study/publication	English
Type of organization conducting the study	University, Public Research Institute
Type of funding used	Public EU/Cross-national Europe, Public other
Regional scope	National, Cross-national Europe
Theoretical approach	Privatization theory, land privatization; restitution of forest land, interest groups, sustainable management
Methodical approach	Multiple approaches: literature (literature and legislation review in the form of standardised data protocol collection)
Thematic focus	Ownership change (including changes in quantitative terms, emerging new ownership types, etc.), policy instruments addressing ownership
Main results should be given here if not yet included in the summary.	The restitution and privatisation of forest land has been relatively slow in Estonia. Estonian state administration offers educational services for private owners concerning financing and management. National funding for non-state actors is very weak. The number of forest related interest groups is relatively small. The transformation of the forest sector was done in several phases, partly by short-sighted political reasons, influenced by the political party in power. Compared to the other observed countries the Estonian Forest Act has been changed or amended relatively often (23 times between 1991–May 2011).
Web link	

Full reference of the study/publication	Teder, M. 2014. Puidu ühismüügi analüüs (Timber joint sales analysis in Estonian FOAs.)
English language summary/abstract	<p>One of the forest owners associations' activities is economic co-operation in timber sales. Small non-industrial private forest owners sometimes need additional support or encouragement for active forest management. According to the Estonian Forestry Development Plan until 2020, by the end of period (2020) the forest owners associations will have to sell 5 million m³ of timber. To motivate small non-industrial private forest owners as well as forest owners' organizations for active forest management and timber sales, a state support system for forestry associations was launched in 2009; the latest changes were made in April 2014. One of the aims of additional support is to increase the self-sufficiency of forestry associations. Organisation of joint sales is one of the three supported activities, but there are certain limits for applying for the support: a) a gradually (annually) increasing minimum number of members in a forestry association; b) the maximum amount of support for all supported activities is 100 € per member of an association; c) the maximum support per sold m³ depends on the type of sales (1) 0.2 €/m³ in the case of organizing public auctions for transferring the cutting rights of forest; 1.554 €/m³; (2) arranging the transfer of forest logging rights on the basis of the volume of harvested assortments; (3) organizing the logging and sale of harvested assortments. A formula for calculating the maximum support of joint sales includes different coefficients for the type of cutting, the average harvested volume per ha, the number of private persons (forest owners) served by an association. Based on the data of 2010–2013, the amounts of jointly sold timber have yearly increased. Estonian local forest owners associations have established two commercial associations for timber trade (in 2009 and 2013) as sales channels, with the aim of getting the best price for bigger quantities and concluding long-term contracts. For getting support for a forestry association, bigger organizations have actively increased their number of members, some associations have merged, and the smallest ones would like to remain independent without support. According to the data of four different forestry associations for the period of 2012–2013, in cases where the timber assortments were sold, the average joint-sales support has been 1.21 €/m³ in thinning and 0.86 €/m³ in clear-cutting. In February and March 2014, before the official approval of the last changes in the private forestry support system, a survey among the representatives of private forestry was carried out. The qualitative part includes four long and several short interviews with the leaders of forestry associations. A quantitative semi-structured internet-based survey was targeted at private forestry consultants, and staff and board members of local forestry associations (n=26). The private forestry specialists and representatives of associations have diversified opinions about the state support for organizing the joint sales of timber. 62% of respondents have an opinion that a country like Estonia needs state support for joint sales, 54% think that it is needed in the current economic conditions. The general opinion of discontented respondents is that instead of supporting the sale of timber from clear-cuts and supporting associations, the support has to go directly to the forest owners and only clearings and pre-commercial thinning have to be supported; in the current case government subsidies are distorting the free market. Only 23% of respondents indicated that the special support was the reason for starting joint sales in their associations. While satisfaction with the setup and implementation of state support was asked, no respondents were fully satisfied, 38.5% were rather satisfied, 19.2 % remained neutral, 30.8% were rather dissatisfied and 11.5% were fully dissatisfied. 77% of the respondents had an opinion that the joint sales support has had a positive impact on Estonian private forestry and forest owners.</p>
Language of the study/publication	The project report is written in Estonian. The scientific article in English is currently in progress.
Type of organization conducting the study	University

