

GLOBAL FOREST RESOURCES ASSESSMENT 2015

COUNTRY REPORT

Estonia

Rome, 2014

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Global Forest Resources Assessment (FRA). This country report is prepared as a contribution to the FAO publication, the Global Forest Resources Assessment 2015 (FRA 2015).

The content and the structure are in accordance with the recommendations and guidelines given by FAO in the document Guide for country reporting for FRA 2015 (<http://www.fao.org/3/a-au190e.pdf>). These reports were submitted to FAO as official government documents.

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Introductory Text

Place an introductory text on the content of this report

Estonian Environment Agency (ESTE) is responsible for the dissemination of forest sector statistics in Estonia. Data of forest resources is published annually in Forest statistical yearbook “Mets” (see http://www.keskkonnainfo.ee/failid/aastaraamat_METS_2011.pdf) and in NFI yearbook “Eesti metsad” (see http://www.keskkonnainfo.ee/failid/Eesti_metsad_2010.pdf). ESTEA is responsible for data collection about forest resources, forest utilisation and management, forest health, game management etc. Different other institutions provide statistics and information about forests and forestry as well – e.g. Estonian Statistical Office, Rescue Board, Environmental Inspectorate, University of Life Sciences, Land Board.

The main data source for estimates of forest resource parameters is National Forest Inventory.

National Forest Inventory – overview

Large-area forest resource information, based on selective sampling, was conducted in Estonia during the last decade of previous century. Until the 1990s the national account of forest resources was based on stand-wise forest inventories. After independence was regained in Estonia in 1991, the ownership reform program was started. Part of it was land reform. Intensified forest management together with the land reform created a need for new inventory methods.

The first National Forest Inventory (NFI) covering the whole country commenced in 1999. The main objective of the NFI is to give a description of Estonia’s forests, but the NFI also gives information about the distribution of land by land-use classes and the afforestation and growing stock of non-forest land, etc. The Estonian Forest

Survey Centre conducted the NFI in 1999–2002. After its liquidation in 2003, the department of NFI continued its work as a subunit of the administrative institution Centre of Forest Protection and Silviculture. The latter was reorganized into the Estonian Environment Information Centre in 2010, and once more, into the Estonian Environment Agency, in april 2013. Despite continuous restructuring, NFI department is responsible for the inventories, planning of the design and estimation methods, field measurements, as well as calculation and publication of the results.

Methodologically, the NFI is designed as an annual research effort, which, using optimal methods, must ensure continuous updating of information and the forest database. A network of sample plots, covering the whole country, has been planned for five years with 20% clusters measured each year. Results of the sampling inventory are taken from point estimates of the different parameters obtained using data obtained from the measured sample plots. Cluster sampling with partial replacement is used (that is – both permanent and temporary sample plots). Because all permanent sample plots are re-measured every 5 years, the history of NFI can be divided into 5-year cycles. In connection with the need for additional information the variables measured on sample plots have increased year by year.

The Estonian NFI covers all land use classes, including all forests and other wooded lands in all ownership groups, including protected forests. Assessments of the forest resource by the NFI have become the basis for national and international statistics in Estonia. Noticeable, but inevitable, is the change of several assessments during the period 1990–2000, when the drastic change from stand-wise inventory statistics to the NFI took place. Therefore the changes during that period may seem to be larger than they were in reality. Data for 1990 are derived from official statistics, combined with extrapolation of the NFI data and also special studies made for GHG inventory.

The basis of the assessment in this report is still the national forest definition. Starting from the 2005, GFRA forest criteria and OWL criteria were used in parallel with the national forest definition. The aim was to present more precise and internationally comparable assessments in the future. Forest, which is below the national criteria but meets the FRA criteria includes in other wooded land. Thus, the sum of the area of forest and OWL meets the criteria of the FRA definitions.

