**Forestry Department**
**Food and Agriculture Organization of the United Nations**

# GLOBAL FOREST RESOURCES ASSESSMENT

# COUNTRY REPORTS

# LITHUANIA

FRA2010/119
Rome, 2010

## The Forest Resources Assessment Programme

Sustainably managed forests have multiple environmental and socio-economic functions important at the global, national and local scales, and play a vital part in sustainable development. Reliable and up-to-date information on the state of forest resources - not only on area and area change, but also on such variables as growing stock, wood and non-wood products, carbon, protected areas, use of forests for recreation and other services, biological diversity and forests' contribution to national economies - is crucial to support decision-making for policies and programmes in forestry and sustainable development at all levels.

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Forest Resources Assessment Programme. This country report forms part of the Global Forest Resources Assessment 2010 (FRA 2010).

The reporting framework for FRA 2010 is based on the thematic elements of sustainable forest management acknowledged in intergovernmental forest-related fora and includes variables related to the extent, condition, uses and values of forest resources, as well as the policy, legal and institutional framework related to forests. More information on the FRA 2010 process and the results - including all the country reports - is available on the FRA Web site (www.fao.org/forestry/fra ).

The Global Forest Resources Assessment process is coordinated by the Forestry Department at FAO headquarters in Rome. The contact person for matters related to FRA 2010 is:

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# 1 Table T1 – Extent of Forest and Other wooded land

## 1.1 FRA 2010 Categories and definitions

| Category | Definition |
|---|---|
| Forest | Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds *in situ*. It does not include land that is predominantly under agricultural or urban land use. |
| Other wooded land | Land not classified as "Forest", spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds *in situ*; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use. |
| Other land | All land that is not classified as "Forest" or "Other wooded land". |
| Other land with tree cover (Subordinated to "Other land") | Land classified as "Other land", spanning more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity. |
| Inland water bodies | Inland water bodies generally include major rivers, lakes and water reservoirs. |

## 1.2 National data

### 1.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s) | Year(s) | Additional comments |
|---|---|---|---|---|
| Лесной Фонд СССР 01.01.1998, Москва, 1990, стр.184, 185<br>(Forest Fund of USSR 01.01.1988, Moscow, 1990,pp.184, 185 | H | Forest | 1987 | |
| Lietuvos miškų statistika.1998 m. sausio 1 d. valstybinė apskaita (Lithuanian Forest Statistics 01.01.1998). Kaunas, 1998, 72 p. | H | Forest | 1997 | |
| Lietuvos miškų valstybinė apskaita 2001 m. sausio 1d.<br>(Lithuanian Forest Assessment. January 1 2001) Kaunas, 2001, 76 p. | H | Forest | 2000 | |
| Valstybinė miškų apskaita.2004 m. sausio 1 d. (State Forest Assessment. January 1 2004). Kaunas, 2004, 95 p. (manuscript) | H | Forest | 2003 | |
| Lietuvos Respublikos žemės fondas (Land fund of the Republic of Lithuania) 1998 m. sausio 1d. Vilnius, 1998, 58 p. | H | OWL,<br>OL with tree | 1997 | |
| Lietuvos respublikos žemės fondas (Land fund of the Republic of Lithuania) 2001 m. sausio 1d., Vilnius, 2001, 82 p. | H | OWL,<br>OL with tree,<br>Official country area,<br>Inland water bodies | 2000 | |
| Lietuvos Respublikos žemės fondas (Land fund of the Republic of Lithuania) 2004 m. sausio 1d, Vilnius, 2004, 94 p. | H | OWL,<br>OL with tree | 2003 | |

| | | | | |
|---|---|---|---|---|
| Vakarų Lietuvos parkų dendrofloros būklės įvertinimas. 1999m. darbų ataskaita. Kauno botanikos sodas, 1999, (manuscript) | H | OL with tree | 1997<br>2000<br>2003 | |
| Vidurio Lietuvos parkų dendrofloros būklės įvertinimas. 2000m. darbų ataskaita. Lietuvos dendrologų draugija, 2000, (manuscript) | H | OL with tree | 1997<br>2000<br>2003 | |
| Rytų Lietuvos parkų dendrofloros būklės įvertinimas. 2001m. darbų ataskaita. Lietuvos dendrologų draugija, 2001, (manuscript) | H | OL with tree | 1997<br>2000<br>2003 | |
| Pietų ir pietvakarių Lietuvos parkų dendrofloros būklės įvertinimas. 2002 m. darbų ataskaita. Lietuvos dendrologų draugija, 2002, (manuscript) | H | OL with tree | 1997<br>2000<br>2003 | |
| Valstybinė miškų apskaita.2006 m. sausio 1 d. (State Forest Assessment, January 1,2006). Kaunas, 2006, 110 p. (manuscript) | H | Forest | 2005 | |
| Valstybinė miškų apskaita.2008 m. sausio 1 d. (State Forest Assessment, January 1,2008). Kaunas, 2008, 111 p. (manuscript) | H | Forest | 2007 | |
| Lietuvos Respublikos žemės fondas (Land fund of the Republic of Lithuania) 2006 m. sausio 1d, Vilnius, 2006, 139 p. | H | OWL,<br>OL with tree,<br>Official country area,<br>Inland water bodies | 2005 | |
| Lietuvos Respublikos žemės fondas (Land fund of the Republic of Lithuania) 2008 m. sausio 1d, Vilnius, 2008, 144 p. | H | OWL,<br>OL with tree,<br>Official country area,<br>Inland water bodies | 2007 | |
| Lietuvos Respublikos Miškų Įstatymas. Valstybės Žinios, 2001, Nr. 35-1161, 4-13 p(The Law on Forests of Republic of Lithuania) | | | | Definition of Forest |

### 1.2.2 Classification and definitions

| National class | Definition |
|---|---|
| **Forest** | A land area not less than 0.1 hectare in size covered with trees, the height of which in a natural site in the maturity age is not less than 5 meters, other forest plants as well as thinned or vegetation-lost forest due to the acts of nature or human activities (cutting areas, burnt areas, clearings). … Forest pitches, nursery areas, forest seed orchards, raw-material bushings and plantations…forest roads, forest block, technological and fire break lines, areas covered by timber storage houses and other forest-related equipment, recreation grounds, animal feed grounds, and land assigned for afforestation is ascribed to forest land as well.<br>Tree lines up to 10 meters of width in fields, at roadsides, water bodies, in living areas and cemeteries, single trees and bushes, parks planted and grown by man in urban and rural areas are not defined as forests. |
| **Other wooded land (OWL)** | The other bushes and tree groups, growing in fields, wetlands or close to water bodies, which are at variance with "forest "definition requirements, and not included into forest assessment and they cover bigger than 0,1 ha are ascribed to other wooded land. |
| **Other land with trees** | Urban parks, squares and gardens |

### 1.2.3 Original data

| FRA 2010 categories | Area (1000 hectares) | | | | |
|---|---|---|---|---|---|
| | 1987 | 1997 | 2000 | 2005 | 2007 |
| Forest | 1931 | 1978 | 2020 | 2121 | 2143 |
| Other wooded land | N/d | 82 | 83 | 73 | 77 |
| Other land | N/d | 4208 | 4165 | 4074 | 4048 |
| ...of which with tree cover | N/d | 63 | 62 | 63 | 63 |
| Inland water bodies | 262 | 262 | 262 | 262 | 262 |
| **TOTAL** | **6530** | **6530** | **6530** | **6530** | **6530** |

## *1.3 Analysis and processing of national data*

### 1.3.1 Calibration

Not applied

### 1.3.2 Estimation and forecasting

"Forest", "other wooded land" and "other land with tree cover" for the 2010 is obtained by extrapolation from data of 2005 and 2007.

### 1.3.3 Reclassification into FRA 2010 categories

Not applied

## *1.4 Data for Table T1*

| FRA 2010 categories | Area (1000 hectares) | | | |
|---|---|---|---|---|
| | 1990 | 2000 | 2005 | 2010 |
| Forest | 1945 | 2020 | 2121 | 2160 |
| Other wooded land | 80 | 83 | 73 | 80 |
| Other land | 4243 | 4165 | 4074 | 4028 |
| ...of which with tree cover | 63 | 62 | 63 | 63 |
| Inland water bodies | 262 | 262 | 262 | 262 |
| **TOTAL** | **6530** | **6530** | **6530** | **6530** |

## *1.5 Comments to Table T1*

| Variable / category | Comments related to data, definitions, etc. | Comments on the reported trend |
|---|---|---|
| Forest | Forest areas in size of 0.1 – 0.5 ha comprise approximately 7.5 t. ha. | |
| Other wooded land | | |
| Other land | | |
| Other land with tree cover | | |
| Inland water bodies | | |

| Other general comments to the table |
|---|
| |

| Expected year for completion of ongoing/planned national forest inventory and/or RS survey / mapping | |
|---|---|
| Field inventory | Continuous |
| Remote sensing survey / mapping | |

# 2 Table T2 – Forest ownership and management rights

## 2.1 FRA 2010 Categories and definitions

| Category | Definition |
|---|---|
| Public ownership | Forest owned by the State; or administrative units of the public administration; or by institutions or corporations owned by the public administration. |
| Private ownership | Forest owned by individuals, families, communities, private co-operatives, corporations and other business entities, private religious and educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions. |
| Individuals *(sub-category of Private ownership)* | Forest owned by individuals and families. |
| Private business entities and institutions *(sub-category of Private ownership)* | Forest owned by private corporations, co-operatives, companies and other business entities, as well as private non-profit organizations such as NGOs, nature conservation associations, and private religious and educational institutions, etc. |
| Local communities *(sub-category of Private ownership)* | Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a forest area. The community members are co-owners that share exclusive rights and duties, and benefits contribute to the community development. |
| Indigenous / tribal communities *(sub-category of Private ownership)* | Forest owned by communities of indigenous or tribal people. |
| Other types of ownership | Other kind of ownership arrangements not covered by the categories above. Also includes areas where ownership is unclear or disputed. |
| **Categories related to the holder of management rights of public forest resources** | |
| Public Administration | The Public Administration (or institutions or corporations owned by the Public Administration) retains management rights and responsibilities within the limits specified by the legislation. |
| Individuals/households | Forest management rights and responsibilities are transferred from the Public Administration to individuals or households through long-term leases or management agreements. |
| Private institutions | Forest management rights and responsibilities are transferred from the Public Administration to corporations, other business entities, private co-operatives, private non-profit institutions and associations, etc., through long-term leases or management agreements. |
| Communities | Forest management rights and responsibilities are transferred from the Public Administration to local communities (including indigenous and tribal communities) through long-term leases or management agreements. |
| Other form of management rights | Forests for which the transfer of management rights does not belong to any of the categories mentioned above. |

## 2.2 National data

### 2.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s) | Year(s) | Additional comments |
|---|---|---|---|---|
| Lietuvos privatūs miškai ir ūkininkavimas juose. (Private forests of Lithuania and their management), VMI, Kaunas, 2001, 62 p. | H | Forest | 2000 | |
| Lietuvos Respublikos žemės fondas (Land fund of the Republic of Lithuania) 2001 m. sausio 1d. Vilnius, 2001, 82 p. | H | OWL | 2000 | |
| Valstybinė miškų apskaita.2006 m. sausio 1 d. (State Forest Assessment, January 1 2006). Kaunas, 2006, 110 p. (manuscript) | H | Forest | 2005 | |

### 2.2.2 Classification and definitions

Comply with FRA 2010 definitions

### 2.2.3 Original data

| FRA 2010 Categories | Forest area (1000 hectares) | | |
|---|---|---|---|
| | 1990 | 2000 | 2005 |
| Public ownership | 1945 | 1562 | 1404 |
| Private ownership | 0 | 458 | 717 |
| ...of which owned by individuals | 0 | 458 | 714 |
| ...of which owned by private business entities and institutions | 0 | 0 | 3 |
| ...of which owned by local communities | 0 | 0 | 0 |
| ...of which owned by indigenous / tribal communities | 0 | 0 | 0 |
| Other types of ownership | 0 | 0 | 0 |
| **TOTAL** | **1945** | **2020** | **2121** |

## 2.3 Analysis and processing of national data

### 2.3.1 Calibration

Not applied.