Type of funding used	National
Regional scope	National
Theoretical approach	Public support
Methodical approach	Statistical data analysis, quantitative questionnaire survey, qualitative interviews
Thematic focus	Policy instruments addressing ownership
Main results should be given here if not yet included in the summary.	
Web link	http://www.eramets.ee/wp-content/uploads/2013/01/puidu_uhismuugi_analuus.pdf

Full reference of the study/publication	Põllumäe, P., Korjus, H., Kaimre, P., Vahter, T. (2014) Motives and Incentives for Joining Forest Owner Associations in Estonia. Small-scale Forestry, 13(1), pp. 19–33.
English language summary/abstract	The development of private ownership is an important outcome of structural changes for the whole economy as well as for the forestry sector in Estonia. Cooperation between forest owners has been seen as one possibility for increasing the provision of various forest-related benefits and goods. Yet the extent of cooperation between forest owners is still not at a sufficient level, but the reasons have not been extensively studied. The authors' aim was to find out the key determinants for forest owners to join a forest owner association and to explore how cooperation between owners could be increased. Survey data were used to divide the respondents into two groups according to whether they were members of forest owners associations or not. It was found that one key aspect is the size of the forest property: association members usually manage larger forest areas than non-members. In addition, the members tend to be more active and consistent in forest management activities than non-members. Also there is potential towards cooperation within non-members as their plans for the future are much more targeted. Although there are limits to voluntary cooperation, a huge potential for Estonian private forest owners could be realised by diversifying forest owner association activities and services to meet the different expectations of forest owners.
Language of the study/publication	English
Type of organization conducting the study	University
Type of funding used	National
Regional scope	National
Theoretical approach	Economics, sociology
Methodical approach	Questionnaire survey
Thematic focus	Ownership change Motives and behaviour of ownership types
Main results should be given here if not yet included in the summary.	Included in the summary
Web link	http://link.springer.com/article/10.1007%2Fs11842-013-9237-3

Full reference of the study/publication	Põllumäe, P., Korjus, H., Paluots, T. (2014). Management Motives of Estonian Private Forest Owners. Forest Policy and Economics, 42, pp. 8-14.
English language summary/abstract	Private forestry has been re-established as a rather new phenomenon in many Central-Eastern European countries including Estonia. Sustainable management of these forests has become a question over the years. We aimed to find answers to how different values and objectives form management motives and influence decision making in forest management by new forest owners. Principal-component and correlation analyses were applied to a collected dataset from forest owners in 2011 containing 254 responses. By the collection of datasets these forest owners were divided also by assessment methods. The results showed that randomly selected forest owners may have some different motives in their approaches to forests and forest management than forest owner organisation members, but mainly their motives overlap. The correlation analysis between individual forest owners revealed also that forest owners are very different in how they arrive to a particular decision in management. In addition, perceived values and long-term objectives are one of the fundamental cornerstones for these decisions. Forest policy often neglects the diversity of landowners and therefore policy implementation is often not successful. More flexibility in policies could be an answer.
Language of the study/publication	English
Type of organization conducting the study	University
Type of funding used	National Public
Regional scope	National
Theoretical approach	Sociology, PCA and correlation analysis
Methodical approach	Questionnaire survey
Thematic focus	Motives and behaviour of ownership types Policy instruments addressing ownership types
Main results should be given here if not yet included in the summary.	Included in the summary
Web link	http://www.sciencedirect.com/science/article/pii/S1389934114000380