The statistical design for the Estonian NFI is a systematic sampling without pre-stratification. The network of sample plots covers the whole country and the sampling intensity is also the same throughout the country. The sample (cluster) distribution is based on a national 5 km x 5 km quadrangle grid, determined by the L-EST coordinates system. Three types of circular sample plots with fixed-radius are used: (a) volume sample plots, (b) site category sample plots, (c) regeneration and felling sample plots. Plots with multiple land categories or stands of distinctly different parameters are divided into sections according to detailed regulations.

Sample plots are organised into clusters to increase the efficiency of the survey – into permanent clusters and temporary clusters that form 800 x 800 metre squares. Volume sample plots are divided into permanent sample plots with a radius of 10 m and temporary sample plots (radius = 7 m) according to the ratio of 1/1,25. Altogether, about 5000 permanent sample plots have been established since 1999, half of which are located on productive forest land. Site category plots, regeneration and felling plots are always temporary plots with a radius of 7 m.

All population units have equal probability of selection into the sample. The result is point estimates of multiple population parameters based on the measurement data. The area estimate of a land stratum is calculated as the product of the known land area of the administrative unit and the ratio of the number of sample plots in the stratum to the total number of plots. Area estimation is based on the total land area and inland water, Lake Peipsi, which is known and assumed to be error-free. To prevent errors, inventory results of the last five years are combined during data processing in general.

Volume is calculated over bark, from the ‘stump height’, excluding branches. The mean volume for a given stratum is the ratio of the sum of volumes for all trees on plots belonging to the stratum and the number of sample plots which belong to the stratum.

The results of the Estonian NFI are provided for the whole country, separately for forests administrated by the Estonian State Forest Management Centre and for other forest owners. Some estimates for the 15 Estonian counties are also provided. The inventory results are available in the annual report “Estonian Forests. Statistics of forest resources and conditions by National Forest Inventory”, and also: <http://www.keskkonnainfo.ee/main/index.php> .

The NFI will provide a baseline of where our forest resources are and how they are changing over time.

Desk Study?

Check "yes" if this survey is a Desk Study, "no" otherwise

Desk Study?

no

1. What is the area of forest and other wooded land and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

1.1 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 ; 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". |
| ...of which with tree cover (<i>sub-category</i>) | Land considered as "Other land", that is predominantly agricultural or urban lands use and has patches of tree cover that span 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. It includes bothe forest and non-forest tree species. |
| Inland water bodies | Inland water bodies generally include major rivers, lakes and water reservoirs. |
| Forest expansion | Expansion of forest on land that, until then, was not defined as forest. |
| ...of which afforestation (<i>sub-category</i>) | Establishment of forest through planting and/or deliberate seeding on land that, until then, was not defined as forest. |
| ...of which natural expansion of forest (<i>sub- category</i>) | 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). |
| Deforestation | The conversion of forest to other land use or the longterm reduction of the tree canopy cover below the minimum 10 percent threshold. |
| ...of which human induced (<i>sub-category</i>) | Human induced conversion of forest to other land use or the permanent reduction of the tree canopy cover below the minimum 10 percent threshold. |
| Reforestation | Natural regeneration or re-establishment of forest through planting and/or deliberate seeding on land already in forest land use. |
| ...of which artificial reforestation (<i>sub- category</i>) | Re-establishment of forest through planting and/or deliberate seeding on land already in forest land use. |

1.2 National data

1.2.1 Data sources

| References to sources of information | Variables | Years | Additional comments |
|---|-----------|-------|---------------------|
| | | | |