### 2.3.2 Estimation and forecasting

Not applied.

### 2.3.3 Reclassification into FRA 2010 categories

Not applied.

## *2.4 Data for Table T2*

### Table 2a - Forest ownership

| FRA 2010 Categories | Forest area (1000 hectares) | | |
|---|---|---|---|
| | 1990 | 2000 | 2005 |
| Public ownership | 1945 | 1562 | 1404 |
| Private ownership | 0 | 458 | 717 |
| ...of which owned by individuals | 0 | 458 | 714 |
| ...of which owned by private business entities and institutions | 0 | 0 | 3 |
| ...of which owned by local communities | 0 | 0 | 0 |
| ...of which owned by indigenous / tribal communities | 0 | 0 | 0 |
| Other types of ownership | 0 | 0 | 0 |
| **TOTAL** | **1945** | **2020** | **2121** |

Note: If other types of ownership is reported, please specify details in comment to the table.

| | | |
|---|---|---|
| Does ownership of trees coincide with ownership of the land on which they are situated? | X | Yes |
| | | No |
| If **No** above, please describe below how the two differ: | | |
| | | |

### Table 2b - Holder of management rights of public forests

| FRA 2010 Categories | Forest area (1000 hectares) | | |
|---|---|---|---|
| | 1990 | 2000 | 2005 |
| Public Administration | 1945 | 1562 | 1404 |
| Individuals | 0 | 0 | 0 |
| Private corporations and institutions | 0 | 0 | 0 |
| Communities | 0 | 0 | 0 |
| Other | 0 | 0 | 0 |
| **TOTAL** | **1945** | **1562** | **1404** |

## *2.5 Comments to Table T2*

| Variable / category | Comments related to data, definitions, etc. | Comments on the reported trend |
|---|---|---|
| Public ownership | | |
| Private ownership | | |
| Other types of ownership | | |
| Management rights | | |

| Other general comments to the table |
|---|
| |

# 3 Table T3 – Forest designation and management

## 3.1 FRA 2010 Categories and definitions

| Term | Definition |
|---|---|
| Primary designated function | The primary function or management objective assigned to a management unit either by legal prescription, documented decision of the landowner/manager, or evidence provided by documented studies of forest management practices and customary use. |
| Protected areas | Areas especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means. |
| **Categories of primary designated functions** | |
| Production | Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products. |
| Protection of soil and water | Forest area designated primarily for protection of soil and water. |
| Conservation of biodiversity | Forest area designated primarily for conservation of biological diversity. Includes but is not limited to areas designated for biodiversity conservation within the protected areas. |
| Social services | Forest area designated primarily for social services. |
| Multiple use | Forest area designated primarily for more than one purpose and where none of these alone is considered as the predominant designated function. |
| Other | Forest areas designated primarily for a function other than production, protection, conservation, social services or multiple use. |
| No / unknown | No or unknown designation. |
| **Special designation and management categories** | |
| Area of permanent forest estate (PFE) | Forest area that is designated to be retained as forest and may not be converted to other land use. |
| Forest area within protected areas | Forest area within formally established protected areas independently of the purpose for which the protected areas were established. |
| Forest area under sustainable forest management | To be defined and documented by the country. |
| Forest area with management plan | Forest area that has a long-term (ten years or more) documented management plan, aiming at defined management goals, which is periodically revised. |

## 3.2 National data

### 3.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s) | Year(s) | Additional comments |
|---|---|---|---|---|
| Lietuvos miškų statistika. 1998 m. sausio 1 d. (Lithuanian Forest Statistics 1998.01.01). Kaunas, 1998 | H | Forest | 1997 | |
| Lietuvos miškų valstybinė apskaita 2001 m. sausio 1d. (Lithuanian Forest Assessment. January 1 2001). Kaunas, 2001 | H | Forest | 2000 | |
| Valstybinė miškų apskaita 2006 m. sausio 1 d. (State Forest Assessment, January 1 2006). Kaunas, 2006 | H | Forest | 2005 | |
| Valstybinė miškų apskaita 2008 m. sausio 1 d. (State Forest Assessment, January 1 2008). Kaunas, 2008. | H | Forest | 2007 | |

### 3.2.2 Classification and definitions

| ***Distribution of forest by groups and subgroups*** |
|---|
| **I group.** ***Reserved forests*** |
| 10 *strict reserves* |
| |
| **II group**. ***Special–purpose forests*** |
| *A) forests for protection of ecosystems* |
| 21 *reserves* |
| 22 *forests with protected nature monuments* |
| 23 *forests for the Baltic Sea and Curonian Lagoon protection (1 km)* |
| 24 *soil protecting (anti-erosion) forests* |
| *B) recreational forests* |
| 25 *forest parks* |
| 26 *resort forest* |
| 27 *city forests* |
| 28 *forest of recreational sites* |
| |
| **III group.** ***Protective forests*** |
| 31 *reserves* |
| 32 *forests of protective zones in State parks* |
| 33 *forests of buffer zones around State parks* |
| 34 *forest around factories* |
| 35 *forests of protective and aesthetic value near roads* |
| 36 *forests for field protection* |
| 37 *forests of seed stands* |
| 38 *forests of protective zones for water bodies* |
| |
| **IV group.** ***Exploitable forests*** |
| 40 *exploitable forests* |

### 3.2.3 Original data

## Distribution of forest by groups and subgroups

| Name of forest by groups and subgroups | Year 1997 ha | Year 2000 ha | Year 2005 ha | Year 2007 ha | Comments |
|---|---|---|---|---|---|
| **I group. *Reserved forests*** | 21166 | 21298 | 25691,2 | 25931,0 | |
| *strict reserves* | 13000 | 13413 | 25691,2 | 25931,0 | |
| *strict reserves in state parks* | 8040 | 7796 | | | |
| *small strict reserves* | 126 | 89 | | | |
| | | | | | |
| **II group**. ***Special–purpose forests*** | 241012 | 243248 | 260617,8 | 261973,2 | |
| *A) forests for protection of ecosystems* | | | | | |
| *reserves* | 129524 | 136679 | 161227,2 | 163548,1 | |
| *forests with protected nature monuments* | 2329 | 2634 | 5466,1 | 5553,1 | |
| *forests for the Baltic Sea and Curonian Lagoon protection (1 km)* | 7593 | 66 | 531,3 | 526,7 | |
| *soil protecting (anti-erosion) forests* | 18038 | 19381 | 27079,3 | 26461,2 | |
| *genetic reserves* | 2878 | 3234 | | | |
| *experimental plots* | 214 | 214 | | | |
| *forest stands of high productivity* | 616 | 672 | | | |
| *protected areas of natural resources* | 1200 | 2122 | | | |
| *B) recreational forests* | | | | | |
| *forest parks* | 44768 | 40234 | 38321,0 | 38402,9 | |
| *resort forest* | 3513 | 3513 | 4048,6 | 4049,9 | |
| *city forests* | 9669 | 15312 | 13874,4 | 13672,0 | |
| *forest of recreational sites* | 12091 | 11649 | 10069,9 | 9759,3 | |
| *recreational zones in state parks* | 8579 | 7538 | | | |
| | | | | | |
| **III group. *Protective forests*** | 276576 | 306660 | 340609,8 | 344045,2 | |
| *reserves* | 47847 | 58051 | 83030,8 | 85548,7 | |
| *forests of protective zones in State parks* | 55338 | 57992 | 52081,7 | 54018,9 | |
| *forests of buffer zones around State parks* | 9516 | 10799 | 16699,4 | 17288,7 | |
| *forest around factories* | 3400 | 1475 | 1756,1 | 1770,1 | |
| *forests of protective and aesthetic value near roads* | 606 | 998 | 3046,8 | 3001,1 | |
| *forests for field protection* | 11287 | 14888 | 21307,9 | 21222,1 | |
| *forests of seed stands* | 150 | 153 | 1467,8 | 1579,3 | |
| *forests of protective zones for water bodies* | 130466 | 144326 | 161219,3 | 159616,3 | |
| *resort forests (zones of 3 regime)* | 17929 | 17931 | | | |
| *forests for science and training* | 37 | 49 | | | |
| | | | | | |
| **IV group. *Exploitable forests*** | 1439681 | 1449127 | 1494033,6 | 1510932,4 | |
| *exploitable forests in state parks* | 83321 | 88261 | | | |
| *commercial forests* | 1356360 | 1360866 | | | |

### Primary designated function

| FRA 2010 Categories | Forest area (1000 hectares) | | | |
|---|---|---|---|---|
| | 1990 | 2000 | 2005 | 2007 |
| Production | 1412 | 1466 | 1494 | 1511 |
| Protection of soil and water | 171 | 178 | 210 | 207 |
| Conservation of biodiversity | 160 | 166 | 193 | 196 |
| Social services | 75 | 78 | 66 | 66 |
| Multiple use | 127 | 132 | 158 | 163 |
| Other (please specify in comments below the table) | 0 | 0 | 0 | 0 |
| No / unknown | 0 | 0 | 0 | 0 |
| **TOTAL** | **1945** | **2020** | **2121** | **2143** |

### Special designation and management categories

| FRA 2010 Categories | Forest area (1000 hectares) | | | |
|---|---|---|---|---|
| | 1990 | 2000 | 2005 | 2007 |
| Area of permanent forest estate | 1945 | 2020 | 2121 | 2160 |
| Forest area within protected areas | n.a. | 395 | 424 | 433 |
| Forest area under sustainable forest management | 1945 | 2020 | 2121 | 2160 |
| Forest area with management plan | 1945 | 2020 | 2121 | 2160 |

## *3.3 Analysis and processing of national data*

### 3.3.1 Calibration

Not applied

### 3.3.2 Estimation and forecasting

The data for the 2010 derived by extrapolation from data of 2005 and 2007

### 3.3.3 Reclassification into FRA 2010 categories

Every forest stand by its primary function is designated to 4 forest groups and 18 subgroups.
Adequacy of forests with national primary function to FRA classes is presented in below table.

| National class | Definition |
|---|---|
| Production | *40 Exploitable forests* |
| Protection of soil and water | *24 Soil protecting (anti-erosion) forests*<br>*36 Forests for field protection*<br>*38 Forests of protective zones for water bodies* |
| Conservation of biodiversity | *10 Forests of strict reserves*<br>*21 Forests of II-d forest group reserves*<br>*22 Forests with protected nature monuments*<br>*23 Forests for the Baltic Sea and Curonian Lagoon protection (1 km)* |
| Social services | *25 Forest parks*<br>*26 Resort forest*<br>*27 City forests*<br>*28 Forest of recreational sites* |

| | |
|---|---|
| Multiple purpose | *31 Forests of III-d forest group reserves*<br>*32 Forests of protective zones in State parks*<br>*33 Forests of buffer zones around State parks*<br>*34 Forest around factories*<br>*35 Forests of protective and aesthetic value near roads*<br>*37 Forests of seed stands* |
| No or unknown function | |

## *3.4 Data for Table T3*

### Table 3a – Primary designated function

| FRA 2010 Categories | Forest area (1000 hectares) | | | |
|---|---|---|---|---|
| | 1990 | 2000 | 2005 | 2010 |
| Production | 1412 | 1466 | 1494 | 1523 |
| Protection of soil and water | 171 | 178 | 210 | 209 |
| Conservation of biodiversity | 160 | 166 | 193 | 198 |
| Social services | 75 | 78 | 66 | 66 |
| Multiple use | 127 | 132 | 158 | 164 |
| Other (please specify in comments below the table) | 0 | 0 | 0 | 0 |
| No / unknown | 0 | 0 | 0 | 0 |
| **TOTAL** | **1945** | **2020** | **2121** | **2160** |