Full reference of the study/publication	Toivonen, R., Järvinen, E., Lindroos, K., Rämö, A-K, Ripatti, P. (2005). The Challenge of Information Service Development for Private Forest Owners: The Estonia and Finland Cases. Small-scale Forest Economics, Management and Policy 4(4), pp. 451-470.
English language summary/abstract	This paper investigates forest ownership objectives and the need for information among Estonian and Finnish private forest owners based on two surveys. The motivation for the analysis is the fragmenting private forest ownership in Europe. The broad lines of ownership objectives are found to be similar in both countries, and can be described under the dimensions of economic objectives, intangible values, and products and activities provided by forests. In both countries, economic and intangible objectives are considered important at the same time. Thus forest owners can be described as multi-objective. The economic objectives are ranked as somewhat more important than non-economic objectives in Estonia, but not in Finland. Estonian forest owners most strongly emphasise information about legal and economic matters, including forest taxation and forest health issues, while Finnish forest owners emphasise information about wood markets and forest taxation. Differences between the two countries may be related to private ownership being relatively new in Estonia. Some generalisations may be drawn for European forest policy. Overall, private forest owners need both information about economic issues and personal advice on how to manage forests with regard to their individual and multiple objectives. Generally, personal advice may be concentrated on the complicated and most important aspects, while information can mostly be provided via written or electronic channels. Particularly in countries where private forestry is new, there is a need for personal advice on legislative and economic matters. In conclusion, it is suggested that efficient allocation of resources and development of information services require regular analysis of private forest ownership, and segmenting private forest owners according to their objectives and information needs.
Language of the study/publication	English
Type of organization conducting the study	Pellervo Economic Research Institute PTT and TTS Institute
Type of funding used	No information available
Regional scope	Cross-national Europe (Estonia & Finland)
Theoretical approach	Sociology
Methodical approach	Questionnaire survey and test interviews
Thematic focus	Ownership change and information needs Motives and behaviour of ownership types Policy instruments addressing ownership types
Main results should be given here if not yet included in the summary.	Included in the summary
Web link	http://link.springer.com/article/10.1007%2Fs11842-005-0028-3

Full reference of the study/publication	Forinfo (2011). Eesti erametsaomandi struktuur ja kasutamine 2010. aastal. [The structure and use of Estonian private forests in 2010] Ministry of Environment. 223 pp
English language summary/abstract	The study ordered by the Ministry of Environment uses the Forest Register and other national registers to clarify the use of private forest resources and the structure and characteristics of forest ownership (ownership classes, gender, sex, place of residence and forest etc.) in Estonia.
Language of the study/publication	Estonian
Type of organization conducting the study	Other: Private company
Type of funding used	National
Regional scope	National and sub-national
Theoretical approach	-
Methodical approach	Quantitative data analysis
Thematic focus	Ownership change
Main results should be given here if not yet included in the summary.	In 2011 there were 93,271 private individuals and 4,001 enterprises and organisations who owned respectively 747,000 ha (74%) and 263,000 ha (26%) of private forest land. The forest properties are very different in size e.g. 76% of forest owners have properties between 0.1 and 10 ha, covering a relatively small part of the total private forest area. Private owners who own 20 ha or more forest cover 42% of private forests yet they make up only 9% of the total number of private forest owners.
Web link	www.envir.ee

Full reference of the study/publication	Meikar, T., Etverk, I.(2000). Metsaomand Eestis [Forest ownership in Estonia]. Metsanduslikud Uurimused [Forestry Studies] XXXII, pp. 8-18.
English language summary/abstract	The survey, primarily based on published statistical data, explores the development of forest ownership relations in Estonia since the beginning of national independence. In 1919 before the Land Act was passed, landed property dominated in forestry. 77% of forests belonged to territorial magnates (mainly manors of knights) and only 12% belonged to small proprietors (farms). State forests made up 11%. With the Land Act of the government of the Republic of Estonia, land ownership by status was nationalised. As a result of the land reform almost all cultivated land belonged to farms and the share of farmers' forests increased. In 1940, 77% of cadastral forests were state-owned, 2% belonged to other great land owners (towns, industrial enterprises) and 21% to farms. If also forest-like areas (grasslands, pasture forests, brushwood areas) beyond cadastral forests are taken into account, 51% of the total forest area belonged to farms, 49% to the state, and 1% to other owners. According to cadastral forests at that time the area of woodland in Estonia attributed to 21%, according to area covered by forests – 33%. When Estonia was occupied in 1940, the land was nationalised and ownership relations were liquidated. In the end of the 1940s farms were integrated into collective farms. By 1988 the major administrator of forest land was the forest management organisation with a 60% holding. 38% of forest land was used by agricultural collectives, the rest of it to a large extent by the Soviet army. With the disintegration of the Soviet Union in 1989 began the restoration of farms and forests, followed by the restitution of ownership relations starting in 1993. By the end of the land reform the state owned about a half of forests; in 1998 state forests covered 85%.
Language of the study/publication	Estonian
Type of organization conducting the study	University Public Research Institute
Type of funding used	No information
Regional scope	National
Theoretical approach	Political sciences
Methodical approach	Analysis of statistical data
Thematic focus	Ownership changes
Main results should be given here if not yet included in the summary.	Included in the summary
Web link	http://mi.emu.ee/userfiles/MI/FSMU/2000/32/mets_32-1.pdf