| | | | | |
|---|---|--------------------------------------|------------|--|
| 1 | Eesti NSV metsade majandamise ja puidukasutuse arenduskava “Eesti mets 2010” (Forest management and wood utilisation development plan until 2010), Tallinn 1989 | Forest | 1988 | The combined stand-wise forest inventory data of 1979–1988 |
| 2 | FRA 2005 Country report (Calculations for FRA 2005, unpublished) | Forest | 2000 | NFI-data (combined) from period 1999–2003 |
| 3 | FRA 2010 Country report (Calculations for FRA 2010, unpublished) | Forest | 2005 | NFI 2003–2007 |
| 4 | “Eesti Metsad 2012” (Estonian Forests 2012), Tallinn 2014 http://www.keskkonnainfo.ee | Forest | 2010, 2012 | NFI 2008-2012 |
| 5 | FAOSTAT | Total land area | all | N/A |
| 6 | FAOSTAT | Inland water bodies | all | N/A |
| 7 | Calculations for FRA 2015, unpublished | Forest, OWL | all | NFI 1999-2012 |
| 8 | National Greenhouse Gases Inventory Report, Estonia, 2014 http://cdr.eionet.europa.eu/ee/eu/ghgmm | Afforestation, expansion of forestry | all | NFI, special studies for GHG inventory |
| 9 | Statistics Estonia http://www.stat.ee/forestry | Reforestation | all | N/A |

1.2.2 Classification and definitions

| National class | Definition |
|---|--|
| Forest | Forest is defined as land, spanning more than 0.1 ha (a) covered with trees with the minimum height of 1.3 m and the minimum crown cover of 30%, or (b) managed for the purpose of timber production or the preservation of woody plant cover. |
| Other wooded land (OWL) | According to FRA 2015 definition, plus extra: forest land, which is below the national criteria but meets the FRA forest criteria (i.e. forests less than 30% of canopy cover). |
| Other land with trees | Urban parks, squares and gardens – no data. |
| Inland water bodies | According to FAOSTAT |
| Afforestation | Comply with FRA definition and IPCC definition. |
| Reforestation, artificial reforestation | Comply with FRA definition. |
| Natural expansion of forest | Comply with FRA definition. |

| | |
|---------------|---|
| Deforestation | Comply with FRA definition and IPCC definition. |
|---------------|---|

1.2.3 Original data

| Forest area | | | | |
|-----------------------------|-----------------------------|-------------|-------------|-------------|
| FRA 2015 Categories | Area (1000 hectares) | | | |
| | 1988 | 2000 | 2005 | 2010 |
| Forest | 1916 | 2243 | 2252 | 2234 |
| Other wooded land | n.a. | 208 | 213 | 219 |
| Other land | 2323 | 1830 | 1803 | 1809 |
| ...of which with tree cover | n.a. | n.a. | n.a. | n.a. |
| Inland water bodies | 284 | 242 | 255 | 261 |
| TOTAL | 4523 | 4523 | 4523 | 4523 |

| Forest expansion, reforestation | | | | |
|---|--|-------------|-------------|-------------|
| FRA 2015 Categories | Annual forest establishment(1000 hectares/year) | | | |
| | 1990 | 2000 | 2005 | 2010 |
| Afforestation | 3.84 | 2.58 | 2.49 | 1.41 |
| Reforestation | 5.66 | 25.92 | 19.26 | 23.77 |
| ...of which on areas previously planted | n.a. | n.a. | n.a. | n.a. |
| Natural expansion of forest | 2.09 | 1.23 | 1.52 | 0.95 |

1.3 Analysis and processing of national data

1.3.1 Adjustment

| Forest area | | | |
|---|-----------------------------|-------------|-------------|
| National data and FAOSTAT data | Area (1000 hectares) | | |
| | 2000 | 2005 | 2010 |
| National data Total land area (Total country area – Inland water bodies) | 4281 | 4268 | 4262 |
| FAOSTAT Total land area | 4239 | 4239 | 4239 |
| Difference | -42 | -29 | -23 |
| National data Inland water | 242 | 255 | 261 |
| FAOSTAT Inland water | 284 | 284 | 284 |
| Difference | 42 | 29 | 23 |

The national data is calibrated to tally with the official FAOSTAT figures. The difference in Total land area is subtracted from the category Other land. And the difference in Inland water is added to the national data of Inland water.

