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Forest Land Ownership Change in Lithuania

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 Lithuania

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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.

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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

CEPF	Confederation of European Forest Owners
CPR	Common-pool resources regime
EFICEEC	European Forest Institute Central-East European Regional Office
EU	European Union
FACEMAP	Forest Land Ownership Changes in Europe: Significance for Management and Policy
FAO	Food and Agriculture Organisation of the United Nations
FOAL	Forest Owners' Association of Lithuania
FOC	Forest Owner Cooperative
LRCAFIF	Institute of Forestry (formerly Lithuanian Forest Research Institute), Lithuanian Research Centre for Agriculture and Forestry
NFP	National Forest Program
NGO	Non-governmental Organisation
PEFC	Programme for the Endorsement of Forest Certification
SFE	State Forests Enterprises
SCC	Swedish Co-operative

1. Introduction

1.1. Forests, forest ownership and forest management in Lithuania

Forestry plays an important role in the Lithuanian economy and environment. According to data from the *Lithuanian*

Statistical Yearbook of Forestry (2013), the total forest land area is 2,174 thousand ha and covers 33.3% of the country's territory (Table 1). The total growing stock volume is 510.2 million m³, while the gross annual increment is 17.8 million m³.

Table 1: General Characteristics of Lithuanian Forests

Characteristics	01-01-2003	01-01-2013
Forest land area according to Forest assessment, 1,000 ha	2,045	2,174
Total growing stock volume, mill. m ³	453.4	510.2
Mean growing stock volume, m ³ /ha	226	244
Total growing stock volume of mature stands, million m ³	109.9	134.7
Gross annual increment, million m ³	16.0	17.8
Gross annual increment, m ³ /ha	8.0	8.5
Accumulation, m ³ /ha	-	2.8
Forest coverage, %	31.3	33.3
Forest area per capita, ha	0.59	0.73
Growing stock volume per capita, m ³	131	172

Source: *Lithuanian Statistical Yearbook of Forestry, 2013*.

Coniferous stands prevail in Lithuania, occupying 1,152,900 ha and covering 56.1% of the forest area (Figure 1). The total area of

deciduous softwood and hardwood is 791 thousand ha.

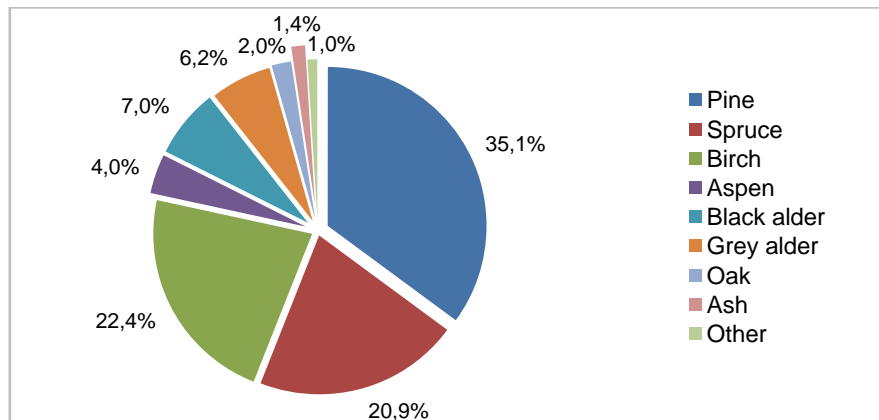


Figure 1: Forest stands area by dominant tree species (01-01-2013).

Source: *Lithuanian Statistical Yearbook of Forestry, 2013*

Lithuanian forests are grouped into four functional groups: (I) forest reserves, (II) special-purpose forests (ecosystem protection and recreational forests), (III) protective forests and (IV) exploitable (commercial) forests. The forest are covered by each of these functional groups is 1.2%, 12.3%, 15.2% and 71.3%, respectively. Any forest management in the first group is prohibited, while in the second and third forest groups, it is strictly controlled by

policies such as having a higher stand harvesting age, and limiting clear cuttings.

During the Soviet period, the state ownership of forestland and centralized planned management have been characteristic of forestry as well as the entire economy. The emergence of private forest ownership, the free market for wood, adapted foreign technologies, EU support, and the expanding social and environmental functions of forest have been the major socio-economic

changes that have occurred in the Lithuanian forest sector after Independence in 1990. All private forest owners can be assigned to the 'new forest owners' group, which represents 'individuals or organizations that previously have not owned forest land, and transformed public ownership categories through restitution'. The forestry practices of new forest owners differ according to holding size and their management objectives.

After the restoration of Independence in Lithuania, forest property rights were restored. The structure of forest ownership has changed due to an ongoing land reform process. The process of political, social and economic transformation has profoundly affected the forestry sector. All forestland was first transferred to the countrywide network of 43 state forest enterprises (SFEs) under the Ministry of Forestry. Currently, the private forest sector constitutes 246.6 thousand private forest owners on a total of 852.6 thousand ha (*Lithuanian Statistical, 2013*), which is 39.2% of the total forest area. Small-sized private forest properties are common in Lithuania. The average size of a forest estate remains unchanged from 2001 and is 3.3–3.4ha. Private forest owners differ in their forest management objectives.

After the restoration of Independence in Lithuania, wood markets also changed considerably. Due to the emergence of the free wood market, the exports of timber expanded. Previously, 1–2 million m³ of wood was imported from Russia; now, a considerable amount wood is exported. Demand, supply and other market factors began to drive roundwood prices. There has been a tendency towards an increase in wood off take from national forests. Felling increased from 4 million m³ in 1990 to 7 million m³ in 2012.

According to Forest Law (1994), clear-cut areas should be reforested within 3 years of cutting. Annually, state forest enterprises reforest 9–10 thousand ha of clear-cuts, and private owners reforest 4–7 thousand ha (depending on the area of clear-cuts). During the past 10 years natural forests have expanded rapidly, by about 65 thousand ha of new forests. This has been due to both natural growth and planting on abandoned

agricultural land. Every year, forests have expanded naturally over 2–6 thousand ha of abandoned agricultural land. Furthermore, since Lithuania joined the EU, afforestation of agricultural land has been introduced using support from EU rural development funds and national funds. Since 2007, over 23,000 ha of forests were planted on agricultural land. Every year, private land owners afforest about 2–3 thousand ha.

The main areas of innovation in Lithuanian forestry are: wood logging for bio-energy, wood logging mechanization, forest certification, an independent wood measurement system, the cooperation of private forest owners, the computerization of information processing, the connection of remote systems, incorporating novel tree breeding technologies the modernization of nurseries, new methods of soil preparation, and the development of forest roads for people with disabilities. The majority of these innovations are directly related to globalization and are adapted from practices used by other countries.

1.2. Overview of the country report

In the chapter 'Literature review on changes in forest ownership' the scientific literature regarding ownership changes in Lithuania is reviewed. These articles analyse forest ownership changes in Lithuania, private forest owners' objectives and problems, cooperation opportunities and obstacles. The chapter on 'Forest ownership' describes the structure of Lithuanian forest ownership and its changes, as well as the legal regulation of forest ownership and private forest owners. The forest-management peculiarities of state and private forests in Lithuania, new forest management approaches and opportunities, as well as obstacles for innovative forest management, are described in 'Forest management approaches for new forest owner. The policies influencing the development of forest ownership and forest management are analysed in the chapter 'Policies influencing ownership development/policy instruments for new forest owners'.

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 country report uses statistical data from national forest inventories of the general characteristics of Lithuanian forests, and national and regional studies on forest ownership, which answer quantitative questions on new forest ownership, and private forest owner typology, cooperation and association processes. Survey results from scientific reports on forest ownership and private forest owners are also used in the country report. Moreover, methods include the literature review and expert interviews in order to provide qualitative data, general conclusions, and case studies.

3. Literature review on forest ownership in change

3.1. Research framework and research approaches

In Lithuania, the Forest Research Institute has undertaken a number of sociological studies of forest owners, including their typologies, goals and needs, and the question of cooperation (e.g., Mizaraite, 2000; 2001; Mizaraite and Mizaras, 2005). Most of this literature is written in the national language and published in national journals, proceedings and reports. Researchers in Lithuania have also published papers in English-language international scientific journals, such as *Small-scale Forestry* (e.g., Pivoriūnas and Lazdinis, 2004) or *Baltic Forestry* (Mizaraite and Mizaras, 2005; Mizaraite *et al*, 2010), or in the framework of international research or development projects. The main themes covered by these studies include forest ownership changes, private forest owner typology, private forest owner forest management objectives and problems, and private forest owner cooperation.

3.2. New forest ownership types

3.2.1. Forest ownership changes

The forest restitution process and private forest formation peculiarities are described by Mizaraite (2000). The author described the forest restitution process and stated an increase in the area of private forests during recent years. Some 18.5% of forests (367.2 thousand ha) belonged to private owners, and this percentage presumed to increase to 40–50% in the future. There has been a corresponding increase in the number of private forest owners to more than 117.5 thousand registered private owners. More than 80% (96.4 thousand) of forest owners have less than five ha of forest holdings. The main formation peculiarities of private forests in Lithuania, and categorization of private forest owners and their holdings, grouped according to various indicators, are presented in this paper. The database of the State Enterprise Centre of Registers is used for data analysis and grouping. The data on private forest owners and their forest holding distributions are grouped according to various

indicators: 1) distribution by place of residence, age and sex; 2) distribution of private forest holdings by size; 3) distribution of private forest owners and area of private forests by counties and districts.

The actual situation, development tendencies and problems of Lithuanian private forestry are described in the article ‘Lithuanian private forestry: the actual situation, tendencies and problems’ (Mizaraitė *et al*, 2010). The paper describes the tendency towards the expansion of private forests, the existing problem regarding private forest owners’ lack of education and training, and possible solutions for solving this problem. In that article, the authors state that the level of importance of various forest estate management problems has changed. The problem of strict regulation on private forest management has decreased in importance during the last 10 years. The most important problem for private forest owners is that the forest estates are inefficient for farming due to their small size. The number of private forest owners willing to sell their forest estate has decreased. The majority of private forest owners intend to retain their forest estate and to give the property rights to their inheritors in the future. Approximately 16% of respondents intended to apply for financial support from EU funds that have become available over recent years as forest owners are becoming more aware of these resources.

3.2.2. Private forest owners types

Private forest owners differ according to age, sex, education, social status, area of private property and other characteristics. All these characteristics influence the goals and problems of private forest owners. Even though there is a great variety, it is possible to group forest owners according to their attitudes towards the management of their forest property. Based on a survey among Lithuanian private forest owners, four types of owner were identified by Mizaraite and Mizaras (2005). Using cluster analysis, four clusters are formed: (1) businessmen, (2) multi-objective owners, (3) consumers, and (4) ecologists. The main characteristics of each cluster are analysed. The business

people cluster comprises forest owners to whom the income from selling wood and non-wood products is the main objective of forest. The multi-objective owners cluster represents owners to whom many forest management objectives are important. Forest owners from these first two clusters possess the biggest forest properties. Owners to whom the main objective of ownership is extraction of wood and non-wood products for personal use represent the consumers cluster. Wood for fuel is a very important objective for forest consumers. This group of owners has the smallest forest holdings and the closest residence proximity to a holding. Forest owners in this cluster are the most passive compared with other clusters; however, along with the multi-objective owners they have the highest level of forestry knowledge. The ecologists cluster includes owners to whom the main ownership objective is nature preservation. This is the smallest cluster. Owners representing this cluster are moderately active compared with other clusters, even though the level of their knowledge in the field of forestry is the lowest.

Analysis of the cluster characteristics identified the dominating characteristics of one or several owner groups. Seven factors, with reliable distribution among clusters, were identified: sex of owner, education, place of residence, level of forestry knowledge, forestry-related activity, distance from the residence to the forest holding, and the manner of acquiring the forest holding. In this article, cluster characteristics are presented.

The grouping of forest owners analysed in the article may be used for formation and implementation of private forest policy in the future. The results of this study suggest that strong emphasis should be placed on the creation of an education, training and advisory system for private forest owners, and that existing forest policy should be focused on different private forest owner groups.