### Table 3b – Special designation and management categories

| FRA 2010 Categories | Forest area (1000 hectares) | | | |
|---|---|---|---|---|
| | 1990 | 2000 | 2005 | 2010 |
| Area of permanent forest estate | 1945 | 2020 | 2121 | 2160 |
| Forest area within protected areas | n.a. | 395 | 424 | 433 |
| Forest area under sustainable forest management | 1945 | 2020 | 2121 | 2160 |
| Forest area with management plan | 1945 | 2020 | 2121 | 2160 |

## *3.5 Comments to Table T3*

| Variable / category | Comments related to data, definitions, etc. | Comments on the reported trend |
|---|---|---|
| Production | | |
| Protection of soil and water | | |
| Conservation of biodiversity | | |

| | | |
|---|---|---|
| Social services | | |
| Multiple use | *Forests of protective and aesthetic value near roads* are considered as multiple purpose, but not social services forest. | |
| Other | | |
| No / unknown designation | | |
| Area of permanent forest estate | | |
| Forest area within protected areas | Include forests in:<br>1. Strict nature reserves<br>2. Nature reserves<br>3. National parks<br>4. Regional parks | |
| Forest area under sustainable forest management | | |
| Forest area with management plan | | |

| **Other general comments to the table** |
|---|
| Different system of forest classification into groups and categories was applied in 1990, comparing to classifications, which is used now. Since 1990 were not essential changes in requirements to functional forest classification. We have accepted the same proportions of forest land classification by functions in 1990 as well as in 2000. |

# 4 Table T4 – Forest characteristics

## 4.1 FRA 2010 Categories and definitions

| Term / category | Definition |
|---|---|
| Naturally regenerated forest | Forest predominantly composed of trees established through natural regeneration. |
| Introduced species | A species, subspecies or lower taxon, occurring outside its natural range (past or present) and dispersal potential (i.e. outside the range it occupies naturally or could occupy without direct or indirect introduction or care by humans). |
| **Characteristics categories** | |
| Primary forest | Naturally regenerated forest of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed. |
| Other naturally regenerated forest | Naturally regenerated forest where there are clearly visible indications of human activities. |
| Other naturally regenerated forest of introduced species *(sub-category)* | Other naturally regenerated forest where the trees are predominantly of introduced species. |
| Planted forest | Forest predominantly composed of trees established through planting and/or deliberate seeding. |
| Planted forest of introduced species *(sub-category)* | Planted forest, where the planted/seeded trees are predominantly of introduced species. |
| **Special categories** | |
| Rubber plantations | Forest area with rubber tree plantations. |
| Mangroves | Area of forest and other wooded land with mangrove vegetation. |
| Bamboo | Area of forest and other wooded land with predominant bamboo vegetation. |

## 4.2 National data

### 4.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s) | Year(s) | Additional comments |
|---|---|---|---|---|
| Lietuvos miškų statistika.1998 m. sausio 1 d. valstybinė apskaita (Lithuanian Forest Statistics 1998.01.01). Kaunas, 1998, 72 p. | H | Forest | 1997 | |
| Lietuvos miškų valstybinė apskaita 2001 m. sausio 1d. Lithuanian Forest Assessment. January 1 2001 Kaunas, 2001, 76 p. | H | Forest | 2000 | |
| Valstybinė miškų apskaita. 2006 m. sausio 1 d. (State Forest Assessment, January 1 2006). Kaunas, 2006, 110 p. (manuscript) | H | Forest | 2005 | |
| Valstybinė miškų apskaita.2008 m. sausio 1 d. (State Forest Assessment, January 1 2008). Kaunas, 2008, 111 p. (manuscript) | H | Forest | 2007 | |

### 4.2.2 Classification and definitions

According to requirements of FRA_2010 classification (T 4.1)

### 4.2.3 Original data

| FRA 2010 Categories | Forest area (1000 hectares) | | | |
|---|---|---|---|---|
| | 1997 | 2000 | 2005 | 2007 |
| Primary forest | 21 | 21 | 26 | 26 |
| Other naturally regenerated forest | 1517 | 1538 | 1604 | 1614 |
| ...of which of introduced species | 0 | 0 | 0 | 0 |
| Planted forest | 440 | 461 | 491 | 503 |
| ...of which of introduced species | 3 | 3 | 3 | 3 |
| **TOTAL** | **1978** | **2020** | **2121** | **2143** |

## *4.3 Analysis and processing of national data*

### 4.3.1 Calibration

Not applied.

### 4.3.2 Estimation and forecasting

The data for the 1990 were obtained, when extrapolating from data of 1997 and 2000, and data for the 2010, derived by extrapolation from data of 2005 and 2007.

### 4.3.3 Reclassification into FRA 2010 categories

Not applied.

## *4.4 Data for Table T4*

### Table 4a

| FRA 2010 Categories | Forest area (1000 hectares) | | | |
|---|---|---|---|---|
| | 1990 | 2000 | 2005 | 2010 |
| Primary forest | 20 | 21 | 26 | 26 |
| Other naturally regenerated forest | 1514 | 1538 | 1604 | 1613 |
| ...of which of introduced species | 0 | 0 | 0 | 0 |
| Planted forest | 411 | 461 | 491 | 521 |
| ...of which of introduced species | 3 | 3 | 3 | 3 |
| **TOTAL** | **1945** | **2020** | **2121** | **2160** |

### Table 4b

| FRA 2010 Categories | Area (1000 hectares) | | | |
|---|---|---|---|---|
| | 1990 | 2000 | 2005 | 2010 |
| Rubber plantations (Forest) | 0 | 0 | 0 | 0 |
| Mangroves (Forest and OWL) | 0 | 0 | 0 | 0 |
| Bamboo (Forest and OWL) | 0 | 0 | 0 | 0 |

## 4.5 Comments to Table T4

| Variable / category | Comments related to data, definitions, etc. | Comments on the reported trend |
|---|---|---|
| Primary forest | | |
| Other naturally regenerating forest | | |
| Planted forest | | |
| Rubber plantations | | |
| Mangroves | | |
| Bamboo | | |

| Other general comments to the table |
|---|
| There are no primary (virgin/untouched by forest activities) forests in Lithuania. Forests of strict reserves are assigned to this group, as forest activities are not being carried out there for some decades, except forest assessment and research. |

# 5 Table T5 – Forest establishment and reforestation

## 5.1 FRA 2010 Categories and definitions

| Term | Definition |
|---|---|
| Afforestation | Establishment of forest through planting and/or deliberate seeding on land that, until then, was not classified as forest. |
| Reforestation | Re-establishment of forest through planting and/or deliberate seeding on land classified as forest. |
| Natural expansion of forest | Expansion of forests through natural succession on land that, until then, was under another land use (e.g. forest succession on land previously used for agriculture). |

## 5.2 National data

### 5.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s) | Year(s) | Additional comments |
|---|---|---|---|---|
| Lietuvos miškų ūkio statistika 2008. Kaunas, 2008, 152 p. (Lithuanian statistical Yearbook of forestry 2008. Kaunas, 2008. | H | Afforestation, annual amounts | 1998-2007 | |
| Information on file from Department of Forests | H | | 1997-2007 | Reforestation by introduced species |
| Lietuvos nacionalinė miškų inventorizacija 2003-2007. Miškų ištekliai ir jų kaita. (Lithuanian national forest inventory 2003-2007. Forest resources and their dynamic). Kaunas, 2008, 304 p. | H | Reforestation, Natural expansion of forest | 2000,2005 | |

### 5.2.2 Classification and definitions

According to requirements of FRA_2010 classification (T 5.1)

### 5.2.3 Original data

| FRA 2010Categories | Annual forest establishment (hectares/ year) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
| Afforestation | 373 | 495 | 881 | 163 | 967 | 1194 | 1136 | 2177 | 3338 | 4246 |
| Reforestation | | | 7560 | | | | | 8260 | | |
| Natural expansion of forest | | | 6320 | | | | | 5420 | | |
| **Average** | **2000** | | | | | **2005** | | | | |
| Afforestation | 575,8 | | | | | 2418,2 | | | | |
| Reforestation | 7560 | | | | | 8260 | | | | |
| Natural expansion of forest | 6320 | | | | | 5420 | | | | |

## 5.3 Analysis and processing of national data

### 5.3.1 Calibration

Not applied.

### 5.3.2 Estimation and forecasting

Not applied.

### 5.3.3 Reclassification into FRA 2010 categories

Not applied.

## 5.4 Data for Table T5

| FRA 2010 Categories | Annual forest establishment (hectares/year) | | | ...of which of introduced species [1)] (hectares/year) | | |
|---|---|---|---|---|---|---|
| | 1990 | 2000 | 2005 | 1990 | 2000 | 2005 |
| Afforestation | n.a. | 576 | 2418 | n.a. | 0 | 0 |
| Reforestation | n.a. | 7560 | 8260 | n.a. | 2 | 1 |
| ...of which on areas previously planted | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Natural expansion of forest | n.a. | 6320 | 5420 | n.a. | 0 | 0 |

Note: The figures for the reporting years refer to the averages for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.

## 5.5 Comments to Table T5

| Variable / category | Comments related to data, definitions, etc. | Comments on the reported trend |
|---|---|---|
| Afforestation | | |
| Reforestation | | |
| Natural expansion of forest | | |

| Other general comments to the table |
|---|
| |

# 6 Table T6 – Growing stock

## 6.1 FRA 2010 Categories and definitions

| Category | Definition |
|---|---|
| Growing stock | Volume over bark of all living trees more than X cm in diameter at breast height (or above buttress if these are higher). Includes the stem from ground level or stump height up to a top diameter of Y cm, and may also include branches to a minimum diameter of W cm. |
| Growing stock of commercial species | Growing stock (see def. above) of commercial species. |

## 6.2 National data

### 6.1.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s) | Year(s) | Additional comments |
|---|---|---|---|---|
| | L | Forest, Growing stock | 1987-2003 | OWL established by expert |
| Valstybės Žinios (State News) Nr.27, 2003m. kovo 19d. Lietuvos miškotvarkos taisyklės (Instructions on Lithuanian Forest management), 9 priedas | H | Forest | | Site index classes |
| Lietuvos miškų ištekliai (Lietuvos miškų apskaitos duomenys), (Forest recourses of Lithuania (Data on Lithuanian forest assessment) 1993 m. sausio 1 d. Vilnius, 1994. 27 p. | H | Forest, Growing stock | 1992 | |
| Lietuvos miškų statistika. NMI 2000. Nacionalinė miškų inventorizacija atrankiniu metodu, III metai. Ataskaita. (Forest statistics of Lithuania. NFI 2000. National forest inventory by sampling method, III year. REPORT ) Kaunas, 2001, 128 p.(Manuscript) | H | Growing stock, forest | 2000 | |
| Lietuvos miškų statistika. NMI 2005. Nacionalinė miškų inventorizacija atrankiniu metodu, VIII metai. Ataskaita. (Forest statistics of Lithuania. NFI 2000. National forest inventory by sampling method, VIII year. REPORT ) Kaunas, 2006, 212p.(Manuscript) | H | Growing stock, forest | 2005 | |
| Lietuvos miškų statistika. NMI 2007. Nacionalinė miškų inventorizacija atrankiniu metodu, X metai. Ataskaita. (Forest statistics of Lithuania. NFI 2007. National forest inventory by sampling method, X year. REPORT ) Kaunas, 2008, 219 p.(Manuscript) | H | Growing stock, forest | 2007 | |