Forest expansion, reforestation

Not applied.

1.3.2 Estimation and forecasting

| Forest area |
|---|
| The National Forest Inventory results of 1999–2012 are combined during data processing. |
| a) The 1990 estimate was derived by interpolation of forest area based on stand-wise forest inventory data 1979–1988, combined with extrapolation of the NFI data 1999–2003, and also using special studies made for GHG inventory. |
| b) Forest area for 2000 is derived by interpolation from NFI data 1999–2003. |

- c) Estimations for 2005 are averages from NFI data 2003–2007.
- d) Estimations for 2010 are averages from NFI data 2008–2012.
- e) Forecasting for 2015 was made by linear extrapolation, using data reported for 2000, 2005, 2010, and the latest inventory – NFI 2012. Thus, the possibility of alterations in time is taken into consideration.

Forest expansion, afforestation and reforestation

Forest expansion and afforestation data backward till 1990s derived from special studies made for GHG inventory in the framework of the NFI.

5-year averages are used for years 2000, 2005 and 2010; combined average for 1990.

Forecasting for 2015 was made by linear extrapolation.

1.3.3 Reclassification

Not applied.

1.4 Data

Table 1a

| Categories | | Area (000 hectares) | | | | |
|---|------------------------------|---------------------|---------|---------|---------|---------|
| | | 1990 | 2000 | 2005 | 2010 | 2015 |
|  | Forest | 2206 | 2243 | 2252 | 2234 | 2232 |
|  | Other wooded land | 196 | 208 | 213 | 219 | 224 |
|  | Other land | 1837 | 1788 | 1774 | 1786 | 1783 |
|  | ... of which with tree cover | N/A | N/A | N/A | N/A | N/A |
|  | Inland water bodies | 284 | 284 | 284 | 284 | 284 |
| | TOTAL | 4523.00 | 4523.00 | 4523.00 | 4523.00 | 4523.00 |

Table 1b

| Categories | | Annual forest establishment / loss (000 hectares per year) | | | | ...of which of introduced species (000 hectares per year) | | | |
|---|------------------|--|------|------|------|---|------|------|------|
| | | 1990 | 2000 | 2005 | 2010 | 1990 | 2000 | 2005 | 2010 |
|  | Forest expansion | 3.84 | 2.58 | 2.49 | 1.41 | 0 | 0 | 0 | 0 |

| | | | | | | | | | |
|------|--|------|-------|-------|-------|---|---|---|---|
| CFRQ | ... of which afforestation | 1.75 | 1.35 | 0.97 | 0.46 | 0 | 0 | 0 | 0 |
| CFRQ | ... of which natural expansion of forest | 2.09 | 1.23 | 1.52 | 0.95 | 0 | 0 | 0 | 0 |
| CFRQ | Deforestation | 0.18 | 0.43 | 1.74 | 1.58 | 0 | 0 | 0 | 0 |
| CFRQ | ... of which human induced | 0.18 | 0.43 | 1.74 | 1.58 | 0 | 0 | 0 | 0 |
| CFRQ | Reforestation | 5.66 | 25.92 | 19.26 | 23.77 | 0 | 0 | 0 | 0 |
| CFRQ | ... of which artificial | 5.07 | 5.97 | 6.84 | 8.01 | 0 | 0 | 0 | 0 |

Tiers

| Category | Tier for status | Tier for reported trend |
|-------------------|-----------------|-------------------------|
| Forest | Tier 3 | Tier 3 |
| Other wooded land | Tier 3 | Tier 3 |
| Forest expansion | Tier 3 | Tier 3 |
| Deforestation | Tier 3 | Tier 3 |
| Reforestation | Tier 1 | Tier 1 |