3.3. Forest management approaches

Specific forest management approaches that currently exist in Lithuania are long-term forest management agreements between

private forest owners and business companies providing forest management services for private forest owners (Weiss *et al*, 2012).

3.3.1. Long-term forest management agreements

Businesses can provide all necessary forest management services for private forest owners, for example, reforestation, forest felling, forest stand maintenance, and forest protection. Many private forest owners are not able to care for their forest holdings and manage them in a sustainable way. Private forest owners and businesses can sign forest management contracts for varying periods. Long-term forest management agreements enable businesses to create sustainable forest management strategies for holding management so that forest holdings can be managed in multifunctional, economic and efficient ways.

3.3.2. Private forest owners objectives, problems and needs

The analysis of private forest owner objectives, problems and needs is by Mizaraite (2001). The main aim of this survey was to determine forest management objectives, problems and needs, as well as private forest owner priorities. For data collection, a questionnaire survey was used. Stratified random sampling was used for respondent selection. Statistical analysis of the survey data identified the following:

- The main forest management objective for private forest owners is the supply of wood for their own household needs (77.5% of respondents).
- The main problem for private forest owners is the size of the forest property. The forest property is too small to achieve efficiency (73.8% of respondents).
- The main need for private forest owners is centralized protection (a nationally organized and financed system) for forests against fire, insects, diseases, etc. (69.7% of respondents).

The author concluded that the survey results are highly relevant for private forest owners'

control and advisory services, as well as for state institutions involved in decision making.

3.4. Policy change / policy instruments

3.4.1. Specific policy instruments

Specific policy instruments in relation to forest ownership are identified as follows:

- 1) Creation and change of the legal basis for private forest management. Effects include liberalization of forest management rules and regulation for private forest owners in Lithuania (Mizaraitė *et al* 2010).
- 2) Tax changes. From the year 2014, individual private forest owners and businesses should pay an additional 5% compulsory withholding tax on proceeds from the sale of wood in the roundwood and stumpage forest for the benefit of the state budget (*State Tax*, 2013).

3.4.2. Private forest owners cooperation

Private forest owner cooperation tendencies and problems in Lithuania are described by Lazdinis *et al* (2004 and 2005). The current state of cooperation in private forestry in Lithuania is examined, with a focus on the analysis of objectives, organizational structure and the ways that forest owner cooperatives operate. A postal survey was used as the main research instrument, with a questionnaire consisting of a series of multiple-choice closed-ended questions. This

paper provides insights into the state forest enterprises and private companies operating in the private forestry sector, and places forest owner cooperatives in the broader context of the private forestry sector. A typical forest owner's cooperative in Lithuania has up to 10 members and about 20 clients to whom services are provided. The leaders of cooperatives indicate that the optimal number of clients using their services should not exceed 40. The main stated objectives of cooperatives are the provision of services to their members under the most attractive conditions, uniting members, and earning a profit for the members. The activities of cooperatives revolve around timber harvesting and trade. It is concluded that the process of cooperation between private forest owners in Lithuania is rather slow, although positive development can be observed.

In the second paper, the study describes how forest owners may be reluctant to participate in the forest owners' cooperatives (FOCs) in Lithuanian forestry as they are similar to soviet systems.. Despite shedding some light on the private forest sector of this country, many questions have also been introduced. The results presented here may provoke an interest in the relations between FOCs and their members, posing questions such as why there are so few members in FOCs and whether the declared objectives of FOCs may be undermined by hidden agendas. It would also be important to explore the role of the state in the development of the private forest sector since regaining independence. All these questions deserve special attention, and it is expected that they will be addressed in future studies.

4. Forest ownership

4.1. Forest ownership structure

4.1.1. National data set

After the restoration of Independence, forest property rights have been restored. The structure of forest ownership has changed due to an ongoing land reform process. Two forms of forest ownership are legitimized in Lithuania: state forest ownership and private forest ownership.

Around half (49.6%) of all forest land in Lithuania is state-owned (Table 2). The state forests are managed by 42 state forest enterprises (SFEs) and 1 national park, under the Ministry of Environment. The total area of state forests is 1,078 thousand ha (as of 1 January 2013). State forest enterprises are divided into 352 forest districts, whose average size is 3,000 ha (*Lithuanian Statistical*, 2013).

Table 2: Forest ownership structure in Lithuania

Forest ownership form	Owner	Forests area, ha	Numbers of owners or managers
State forests (public)	State (public) Management of forest land delegated to State Forest Enterprises and National Parks	1,077,700 (49.6%)	42 state forests enterprises; 1 national park
Private forests	Individuals, legal entities	852,600 (39.2%)	247,000
Forest reserved for restitution	Protection of forest land delegated to State Forest Enterprises	243,300 (11.2%)	

Source: *Lithuanian Statistical Yearbook of Forestry*, 2013.

Today, the private forestry sector comprises 246.9 thousand private forest owners and covers an area of 852.6 thousand ha (*Lithuanian Statistical*, 2013). This is 39.2% of the total forest area. The average size of a private forest estate is 3.3 ha (*Lithuanian Statistical*, 2013). Changes in the average holding size of private forest holdings during

the restitution process were not significant. Small-sized private forest properties are common in Lithuania. Forest owners owning less than 5 ha of forest holdings constitute 84.7% of all private forest owners, but they manage only 37.2% of the total area of private forests (Figure 2).

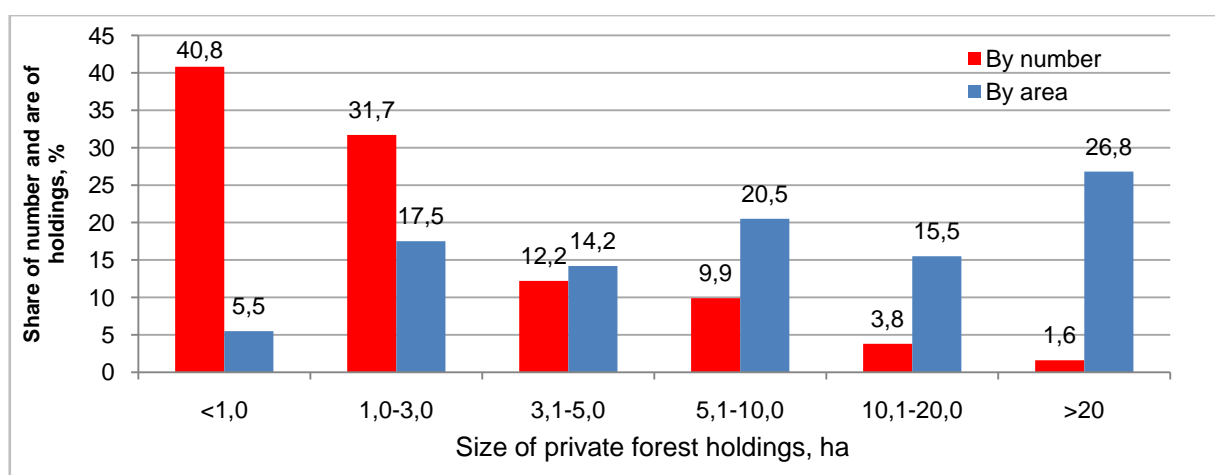


Figure 2: Number and size of private forest holdings (01-01-2014).

Source: State Forest Service, 2014.

The biggest private forest holding is 5,833.21 ha. Forest holdings managed by co-owners comprise 26.2% of total private forest holdings. Private forest holdings are owned

by individuals and businesses (cooperatives, joint stock companies, etc.). There are no official data about the number of businesses and forest areas owned by them.

4.1.2. Critical comparison with national data in *Global Forest Resources Assessment (FRA) reporting*

Private forest restitution decreased state forest area and increased private forest area

in Lithuania. The statistical data reported in the *FRA* report (2010) are not representative of the current situation in Lithuania (Table 3). For example, the *FRA* report provides statistics which reflect the situation in 2005 which differs from the national statistic data of 2013.

Table 3: Statistical data of the Global Forest Resources Assessment 2010 and national sources

FRA 2010 Categories	Forest area* (1000 hectares)	Forest area** (1000 hectares)*
	2005	2013
Public ownership	1404	1078
Private ownership	717	853
...of which owned by individuals	714	853
...of which owned by private business entities and institutions	3	Data are not available
...of which owned by local communities	0	0
...of which owned by indigenous / tribal communities	0	0
Other types of ownership	0	243***
TOTAL	2121	2174

* Data source: Global Forest Resources Assessment 2010. ** Data source: Lithuanian Statistical Yearbook of Forestry, 2013.

*** Forests reserved for restitution.

4.2. Unclear or disputed forest ownership

By 1 January 2013, 11.2% of all forest land in Lithuania was reserved for restitution of forest land property rights. It constitutes 243.3 thousand hectares of forest land. The restoration of ownership rights in these forest areas is complicated and raises two complex challenges: 1) some former private forest owners do not intend to claim their property rights; 2) the absence of archival documents that prove the former owners' right to ownership of the forest land make it impossible to determine the real forest owner or inheritor. The government should make a decision regarding further disposition of these forest areas. Several solutions for these forest areas have been discussed: 1) to transfer the management of these forest areas to state forest enterprises; 2) to sell these forest areas through auctions to natural persons or legal entities; 3) a combined solution – transfer some of these forest areas to state forest enterprises, and sell others to natural persons or legal entities at auction.

4.3. Legal provisions on buying or inheriting forests

4.3.1. Legal restrictions for buying or selling forests

From the beginning of the land reform and forest land restitution process, forest land was restituted and could be bought only by individuals who were Lithuanian citizens. Since the accession of Lithuania to the EU in 2004, legal entities (businesses) have also acquired the right to buy forest land. This provision is regulated by the Law on Forests of the Republic of Lithuania (2001). The process of forest land buying and selling is regulated by the Law on Forest (2001), the Law on Land (1994) and the Civil Code of the Republic of Lithuania (2000). According to the Law on Forest, the forest holding will not be split into parts if it equals or is less than 5 ha. From 1 May 2014, the Law on Forest has been supplemented with additional restrictions for private forest land buying or selling; for example, the priority right to buy a forest holding for a neighbouring forest owner, restriction buy more than 500 ha.

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

There are a few specific inheritance and marriage rules applied to forest land property in Lithuania: 1) Forest property does not become common (family) property when the land is received as a gift. The forest holding legally belongs to the person who received it as a gift. 2) After marriage, forest property does not legally become common (family) property. Legally, the owner of the forest property is the person who owned it before marriage. 3) The forest property inheritors will inherit forest land as equal shares if the former owner dies intestate.

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

4.4.1. Changes between public and private ownership

In Lithuania, private forest ownership dominated until land reform was implemented in 1920, when private forest owners accounted for about 65% of total forest area. Between 1919 and 1937, 600.2 thousand ha of private forest were transferred to state forests. Since 1938, private forests constituted only 173 thousand ha (about 16% of total forest land area). In 1940, some private forests were nationalized by Soviet governance. From 1950, private forest ownership was avoided in Lithuania (Figure 3).