### 6.1.2 Classification and definitions

According to requirements of FRA_2010 classification (T 6.1)

### 6.1.3 Original data

#### Growing stock

| FRA 2010 category | Volume (million cubic meters over bark) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Forest | | | | Other wooded land | | | |
| | 1990 | 2000 | 2005 | 2007 | 1990 | 2000 | 2005 | 2010 |
| Total growing stock | n.a. | 449,5 | 464,6 | 466,7 | 2,4 | 2,5 | 2,2 | 2,3 |
| ... of which coniferous | n.a. | 255,0 | 262,7 | 268,8 | n.a. | n.a. | n.a. | n.a. |
| ... of which broadleaved | n.a. | 194,5 | 201,9 | 197,7 | n.a. | n.a. | n.a. | n.a. |
| Growing stock of commercial species | n.a. | 449,5 | 464,6 | 466,7 | 2,4 | 2,5 | 2,2 | 2,3 |

#### Growing stock of the 10 most common species

| FRA 2010 category / Species name | | | Growing stock in forest (million cubic meters) | | |
|---|---|---|---|---|---|
| Rank | Scientific name | Common name | 1990 | 2000 | 2005 |
| 1st | Pinus sylvestris L. | Pine | n.a. | 162,9 | 168,1 |
| 2nd | Picea abies (L.) H. Karst. | Spruce | n.a. | 92,0 | 94,5 |
| 3rd | Betula pubescens Ehrh. | Birch | n.a. | 75,2 | 78,2 |
| 4th | Alnus glutinosa (L.) Gaertn | Alder black | n.a. | 33,2 | 36,5 |
| 5th | Populus tremula L. | Aspen | n.a. | 31,2 | 30,2 |
| 6th | Alnus incana (L.) Moench | Alder grey | n.a. | 19,8 | 21,8 |
| 7th | Quercus robur L. | Oak | n.a. | 13,4 | 13,6 |
| 8th | Fraxinus excelsior L. | Ash | n.a. | 11,3 | 10,5 |
| 9th | Tilia cordata Mill. | Lime | n.a. | 3,5 | 3,9 |
| 10th | Salix caprea L. | Willow | n.a. | 1,8 | 2,1 |
| Remaining | | | n.a. | 5,2 | 5,2 |
| **TOTAL** | | | n.a. | **449,5** | **464,6** |

## *6.2 Analysis and processing of national data*

### 6.3.1 Calibration

Not applied.

### 6.3.2 Estimation and forecasting

The data for "Forest" for 1990 were obtained, when extrapolating from data of 2000 and 2005, and data for the 2010, derived by extrapolation from data of 2005 and 2007.

Growing stock of "Other wooded land" for 2005 and 2010 was obtained when multiplying the adequate area of this category land (table 1.4) by volume per ha. According to expert evaluation volume per ha of "Other wooded land" is 30 $m^3$/ha.

### 6.3.3 Reclassification into FRA 2010 categories

Not applied.

## 6.4 Data for Table T6

### Table 6a – Growing stock

| FRA 2010 category | Volume (million cubic meters over bark) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Forest | | | | Other wooded land | | | |
| | 1990 | 2000 | 2005 | 2010 | 1990 | 2000 | 2005 | 2010 |
| Total growing stock | 413.0 | 449.5 | 464.6 | 469.8 | 2.4 | 2.5 | 2.2 | 2.4 |
| ... of which coniferous | 234.8 | 255.0 | 262.7 | 274.0 | n.a. | n.a. | n.a. | n.a. |
| ... of which broadleaved | 178.2 | 194.5 | 201.9 | 195.8 | n.a. | n.a. | n.a. | n.a. |
| Growing stock of commercial species | 413.0 | 449.5 | 464.6 | 469.8 | 2.4 | 2.5 | 2.2 | 2.4 |

### Table 6b – Growing stock of the 10 most common species

| FRA 2010 category / Species name | | | Growing stock in forest (million cubic meters) | | |
|---|---|---|---|---|---|
| Rank | Scientific name | Common name | 1990 | 2000 | 2005 |
| 1st | Pinus sylvestris L. | Pine | 150.1 | 162.9 | 168.1 |
| 2nd | Picea abies (L.) H. Karst. | Spruce | 84.7 | 92.0 | 94.5 |
| 3rd | Betula pubescens Ehrh. | Birch | 69.1 | 75.2 | 78.2 |
| 4th | Alnus glutinosa (L.) Gaertn | Alder black | 28.9 | 33.2 | 36.5 |
| 5th | Populus tremula L. | Aspen | 32.3 | 31.2 | 30.2 |
| 6th | Alnus incana (L.) Moench | Alder grey | 16.0 | 19.8 | 21.8 |
| 7th | Quercus robur L. | Oak | 12.8 | 13.4 | 13.6 |
| 8th | Fraxinus excelsior L. | Ash | 10.3 | 11.3 | 10.5 |
| 9th | Tilia cordata Mill. | Lime | 2.6 | 3.5 | 3.9 |
| 10th | Salix caprea L. | Willow | 1.3 | 1.8 | 2.1 |
| Remaining | | | 4.9 | 5.2 | 5.2 |
| **TOTAL** | | | **413.0** | **449.5** | **464.6** |

Note: Rank refers to the order of importance in terms of growing stock, i.e. 1st is the species with the highest growing stock. Year 2000 is the reference year for defining the species list and the order of the species.

### Table 6c – Specification of threshold values

| Item | Value | Complementary information |
|---|---|---|
| Minimum diameter (cm) at breast height[1] of trees included in growing stock (X) | 2 | Minimum diameter for young planted trees with height less 1,3 m is 0 cm |
| Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y) | 0 | |
| Minimum diameter (cm) of branches included in growing stock (W) | - | Branches are not included in growing stock. |
| Volume refers to "above ground" (AG) or "above stump" (AS) | AG | |

[1] Diameter at breast height (DBH) refers to diameter over bark measured at a height of 1.30 m above ground level or 30 cm above buttresses if these are higher than 1 m.

## 6.5 Comments to Table T6

| Variable / category | Comments related to data, definitions, etc. | Comments on the reported trend |
|---|---|---|
| Total growing stock | Reported values differs from values reported during 2005 assessment due to changes of source of data. For FRA 2005 were used stand-wise forest inventory data, for FRA 2010 - national forest inventory by sampling method data. | |
| Growing stock of broadleaved / coniferous | | |
| Growing stock of commercial species | | |
| Growing stock composition | | |

| Other general comments to the table |
|---|
| |

# 7 Table T7 – Biomass stock

## 7.1 FRA 2010 Categories and definitions

| Category | Definition |
|---|---|
| Above-ground biomass | All living biomass above the soil including stem, stump, branches, bark, seeds, and foliage. |
| Below-ground biomass | All biomass of live roots. Fine roots of less than 2mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter. |
| Dead wood | All non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country. |

## 7.2 National data

### 7.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s) | Year(s) | Additional comments |
|---|---|---|---|---|
| Усольцев В.А. Фитомасса лесов Северной Евразии.База данных и география. 707с. , Якатеринбург, 2001 (V.A. Usoltsev. Forest biomass of Northern Eurasia. Database and geography. p. 707, Yakaterinburg, 2001.) | | | | Mensuration standards for calculation of biomass |
| Усольцев В.А. Фитомасса лесов Северной Евразии. Нормативы и элементы географии. 762с. Якатеринбург, 2002 (V.A. Usoltsev. Forest biomass of Northern Eurasia. Standards of mensuration and geography. p. 762, Yakaterinburg, 2002.) | | | | |
| 3.Усольцев В.А. Фитомасса лесов Северной Евразии.Предельная продуктивность и география. 405 с., Якатеринбург, 2003 (V.A. Usoltsev. Forest biomass of Northern | | | | |

| | | | | |
|---|---|---|---|---|
| Eurasia. The limits of productivity and their geography. P. 405, Yakaterinburg, 2003) | | | | |
| Lietuvos miškų statistika. NMI 2007. Nacionalinė miškų inventorizacija atrankiniu metodu, X metai. Ataskaita. (Forest statistics of Lithuania. NFI 2007. National forest inventory by sampling method, X year. REPORT) Kaunas, 2008, 219 p.(Manuscript) | | | | Branch volume % |

### 7.2.2 Classification and definitions

According to requirements of FRA_2010 classification (T 7.1)

### 7.2.3 Original data

The Biomass stock was estimated using growing stock data compiled in table T6.

## *7.3 Analysis and processing of national data*

The biomass of separate tree species was estimated using the Basic Wood Density of Stem wood, presented in FRA 2010, appendix 5.7. The Basic Wood Density of Stem wood (=0,438) for 2000 was estimated using the species composition, presented in the Table T6b. The data from Table T6a were used for the estimation of biomass for 1990, 2005 and 2010 as well.
The biomass of foliage, needle and root was estimated as percentage from the total stem volume using the models, designed by V.Usolcev for separate tree species and adopted to Lithuanian stands. The biomass of branches was estimated, using native tables and data of NFI. Weighted percentages of over ground biomass were estimated as weighted percentages of stem volume of separate tree species (2000).

| **Tree species** | **Needle and foliage biomass from the steam biomass** | **Branch biomass from the steam biomass** | **Stump and root biomass from the above ground biomass** | **Stem volume** |
|---|---|---|---|---|
| | % | % | % | mill.$m^3$ |
| Pine | 5 | 12 | 26 | 162.9 |
| Spruce | 11 | 20 | 26 | 92.0 |
| Birch | 3 | 16 | 18 | 75.2 |
| Aspen | 3 | 13 | 24 | 31.2 |
| Black Alder | 2 | 13 | 18 | 33.2 |
| Grey Alder | 3 | 13 | 17 | 19.8 |
| Oak | 3 | 15 | 25 | 13.4 |
| Ash | 3 | 20 | 20 | 11.3 |
| **Total:** | | | | |
| ***coniferous*** | **22.1** | | **26.0** | |
| ***broadleaves*** | **17.8** | | **19.0** | |

For estimation of above-ground biomass, were used such factors: for coniferous – 1.221, for broadleaves – 1,178 from the stem biomass. It was drawn mean weighted factor for all tree species (1.202) what was applied also in calculations for 1990, 2005 and 2010 year.

For estimation of below-ground biomass were used such factors: for coniferous – 0.26, for broadleaves – 0.19 from the above-ground biomass. The calculated below-ground mean factor for all tree species for 2000 was 0.23 from the above-ground biomass. The same factor was used for below-ground biomass calculations for 1990, 2005 and 2010.

The volume of dead wood was estimated, using the data of national forest inventory. It was estimated that every year in coniferous stands due to self-thinning in the forest remains and are not consumed 0.6 $m^3$ of stems, 0.24 $m^3$ roots and branches ,what decay during 25-35 years. The estimated average volume of dead wood per ha is 25 $m^3$. In the broad-leaved stands in average 1.2 $m^3$ of stems and 0.4 $m^3$ of branches and roots remains in forests every year due to self-thinning. This volume decays during 10-15 years. The estimated average volume of dead wood per ha in broad-leaved stands is 20 $m^3$/ha.

The same methodical principles and average factors were used for estimation of biomass in "Other wooded lands" as well as for calculations of biomass in "Forest".

### 7.3.1 Calibration

Not applied.

### 7.3.2 Estimation and forecasting

Not applied.

### 7.3.3 Reclassification into FRA 2010 categories

Not applied.