Tier criteria

| Category | Tier for status | Tier for reported trend |
|---|--|--|
| <ul style="list-style-type: none"> Forest Other wooded land Afforestation Reforestation Natural expansion of forest Deforestation | <p>Tier 3 : Data sources: Either recent (less than 10 years ago) National Forest Inventory or remote sensing, with ground truthing, or programme for repeated compatible NFIs</p> <p>Tier 2 : Data sources: Full cover mapping / remote sensing or old NFI (more than 10 years ago)</p> <p>Tier 1 : Other</p> | <p>Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status)</p> <p>Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status)</p> <p>Tier 1 : Other</p> |

1.5 Comments

| Category | Comments related to data definitions etc | Comments on the reported trends |
|----------|--|---|
| Forest | Forested area below national criteria of forest that meets FRA forest definition (that is: with canopy cover 10 to 30%) includes in OWL estimation. Forest with area less than 0.1 ha is aggregated to nearest land use class. | The total forest area has increased since 1950s until 2005 in Estonia. During the last decade the area seems to be stable or slowly decreasing. Main reason for deforestation is conversion of forest land to the settlements. That was extremely high in years 2005-2009 (during "economic boom"). |

| | | |
|----------------------------|---|---|
| Other wooded land | Includes OWL according to the FRA definition, and additionally: forest land, which is below the national criteria (but meets the FRA forest criteria). The latter comprise 106 thousand ha (2,3% of total land area). | The Land Reform (in 90s) has two different influences on the other wooded land: a) former agricultural land become covered with trees, and b) OWL become covered with woods and classified as forest. The growing trend has slowed significantly. |
| Other land | N/A | N/A |
| Other land with tree cover | Insufficient data. | N/A |
| Inland water bodies | The national data is calibrated to tally with the official FAOSTAT figures. | N/A |
| Forest expansion | Forest expansion on abandoned agricultural land and grasslands was relatively high in 1990s in Estonia. | The trend has slowed down markedly in recent years. |
| Deforestation | All deforestation considered to be human-induced. Estimations of deforestation rates derived from (sample plots of) the National Forest Inventory and these correspond to the GHG national report (LULUCF sector). | N/A |
| Reforestation | Re-establishment of forest through natural succession included. | N/A |

Other general comments to the table

N/A

2. What is the area of natural and planted forest and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

2.1 Categories and definitions

| Term | Definition |
|---|---|
| Naturally regenerated forest | Forest predominantly composed of trees established through natural regeneration. |
| Naturalized introduced species | Other naturally regenerated forest where the tree species are predominantly non-native and do not need human help to reproduce/maintain populations over time. |
| Introduced species | A species, subspecies or lower taxon occurring <i>outside</i> 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). |
| Category | Definition |
| 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. |
| ...of which of introduced species (<i>sub-category</i>) | Other naturally regenerated forest where the trees are predominantly of introduced species. |
| ...of which naturalized (<i>sub-sub category</i>) | Other naturally regenerated forest where the trees are predominantly of naturalized introduced species. |
| Planted forest | Forest predominantly composed of trees established through planting and/or deliberate seeding. |
| ...of which of introduced species (<i>sub-category</i>) | Planted forest where the planted/seeded trees are predominantly of introduced species. |
| Mangroves | Area of forest and other wooded land with mangrove vegetation. |
| ...of which planted (<i>sub-category</i>) | Mangroves predominantly composed of trees established through planting. |

2.2 National data

2.2.1 Data sources

| | References to sources of information | Variables | Years | Additional comments |
|---|---|---------------------------|------------|----------------------|
| 1 | “Eesti metsad 2012” (Estonian Forests 2012), Tallinn 2014 http://www.keskkonnainfo.ee | Forest area by categories | 2010, 2012 | NFI 2008–2012 |
| 2 | Calculations for FRA 2015, unpublished | Forest area by categories | all | NFI (1999) 2006–2012 |
| 3 | N/A | N/A | N/A | N/A |

| | | | | |
|---|-----|-----|-----|-----|
| 4 | N/A | N/A | N/A | N/A |
|---|-----|-----|-----|-----|

2.2.2 Classification and definitions

| National class | Definition |
|---|--|
| Primary forest | According to used FRA 2015 and ITTO definition. Comply with national “natural forest” class. |
| Other naturally regenerated forest | According to used FRA 2015 definition and ITTO definition. |
| Planted forest | Comply with FRA definition. |
| Introduced species, naturalized species | Comply with FRA definition. |