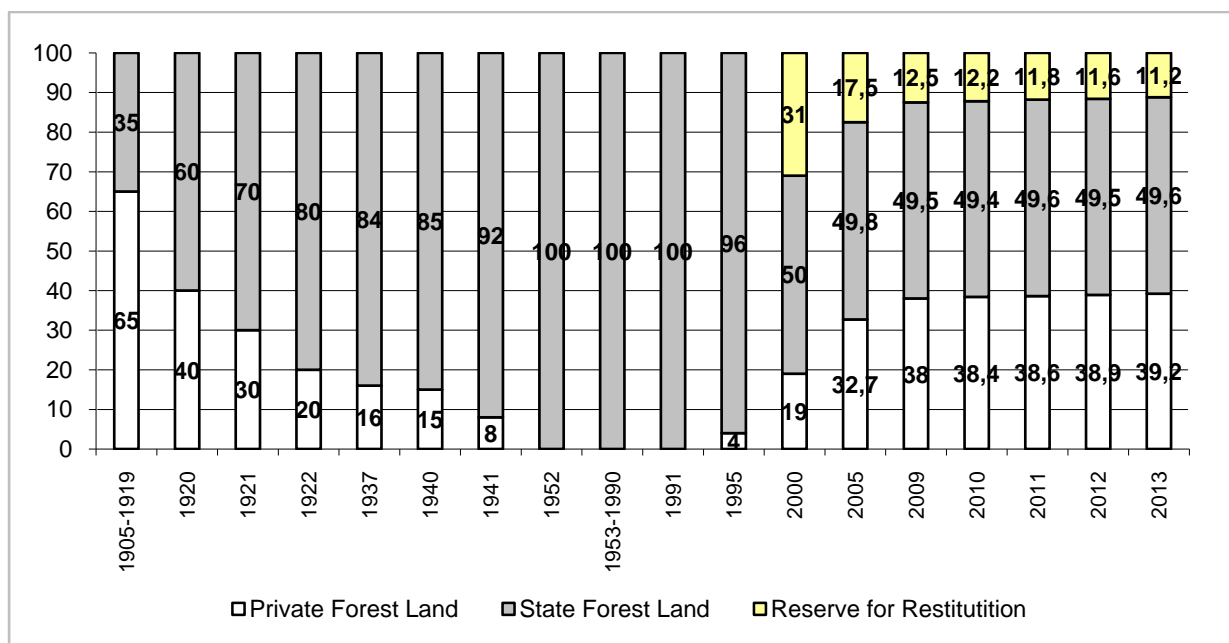


Figure 3: Forest ownership in Lithuania for period 1905-2013.

Source: Lithuanian Statistical Yearbook of Forestry, 2000, 2005, 2009, 2010, 2011, 2012, 2013

After the restoration of Independence, forest property rights have been restored. The restoration of private forestry started in 1991. The structure of forest ownership has changed due to an ongoing land reform process.

Around half (49.6%) of all forest land in Lithuania is state-owned (Figure 4). During the restitution process, there have been changes to the state forest area, but no changes in the state ownership structure.

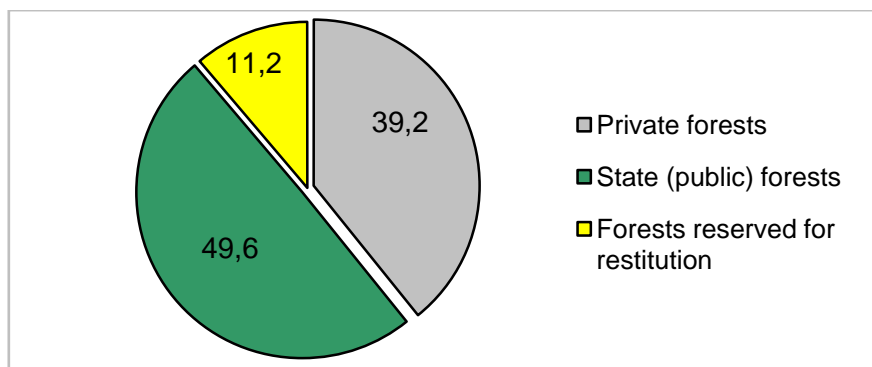


Figure 4: The forest land by forest ownership (01-01-2013).

Source: Lithuanian Statistical Yearbook of Forestry, 2013.

4.4.2. Changes within public ownership categories

Before the restoration of Independence (up to 1990), forests were managed by 24 state forest enterprises, 1 national park and

agricultural enterprises. The enterprises and the national park managed 1,945 thousand ha of forest land. In 1988, agricultural enterprises managed 29.2% of total forest area (Table 4).

Table 4: Changes within public ownership categories in Lithuania, %

Public ownership categories	1961	1988	1993	2004	2014
State forests	70.6	66.9	98.7	49.8	49.6
Agricultural enterprises forests	26.0	29.2	-	-	-
Other forests*	4.1	3.9	0.3	19.2	11.2

* till 1993 "other forests" – forest areas assigned to other authorities (for example the Ministry of Transport and Communication etc.); from 1994 "other forests" – forests areas reserved for restitution.

Source: Lithuanian Statistical Yearbook of Forestry, 2001, 2004, 2014.

The state forest enterprises underwent reform in 1988–1992. After the structural reforms, 43 state forest enterprises and 4 national parks were formed. In 1992, the protection and limited management of agricultural enterprise forests were delegated to the newly reformed state forest enterprises.

In 2004, the number of state forest enterprises decreased from 43 to 42, and the management of forest areas in 3 national parks was delegated to state forest enterprises.

4.4.3. Changes within private forest ownership

Private forest ownership theoretically could be divided into several categories according to owner type or type of ownership: 1) private forest holdings owned by one individual person (private forest owner); 2) private forest holdings owned by several individual co-owners (one forest holding owned by two or more private forest owners); 3) private forest holdings owned by legal entities (cooperatives, joint stock companies, etc.). During recent years, the number of forest holdings owned by co-owners slightly increased from 28.4% to 30.7% (Figure 5).

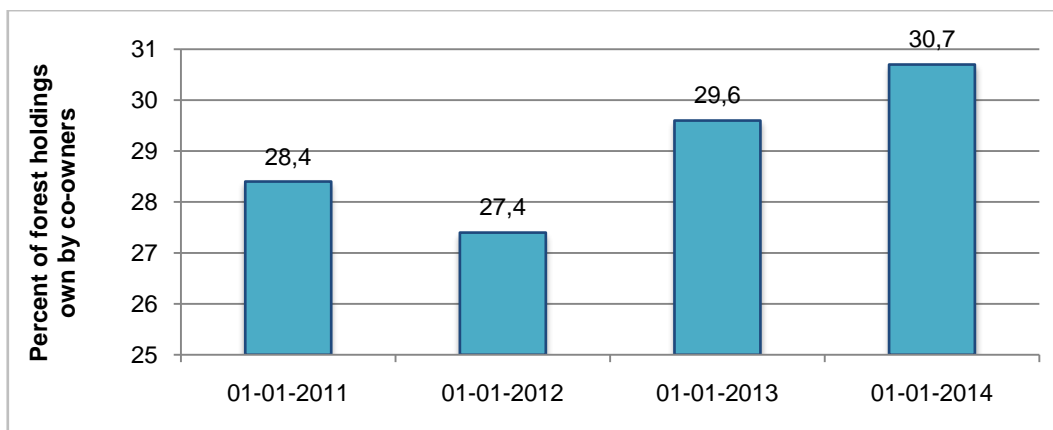


Figure 5: Percent of private forest holdings own by co-owners in Lithuania.
Source: State Forest Service, 2011, 2012, 2013, 2014.

In recent years, there has been an increase in the number of private forest owners who own large forest holdings, and in the forest area owned by them (Figure 6). In 2011, 3,875

private forest owners owned forest holdings larger than 20 ha, and the area owned was 186,0 thousand ha. In 2014, there were 3,927 owners who owned 221,4 thousand ha.

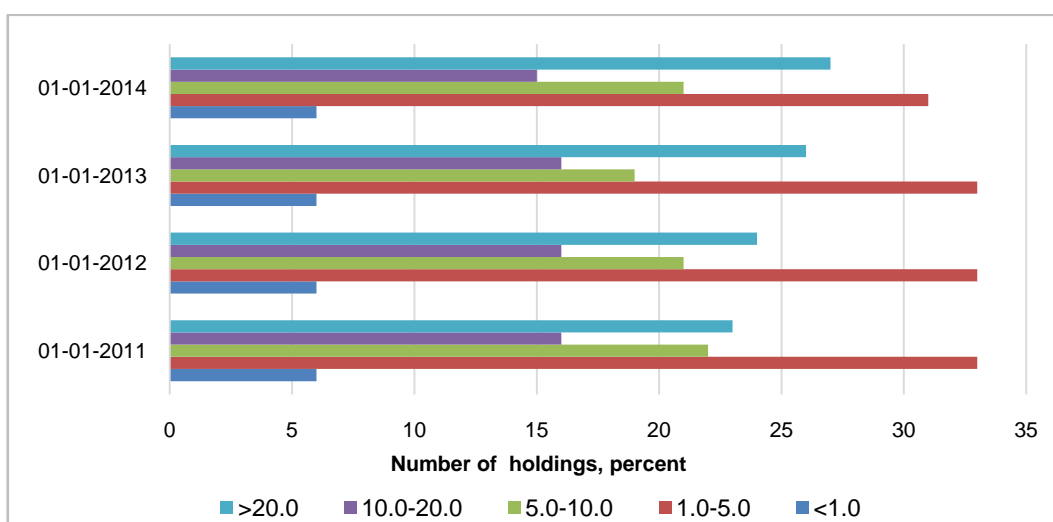


Figure 6: Private forest holdings area by holdings size.
Source: State Forest Service, 2014.

There are no official data about the number of legal entities (businesses) and forest area owned by them.

4.4.4. Main trends of forest ownership change

Across Europe, the following drivers for ownership changes have been identified by 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 wasteland.
- Changing lifestyles, motivations and attitudes of forest owners (e.g., when farms are given up or heirs are no longer farmers).

The restitution of forest holdings to former owners had a significant influence on the emergence of new ownership types of forest owners in Lithuania. During recent decades, almost 247 thousand new private forest owners restituted their forest holdings. Part of owners restituted forest holdings are sold to new owners, or given to children or other relatives.

New private forest owners have varying motivations, attitudes or lifestyles. In 2007–2014, private forest owners, forest companies and state forest enterprises afforested about 23,000 ha of agricultural land. This process also has an influence on the private forest sector formation. Trends of forest ownership in Lithuania presented in Table 5.

Table 5: Trends in forest ownership

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)	1
• New private forest owners who have bought forests	0
• New forest ownership through afforestation of formerly agricultural or waste lands	1
• Changing life style, motivations and attitudes of forest owners (e.g. when farms are given up or heirs are not farmers any more)	2
• Other trend, namely:	0

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

4.5. Gender issues in relation to forest ownership

Forests and forest-related activities play an important role in Lithuania's economy and social life. Women participate as owners, entrepreneurs and officers in all forest-related activities. The first data regarding gender aspects in the forestry sectors of Baltic countries were presented in 1998 at a Nordic Baltic workshop on women and forestry in Balsjö, Sweden. K. Viilma (Estonia), L. Vilkriste (Latvia) and V. Augutaviciene (Lithuania) provided overviews of gender issues in forestry. V. Augutaviciene provided

some data regarding women as foresters and forestry students. An overview and data about women as private forest owners were provided by Mizaraite (1999).

The first data in literature about the number of female private forest owners were presented by Mizaraite (2000). The results of private forest owners and their holdings grouped by various indicators were presented in the paper. The database of the State Enterprise Centre of Registers was used for data analysis and grouping. The distribution of private forest owners by gender was presented in the paper (Table 6).

Table 6: Forest owners by sex

Year	Male		Female	
	Number	Percentage	Number	Percentage
01-01-1997	25,461	49.4	26,111	50.6
01-01-1998	30,612	49.0	31,805	51.0
01-01-1999	41,421	48.4	44,093	51.6
01-01-2000	56,649	50.6	55,283	49.4

Source: Mizaraite (2000).

The analysis of private forest owners' objectives analysed by various factors is shown in Figure 7. The gender factor influenced two forest management objectives:

1) cutting of wood for selling, and seeking a stable level of income; 2) protection of nature and biodiversity.