Full reference of the study/publication	Urbel-Piirsalu, E., Bäcklund, A.-K. (2009): Exploring the Sustainability of Estonian Forestry: The Socioeconomic Drivers. <i>Ambio</i>, 38 (2): 101-108
English language summary/abstract	Forestry as an important industry has both direct as well as indirect effects on the Estonian economy. It is therefore essential that forestry be sustainably managed so that it can continue to contribute to the economy in the future. The first aim of this article is to establish the situation regarding felling and regeneration in Estonia. As available forestry statistics display discrepancies and lack consistency, it was as a necessary first step to gather information about and analyze the validity and reliability of the prime data to make the datasets useful for comparison over time and establish the current trends in Estonian forestry. However, with the help of interviews we were able to show that economic instability in Estonia brings with it increased logging rates and hinders investments into regeneration and maintenance. The problems are particularly pronounced in private forestry. Second, the article seeks to explain the socioeconomic reasons behind this situation. Economic problems among private owners, a liberal forestry policy, together with a rapid land reform and weak enforcement of forestry legislation are some of the reasons that can explain the forestry trends in Estonia.
Language of the study/publication	English
Type of organization conducting the study	University Public Research Institute
Type of funding used (multiple answers allowed)	No information
Regional scope	National
Theoretical approach	Political sciences
Methodical approach	Forestry statistics analysis and interviews
Thematic focus	Ownership change New management approaches
Main results should be given here if not yet included in the summary.	Included in the summary
Web link	http://www.bioone.org/doi/full/10.1579/0044-7447-38.2.101

Full reference of the study/publication	Põllumäe, P., Korjus, H. (2014). Towards a Sustainable Private Forestry: the Developments of Two Decades in Estonia. Adaptation in Forest Management under Changing Framework Conditions, IUFRO Symposium 19-23 May 2014 Sopron, Hungary. (Eds.) Endre Schiberna ja Magdolna Stark. Foundation for Sustainable Forest Management, 2014, 179 - 188.
English language summary/abstract	This paper is based on literature review and authors' previous work in the field of private forestry. Research on private forestry has been scarce in Estonia and a broad overview on the developments is still missing. We therefore aim to describe these developments and compare them with other CEE countries. Also we try to look at these developments from the perspective of institutional change and sustainable forest management. The shift towards a market economy and private ownership has influenced the management of Estonian forests. If in 1993 private forests accounted for only 3% of all woodlands then by 2011 this number had increased to approximately 50%. 1 million hectares of forest is owned by 97,000 private owners. We found that the management of these forests has very much been influenced by the institutional environment i.e. by the norms and beliefs but also by the legal framework. In a transition situation the sustainable management of forests comes into question.
Language of the study/publication	English
Type of organization conducting the study	University
Type of funding used	National
Regional scope	National
Theoretical approach	Political sciences
Methodical approach	Based on existing literature
Thematic focus	Ownership change Policy instruments addressing ownership types
Main results should be given here if not yet included in the summary.	The management of Estonian private forests has largely been influenced by the institutional environment i.e. by the norms and beliefs but also by the legal framework.
Web link	No information



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