2.2.3 Original data

| FRA 2015 Categories | Forestarea(000 hectares) | |
|------------------------------------|--------------------------|-------------|
| | 2005 | 2010 |
| Primary forest | 52 | 55 |
| Other naturally regenerated forest | 2025 | 2005 |
| ...of which of introduced species | 0 | 0 |
| ...of which naturalized | 0 | 0 |
| Planted forest | 176 | 174 |
| ...of which of introduced species | 2 | 2 |
| TOTAL | 2252 | 2234 |

2.3 Analysis and processing of national data

2.3.1 Adjustment

| |
|--------------|
| Not applied. |
|--------------|

2.3.2 Estimation and forecasting

Naturalness has not been observed by NFI before year 2006. Therefore the extrapolated averages of categories of forest characteristics (2006–2012) were applied to the forest area for other reference years and forecast 2015.

2.3.3 Reclassification

2.4 Data

Table 2a

| Categories | | Forest area (000 hectares) | | | | |
|---|------------------------------------|----------------------------|---------|---------|---------|---------|
| | | 1990 | 2000 | 2005 | 2010 | 2015 |
|  | Primary forest | 40 | 48 | 52 | 55 | 58 |
|  | Other naturally regenerated forest | 1994 | 2020 | 2024 | 2005 | 2000 |
|  | ... of which of introduced species | 0 | 0 | 0 | 0 | 0 |
|  | ... of which naturalized | 0 | 0 | 0 | 0 | 0 |
|  | Planted forest | 172 | 175 | 176 | 174 | 174 |
|  | ... of which of introduced species | 2 | 2 | 2 | 2 | 2 |
| TOTAL | | 2206.00 | 2243.00 | 2252.00 | 2234.00 | 2232.00 |

Table 2b

| Primary forest converted to (000 ha) | | | | | | | | |
|--------------------------------------|---------|------------|----------------------------|---------|------------|----------------------------|---------|------------|
| 1990-2000 | | | 2000-2010 | | | 2010-2015 | | |
| Other natural regeneration | Planted | Other land | Other natural regeneration | Planted | Other land | Other natural regeneration | Planted | Other land |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 2c

| Categories | Area (000 hectares) | | | | |
|----------------------------|---------------------|------|------|------|------|
| | 1990 | 2000 | 2005 | 2010 | 2015 |
| Mangroves (forest and OWL) | 0 | 0 | 0 | 0 | 0 |

| | | | | | |
|----------------------|---|---|---|---|---|
| ... of which planted | 0 | 0 | 0 | 0 | 0 |
|----------------------|---|---|---|---|---|

Tiers

| Category | Tier for status | Tier for reported trend |
|------------------------------------|-----------------|-------------------------|
| Primary forest | Tier 2 | Tier 1 |
| Other naturally regenerated forest | Tier 3 | Tier 3 |
| Planted forest | Tier 3 | Tier 2 |
| Mangroves | Tier 1 | Tier 1 |

Tier Criteria

| Category | Tier for status | Tier for reported trend |
|--|---|--|
| Primary forest/Other naturally regenerated forest/Planted forest | <p>Tier 3 : Data sources: Recent (less than 10 years) National Forest Inventory or remote sensing with ground truthing or data provided by official agencies or programme for repeated compatible NFIs</p> <p>Tier 2 : Data sources: Full cover mapping/ remote sensing or old NFI (more than 10 years) Tier 1 : Other</p> | <p>Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other</p> |