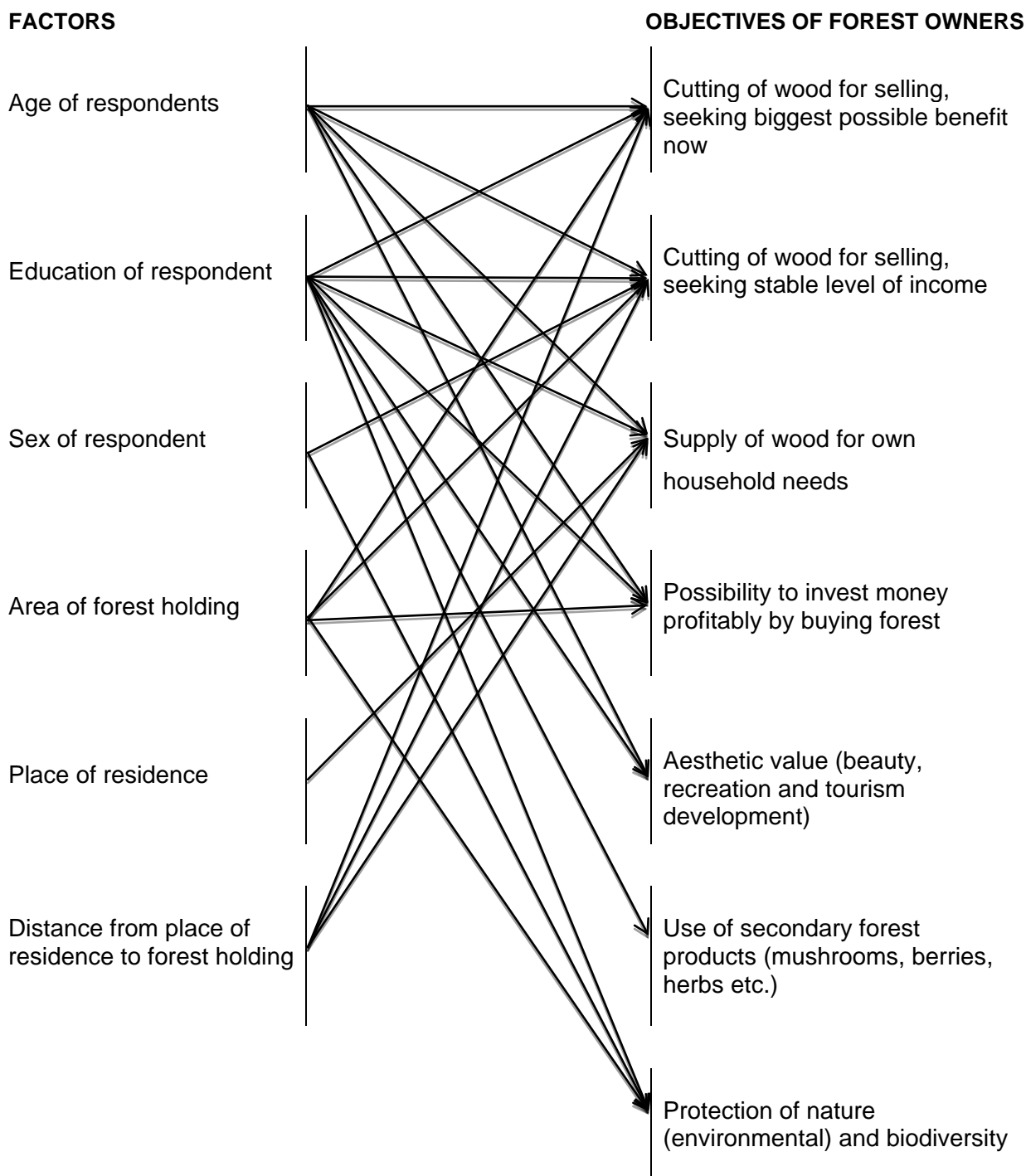


Figure 7: Dependence of forest owner's objectives upon various factors

Source: Mizaraitė (2000).

In 2005, a survey of private forest owners, including gender aspects, was carried out by the Institute of Forestry, Lithuanian Research Centre for Agriculture and Forestry(LRCAFIF) (formerly the Lithuanian Forest Research Institute). The survey was financed by the Swedish Cooperative (SCC). For data collection, a questionnaire was used for the survey. In total, 687 forest owners were

interviewed. The final data included 600 acceptable responses, which gives a response rate of 97%. The collected data were analysed against different aspects. The forest estates were classified, according to size, into six groups (Table 7). Respondents who own forest properties 1–10 ha in size constituted the largest group.

Table 7: Distribution of forest estates of the respondents according size

Forest area of the estate, ha	Women		Men		Total	
	n	%	n	%	n	%
Under 1.1 ha	30	10.6	15	4.7	45	7.5
1.1-3.0	78	27.5	65	20.6	143	23.8
3.1-5.0	68	23.9	85	26.9	153	25.5
5.1-10.0	64	22.5	81	25.6	145	24.2
10.1-20.0	28	9.9	41	13.0	69	11.5
Over 20	16	5.6	29	9.2	45	7.5
Total	30	10.6	15	4.7	45	7.5
Mean size of forest are	8.1		10.7		9.5	

Source: Mizaraite (2005)

The data in Table 8 show how respondents obtained their forest properties: 46.5% of respondents received their estates through the restitution of forest land; 36.3% of respondent women's forest estates were

inherited or were given to them by previous owners (mostly parents or grandparents); 27.2% of respondent men's forest estates were bought from the open market, relatives or neighbours.

Table 8: Acquisition of forest estates

Type of acquisition of forest estate	Women		Men		Total	
	n	%	n	%	n	%
By buying	39	13.7	87	27.5	126	21.0
By restitution	130	45.8	149	47.2	279	46.5
Through inheritance or given	103	36.3	89	28.2	192	32.0
Given as compensation instead other property (for instance instead agriculture land)	27	9.5	32	10.1	59	9.8

Source: Mizaraite (2005)

(The sum of total percentage exceeds 100 because forest owners could acquire estates in more than one way.)

The survey data shows differences between gender groups in how forest estates have been obtained.

Objectives for forest ownership are usually an important factor in explaining the past, and in estimating future, forestry-related behaviour. The ownership objectives were identified in this study by asking the respondents to rate

the importance of 8 given objectives using a Likert-scale of 1–5. The questions covered economic, ecological and social objectives. The most important objectives for forest ownership were to provide enough firewood and roundwood for their own purposes; and income generation from wood and non-wood product sales. Objectives concerning nature protection and non-wood products (mushrooms and wild berries) for home consumption were also a main priority for private forest owners (Table 9.).

Table 9: Objectives for forest ownership among respondent forest owners

Objective*	Not at all important → Very important **										Mean		Total	
	1		2		3		4		5					
	% of respondents (women=W; men=M)										W	M	W	M
	W	M	W	M	W	M	W	M	W	M				
1	30.4	17.2	7.4	7.42	11.2	14.1	7.5	7.81	43.5	53.5	3.26	3.73	214	256
2	26.3	20.3	4.69	9.56	14.6	12	8.9	13.9	45.5	44.2	3.43	3.52	213	251
3	20.9	17.4	5.9	6.44	7.6	13.3	10.0	11.0	55.6	51.9	3.74	3.73	239	264
4	67.0	67.0	6.8	8.8	8.4	8.9	3.7	3.7	14.1	11.6	1.91	1.84	191	215
5	80.0	70.7	5.8	5.1	5.2	11.2	3.2	3.2	5.8	9.77	1.49	1.76	190	215
6	29.5	36.5	9.2	9.5	14.3	14.9	13.4	9.6	33.6	29.5	3.12	2.86	217	241
7	23.9	28.3	9.2	11.2	11.2	15.5	15.6	9.0	40.0	36.0	3.39	3.13	205	233
8	-	-	-	-	-	-	-	-	-	-	-	-	10	17

* Objectives: 1. Income generation from wood and non-wood products sales. 2. Round wood production for home consumption. 3. Firewood production for home consumption. 4. Recreational use. 5. Forest holding use for hunting purposes. 6. Non-wood products use for home consumption. 7. Protection of wild life habitat. 8. Other objectives.

** 1= not at all important, 2= not very important, 3= moderately important, 4= important, 5= very important.

Source: Mizaraite (2005).

Ownership objectives, such as providing enough timber (firewood and round-wood) for home consumption; income generation from wood and non-wood product sales were less important for respondent women than for respondent men. However, ownership objectives dealing with nature protection and non-wood products (mushrooms and wild berries) for home consumption were more important for respondent women than for

respondent men. The survey results showed differences between the women and men who owned private forests regarding forest-related activities and decision-making. About 68% of respondent forest owners carried out forest-related activities in their forest estates. More active forestry-related activities were carried out in forest estates owned by men (Tables 10 and 11).

Table 10: Intensity of forest-related activities in forest estates of respondent forest owners

	Women		Men		Total	
	n	%	n	%	n	%
Forest-related activities were carried out in the forest estate	168	59.1	238	75.3	406	67.7
Forest-related activities did not carried out in the forest estate	107	37.7	73	23.1	180	30.0
Not mentioned	9	3.2	5	1.6	14	2.3
Total	168	100.0	238	100.0	406	100.0

Source: Mizaraite (2005).

Respondent forest owners mostly carried out sanitary and clear-cut, pre-commercial felling. Male forest owners managed their forest

estates more intensively than female forest owners.

Table 11: Forest-related activity

Forest-related activity	Women		Men		Total	
	n	%	n	%	n	%
Clear cut	53	6	102	12	155	19
Pre-commercial felling	67	8	98	12	165	20
Thinning	9	1	39	5	48	6
Sanitary felling	115	14	153	18	268	32
Reforestation	31	4	75	9	106	13
Tending of forest plantation	20	2	58	7	78	9
Other activity	1	0	13	2	14	2

Source: Mizaraite (2005).

All 406 respondents who carried out forest-related activities in their forest estates noted their main ways of decision-making: 46.6% of respondent male forest owners make decisions alone, while 46.5% of respondent

female forest owners seek opinions from family members and then make decisions about forest-related activity in their forest estates (Table 12).

Table 12: Manner of decision-making

Manner of decision-making	Women (n=168)		Men (n=238)		Total	
	n	%	n	%	n	%
I make decision my self	14	7,1	111	46,6	125	28,7
I ask opinion of my family members	92	46,5	53	22,3	145	33,3
I ask opinion of other co-owners	27	13,6	39	16,4	66	15,1
I consult with foresters	59	29,8	67	28,2	126	28,9
Other	5	2,5	1	0,4	6	1,4

Source: Mizaraite (2005).

Gender aspects were analysed by Mizaraite and Mizaras in 'The formation of small-scale forestry in countries with economies in transition: observations from Lithuania' (2005). The authors presented the private

forest owner typology. Based on a survey among Lithuanian private forest owners, four types of owner were identified: (1) businessmen, (2) multi-objective owners, (3) consumers, (4) ecologists. Seven factors,

with reliable distribution among clusters, were found to distinguish the clusters: gender of owner, education, place of residence, level of forestry knowledge, forestry-related activity, distance from the residence to the forest holding, and the manner of acquiring the forest holding. The results of cluster characteristic analysis showed that the majority (55%) of the owners in the businessmen and multi-objective owners' clusters are men. On the other hand, the consumers and ecologists clusters hold the largest share of women (more than 50%).

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

There are now 21 private forest owners' cooperatives officially registered on

Lithuania's Register of Legal Entities. The cooperatives provide a broad range of services: (1) information, consultancies, teaching and education (free of charge); (2) timber trade; (3) forest management plans; (4) afforestation; (5) forest cutting; (6) improvement of recreational areas; (7) marketing of forest production and evaluation of timber volume; (8) sawn timber production; (9) organization of hunting; (10) agrotourism (*Case study 1.*). Private forest owners in Lithuania can participate in cooperatives in various ways, which range from being full members to signing agreements to obtain access to a service for a specific period. Although FOCs do own forest land, there are no official statistical data regarding the area owned by them. Types of not-for-profit ownership of the forest is presented in Table 13.

Table 13: Types of not-for-profit ownership of the forest

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	

CASE STUDY 1: PRIVATE FOREST OWNERS' COOPERATIVE 'AUKŠTAITIJOS ŠILAS'

FOC 'Aukštaitijosšilas' was established in 1998 and is located in Molėtai District, Utena County. It is a typical example of a Lithuanian FOC. 'Aukštaitijosšilas' has five members (physical persons), owning 700 ha of forestland. The number of members has not changed since it was established.