## *7.4 Data for Table T7*

| FRA 2010 category | Biomass (million metric tonnes oven-dry weight) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Forest | | | | Other wooded land | | | |
| | 1990 | 2000 | 2005 | 2010 | 1990 | 2000 | 2005 | 2010 |
| Above-ground biomass | 217.9 | 237.1 | 245.2 | 247.9 | 1.3 | 1.3 | 1.2 | 1.3 |
| Below-ground biomass | 50.1 | 54.0 | 56.4 | 57.0 | 0.3 | 0.3 | 0.3 | 0.3 |
| Dead wood | 19.5 | 20.3 | 21.2 | 21.6 | 0.1 | 0.1 | 0.1 | 0.1 |
| **TOTAL** | **287.5** | **311.4** | **322.8** | **326.5** | **1.7** | **1.7** | **1.6** | **1.7** |

## *7.5 Comments to Table T7*

| Variable / category | Comments related to data, definitions, etc. | Comments on the reported trend |
|---|---|---|
| Above-ground biomass | | |
| Below-ground biomass | | |
| Dead wood | | |

| Other general comments to the table |
|---|
| |

# 8 Table T8 – Carbon stock

## 8.1 FRA 2010 Categories and definitions

| Category | Definition |
|---|---|
| Carbon in above-ground biomass | Carbon in all living biomass above the soil, including stem, stump, branches, bark, seeds, and foliage. |
| Carbon in below-ground biomass | Carbon in all biomass of live roots. Fine roots of less than 2 mm diameter are excluded, because these often cannot be distinguished empirically from soil organic matter or litter. |
| Carbon in dead wood | Carbon in all non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country. |
| Carbon in litter | Carbon in all non-living biomass with a diameter less than the minimum diameter for dead wood (e.g. 10 cm), lying dead in various states of decomposition above the mineral or organic soil. |
| Soil carbon | Organic carbon in mineral and organic soils (including peat) to a specified depth chosen by the country and applied consistently through the time series. |

## 8.2 National data

### 8.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s) | Year(s) | Additional comments |
|---|---|---|---|---|
| Lietuvos miškų valstybinė apskaita 2001 m. sausio 1d.<br>(Lithuanian Forest Assessment. January, 1 2001, Kaunas, 2001) | H | Forest | 1900,2000,2005,2008 | Forest distribution according to site index (for the estimations of carbon in the litter and soil layers). |

### 8.2.2 Classification and definitions

According to requirements of FRA_2010 classification (T 8.1)

### 8.2.3 Original data

The Carbon stock of living biomass and dead wood was estimated using biomass data compiled in table T7. The Carbon in litter and soil was estimated using forest and OWL area compiled in table T1.

## 8.3 Analysis and processing of national data

**1.** The calculations of carbon in biomass were carried out, according FRA 2010 methods (Appendix 5.2). It was accepted that carbon for coniferous makes 51 % of biomass, for broadleaves – 48%. Total – 49.7% (rate 0.50).

**2.** The amount of carbon in litter was estimated according to standard presented in appendix 5.9 of FRA 2010 and actual distribution of Lithuanian forest sites by their humidity. There were estimated that in 2000 62.05 % of all Lithuanian coniferous forests grow in dry soils and 37.95 % - in moist soils.

According to that, carbon amount in litter is:

((27*62.05)+(26*37.95))/100=26.62 t/ha

25.22 % of broadleaved forests grow in dry and 74.78 % - in moist soils.
Carbon amount in the broadleaved forests is:

((28*25.22)+(16*74.78))/100=19.03 t/ha

Coniferous forests cover 61.16 % of total forest area of Lithuania and broadleaved forests cover the rest 38.84 %. According to that, the average carbon amount in all Lithuanian forest is:

((26.62*61.16)+(19.03*38.84))/100= **24 t/ha**

The estimated amount of carbon (24 t/ha) was used for calculations of carbon amount stored in "Forests" and "Other wooded land" for the year of 1990, 2005 and 2010.

**3.** The calculations of carbon storage in the soil was done according to standard presented in appendix 5.10 of FRA 2010 and actual distribution of Lithuanian forest by humidity and fertility. According to experts, the distribution of soils in Lithuania is:

dry HAC soils – 21.9 %
dry sandy soils - 24.5 %
moist HAC soils - 26.2 %
moist spondic soils – 13.3 %
wetlands soils - 14.1 %

Applying the carbon amount for "Cold temperate" conditions, the amount of carbon, stored in 1 ha of soils in Lithuania is:

((21.9*50)+24.5*34)+(26.5*95)+(13.3*115)+(14.1*87))/100=**72 t/ha**

The following amount of carbon (72 t/ha) was used in calculations for carbon amount in soils for both "Forest" and "Other wooded land" for the year of 1990, 2005 and 2010.

### 8.3.1 Calibration

Not applied.

### 8.3.2 Estimation and forecasting

Not applied.

### 8.3.3 Reclassification into FRA 2010 categories

Not applied.

## 8.4 Data for Table T8

| FRA 2010 Category | Carbon (Million metric tonnes) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Forest | | | | Other wooded land | | | |
| | 1990 | 2000 | 2005 | 2010 | 1990 | 2000 | 2005 | 2010 |
| Carbon in above-ground biomass | 109.0 | 118.6 | 122.6 | 124.0 | 0.65 | 0.65 | 0.6 | 0.65 |
| Carbon in below-ground biomass | 25.1 | 27.0 | 28.2 | 28.5 | 0.15 | 0.15 | 0.15 | 0.15 |
| ***Sub-total: Living biomass*** | ***134.1*** | ***145.6*** | ***150.8*** | ***152.5*** | ***0.8*** | ***0.8*** | ***0.75*** | ***0.8*** |
| Carbon in dead wood | 9.8 | 10.2 | 10.6 | 10.8 | 0.05 | 0.05 | 0.05 | 0.05 |
| Carbon in litter | 46.7 | 48.5 | 50.9 | 52.2 | 1.9 | 2.0 | 1.8 | 2.0 |
| ***Sub-total: Dead wood and litter*** | ***56.5*** | ***58.7*** | ***61.5*** | ***63.0*** | ***2.0*** | ***2.1*** | ***1.9*** | ***2.1*** |
| Soil carbon | 140.0 | 145.4 | 152.7 | 155.5 | 5.8 | 6.4 | 5.3 | 6.0 |
| **TOTAL** | **330.6** | **349.7** | **365.0** | **371.0** | **8.6** | **9.3** | **7.95** | **8.9** |

| | |
|---|---|
| Soil depth (cm) used for soil carbon estimates | 30 |

## 8.5 Comments to Table T8

| Variable / category | Comments related to data, definitions, etc. | Comments on the reported trend |
|---|---|---|
| Carbon in above-ground biomass | The estimation of the Carbon stock of living biomass was based on the biomass data compiled in table T7. | |
| Carbon in below-ground biomass | The estimation of the Carbon stock of living biomass was based on the biomass data compiled in table T7. | |
| Carbon in dead wood | The estimation of the Carbon stock of dead wood was based on the biomass data compiled in table T7. Reported Carbon volumes are not equal to reported volumes of biomass due to rounding of results. | |
| Carbon in litter | The estimation of the Carbon in litter was based on the forest and OWL area compiled in table T1. | |
| Soil carbon | The estimation of the Carbon in soil was based on the forest and OWL area compiled in table T1. | |

| Other general comments to the table |
|---|
| |

# 9 Table T9 – Forest fires

## 9.1 FRA 2010 Categories and definitions

| Category | Definition |
|---|---|
| Number of fires | Average number of vegetation fires per year in the country. |
| Area affected by fire | Average area affected by vegetation fires per year in the country. |
| Vegetation fire *(supplementary term)* | Any vegetation fire regardless of ignition source, damage or benefit. |
| Wildfire | Any unplanned and/or uncontrolled vegetation fire. |
| Planned fire | A vegetation fire regardless of ignition source that burns according to management objectives and requires limited or no suppression action. |

## 9.2 National data

### 9.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s) | Year(s) | Additional comments |
|---|---|---|---|---|
| Lietuvos miškų ūkio statistika 2008. Kaunas, 2008, 152 p. (Lithuanian statistical Yearbook of forestry 2008. Kaunas, 2008, p.152) | H | Forest | 2001-2007 | Disturbance by fire |
| Lietuvos miškų metraštis XX amžius. Vilnius, 2003. p.264-273 (The chronicle of Lithuanian forests XX Century. Vilnius, 2003. p.264-273) | H | Forest | 1989-1992, 1998-2000 | Disturbance by fire |
| Information from Fire and Rescue Department | H | OWL, OL | 1998-2007 | Disturbance by fire |

### 9.2.2 Classification and definitions

According to requirements of FRA_2010 classification (T 9.1)

### 9.2.3 Original data

| Forest fires | | | Mean | |
|---|---|---|---|---|
| Year | Area, 1000ha | Number | Area, 1000ha | Number |
| 1988 | 0.028 | 132 | | |
| 1989 | 0.058 | 120 | | |
| 1990 | 0.134 | 250 | 0.251 | 366 |
| 1991 | 0.064 | 147 | | |
| 1992 | 0.971 | 1180 | | |
| Total | 1.255 | 1829 | | |
| 1998 | 0.054 | 173 | | |

| | | | | |
|---|---|---|---|---|
| 1999 | 0.494 | 1022 | | |
| 2000 | 0.352 | 654 | 0.351 | 747 |
| 2001 | 0.111 | 287 | | |
| 2002 | 0.746 | 1596 | | |
| Total | 1.757 | 3732 | | |
| 2003 | 0.436 | 885 | | |
| 2004 | 0.253 | 468 | | |
| 2005 | 0.051 | 301 | 0.395 | 690 |
| 2006 | 1.199 | 1545 | | |
| 2007 | 0.038 | 251 | | |
| Total | 1.977 | 3450 | | |

| OWL fires | | | Meen | |
|---|---|---|---|---|
| Year | Area, 1000ha | Number | Area, 1000ha | Number |
| 1988 | | | | |
| 1989 | | | | |
| 1990 | | | | |
| 1991 | | | | |
| 1992 | | | | |
| Total | | | | |
| 1998 | | 7 | | |
| 1999 | | 199 | | |
| 2000 | | 80 | | |
| 2001 | | 26 | | 105 |
| 2002 | | 215 | | |
| Total | | 527 | | |
| 2003 | | 56 | | |
| 2004 | 0.10123 | 29 | | |
| 2005 | 0.02252 | 40 | 0.039 | 47 |
| 2006 | 0.03281 | 97 | | |
| 2007 | 0.00032 | 12 | | |
| Total | 0.15688 | 234 | | |

| OL fires | | | Meen | |
|---|---|---|---|---|
| Year | Area, 1000ha | Number | Area, 1000ha | Number |
| 1988 | | | | |
| 1989 | | | | |
| 1990 | | | | |
| 1991 | | | | |
| 1992 | | | | |
| Total | | | | |
| 1998 | | 1418 | | |
| 1999 | | 4104 | | |
| 2000 | | 2134 | | 3783 |
| 2001 | | 2744 | | |
| 2002 | | 8513 | | |
| Total | | 18913 | | |
| 2003 | | 7201 | | |
| 2004 | 13.30138 | 3740 | | |
| 2005 | 4.06346 | 2587 | 13.614 | 4915 |
| 2006 | 33.79818 | 8584 | | |
| 2007 | 3.29386 | 2465 | | |
| Total | 54.45688 | 24577 | | |

## 9.3 Analysis and processing of national data

### 9.3.1 Calibration

Not applied.

### 9.3.2 Estimation and forecasting

Not applied.

### 9.3.3 Reclassification into FRA 2010 categories

Not applied.