2.5 Comments

| Category | Comments related to data definitions etc | Comments on reported trend |
|-------------------------------------|--|---|
| Primary forest | NFI 2006-2012 | The area has increased steadily, mainly because there are more older forests and protected forests. |
| Other naturally regenerating forest | NFI 2006-2012 | N/A |
| Planted forest | NFI 2006-2012 | N/A |
| Mangroves | N/A | N/A |

Other general comments to the table

| |
|-----|
| N/A |
|-----|

3. What are the stocks and growth rates of the forests and how have they changed?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

3.1 Categories and definitions

| Category | Definition |
|--------------------------------|--|
| Growing stock | Volume over bark of all living trees with a minimum diameter of 10 cm at breast height (or above buttress if these are higher). Includes the stem from ground level up to a top diameter of 0 cm, excluding branches. |
| Net Annual Increment (NAI) | Average annual volume of gross increment over the given reference period less that of natural losses on all trees, measured to minimum diameters as defined for "Growing stock". |
| 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 2 mm 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. |
| 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 soil depth of 30 cm. |

3.2 National data

3.2.1 Data sources

| | References to sources of information | Variables | Years | Additional comments |
|---|--|--|-------|--|
| 1 | Eesti NSV metsade majandamise ja puidukasutuse arenduskava "Eesti mets 2010" (Forest management and wood utilisation development plan until 2010), Tallinn 1989. | Growing stock on forest land | 1988 | The combined stand-wise forest inventory data of 1979–1988 |
| 2 | "Eesti Metsad 2007" (Estonian Forests 2007), Tallinn 2008 http://www.keskkonnainfo.ee | Growing stock, growing stock composition | 2007 | NFI 2007 (combined NFI-data from period 2003–2007) |

| | | | | |
|----|---|--|------------|--|
| 3 | Calculations for FRA 2010, unpublished | Growing stock (by species) on forest land | 2000, 2005 | NFI 1999–2007 |
| 4 | “Eesti metsad 2012” (Estonian Forests 2012), Tallinn 2014 http://www.keskkonnainfo.ee | Growing stock, growing stock composition, deadwood | 2010, 2012 | NFI 2008–2012 |
| 5 | Calculations for FRA 2015, unpublished | Growing stock (by species) on forest land and OWL; deadwood; net annual increment | all | NFI 1999–2012 |
| 6 | Kõlli R., Asi E., Köster T., “Organic carbon pools in Estonian forest soils”, Baltic forestry, 2004 Vol. 10, No 1, p 19-26 | Forest soil groups, thickness of soil cover (SC) and pools of soil organic carbon (SOC) in Estonian forest soils | 1991 | Shares of forest soil groups from total forest area in 1991 were used to calculate forest and other wooded land soil group areas in 1990, 2000, 2005, 2010, 2015 |
| 7 | Question 1, present report | Area of forest and other wooded land | all | Data for calculation of soil carbon |
| 8 | IPCC 2006, Guidelines for National Greenhouse Gas Inventories | BCEFs, root-shoot ratio | all | Factors for calculation of biomass stocks and carbon |
| 9 | National Greenhouse Gases Inventory Report, Estonia, 2014 http://cdr.eionet.europa.eu/ee/eu/ghgmm | Biomass stock, deadwood stock, carbon stock | all | National Forest Inventory; special studies for GHG inventory |
| 10 | Biomass conversion factors by decay classes for dead wood /.../ in boreal forests of Sweden. Sandström et al, 2007 | Deadwood | all | Deadwood density and carbon concentration |

3.2.2 Classification and definitions

| National class | Definition |
|----------------------------|---|
| Growing stock | Volume over bark of all living trees (more than 0 cm in diameter at breast height). Includes the stem from stump height up to a top of tree, excludes branches. |
| Net annual increment (NAI) | Comply with FRA 2015 definitions. Measured to criteria as defined for “Growing stock”. |
| Above/below-ground biomass | Comply with FRA 2015 and IPCC 2006 definitions. |
| Deadwood | Comply with FRA 2015 definitions. |
| Carbon stock | Comply with FRA 2015 and IPCC 2006 definitions. |