The main objectives of FOC 'Aukštaitijosšilas' are to: 1) benefit its members through sustainable forest management activities; 2) increase management efficiency on private forest holdings; 3) defend private forest owners' economic interests; and 4) represent forest owners in dealings with business partners. Over the years, the FOC has developed its infrastructure and provision of services. The main services provided are: 1) information, consultancies, teaching and education; 2) timber trade; 3) forest management plans; 4) afforestation; 5) forest cutting; 6) improvement of recreational areas; 7) marketing of forest production and evaluation of timber volume; 8) sawn timber production; 9) organization of hunting; 10) agrotourism

By joining the cooperative, forest owners obtain access to professional help in managing their forests. Six highly skilled professional foresters provide forest-related services for the FOC's members. Specialists working at the cooperative are well acquainted with the problems that forest owners face and can suggest the best solutions to these problems. 'Aukštaitijosšilas' provides forest-related services for approximately 9,981 individuals whose average holding is 2.13 ha and who own 21,263 ha of private forests in Molėtai District. The presence of large numbers of private forest owners in the district provides excellent opportunities for the cooperative to develop its activities. Private forest owners who are not members can sign contracts with FOC 'Aukštaitijosšilas' for a year or more in order to obtain forest management services.

The Executive Director, who is a member of the FOC, makes all commercial decisions, but the Board has the right to cancel or change these decisions, if necessary.

FOC 'Aukštaitijosšilas' is a member of FOAL, through which it can influence and take part in forest policy formulation. The FOC's Executive Director is a member of the FOAL Board. Cooperative membership of FOAL enables the FOC to submit proposals to governing institutions responsible for the private forest sector.

4.7. Common pool resources regimes

There are no forest areas owned as common land in Lithuania.

5. Forest management approaches for new forest owner types

COST Action is interested in any new forest management approaches that specifically aid new forest owners types. We are conscious that there is not much awareness surrounding this area and consequently, 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 improved approaches to management, and if they do not have the skills themselves, then there must be new services that are tailored to their needs. Presumably, there are improvements in silviculture, technology, work organization, business models, and other forest management practices that can be implemented. Such new approaches may be discussed under the framework of new ownership types but often they are not.

amounted to 239,000 m³. Contractors harvest 80–90% of timber produced in SFEs. The new Selling Rules on Timber (that is produced in state forests) were adopted by order of the Minister of Environment in 2011 (No. D1-984, 16-12-2011). Since 2012, the trading of timber is carried out via the roundwood electronic trading system (available online: <http://www.ameps.lt>). All potential customers – even those from abroad – can participate in these auctions and buy timber produced in state forests. Among other functions, SFEs provide consulting services for private forest owners and commercial forest-related services (afforestation, reforestation, harvesting, forwarding, young stand maintenance, etc. SFEs also provide recreational services for the public.

5.1. Forest management in Lithuania

5.1.1. Management of state forests

Forty-two state forest enterprises and one national park are trusted with the management of state forests. Forest enterprises are highly integrated, state-operated firms. Today, they manage 1,078 thousand ha of forest land. Forest enterprises are divided into 352 forest districts with an average size of 3,000 ha. Forty-two SFEs employ a total of 4,106 individuals (data from 2012). SFE is a state profit-oriented company, which manages forests in accordance with its forest management plan. Standwise forest inventories and management planning for state forest enterprise can be performed by the State Forest Management Institute or by a private company, which has a license and the competence necessary for forest management planning. In each SFE, forest inventories are implemented and the new forest management plans are prepared every 10 years.

The amount of roundwood prepared in state forests totalled 3.8 million m³ in 2012. SFEs sold 3.55 million m³ of roundwood during 2012. Stumpage sales in state forests

5.1.2. Management of private forests

The most common activity in private forest holdings is felling. The felling rate in private forests was 3.2 million m³ in 2012. Private forest owners received cutting permits for 2.3 million m³ in 2012.

According to the Law on Forests, Article 14, (2001), internal forest management projects for private forest holdings should be prepared. Internal forest management plans are obligatory for forest holdings if the private forest owner intends to do commercial cutting. The internal forest management project is a forest management activity plan, with a set of specific management measures. This project is valid for 10 years. Internal forest management projects for forest holdings of less than 10 ha may be prepared for twenty years. The obligatory parts of an internal forest management project include: 10 years of permitted cuts, reforestation and environmental requirements. During the 10 years, if the private forest owner does not cut all permitted wood the validity of the project can be extended for a further 5 years.

The preparation of internal forest management projects are not obligatory for: 1) final felling of grey alder, aspen and other low value stands; 2) private forest holdings of less than 3 ha.

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

5.2.1. Private forest owners cooperatives

The Forest Owners' Association of Lithuania (FOAL) initiated the establishment of the first FOCs for private forest owners in Lithuania. According to the Law on Cooperatives of the Republic of Lithuania, 'A cooperative society (cooperative) is an economic entity established on the basis of law on a voluntary basis by a group of natural and (or) legal persons for the purpose of satisfying business, economic and social needs of its members and functioning on their initiative and at their risk' (Republic of Lithuania, 1993). Cooperatives should have 5 or more members. The first cooperative for private forest owners was founded in 1998, and several others were created soon after. The main reason for their establishment was to address rapid increases in the industrial demand for roundwood and in forest owners' demand for forestry services. There are now 21 private forest owners' cooperatives officially registered on Lithuania's Register of Legal Entities. The cooperatives provide a broad range of services: (1) information, consultancies, teaching and education (free of charge); (2) timber trade; (3) forest management plans; (4) afforestation; (5) forest cutting; (6) improvement of recreational areas; (7) marketing of forest production and evaluation of timber volume; (8) sawn timber production; (9) organization of hunting; (10) agrotourism, etc. Private forest owners in Lithuania can participate in cooperatives in various ways, ranging from being full members to signing agreements to obtain access to a service for a specific period.

Private forest owners' cooperatives have not increased the number of members. The establishment of a cooperative among private forest owners is a long process. The FOCs established 10 or 15 years ago still have up to 10 members. This fact highlights two potential problems for private forest owners' cooperatives in Lithuania: 1) cooperative managers and members are not interested in increasing the number of members; 2) private

forest owners are not interested in becoming cooperative members.

5.2.2. Long-term forests management agreements

Long-term agreements between private forest owners and business companies are a new forest management tool relevant for new private forest owners. Business companies can provide all necessary forest management services for private forest owners: reforestation, forest felling, forest stand maintenance, forest protection. Many private forest owners are not able to manage or care for their forest holdings in a sustainable way, therefore Long-term forest management agreements are one of the solutions how to ensure sustainable forest management in private forest holdings. Private forest owners and businesses companies can sign forest management contracts for varying periods. Long-term forest management agreements enable businesses to create a sustainable forest management strategy to manage forest holdings in a multifunctional, economic and efficient way. This type of agreement shifts responsibility from the forest owner to the business in that forest management activity should not breach existing forest management requirements, norms and provisions.

5.3. Main opportunities for innovative forest management

5.3.1. Development of private forest owners cooperation

Cooperation in private forestry is in its early stages in Lithuania, but progress can already be observed. One of the strongest factors in this progress is FOAL's creation of a network of cooperatives and other enterprises. In future, higher production costs and strong market competition for wood products will encourage private forest owners to join and establish more FOCs with large membership numbers and a strong position on wood product markets.

The cooperative has developed an excellent system for providing services to private forest owners. Several factors behind FOC success

can be identified: 1) free advice for and consultation with private forest owners, which creates trust; 2) a broad range of forest-related services with flexible service provision, which enables private forest owners to participate in the cooperation network in different ways; 3) the authority of the professionals it employs to help private forest owners to solve their forest management problems; 4) training and special educational courses for private forest owners; 5) the presence of a large number of owners, which creates a market for FOC forest services.

5.3.2. EU structural funds for forest management

Since Lithuania joined the European Union, new possibilities have opened up for the forestry sector. Private forest owners can use financial support from the EU Structural Funds. Financial support for forestry is allocated in accordance with the Lithuanian Rural Development Programme for 2007–2013. The programme consists of 10 measures for forestry: 1) professional training and information actions; 2) use of advisory services; 3) improving the economic value of forests; 4) improvement of forest infrastructure; 5) the first afforestation of agricultural land; 6) the first afforestation of non-agricultural and abandoned land; 7) restoring forestry potential and introducing actions that avoid environmental degradation; 8) non-productive investment in forests; 9) forest environment payments; 10) Natura 2000 payments (support for Natura 2000 areas in forestry; *Case Study 2 and 3*). In the beginning of the financing period, 220,9 million EUR have been allocated for forestry. Approximately 23 thousand ha of agricultural and abandoned land has already been afforested, new roads have been built, thinning has been carried out, and new technologies introduced. The EU structural support significantly contributes to the Lithuanian forestry sector's development. The majority of measures allocated for forestry are prioritized in order to support private forest owners.

5.4. Obstacles for innovative forest management approaches

5.4.1. The weak consulting and training system for private forest owners

The restitution of private forests to their former owners resulted in the emergence of problems that require special effort, skills and resources Lazdinis *et al* 2005. The creation of a network of local cooperatives and other enterprises would provide private forest owners with a source of the services they need. Moreover, many private forest owners live in cities or even abroad. They are not able to manage their forest holdings properly and try to find ways of doing so. According to the Law on Forests (2001), since 1 January 2012, the Territorial Units of the State Forest Service provide the main advisory services for private forest owners in the whole of Lithuania (comprising about 90 specialists). The main problem is that these units fulfil the control function of forest management in private forest holdings; therefore forest owners are not comfortable approaching them. Mostly, foresters from the Territorial Units of the State Forest Service provide consultations for private forest owners when they come to the regional offices to get permits for commercial cutting. Private forest owners mostly obtain consultations on the legal aspects of forest management.

Insufficient attention is paid by the state to the private forest owner consulting and training system. Today, the weak consulting and training system for private forest owners is an important factor for effective and innovative management of forest holdings.

The Forest Owners' Association of Lithuania also advises and consults private forest owners; FOAL was founded in 1993 to represent the interests of forest owners and to develop the institutional framework for family forestry. FOAL plays a very important role in representing private forest owners' interests at national and international levels. FOAL has 29 regional units, 13 district FOAs and 16 members among FOCs and forest

companies providing services for private forest owners. It has two types of member: more than 5,000 private forest owners (physical persons), and 16 FOCs/forest companies (legal persons) that provide services to private forest owners.

The Ministry of Environment periodically provides TV and radio broadcasts to promote sustainable forest management, and there are posters and flyers about sustainable forest management. These mean instruments can reach new private forest owners in Lithuania (*National Report, 2013*). SFEs have a number of disabled access tracks that also have sensory features which is one example of sustainable management and show the strong social functions fulfilled by forestry sector.

5.4.2. Barriers for private forest owners cooperation

The absence of direct public support is the main problem that currently prevents

increased cooperation among private forest owners. Furthermore, there are no legal or tax advantages for private forest owners' cooperatives. Financial support is crucial, particularly during the initial establishment of cooperatives. Cooperatives need to invest in the set-up and maintenance of their operations, and will have to prove that they can generate economic benefits for their members (Hansen 2013). The state does not focus on forest owners' cooperation and association, nor does it encourage the development of forest owners' cooperatives in Lithuania. Moreover, the forest sector missed an opportunity to use EU Structural Funds for the creation and development of forest owners' associations and cooperatives. Another problem is that cooperation depends on psychological factors and thus needs time to develop. Private forest owners are not always psychologically ready to join associations or cooperatives. The timber market does not play a big role in associations or cooperatives.

CASE STUDY 2: EU STRUCTURAL FUNDS FOR MODERNIZATION OF FOREST OPERATIONS

Private forest owners can use financial support from the EU Structural Funds. Financial support for forestry is allocated in accordance with the Lithuanian Rural Development Programme for 2007–2013. The programme consists of 10 measures for forestry. The 'Improvement of the economic value of forests' measure is designed to reinforce the economic value of forests, create employment within the sector and promote innovation in forestry. This is within the framework of implementing the goal and objectives of the 2007–2013 Rural Development Programme. Considerable emphasis is put on the modernization of forest harvesting, roundwood logging and bioenergy-producing technologies through promotion of the application of advanced forest machinery, equipment and technology, with a particular focus on the safety of forest operations (Rural 2006; Table 14).