## 9.4 Data for Table T9

### Table 9a

| FRA 2010 category | Annual average for 5-year period | | | | | |
|---|---|---|---|---|---|---|
| | 1990 | | 2000 | | 2005 | |
| | 1000 hectares | number of fires | 1000 hectares | number of fires | 1000 hectares | number of fires |
| Total land area affected by fire | n.a. | n.a. | n.a. | 4635 | 14.048 | 5652 |
| ... of which on forest | 0.251 | 366 | 0.351 | 747 | 0.395 | 690 |
| ... of which on other wooded land | n.a. | n.a. | n.a. | 105 | 0.039 | 47 |
| ... of which on other land | n.a. | n.a. | n.a. | 3783 | 13.614 | 4915 |

### Table 9b

| FRA 2010 category | Proportion of forest area affected by fire (%) | | |
|---|---|---|---|
| | 1990 | 2000 | 2005 |
| Wildfire | 100 | 100 | 100 |
| Planned fire | 0 | 0 | 0 |

Note: The figures for the reporting years refer to the averages of annually affected areas for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively

## Comments to Table T9

| Variable / category | Comments related to data, definitions, etc. | Comments on the reported trend |
|---|---|---|
| Area affected by fire | | |
| Number of fires | | |
| Wildfire / planned fire | | |

| Other general comments to the table |
|---|
| |

# 10 Table T10 – Other disturbances affecting forest health and vitality

## 10.1 FRA 2010 Categories and definitions

| Term | Definition |
|---|---|
| Disturbance | Damage caused by any factor (biotic or abiotic) that adversely affects the vigour and productivity of the forest and which is not a direct result of human activities. |
| Invasive species | Species that are non-native to a particular ecosystem and whose introduction and spread cause, or are likely to cause, socio-cultural, economic or environmental harm or harm to human health. |
| **Category** | **Definition** |
| Disturbance by insects | Disturbance caused by insect pests. |
| Disturbance by diseases | Disturbance caused by diseases attributable to pathogens, such as bacteria, fungi, phytoplasma or virus. |
| Disturbance by other biotic agents | Disturbance caused by biotic agents other than insects or diseases, such as wildlife browsing, grazing, physical damage by animals, etc. |
| Disturbance caused by abiotic factors | Disturbances caused by abiotic factors, such as air pollution, snow, storm, drought, etc. |

## 10.2 National data

### 10.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s) | Year(s) | Additional comments |
|---|---|---|---|---|
| Data on file at Forest Sanitary Protection Service, Liepu 2, Girionys, Kaunas, Lithuania 1969-2007 | H | Disturbance of Forest | 1992-2006 | Tables 10.b and 10.c |
| Lietuvos miškų ūkio statistika 2008. Kaunas, 2008, 152 p. (Lithuanian statistical Yearbook of forestry 2008. Kaunas, 2008, p.152) | H | Disturbance of Forest | 1989-2007 | Table 10.a |

### 10.2.2 Classification and definitions

According to requirements of FRA_2010 classification (T 9.1)

### 10.2.3 Original data

| Year | Abiotic agents | Insects | Diseases | Game | Total | Abiotic agents | Insects | Diseases | Game | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 1989 | 45.655 | 9.032 | 6.339 | 18.530 | 79.556 | | | | | |
| 1990 | 12.221 | 7.791 | 3.539 | 28.587 | 52.138 | **37.083** | **14.374** | **4.729** | **25.261** | **81.447** |
| 1991 | 9.960 | 8.177 | 5.478 | 26.629 | 50.244 | | | | | |
| 1992 | 80.495 | 32.497 | 3.561 | 27.297 | 143.850 | | | | | |
| 1993 | 347.489 | 49.203 | 3.472 | 25.230 | 425.394 | | | | | |
| 1994 | 68.004 | 86.189 | 3.374 | 21.356 | 178.923 | | | | | |
| 1995 | 23.788 | 212.736 | 3.250 | 17.797 | 257.571 | | | | | |
| 1996 | 9.171 | 151.345 | 3.298 | 15.826 | 179.640 | | | | | |
| 1997 | 25.190 | 95.750 | 5.195 | 12.408 | 138.543 | | | | | |
| 1998 | 6.619 | 13.953 | 4.680 | 17.665 | 42.917 | | | | | |
| 1999 | 87.968 | 13.058 | 9.189 | 19.652 | 129.867 | | | | | |
| 2000 | 97.255 | 48.981 | 9.940 | 17.879 | 174.055 | **58.693** | **31.122** | **13.548** | **17.395** | **120.758** |
| 2001 | 21.163 | 51.798 | 22.412 | 16.920 | 112.293 | | | | | |
| 2002 | 80.460 | 27.820 | 21.520 | 14.860 | 144.660 | | | | | |
| 2003 | 18.200 | 65.200 | 21.700 | 13.800 | 118.900 | | | | | |
| 2004 | 9.600 | 44.500 | 24.500 | 12.400 | 91.000 | | | | | |
| 2005 | 97.000 | 10.000 | 26.000 | 12.000 | 145.000 | **37.760** | **28.940** | **23.240** | **12.240** | **102.180** |
| 2006 | 12.000 | 12.000 | 26.000 | 12.000 | 62.000 | | | | | |
| 2007 | 52.000 | 13.000 | 18.000 | 11.000 | 94.000 | | | | | |

## *10.3 Data for Table T10*

### Table 10a – Disturbances

| **FRA 2010 category** | **Affected forest area (1000 hectares)** | | |
|---|---|---|---|
| | **1990** | **2000** | **2005** |
| Disturbance by insects | 14.4 | 31.1 | 28.9 |
| Disturbance by diseases | 4.7 | 13.5 | 23.2 |
| Disturbance by other biotic agents | 25.3 | 17.4 | 12.2 |
| Disturbance caused by abiotic factors | 37.0 | 58.7 | 37.8 |
| **Total area affected by disturbances** | **81.4** | **120.7** | **102.1** |

Notes: The figures for the reporting years refer to the averages of annually affected areas for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.

The total area affected by disturbances is not necessarily the sum of the individual disturbances as these may be overlapping.

### Table 10b – Major outbreaks of insects and diseases affecting forest health and vitality

| Description / name | Tree species or genera affected (scientific name) | Year(s) of latest outbreak | Area affected (1000 hectares) | If cyclic, approx. cycle (years) |
|---|---|---|---|---|
| *Ips typographus* | *Picea abies* | 1994-1997 | 445.8 | |
| *Diprion pini* | *Pinus sylvestris* | 1992-1993 | 27.4 | |
| *Lymantria monacha, Dendrolimus pini* | *Pinus sylvestris* | 1993-1996 | 29.9 | |
| *Lymantria dispar* | *Betula, Alnus* | 1996-1997 | 2.0 | |
| *Panolis flammea* | *Pinus sylvestris* | 1999-2002 | 44.8 | |
| Ash dieback | *Fraxinus excelsior* | 1996- | 24.0 | |
| Oak dieback | *Quercus robur* | 2004-2006 | 17.0 | |

Note: Area affected refers to the total area affected during the outbreak.

### Table 10c – Area of forest affected by woody invasive species

| Scientific name of woody invasive species | Forest area affected 2005 (1000 hectares) |
|---|---|
| *There is no area of forest affected by woody invasive species in Lithuania* | |
| **Total forest area affected by woody invasive species** | 0 |

Note: The total forest area affected by woody invasive species is not necessary the sum of the values above, as these may be overlapping.

## *10.4 Comments to Table T10*

| Variable / category | Comments related to data, definitions, etc. | Comments on the reported trend |
|---|---|---|
| Disturbance by insects | | |
| Disturbance by diseases | | |
| Disturbance by other biotic agents | | |
| Disturbance caused by abiotic factors | | |
| Major outbreaks | | |
| Invasive species | *There is no area of forest affected by woody invasive species in Lithuania* | |

| Other general comments to the table |
|---|
| |

# 11 Table T11 – Wood removals and value of removals

## 11.1 FRA 2010 Categories and definitions

| Category | Definition |
|---|---|
| Industrial roundwood removals | The wood removed (volume of roundwood over bark) for production of goods and services other than energy production (woodfuel). |
| Woodfuel removals | The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use. |

## 11.2 National data

### 11.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s) | Year(s) | Additional comments |
|---|---|---|---|---|
| Lietuvos miškų ūkio statistika 2003. Kaunas, 2003, 112 p. (Lithuanian statistical Yearbook of forestry 2003. Kaunas, 2003, p.112) | H | Wood removal | 1990-2003 | |
| Lebedys A. and D. Vižlenskas. Forest utilisation and its structure in 1980-1999. In: Brukas, V., F. Helles, P. Tarp and A. Tebera. (Eds.) 2000. Potentials and Perspectives for Balanced development in Lithuanian forestry. Lithuanian University of Agriculture, The Royal Veterinary and Agricultural University, Unit of Forestry, Forestry Discussion paper. pp 30-37 | H | Wood removal | 1988-1989 | |
| 3.Medienos tūrio lentelės. Kaunas, 1997, 158 p. (Yield tables. Kaunas ,1997, 158p.) | | | | Percentage of bark volume |
| Lietuvos miškų ūkio statistika 2008. Kaunas, 2008, 152 p. (Lithuanian statistical Yearbook of forestry 2008. Kaunas, 2008, p.152) | H | Removals | 2003-2007 | |

### 11.2.2 Classification and definitions

According to requirements of FRA_2010 classification (T 9.1)

### 11.2.3 Original data

| Year | 1989 | 1990 | 1998 | 2000 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|
| Volume of Roundwood removals (1000 m³ o.b.) | 2816 | 2627 | 4215 | 4472 | 5512 | 5526 | 5483 | 5037 | 5671 |
| Unit value (local currency / m³ o.b.) | | | | | 77 | 91 | 103 | 105 | 147 |
| Value of Roundwood removals(1000 local currency) | | | | | 427095 | 500881 | 565098 | 527338 | 831387 |
| | | | | | | | | | |
| Year | | | | | 2003 | 2004 | 2005 | 2006 | 2007 |
| Volume of Woodfuel removals (1000 m³ o.b.) | 884 | 825 | 1330 | 1603 | 1579 | 1401 | 1342 | 1567 | 1371 |
| Unit value (local currency / m³ o.b.) | | | | | 26,4 | 30 | 42,8 | 48,4 | 63,6 |
| Value of Woodfuel removals (1000 local currency) | | | | | 41603 | 41993 | 57400 | 75907 | 87191 |

## *11.3 Analysis and processing of national data*

### 11.3.1 Calibration

Not applied.

### 11.3.2 Estimation and forecasting

Not applied.

### 11.3.3 Reclassification into FRA 2010 categories

Not applied.