Table 14: Funds allocated and paid to forest owners for the improvement in the economic value of forests, their infrastructure, and promoting innovation

Purpose of support	Paid support, 1000 LTL*					
	2007	2008	2009	2010	2011	2012
Restructuring (reconstruction) of forest stands of low economic value and thinning of young stands	-	-	-	16.0	-	106.0
Modernization of forest harvesting, round wood logging and bio-energy (wood fuel) producing technologies	3,326.9	2,504.6	2,260.0	2,622.0	7,512.0	1,4901.0
Restructuring (reconstruction) of forest stands of low economic value and thinning of young stands (simplified procedure)	-	-	-	59.0	193.0	94.0
Modernization of forest harvesting, round wood logging and bio-energy (wood fuel) producing technologies (simplified procedure)	-	-	-	596.0	2,630.0	3,323.0
Investments in forest infrastructure	452.8	980.4	75,259.0	-	478.0	226.0
Establishment and renovation of recreational facilities	62.6	467.8		-	-	-
Other means	40.3	5.0		27,454.0	61,912.0	51,170.0

* 1LTL=0.34528EUR

Source: Lithuanian Statistical Yearbook of Forestry, 2008, 2009, 2010, 2011, 2012, 2013.

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 respond to ownership changes, including instruments addressed to supporting new types of owner, e.g., through advisory services, cooperatives or joint forest management.

6.1. Influences of policies on the development of forest ownership

6.1.1. Process of restitution of private forests land

After the restoration of Independence in Lithuania, forest property rights have been restored. The structure of forest ownership has changed due to an ongoing land reform process. A restitution model with compensation elements was selected. Two acts constitute the legal basis for land restitution and privatization: the Law on Land Reform, adopted 25 July 1991; and the Law on the Procedure and Conditions of the Restoration of the Rights of Ownership to the Existing Real Property, adopted 18 July 1991. In 1991, the policy was to restrict the size of private forest estates to a maximum of 10 ha per individual owner. Private forest property was to be granted only in commercial forests, meaning that all protected forest areas would have remained under state management. This solution would have left, overall, about 95% of forests in Lithuania under the management of the State Forest Administration. In the period of one year, the maximum size of forest estates per individual owner was raised from a maximum of 10 to a maximum of 25 ha. In the southeast of the country, there were, however, no limits provided as to size of individual private forest estates. The government is considering the

possibility of raising the private forest estate size maximum to 50 ha per individual. Confusion in the restitution process is created by changing maximum size limits for individual private forest estates, and also through regulations enabling individuals who are entitled to receive agricultural land through the restitution process to claim forest land instead. Furthermore, individuals, with the right to claim forest land are able to choose monetary compensation instead. Since 1 May 2005, companies are allowed to own forest land.

The forest privatization process in Lithuania has been very limited. In 1995, professional foresters had the possibility to buy up to 5 ha of forest land. For forest land purchase, professional foresters used vouchers. In total, the privatized forest land area was about 8 thousand ha.

6.1.2. EU Structural Funds support for agriculture land afforestation

The Rural Development Programme (RDP) is one of the most important programmes of EU financial support to Lithuania's rural areas. Measures for the afforestation of agricultural land areas in RDP are for the periods 2004–2006 and 2007–2013. This measure is also included in RDP for the period 2014–2020.

In the beginning of the financing period 2007–2014, almost 221 million EUR has been allocated for forestry. The largest share of these payments was allocated for afforestation measures. So far, about 23 thousand ha of agricultural and abandoned land has been afforested (Figure 8). The EU structural support significantly contributes to the Lithuanian forestry sector's development. The majority of measures allocated for forestry are prioritized for private forest owner support.

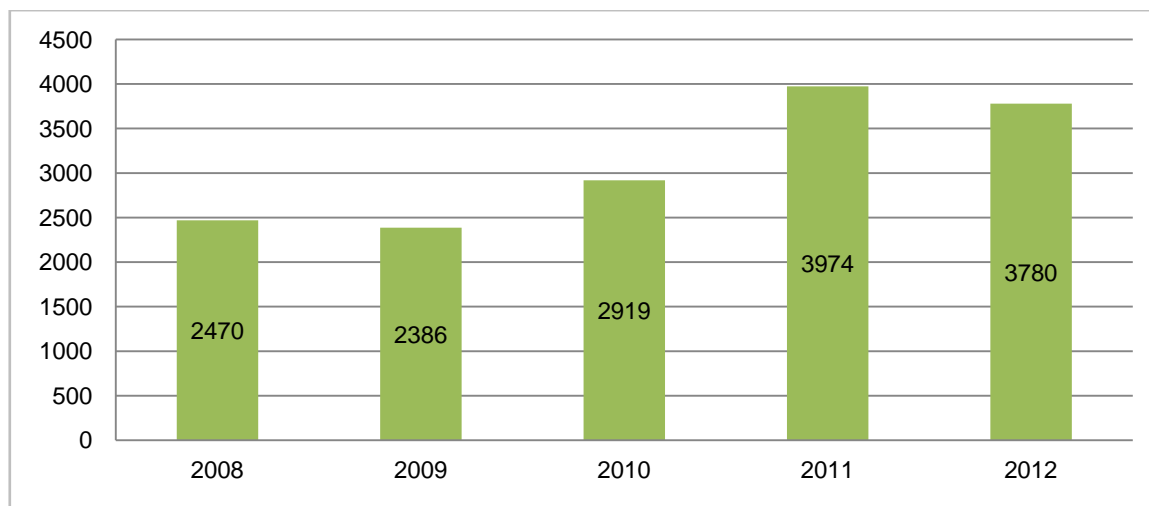


Figure 8: Afforested area according issued certificates for private persons, 2008-2012

Source: Lithuanian Statistical Yearbook of Forestry, 2013.

6.2. Influences of policies in forest management

Several aspects of the influence of policies in forest management can be identified:

- Obligation to have a forest management plan for a private forest holding, if a private forest owner intends to carry out commercial felling.
- Compensation for income losses for private forest owners when the new protected forest areas are being set up.
- Natura 2000 payments for private forest owners.
- Financial support allocated for forestry measures such as: afforestation of agricultural land, modernization of forest harvesting and other technologies, and young stand maintenance.

6.2.1. Legal documents regulating state and private forests management

The main trends of Lithuanian forest policy are defined by Parliament and determined by law. The main principle of state regulation in forestry is described in the Law on Forest (2001), which regulates reforestation, protection and use, and lays the legal foundation for the management of all forests, based on the equal principles of sustainable and balanced management. Under the Law on Forest, state forest managers and private forest owners are obliged to reforest, manage and use their forests following active legal acts. The Law limits the fragmentation of private forest holdings. State forest managers and private forest owners are obliged to manage and use their forests according to the Forest Law, Regulations on the management and use of private forests, as well as other legal acts related to forest management (for example, Regulations for Forest Regeneration and Establishment (2008), Rules for Forest Sanitary Protection (2007), Rules for Forest Felling (2010), Rules for Forest Improvement Cuttings (2002) (Table 15; Table 16).

Table 15: Forestry legislation in Lithuania.

Title of the Document	Year
The Law on Forest	1994
The Law the Amendment of the Forest Law	2001
Regulations on Management and Use of Private Forests	1997
Regulations on Forest Genetic Reserves	2000
Regulations of Forest Management Planning	2003
Regulations of Forest Regeneration and Establishment	2008
Rules of Forest Fire Prevention	1995
Rules of Forest Felling	2010
Rules of Forest Sanitary Protection	2007
Rules of Forest Improvement Cuttings	2002
Rules for Trading in Timber (for state forests only)	2005
Order on issuing forest felling permissions	2000
Order on transportation of round wood produced in private forests	2001

Table 16: Forestry related legislation in Lithuania.

Title of the Document	Year
Law on Land	1994
The Law on Environment Protection	1992
Law on Protected Areas	1993
Law on Wildlife	1997
Law on Wild Flora	1999
Law on Protected (endangered) Species of Plants, Animals, Funguses and their Communities	1997
Law on Environmental Monitoring	1997
Law on Tax for Environmental Pollution	1999
Law on Environmental Impact Assessment of the Planned Management Activities	1996
Law on Territorial Planning	1995

According to the Forest Law, forest managers and owners are obliged to follow the mandatory parts of a forest management plan (the amount of wood allowed to be cut over the 10 years, reforestation and environmental protection requirements).

The state forest enterprises manage, use and legally dispose of state forests under trust rights. The activities of SFEs are regulated by Regulation of the Forestry Enterprise. State Forest Enterprise is a state profit-oriented company. This institution must implement forest policy at the lowest level and strive to produce profit by managing state forests.

The Regulations on Management and Use of Private Forests (1997) is the main legal act approved by the Lithuanian Government, which regulates the management, use, reforestation, and protection of private forests, and the preparation of forest management plans for private holdings. The rights and obligations of private forest owners related to forest management are listed in the Regulations. The document defines the main environmental restrictions related to forest cutting in different forest groups, describes

the cases when a private owner is allowed to cut timber in the absence of a forest management plan, and provides rules for the allocation of 10-year felling limit. A list of the forest cutting types that can be carried out by the owners without cutting permission is also defined in the Regulations.

Forest management, reforestation and use are regulated in more detail in legal acts approved by the Minister of Environment. Reforestation and afforestation, tending and protection of forest plantations, planting operations, and the main quality requirements for reforestation areas are described in the Regulations of Reforestation and Afforestation (2008). Some of the Regulations are compulsory for private forest owners, while others are recommendations. The Sanitary Forest Protection (2007) rules define the requirements for forest sanitary protection against different biotic, abiotic and anthropogenic factors. The Rules are compulsory for private forest owners. Compulsory forest management measures related to fire protection are described in the Rules of Forest Fire Protection (1995). The

main biological, ecological and technological requirements for forest cuttings are regulated by the Forest Cutting Rules (2010), which are compulsory for all forest owners, administrators and users. In addition to the legal acts mentioned above, private forest owners are obliged to follow other legal acts related to forest land use, afforestation and reforestation, forest management and use, timber transportation and selling (Private, 2012).

6.2.2. European Union Structural Funds support to the state and private forest sectors

The majority of the measures introduced by the RDP (2007-2013; see Section 5.3.2) are oriented for the financial support of private forest management or the afforestation of agricultural land. The objectives behind these measures are to achieve an increase in the competitiveness of the forestry sector by strengthening human capacities, and implementing advanced technologies and innovations. The measures also seek to improve the level of modernization, technology innovation and marketing, and to provide proper conditions for infrastructure development, which should contribute to the competitiveness of forestry and ensure a well-balanced development of the sector. Furthermore, the financial support is oriented to promoting the afforestation of land used for agricultural and non-agricultural production as an alternative form of land use. In the Rural Development Programme, a few measures are allocated to ensure the restoration of forests damaged by fire and natural disaster, and prevention of such disasters. There are also measures to help achieve environmental objectives by improving the quality of the environment, biodiversity and landscape, and enhancing the public amenity value of forests by developing recreational facilities in forests. Considerable attention is paid to offering financial incentives to private forest owners to engage in forestry activity that is more acceptable from an environmental point of view: to preserve key woodland habitats, to raise environmental awareness of forest owners, to maintain high quality biodiversity in forest habitats, and to guarantee successful implementation of Directives 79/409/EEC and

92/43/EEC through specific support to private forest owners to help address specific problems resulting from their implementation.

6.3. Policy instruments specifically addressing different ownership categories

6.3.1. National forest programme

Forest sector development targets are guided through the National Forestry Sector Development Programme for 2012–2020, which was approved by the government in 2012. The document describes development trends and targets for the forestry sector. The major ones are:

- to preserve Lithuanian forests and increase their area and resources;
- to preserve the efficiency and the sustainability of forest ecosystems, taking account of their ecological and social role and the impact from climate change;

The tasks addressing different ownership categories are:

- to complete land (forest) reform and intensify forest management activities in forests reserved for restitution;
- to offer financial incentives for afforestation of private and state-owned land;
- to include deductions from income earned from the sale of timber from private forestry to finance general forestry needs.

6.3.2. Private forests owners consulting and training

According to the Law on Forests of the Republic of Lithuania (2001), the consultation and training of private forest owners is financed from the Programme of State Budget for Financing of General Forestry Needs. The Forest Department in the Ministry of the Environment coordinates the training of private forest owners. Training private forest owners is carried out by the forest enterprises, forest owners' associations, College of Forestry and Environmental

Engineering, and non-governmental organizations. Every year, around 1,000–2,000 private forest owners have been trained on 5-day training courses that are run by the institutions and organizations mentioned above.

In addition, the Ministry of Environment organizes advisory services for forest owners through the media (press, radio and internet). According to the Law on Forests (2001), since 1 January 2012, the Territorial Units of the State Forest Service provide the main advisory services for private forest owners in the whole of Lithuania (comprising about 90 persons). Furthermore, the units (forest districts) of SFEs (comprising about 300 persons) provide consulting services for private forest owners.

There are vocational training and dedicated media programmes for private forest owners supported from the Lithuanian Rural Development Programme 2007–2013. The support is allocated for organizing seminars, forest (field) days, and training courses. In addition, environmental awareness is raised with forest owners and carried out using economic tools such as forest environment payments according to the Lithuanian Rural Development Programme 2007–2013.

The Ministry of Environment periodically provides TV and radio broadcasts to promote sustainable forest management. These programmes mean that instruments can reach new private forest owners and non-traditional forest owners in Lithuania (National Report, 2013).

6.4. Factors affecting innovation in policies

Positive factors affecting innovations include:

1. Forest policy instruments – one of the tasks of the National Forestry Sector Development Programme for 2014–2020 is ‘to promote investments, especially in innovation in the forests and forestry’.
2. Forest research – surveys of Lithuanian forest research institutions create preconditions for innovation in the forestry sector.
3. Advanced expertise from foreign countries also enables the adaptation of

innovation in the forestry sector.

4. Development of forest businesses creates demand for innovation in the forestry sector.

Negative factors affecting innovations in policies include:

1. Completing the forest restitution process. Forest restitution in Lithuania started in 1991. Today, 11.2% of forest area is still reserved for restitution. The unfinished forest restitution impedes other necessary changes in the private forest sector.
2. The ‘penalties’ policy should be changed to a ‘promotion’ policy, which would help forest owners to manage forest holdings in a sustainable way.
3. The weak private forest owners’ organizational structures, which are necessary for sustainable development of the private forest sector.
4. Lack of financial support for private forest owners’ organization development. Forest owners’ associations are weak at regional levels, and unable to associate with a large number of private forest owners. The Forest Owners’ Association of Lithuania was founded in April 1993 to represent the interests of forest owners and to develop the institutional framework for family forestry. FOAL has a very important role in representing private forest owners’ interests at the national and international levels (Review, 2012). But this organization unites only 5,000 private forest owners and the activities at regional level are weak.
5. Lack of efficient advisory system for private forest owners. The State Forest Service carries out state control of forest conditions, use, reforestation, afforestation and protection as well as issuing cutting permits to forest owners. At the same time, this institution is responsible for advising private forest owners. Joining control and advisory functions does not necessarily give the expected results. Mostly, private forest owners come to the State Forest Service when it is necessary to obtain permission to carry out forestry

activities. If private forest owners need advice regarding forest management activities, they contact forest-related

businesses providing services, or foresters working in state forest enterprises.

CASE STUDY 3: INFLUENCE OF ENVIRONMENT PROTECTION POLICY TO PRIVATE FORESTS MANAGEMENT

Some private forests are located in significant areas in terms of habitat and bird protection (Natura2000 areas). Following management limitations, private forest owners in these areas can apply for financial support from the EU Structural Funds. Besides the protected areas mentioned above, in Lithuania there are 26.9 thousand ha of forests inventoried as key woodland habitats. These fragmented areas are important for protecting biodiversity, and rare and extinct ecosystems. In private forests and those reserved for restitution, about 5 thousand ha of such areas have been selected. There is compensation available for economic losses due to restrictions relating to key woodland through the Rural Development Programme 2007–2013 measure, 'Forest environment payments'. This allows private forest owners to be awarded compensation (Table 17).

Table 17: Forest environment payments and NATURA 2000 payments

Measure	Paid support, 1000 LTL					
	2007	2008	2009	2010	2011	2012
Forest environment payments	-	4.7	-	221	553	714
NATURA 2000 payments (support for NATURA 200 areas in forests)	-	-	563	689	3122	686

Source: Lithuanian Statistical Yearbook of Forestry, 2009, 2010, 2011, 2012, 2013.

7. References

- Directorate General of State Forests. http://www.gmu.lt/lithuanian_state_forests/ (assessed 23-10-2014).
- Hansen, T. (2013). Promotion of forest owner cooperatives in Lithuania – Policy strategies to facilitate sustainable forest management. MSc Thesis in Forest Management – Euroforester Master Program, 30 ECTS, Advanced level (A2E), SLU course code EX0630.
- Lazdinis, M., Pivoriūnas, A., Lazdinis, I. (2005) Cooperation in private forestry of post-soviet system: Forest owners' cooperatives in Lithuania. *Small-scale Forest Economics, Management and Policy (Small-scale Forestry)*, Vol. 4 (4), p. 377-389.
- Lithuanian Statistical Yearbook of Forestry 2000, 2005, 2009, 2010, 2011, 2012, 2013, 2014.
- Mizaraitė, D. (2000). Lietuvos privačių miškų formavimosi ypatumai [*Formation peculiarities of private forests in Lithuania*]. *Miškininkystė*, Vol. 4(48), p. 50-56.
- Mizaraitė, D. (2001). Privačių miškų savininkų tikslai, problemos ir poreikiai bei juos lemiantys veiksniai [*Objectives, problems and needs of the private forest owners as well as dependence on various factors*]. *Miškininkystė*, Vol. 1(49), p. 33-46.
- Mizaraitė, D., Mizaras, S. (2005). The Formation of Small-scale Forestry in Countries with Economies in Transition: Observations from Lithuania. *Small-scale Forest Economics, Management and Policy*, Vol. 4, no. 4, p. 437-450.
- Mizaraitė, D., Sadauskienė, L., Mizaras, S. (2010). Lithuanian private forestry: the actual situation, tendencies and problems. *Baltic forestry*, Vol. 16 (2), p. 296-302.
- Mizaraitė, D. (2005). Lithuanian Forest Research Institute. Report 'Forest Ownership Objectives and Private Forestry Problems: Gender Aspect'. P. 22.
- Mizaraitė, D. and Mizaras, S. (2005). Empirically Based Grouping of Private Owners in Lithuania. *Baltic Forestry*, Vol. 11 (1), p. 80-87.
- National Payment Agency. <http://www.nma.lt/index.php?lang=2>(assessed 12-08-2014).
- National Report to the Tenth Session of the United Nations Forum on Forests (2013). http://www.un.org/esa/forests/pdf/national_reports/unff10/Lithuania.pdf (assessed 15-10-2014).
- Pivoriūnas, A., and Lazdinis, M. (2004). Needs of private forest owners in the context of changing political systems: Lithuania as a case study. *Small-scale Forest Economics, Management and Policy (Small-scale Forestry)*, Vol. 3 (2), p. 191-202.
- Weiss, G., Gudurić, I. and Wolfslehner, B. (2012). Review of forest owners' organizations in selected Eastern European countries. Food and agriculture organization of the United Nations, Rome, 2012. P. 46.
- Private forests in Lithuania (2012). The Ministry of Environment. P. 21. <http://www.am.lt/VI/files/0.796257001342161380.pdf> (assessed 15-10-2014).
- Rural Development Programme for Lithuania 2007 – 2013, 2006. www.zum.lt/min/failai/2007_01_22_rdp_2007-2013_tikrasnaujas3.pdf (assessed 23-10-2014).
- State Forest Service (2014). http://www.amvmt.lt/Privaciu_misku_statistika/Privaciumiskustatistika.aspx?&MID=0&AMID=513 (assessed 15-10-2014).
- State Tax Inspectorate (2013). <https://www.vmi.lt/cms/en/about-vmi?accessibility=false&lang=lt> (assessed 15-10-2014).

8. Annexes

8.1. Tables with detailed description of 6 most important publications

8.1.1. Private forest ownership formation peculiarities and private forest owners types

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	Mizaraitė, D. (2000) Lietuvos privačių miškų formavimosi ypatumai [<i>Formation peculiarities of private forests in Lithuania</i>]. Miškininkystė, Vol. 4(48), p. 50-56.
English language summary/abstract	<p>Recent years have seen an increase in the area of private forests. Some 18.5% of forests belong to private owners and this percentage will increase to 40–50% in the future. On January 1, 2000, there were more than 117.5 thousand registered private forest owners and 367.2 thousand ha of private forests. Private forest ownership in Lithuania is small-scale. More than 80% (96.4 thousand) of forest owners have less than 5 ha in forest holdings. The main formation peculiarities of private forests in Lithuania are presented in this paper.</p> <p>The results of a survey of private forest owners and their holdings, grouped according to various indicators, are presented in the paper. The database of the State Enterprise Centre of Registers is used for data analysis and grouping. The data on private forest owners and their forest holding distributions are grouped by various indicators:</p> <ul style="list-style-type: none"> • Distribution by place of residence, age and gender; • Distribution of private forest holdings by size; and • Distribution of private forest owners and area of private forests by counties and districts.
Language of the study/publication	Lithuanian
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	Institute of Forestry, Lithuanian Research Centre for Agriculture and Forestry (formerly Lithuanian Forest Research Institute)
Type of funding used (multiple answers allowed)	State Science and Studies Foundation (currently State Studies Foundation); partly - State budget.
Regional scope	For all country
Theoretical approach	Sociology
Methodical approach	Summarizing data from database file records (Grouping)
Thematic focus	Private forest owners' forest management objectives, problems and needs
Main results should be given here if not yet included in the summary.	<p>The results of private forest owners and their holdings grouping, according to various indications, are presented in the paper. The database of the State Enterprise Centre of Registers was used for data analysis and grouping. The data on private forest owners and their forest holding distributions by various indicators:</p> <ul style="list-style-type: none"> • Private forest owners' distribution by place of residence, age and gender; • Private forest holding distribution by size; and • Private forest owners and area of private forest distribution by counties and districts in Lithuania. <p>The group data analysed and analysis results are presented in the paper.</p>
Weblink	http://www.miskininkyste.mi.lt/content/straipsniai.htm

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	Mizaraitė, D. (2001) Privačių miškų savininkų tikslai, problemos ir poreikiai bei juos lemiantys veiksniai [<i>Objectives, problems and needs of the private forest owners as well as dependence on various factors</i>]. Miškininkystė, Vol. 1(49), p. 33-46.
English language summary/abstract	<p>On 1 January 2001, there were 453.5 thousand ha of private forests and 142.8 thousand of these were owned by people in Lithuania. After land reform and the process of restitution of forests to their owners, about 975 thousand ha will be managed by private forest owners in Lithuania.</p> <p>The main aim of this survey is to determine private forest owners' forest management objectives, problems and needs as well as priorities. The survey results are relevant for private forest owners, their control and advisory services, as well as state institutions involved in decision-making.</p> <p>The survey method was by questionnaire. Stratified random sampling was used for respondent selection. After statistical analysis of the survey data, the following were determined:</p> <ul style="list-style-type: none"> • The main forest management objective of private forest owners is the supply of wood for their own household needs (77.5% of respondents); • The main problem for private forest owners is the size of forest property. The forest property is too small to achieve efficiency (73.8% of respondents); and • The main need of private forest owners is the centralized protection of forests against fire, insects, diseases, etc. (69.7% of respondents).
Language of the study/publication	Lithuanian
Type of organization conducting the study (in case of multi-institutional studies multiple answers allowed)	Institute of Forestry, Lithuanian Research Centre for Agriculture and Forestry (formerly Lithuanian Forest Research Institute)
Type of funding used (multiple answers allowed)	State Science and Studies Foundation (currently State Studies Foundation); partly - State budget.
Regional scope	For all country
Theoretical approach	Sociology
Methodical approach	Questionnaire surveys, comparative analysis
Thematic focus	Private forest owners' forest management objectives, problems and needs
Main results should be given here if not yet included in the summary.	<p>The analysis of private forest owners' objectives, problems and needs are presented in this paper. The survey results are also important for private forest owners, their control and advisory services, as well as state institutions involved in decision-making.</p> <p>The survey method was by questionnaire. Stratified random sampling was used for respondent selection. After statistical analysis of the survey data, the following were determined:</p> <ul style="list-style-type: none"> • The main forest management objective of private forest owners is the supply of wood for their own household needs (77.5% of respondents); • The main problem of private forest owners is the size of forest property. The forest property is too small to achieve efficiency (73.8% of respondents); • The main need of private forest owners is the centralized protection of forests against fire, insects, diseases, etc. (69.7% of respondents).
Weblink	http://www.miskininkyste.mi.lt/content/straipsniai.htm