## *11.4 Data for Table T11*

| FRA 2010 Category | Industrial roundwood removals | | | Woodfuel removals | | |
|---|---|---|---|---|---|---|
| | 1990 | 2000 | 2005 | 1990 | 2000 | 2005 |
| Total volume (1000 $m^3$ o.b.) * | 2779 | 4665 | 5446 | 872 | 1506 | 1452 |
| ... of which from forest | 2779 | 4665 | 5446 | 872 | 1506 | 1452 |
| Unit value (local currency / $m^3$ o.b.) | n.a. | 94 | 105 | n.a. | 22 | 42 |
| Total value (1000 local currency)** | n.a. | 438510 | 570360 | n.a. | 33132 | 60819 |

Note: * The figures for the reporting years refer to the averages of annually affected areas for the 5-year periods 1988-1992, 1998-2002 and 2003-2007 respectively.
** Please see comment for Total value

| | 1990 | 2000 | 2005 |
|---|---|---|---|
| Name of local currency | n.a. | LITAS (LTL) | LITAS (LTL |

## *11.5 Comments to Table T11*

| Variable / category | Comments related to data, definitions, etc. | Comments on the reported trend |
|---|---|---|
| Total volume of industrial roundwood removals | | |

| | | |
|---|---|---|
| Total volume of woodfuel removals | The fuel wood received by owners from their own estates and used for their own needs, is not included in this assessment due to the absence of such data. | |
| Unit value | Real unit value (local currency / $m^3$ o.b.) for:<br>roundwood is 104.73<br>woodfuel - 41.89 | It was impossible to estimate the value of timber for 1988-1992, as wood prices were unstable and currency exchange rates were constantly changing, due to restitution of independence in Lithuania and its economical crisis. |
| Total value | Differences between direct multiplication of *Total volume* and *Unit value* and *Total value* in T 11.4 are due to rounding of presented *Unit value* | |

| **Other general comments to the table** |
|---|
| Total volume (1000 $m^3$ o.b.) * Wood removals from OWL are very low; therefore the Total volume is equal to Removals from forest. |

# 12 Table T12 – Non-wood forest products removals and value of removals

## 12.1 FRA 2010 Categories and definitions

| Term | Definition |
|---|---|
| Non-wood forest product (NWFP) | Goods derived from forests that are tangible and physical objects of biological origin other than wood. |
| Value of NWFP removals | For the purpose of this table, value is defined as the market value at the site of collection or forest border. |

### NWFP categories

| Category |
|---|
| **Plant products / raw material** |
| 1. Food |
| 2. Fodder |
| 3. Raw material for medicine and aromatic products |
| 4. Raw material for colorants and dyes |
| 5. Raw material for utensils, handicrafts & construction |
| 6. Ornamental plants |
| 7. Exudates |
| 8. Other plant products |
| **Animal products / raw material** |
| 9. Living animals |
| 10. Hides, skins and trophies |
| 11. Wild honey and bee-wax |
| 12. Wild meat |
| 13. Raw material for medicine |
| 14. Raw material for colorants |
| 15. Other edible animal products |
| 16. Other non-edible animal products |

## 12.2 National data

### 12.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s) | Year(s) | Additional comments |
|---|---|---|---|---|
| Lietuvos miškų ūkio statistika 2008. Kaunas, 2008, 152 p. (Lithuanian statistical Yearbook of forestry 2008. Kaunas, 2008, p.152) | M | Mushrooms, Berries, Raw material for medicine, Game, Skins | 2005 | |
| Information no file from Joint stock company VILTLIT | H | Wild meat values | 2005 | |

### 12.2.2 Classification and definitions

The national data is presented in Table 12.2.3. The data is distributed according to FRA requirements

### 12.2.3 Original data

| NWF products | Unit | 2005 | Value of unit | Total value | | | | |
|---|---|---|---|---|---|---|---|---|
| **1. Mushrooms:** | **1000kg.** | **2302,9** | | **33141600** | | | | |
| Cantharellus cibbarius | | 1775,8 | 12000 | | | | | |
| Boletus edulis | | 394,4 | 30000 | | | | | |
| **2. Berries** | **1000kg.** | **939,1** | | **9391000** | | | | |
| Bilberies *Vaccinium myrtillus* | | 836,6 | 10000 | | | | | |
| Cranberries *Vaccinium oxycoccus* | | 5,7 | 10000 | | | | | |
| Cowberries *Vaccinium vitis-idaea* | | 46,6 | 10000 | | | | | |
| **1 Food** | | | | | | | | |

| NWF products | Unit | 2005 | Value of unit | Total value | | | | |
|---|---|---|---|---|---|---|---|---|
| Raw for medicine | 1000 kg | 25,1 | 25000 | 627,5 | | | | |
| **3 Raw for medicine** | | | | | | | | |

| NWF products | Unit | 2005 | Value of unit | Total value |
|---|---|---|---|---|
| **Christmas trees** | **1000 pcs.** | **300** | **10000** | **3000000** |
| **6 Ornamental plants** | | | | |

| NWF products | Unit | 2005 | Value of unit | Total value |
|---|---|---|---|---|
| **Skins** | **pcs** | **28963** | | **703450** |
| 1. . Grey hare *Lepus europaeus* | | 5546 | 10 | 55460 |
| 2.Red fox *Vulpes vulpes* | | 13831 | 25 | 345775 |
| 3. Beaver *Castor fiber* | | 5359 | 30 | 160770 |
| 4. Muskrat *Ondatra zibethica* | | 105 | 10 | 1050 |
| 5. Mink *Mustela vison* | | 95 | 60 | 5700 |
| 6. Racoon dog *Nyctereutes procyonoides* | | 3055 | 25 | 76375 |
| 7. Marten *Martes martes* | | 972 | 60 | 58320 |
| **10 Hides, skins and trophies** | | | | |

| NWF products | Unit | 2005 | Value of unit | Total value |
|---|---|---|---|---|
| **Wild meat** | **kg** | **1631895** | | **7085865** |
| 1. Moose *Alces alces* | | 16800 | 4,0 | 67200 |
| 2. Red deer *Cervus elaphus* | | 76600 | 4,0 | 306400 |
| 3. Fallow deer *Dama dama* | | 490 | 4,0 | 1960 |
| 4. Roe deer *Capreolus capreolus* | | 379225 | 7,0 | 2654575 |
| 5. Wild boar *Sus scrofa* | | 1158780 | 3,5 | 4055730 |
| **12 Wild meat** | | | | |

Note : Values are presented in LTL/ unit

## 12.3 Data for Table T12

| Rank | Name of product | Key species | Unit | NWFP removals 2005 | | NWFP category |
|---|---|---|---|---|---|---|
| | | | | Quantity | Value (1000 local currency) | |
| 1st | Mushrooms | *Cantarellus cibarius, Boletus edulis* | 1000 kg | 2302.9 | 33142 | 1 |
| 2nd | Berries | Bilberries, *Vaccinium myrtillus,* Cranberries, *Vaccinium oxycoccus,* Cowberries, *Vaccinium vitis-idaea* | 1000 kg | 939.1 | 9391 | 1 |
| 3rd | Bush meat | Moose, *Alces alces,* Red deer, *Cervus elaphus,* Roe deer, *Capreolus capreolus,* Wild boar, *Sus scrofa* | 1000 kg | 1632.0 | 7086 | 12 |
| 4th | Christmas trees | Spruce, Picea abies | 1000 pcs | 300 | 3000 | 6 |
| 5th | Skins | Grey hare, *Lepus europaeus,* Red fox, *Vulpes vulpes,* Racoon dog, *Nyctereutes procyonoides,* Beaver, *Castor fiber,* Marten, *Martes Martes,* Muskrat, *Ondatra zibethica,* Mink, *Mustela vison* | 1000 pcs | 29.0 | 703 | 10 |
| 6th | Raw material for medicine | n.a. | 1000 kg | 25.1 | 628 | 13 |
| 7th | | | | | | |
| 8th | | | | | | |
| 9th | | | | | | |
| 10th | | | | | | |
| All other plant products | | | | | | |
| All other animal products | | | | | | |
| **TOTAL** | | | | | **53950** | |

| | 2005 |
|---|---|
| Name of local currency | LITAS (LTL) |

## *12.4 Comments to Table T12*

| Variable / category | Comments related to data, definitions, etc. |
|---|---|
| 10 most important products | |
| Other plant products | |
| Other animal products | |
| Value by product | |
| Total value | |

| Other general comments to the table |
|---|
| |

# 13 Table T13 – Employment

## 13.1 FRA 2010 Categories and definitions

| Category | Definition |
|---|---|
| Full-time equivalents (FTE) | A measurement equal to one person working full-time during a specified reference period. |
| Employment | Includes all persons in paid employment or self-employment. |
| Paid employment | Persons who during a specified reference period performed some work for wage or salary in cash or in kind. |
| Self-employment | Persons who during a specified reference period performed some work for profit or family gain in cash or in kind (e.g. employers, own-account workers, members of producers' cooperatives, contributing family workers). |

## 13.2 National data

### 13.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s) | Year(s) | Additional comments |
|---|---|---|---|---|
| Lietuvos miškų ūkio statistika 2003. Kaunas, 2003, 112 p. (Lithuanian statistical Yearbook of forestry 2003. Kaunas, 2003, p.112**)** | | Employment in forestry | 1990, 2000 | |
| Lietuvos miškų ūkio statistika 2008. Kaunas, 2008, 152 p. (Lithuanian statistical Yearbook of forestry 2008. Kaunas, 2008, p.152) | | Employment in forestry | 2005 | |
| Information from State Service of Protected Areas | | Employment in management of protected areas | 2005 | |

### 13.2.2 Original data

| FRA 2005 Categories | Employment (1000 person-years) | | |
|---|---|---|---|
| | 1990 | 2000 | 2005 |
| Employment in forestry activities | 14,6 | 13,7 | 9.8 |

## 13.3 Analysis and processing of national data

### 13.3.1 Calibration

Not applied.

### 13.3.2 Estimation and forecasting

Not applied.

### 13.3.3 Reclassification into FRA 2010 categories

Not applied.

## *13.4 Data for Table T13*

| FRA 2010 Category | Employment (1000 years FTE) | | |
|---|---|---|---|
| | 1990 | 2000 | 2005 |
| Employment in primary production of goods | 14.6 | 13.7 | 9.8 |
| ...of which paid employment | 14.6 | 13.7 | 9.8 |
| ...of which self-employment | n.a. | n.a. | n.a. |
| Employment in management of protected areas | n.a. | n.a. | 0.420 |

## *Comments to Table T13*

| Variable / category | Comments related to data, definitions, etc. | Comments on the reported trend |
|---|---|---|
| Employment in primary production of goods | Only includes paid employment in forestry activities | |
| Paid employment / self-employment | | |
| Employment in management of protected areas | | |

| Other general comments to the table |
|---|
| |

# 14 Table T14 – Policy and legal framework

## 14.1 FRA 2010 Categories and definitions

| Term | Definition |
|---|---|
| Forest policy | A set of orientations and principles of actions adopted by public authorities in harmony with national socio-economic and environmental policies in a given country to guide future decisions in relation to the management, use and conservation of forest and tree resources for the benefit of society. |
| Forest policy statement | A document that describes the objectives, priorities and means for implementation of the forest policy. |
| National forest programme (nfp) | A generic expression that refers to a wide range of approaches towards forest policy formulation, planning and implementation at national and sub-national levels. The national forest programme provides a framework and guidance for country-driven forest sector development with participation of all stakeholders and in consistence with policies of other sectors and international policies. |
| Law (Act or Code) on forest | A set of rules enacted by the legislative authority of a country regulating the access, management, conservation and use of forest resources. |

## 14.2 Data for Table T14

| **Indicate the existence of the following (2008)** | | | |
|---|---|---|---|
| **Forest policy statement with national scope** | | X | Yes |
| | | | No |
| If Yes above, provide: | Year of endorsement | 2002 | |
| | Reference to document | Lietuvos miškų ūkio politika ir jos įgyvendinimo strategija (Lithuanian Forest Policy and its Implementation Strategy) Valstybės Žinios, 2002, Nr. 93-4029 | |
| **National forest programme (nfp)** | | X | Yes |
| | | | No |
| If Yes above, provide: | Name of nfp in country | Lithuanian Forestry Policy and its implementation Strategy | |
| | Starting year | 1996, 2002 | |
| | Current status | | In formulation |
| | | X | In implementation |
| | | | Under revision |
| | | | Process temporarily suspended |
| | Reference to document or web site | Lietuvos miškų ūkio politika ir jos įgyvendinimo strategija http://www.am.lt/VI/files/0.389957001106226456.doc | |
| **Law (Act or Code) on forest with national scope** | | X | Yes, specific forest law exists |
| | | | Yes, but rules on forests are incorpo-rated in other (broader) legislation |
| | | | No, forest issues are not regulated by national legislation |
| If Yes above, provide: | Year of enactment | 1994 | |
| | Year of latest amendment | June 26, 2007 | |
| | Reference to document | Lietuvos Respublikos Miškų Įstatymas. (The Republic of Lithuania Forestry Law) Valstybės Žinios, 2001, Nr. 35-1161, 4-13 p | |

| In case the responsibility for forest policy- and/or forest law-making is decentralized, please indicate the existence of the following and explain in the comments below the table how the responsibility for forest policy- and law-making is organized in your country. | | |
|---|---|---|
| **Sub-national forest policy statements** | | Yes |
| | X | No |
| If Yes above, indicate the number of regions/states/provinces with forest policy statements | | |
| **Sub-national Laws (Acts or Codes) on forest** | | Yes |
| | X | No |
| If Yes above, indicate the number of regions/states/provinces with Laws on forests | | |