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	Mizaraitė, D., Sadauskienė, L., Mizaras, S. (2010) Lithuanian private forestry: the actual situation, tendencies and problems // <i>Baltic forestry</i> , Vol. 16 (2), p. 296-302.
English language summary/abstract	<p>This paper is based on a comparative analysis of private forest owners' sociological surveys in the years 1999 and 2008. In Lithuania, private forestry arose during the last decade. Today, the private forest sector includes 236 thousand private forest owners. The annual volume from the felling in private forests is approximately 2.3 million m³ (State forest survey service, 2008). The regeneration of private forests is satisfactory and the number of recorded illegal cuttings is decreasing. Over 30 thousand individual forest management plans have been prepared for private forest estates. During the last ten years, the private forests' management legal basis and system of private forests supervision were created and the new system for private forest owners' advising and training was initiated. During the study period, the relative importance of private forest owners' various objectives changed. The importance of wood for home consumption slightly increased. However, the interest in obtaining an income from the wood trade and developing recreational areas became less important. Furthermore, the number of forest owners who either purchased or inherited forest estates significantly increased.</p> <p>The level of importance of various forest estates management problems also changed. The problem of the strict regulations on private forest management decreased in importance during the last ten years. The most important problem for private forest owners was that the forest estates were inefficient for farming due to their small size. The number of private forest owners willing to sell their forest estate decreased. The majority of private forests owners intended to retain the forest estates and to give the property rights to inheritors in the future. The new EU financial support process arose during the last years. Approximately 16% of respondents intended to apply for financial support from EU funds.</p> <p>The tendency of the expansion of private forests was observed. The existing problem of the private forest owners' lack of education and training could be solved by establishing private forest services in municipalities. Furthermore, the compensation system should be improved in the future by compensating for losses in already protected areas.</p>
Language of the study/publication	English
Type of organization conducting the study	Institute of Forestry, Lithuanian Research Centre for Agriculture and Forestry (formerly Lithuanian Forest Research Institute)
Type of funding used	State Science and Studies Foundation (currently State Studies Foundation); partly - State budget.
Regional scope	For all country
Theoretical approach	Sociology
Methodical approach	Questionnaire surveys, comparative analysis
Thematic focus	Private forest owners' forest management objectives and problems

<p>Main results should be given here if not yet included in the summary.</p>	<p>The changes of private forest owner's forest management objectives and problems was analysed. The study showed the ongoing processes of forest estates purchasing, selling and transferring to inheritors. As many estates were restituted to elderly people, these were passed down. The number of respondents who purchased forest estates also increased during the study period. Furthermore, the EU support motives land owners to become involved in the afforestation of abandoned agricultural land.</p> <p>The market of forest estates is forming in Lithuania. In the future forest owners could have other forest management objectives as today. The forests are most important for forest owners as a source of wood (mostly firewood). As wood prices during the study period increased, the importance of wood for home consumption also slightly increased. However, the interest in obtaining an income from the wood trade and developing recreational areas became less important.</p> <p>The legal acts that regulate private forestry were liberalised during the study period and the problem of the strict regulation of farming activities significantly decreased. The most important problem was that the small size of the forest estates hindered effective farming activities.</p> <p>Some private forests are located in protected areas with many restrictions on the use of wood resource. The compensation system should be improved in the future by compensating for the losses in already protected areas.</p>
<p>Weblink</p>	<p>http://www.balticforestry.mi.lt/bf/PDF_Articles/2010-16[2]/Mizaraitė_etal_2010%2016(2)_296_302.pdf</p>

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	Diana Mizaraitė and Stasys Mizaras(2005). Empirically Based Grouping of Private Owners in Lithuania. <i>Baltic Forestry</i> , Vol. 11 (1), p. 80-87.
English language summary/abstract	In Lithuania there are 231,878 private forest owners (2005-01-01). They differ according to age, sex, education, social status, area of private property and other characteristics. All these characteristics determine the goals and problems of private forest owners. Even though there is a great variety, it is possible to group forest owners according to their attitudes towards the management of their forest property. Based on a survey among Lithuanian private forest owners four types of owners were indentified: (1) businessmen, (2) multi-objective owners, (3) consumers, (4) ecologists. The article presents a description of these typological groups.
Language of the study/publication	English
Type of organization conducting the study	Institute of Forestry, Lithuanian Research Centre for Agriculture and Forestry (formerly Lithuanian Forest Research Institute)
Type of funding used	State Science and Studies Foundation (currently State Studies Foundation); partly - State budget.
Regional scope	For all country
Theoretical approach	Sociology
Methodical approach	Questionnaire survey
Thematic focus	Private forest owners' typology
Main results should be given here if not yet included in the summary.	<p>With the help of the cluster analysis four clusters are formed: (1) businessmen, (2) multi-objective owners, (3) consumers, (4) ecologists. The main characteristics of each cluster are analysed. The cluster "businessmen" is represented by forest owners to whom income for sold wood and non-wood products is the main objective of forest management. Forest owners of this cluster and cluster "multi-objective owners" posses the biggest forest properties.</p> <p>Cluster of "multi-objective owners" is represented by the owners to whom many forest management objectives are important. Forestry knowledge of this owner cluster and the cluster of "consumers" is the highest.</p> <p>The owners to whom the main objective of ownership is extraction of wood and non-wood products for personal use represent the cluster "consumers". Wood for fuel is a very important objective for forest owners. This group of owners has the smallest forest holdings and the closest residing proximity to a holding. Forest owners representing this cluster are most passive comparing with other clusters.</p> <p>The cluster "ecologists" is represented by owners to whom the main ownership objective is nature preservation. This is a smallest cluster. Owners representing this cluster are moderately active comparing with other clusters. Even though the level of knowledge in the field of forestry is lowest.</p> <p>Analysis the cluster characteristics indentified the dominating factors of one or several owners' groups. Seven factors with reliable distribution among clusters were indentified: sex of owner, education, place of residents, level of forestry knowledge, forestry-related activity, distance from the residence to the forest holding and the manner of acquiring forest holding. In this article cluster characteristics are presented.</p> <p>The grouping of forest owners analysed in the article may be used for formation and implementation of private forest policy in the future. The results of this study suggest the strong emphasis should be placed on creation of the education, training and advisory system for private forest owners and existing forest policy should be focused on different private forest owners groups.</p>
Weblink	http://www.balticforestry.mi.lt/bf/PDF_Articles/2005-11[1]/80_87%20Mizaras%20&%20Mizaraitė.pdf

8.1.2. Private forest owners cooperation

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	Pivoriūnas, A., Lazdinis, M. (2004). Needs of private forest owners in the context of changing political systems: Lithuania as a case study. <i>Small-scale Forest Economics, Management and Policy</i> (Small-scale Forestry), Vol. 3 (2), p. 191-202.
English language summary/abstract	The current state of cooperation in private forestry in Lithuania is examined, with a focus on the analysis of objectives, organisational structure and the ways forest owners' cooperatives operate. A postal survey has been used as a main research instrument, the questionnaire consisting of a series of multiple-choice close-ended questions. This paper provides insights into the state forest enterprises and other private companies operating in the private forestry sector, and places forest owners' cooperatives in a broader context of the private forestry sector. A typical forest owner's cooperative in Lithuania has up to 10 members and about 20 clients to whom services are provided. The leaders of cooperatives indicate that the optimal number of clients using their services should not exceed 40. The main stated objectives of cooperatives are the provision of services to their members under the most attractive conditions, uniting members, and earning a profit for the members. These activities of cooperatives revolve around timber harvesting and trade. It is concluded that the process of cooperation of private forest owners in Lithuania is rather slow, although positive development can be observed.
Language of the study/publication	English
Type of organization conducting the study	Swedish University of Agricultural Sciences Law University of Lithuania
Type of funding used	FAO Forestry Department
Regional scope	For all country
Theoretical approach	Sociology
Methodical approach	Questionnaire survey
Thematic focus	Cooperation of private forest owners
Main results should be given here if not yet included in the summary.	This study has revealed that forests provide to private forest owners first of all aesthetic and environmental protection values. PFOs in Lithuania tend to manage their forests themselves and they plan to pass on forest estates to their heirs. Lithuanian PFOs lack information of forests and forest management, face extensive bureaucracy and need assistance in protecting their forest from fires, diseases and timber thieves. They also would provide them with advantages of accessing EU structural funds or would reduce a burden of taxes. Despite the fact that Lithuania was selected as a case study area, the findings of this study could be of relevance to the other two Baltic States, and maybe even some other countries of eastern and central Europe with similar political conditions.
Weblink	http://link.springer.com/article/10.1007%2Fs11842-004-0014-1

SELECTED REPORTS/PUBLICATIONS	
Full reference of study/publication	Lazdinis, M., Pivoriūnas, A., Lazdinis, I. (2005). Cooperation in private forestry of post-soviet system: Forest owners' cooperatives in Lithuania. <i>Small-scale Forest Economics, Management and Policy</i> (Small-scale Forestry), Vol. 4 (4), p. 377-389.
English language summary/abstract	The current state of cooperation in private forestry in Lithuania is examined, with a focus on the analysis of objectives, organisational structure and the ways forest owners' cooperatives operate. A postal survey has been used as a main research instrument, the questionnaire consisting of a series of multiple-choice close-ended questions. This paper provides insights into the state forest enterprises and other private companies operating in the private forestry sector, and places forest owners' cooperatives in a broader context of the private forestry sector. A typical forest owner's cooperative in Lithuania has up to 10 members and about 20 clients to whom services are provided. The leaders of cooperatives indicate that the optimal number of clients using their services should not exceed 40. The main stated objectives of cooperatives are the provision of services to their members under the most attractive conditions, uniting members, and earning a profit for the members. These activities of cooperatives revolve around timber harvesting and trade. It is concluded that the process of cooperation of private forest owners in Lithuania is rather slow, although positive development can be observed.
Language of the study/publication	English
Type of organization conducting the study	Regional Development and Environment Protection Group Swedish University of Agricultural Sciences Mykolas Riomeris University (formerly Law University of Lithuania)
Type of funding used	No data
Regional scope	For all country
Theoretical approach	Sociology
Methodical approach	Questionnaire survey
Thematic focus	Cooperation of private forest owners
Main results should be given here if not yet included in the summary.	This study describes the FOCs in Lithuanian forestry as one of the post-soviet systems. Despite shedding some light on the private forest sector of this country, many questions have also been introduced. The results presented here may provoke an interest in the relations between FOCs and their members, posing questions such as why there are so few members in FOCs and whether the declared objectives of FOCs are not undermined by some hidden agendas. It also would be important to explore the role of the state in the development of the private forest sector since the regaining independence. All these questions deserve special attention and it is expected they will be addressed in future studies.
Weblink	http://link.springer.com/article/10.1007%2Fs11842-005-0023-8



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