## 14.3 Comments to Table T14

| Variable / category | Comments related to data, definitions, etc. |
|---|---|
| Forest policy statement with national scope | |
| National forest programme (nfp) | |
| Law (Act or Code) on forest with national scope | |
| Sub-national forest policy statements | |
| Sub-national Laws (Acts or Codes) on forest | |

| Other general comments to the table |
|---|
| |

# 15 Table T15 – Institutional framework

## 15.1 FRA 2010 Categories and definitions

| Term | Definition |
|---|---|
| Minister responsible for forest policy-making | Minister holding the main responsibility for forest issues and the formulation of the forest policy. |
| Head of Forestry | The Head of Forestry is the Government Officer responsible for implementing the mandate of the public administration related to forests. |
| Level of subordination | Number of administrative levels between the Head of Forestry and the Minister. |
| University degree | Qualification provided by University after a minimum of 3 years of post secondary education. |

## 15.2 Data for Table T15

### Table 15a – Institutions

| FRA 2010 Category | 2008 | |
|---|---|---|
| Minister responsible for forest policy formulation : please provide full title | Minister of Environment | |
| Level of subordination of Head of Forestry within the Ministry | X | 1st level subordination to Minister |
| | | 2nd level subordination to Minister |
| | | 3rd level subordination to Minister |
| | | 4th or lower level subordination to Minister |
| Other public forest agencies at national level | 1. General Directorate of State Forests<br>2. State Environmental Protection Inspectorate<br>3. State Forest Survey Service<br>4. Sanitary Forest Protection Service<br>5. Forest Genetic Resources, Seed and Plant Service<br>6. State Service of Protected Areas<br>7. State Enterprise "Institute of Forest Inventory and Management Planning"<br>8. Lithuanian Forest Research Institute<br>9. College of Forestry and Environmental Engineering<br>10. Faculty of Forestry and Ecology in Lithuanian Agricultural university | |
| Institution(s) responsible for forest law enforcement | 1. Ministry of Environment<br>2. State Environmental Protection Inspectorate | |

### Table 15b – Human resources

| FRA 2010 Category | Human resources within public forest institutions | | | | | |
|---|---|---|---|---|---|---|
| | 2000 | | 2005 | | 2008 | |
| | Number | %Female | Number | %Female | Number | %Female |
| Total staff | n.a. | n.a. | 140 | 41 | 155 | 47 |
| ...of which with university degree or equivalent | n.a. | n.a. | 118 | 36 | 140 | 43 |

Notes:
1. Includes human resources within public forest institutions at sub-national level
2. Excludes people employed in State-owned enterprises, education and research, as well as temporary / seasonal workers.

## *15.3 Comments to Table T15*

| Variable / category | Comments related to data, definitions, etc. | Comments on the reported trend |
|---|---|---|
| Minister responsible for forest policy formulation | | |
| Level of subordination of Head of Forestry within the Ministry | | |
| Other public forest agencies at national level | | |
| Institution(s) responsible for forest law enforcement | | |
| Human resources within public forest institutions | Public forest agencies included in Table 15 b:<br>1. General Directorate of State Forests<br>2. State Environmental Protection Inspectorate (Department of Forest control)<br>3. State Forest Survey Service<br>4. Sanitary Forest Protection Service<br>5. Forest Genetic Resources, Seed and Plant Service<br>6. State Service of Protected Areas | |

| Other general comments to the table |
|---|
| |

# 16 Table T16 – Education and research

## 16.1 FRA 2010 Categories and definitions

| Term | Definition |
|---|---|
| Forest-related education | Post-secondary education programme with focus on forests and related subjects. |
| Doctor's degree (PhD) | University (or equivalent) education with a total duration of about 8 years. |
| Master's degree (MSc) or equivalent | University (or equivalent) education with a total duration of about five years. |
| Bachelor's degree (BSc) or equivalent | University (or equivalent) education with a duration of about three years. |
| Technician certificate or diploma | Qualification issued from a technical education institution consisting of 1 to 3 years post secondary education. |
| Publicly funded forest research centers | Research centers primarily implementing research programmes on forest matters. Funding is mainly public or channelled through public institutions. |

## 16.2 National data

### 16.2.1 Original data

**Faculty of Forestry and Ecology in Lithuanian Agricultural university**

| FRA 2010 Category | Graduation [1] of students in forest-related education | | | | | |
|---|---|---|---|---|---|---|
| | 2000 | | 2005 | | 2008 | |
| | Number | %Female | Number | %Female | Number | %Female |
| Master's degree (MSc) or equivalent | 34 | 9 | 29 | 17 | 31 | 13 |
| Bachelor's degree (BSc) or equivalent | 79 | 8 | 81 | 15 | 67 | 21 |
| Forest technician certificate / diploma | 0 | 0 | 0 | 0 | 0 | 0 |

**College of Forestry and Environmental Engineering**

| FRA 2010 Category | Graduation [1] of students in forest-related education | | | | | |
|---|---|---|---|---|---|---|
| | 2000 | | 2005 | | 2008 | |
| | Number | %Female | Number | %Female | Number | %Female |
| Master's degree (MSc) or equivalent | 0 | 0 | 0 | 0 | 0 | 0 |
| Bachelor's degree (BSc) or equivalent | 0 | 0 | 0 | 0 | 67 | 11,9 |
| Forest technician certificate / diploma | 34 | 2,9 | 41 | 4,9 | 0 | 0 |

**Lithuanian Forest Research Institute**

| FRA 2010 Category | Professionals working in publicly funded forest research centres [2] | | | | | |
|---|---|---|---|---|---|---|
| | 2000 | | 2005 | | 2008 | |
| | Number | %Female | Number | %Female | Number | %Female |
| Doctor's degree (PhD) | 21 | n.a. | 19 | 0 | 28 | 25 |
| Master's degree (MSc) or equivalent | n.a. | n.a. | 47 | 64 | 25 | 60 |
| Bachelor's degree (BSc) or equivalent | n.a. | n.a. | 12 | 75 | 3 | 67 |

## 16.3 Analysis and processing of national data

### 16.3.1 Estimation and forecasting

Not applied.

## 16.4 Data for Table T16

| FRA 2010 Category | Graduation [1] of students in forest-related education | | | | | |
|---|---|---|---|---|---|---|
| | 2000 | | 2005 | | 2008 | |
| | Number | %Female | Number | %Female | Number | %Female |
| Master's degree (MSc) or equivalent | 34 | 9 | 29 | 17 | 31 | 13 |
| Bachelor's degree (BSc) or equivalent | 79 | 8 | 81 | 15 | 134 | 16 |
| Forest technician certificate / diploma | 34 | 3 | 41 | 5 | 0 | 0 |
| **FRA 2010 Category** | **Professionals working in publicly funded forest research centres [2]** | | | | | |
| | 2000 | | 2005 | | 2008 | |
| | Number | %Female | Number | %Female | Number | %Female |
| Doctor's degree (PhD) | 21 | n.a. | 19 | 0 | 28 | 25 |
| Master's degree (MSc) or equivalent | n.a. | n.a. | 47 | 64 | 25 | 60 |
| Bachelor's degree (BSc) or equivalent | n.a. | n.a. | 12 | 75 | 3 | 67 |

Notes:

1. Graduation refers to the number of students that have successfully completed a Bachelor's or higher degree or achieved a certificate or diploma as forest technician.
2. Covers degrees in all sciences, not only forestry.

## 16.5 Comments to Table T16

| Variable / category | Comments related to data, definitions, etc. | Comments on the reported trend |
|---|---|---|
| Graduation of students in forest-related education | | We found the tendency of graduates number increasing. The percent of female (graduates) increased too. |
| Professionals working in public forest research centres | | |

| Other general comments to the table |
|---|
| |

# 17 Table T17 – Public revenue collection and expenditure

## 17.1 FRA 2010 Categories and definitions

| Category | Definition |
|---|---|
| Forest revenue | All government revenue collected from the domestic production and trade of forest products and services. For this purpose, forest products include: roundwood; sawnwood; wood-based panels; pulp and paper; and non-wood forest products. As far as possible, this should include revenue collected by all levels of government (i.e. central, regional/provincial and municipal level), but it should exclude the income of publicly owned business entities. |
| Public expenditure | All government expenditure on forest related activities (further defined below). |
| Operational expenditure *(sub-category to Public expenditure)* | All government expenditure on public institutions solely engaged in the forest sector. Where the forest administration is part of a larger public agency (e.g. department or ministry), this should only include the forest sector component of the agency's total expenditure. As far as possible, this should also include other institutions (e.g. in research, training and marketing) solely engaged in the forest sector, but it should exclude the expenditure of publicly owned business entities. |
| Transfer payments *(sub-category to Public expenditure)* | All government expenditure on direct financial incentives paid to non-government and private-sector institutions, enterprises communities or individuals operating in the forest sector to implement forest related activities. |
| Domestic funding | Public expenditure funded from domestic public financial resources, including: retained forest revenue; forest-related funds; and allocations from the national budget (i.e. from non-forest sector public revenue sources). |
| External funding | Public expenditure funded from grants and loans from donors, non-governmental organisations, international lending agencies and international organisations, where such funds are channelled through national public institutions. |

## 17.2 National data

### 17.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s) | Year(s) | Additional comments |
|---|---|---|---|---|
| Miškų urėdijų 2007 m. veiklos rodikliai. Vilnius, 2008, 64p. | H | Revenue | 2005 | |
| Miško įmonių 2000m. gamybinės veiklos rodikliai. Vilnius, 2000, 58p. | H | Revenue, Operational expenditure | 2000 | |
| Lietuvos respublikos vyriausybės nutarimas Nr. 216, 2005.02.24. | H | Operational expenditure | 2005 | |

### 17.2.2 Original data

| FRA 2010 Categories | Revenues (1000 local currency) | |
|---|---|---|
| | 2000 | 2005 |
| Forest revenue, state forests | 50155 | 54700 |
| Forest revenue, private forests | 13878 | 34684 |

## 17.3 Data for Table T17

### Table 17a - Forest revenues

| FRA 2010 Categories | Revenues (1000 local currency) | |
|---|---|---|
| | 2000 | 2005 |
| Forest revenue | 64033 | 89384 |

### Table 17b - Public expenditure in forest sector by funding source

| FRA 2010 Categories | Domestic funding (1000 local currency) | | External funding (1000 local currency) | | Total (1000 local currency) | |
|---|---|---|---|---|---|---|
| | 2000 | 2005 | 2000 | 2005 | 2000 | 2005 |
| Operational expenditure | 12385 | 12800 | 0 | 0 | 12385 | 12800 |
| Transfer payments | 0 | 200 | 0 | 0 | 0 | 200 |
| **Total public expenditure** | 12385 | 13000 | 0 | 0 | 12385 | 13000 |

| If transfer payments are made for forest management and conservation, indicate for what specific objective(s) - Please tick all that apply. | | |
|---|---|---|
| | x | Reforestation |
| | x | Afforestation |
| | x | Forest inventory and/or planning |
| | x | Conservation of forest biodiversity |
| | | Protection of soil and water |
| | x | Forest stand improvement |
| | x | Establishment or maintenance of protected areas |
| | | Other, specify below |

## 17.4 Comments to Table T17

| Variable / category | Comments related to data, definitions, etc. | Comments on the reported trend |
|---|---|---|
| Forest revenue | | |
| Operational expenditure | | |
| Transfer payments | | |

| Other general comments to the table |
|---|
| |