3.2.3 Original data

| |
|----------------------|
| Growing stock |
|----------------------|

| FRA2015 category | Volume (million cubic meters over bark) | | | | | | | |
|--------------------------|---|-------|-------|-------|-------------------|------|------|------|
| | Forest | | | | Other wooded land | | | |
| | 2000 | 2005 | 2010 | 2012 | 2000 | 2005 | 2010 | 2012 |
| Total growing stock | 458.3 | 455.0 | 470.3 | 473.6 | 6.6 | 6.8 | 7.0 | 7.0 |
| ... of which coniferous | 242.3 | 246.9 | 252.0 | 253.8 | 3.1 | 3.2 | 3.3 | 3.3 |
| ... of which broadleaved | 215.9 | 208.1 | 218.3 | 218.9 | 3.5 | 3.6 | 3.7 | 3.7 |
| | | | | | | | | |

Biomass stock

| Common name | Scientific name | Growing stock volume (000 m3) | | |
|----------------------------------|--|-------------------------------|---------|---------|
| | | Forest | | |
| | | 2000 | 2005 | 2010 |
| Scots pine | <i>Pinus sylvestris</i> | 127 720 | 138 436 | 139 238 |
| Norway spruce | <i>Picea abies</i> | 114 107 | 108 241 | 112 750 |
| Common silver birch, Downy birch | <i>Betula pendula</i> , <i>Betula pubescens</i> | 102 673 | 100 349 | 106 443 |
| European aspen | <i>Populus tremula</i> | 37 581 | 34 936 | 35 809 |
| White alder | <i>Alnus incana</i> | 37 115 | 32 619 | 33 647 |
| European black alder | <i>Alnus glutinosa</i> | 21 032 | 21 808 | 23 693 |
| Willow species | <i>Salix species</i> | 4 468 | 4 750 | 4 636 |
| European ash | <i>Fraxinus excelsior</i> | 5 906 | 5 887 | 5 435 |

| | | | | |
|----------------------|----------------------|----------------|----------------|----------------|
| Pedunculate oak | <i>Quercus robur</i> | 2 725 | 2 823 | 2 664 |
| European bird cherry | <i>Padus avium</i> | 1 188 | 1 121 | 1 255 |
| <i>Other</i> | | 3 763 | 4 016 | 4 742 |
| Total | | 458 278 | 454 986 | 470 311 |

Carbon stock

Forest soil groups, thickness of soil cover* (SC) and pools of soil organic carbon (SOC) in Estonian forest soils in 1991

| Group No | Soil or soil association | Soil code by WRB | | | | % from forest land | Thickness of soil cover (SC) mean (M) + standard deviation (SD) | | | SOC pools of soil cover Mg ha ⁻¹ | Forest land area in 1991 (1000 ha) | Sum of SOC pools of soil cover in Gg |
|----------|---|------------------|-----|----|-----|--------------------|---|------|-----|--|------------------------------------|--------------------------------------|
| | | | | | | | M | + | SD | | | |
| I | RendzicLP & Sceletic & Gleyic Leptosols | rz | sk | gl | 0.8 | 24 | + | 3.6 | 102 | 16.1 | 1642 | |
| II | CalcaricCM & Endosceletic Cambisols | ca | skn | | 1.9 | 56 | + | 18.9 | 109 | 38.3 | 4175 | |
| III | Mollic CM & Endogleyic Cambisols | mo | gln | | 3.3 | 47 | + | 8.1 | 76 | 66.5 | 5054 | |
| IV | SceleticCM Cambisols | gls | | | 1.3 | 43 | + | 9.8 | 96 | 26.2 | 2515 | |

| | | | | | | | | | | | | |
|------|--|-----|-----|----|------|----|---|------|-----|-------|-------|--|
| V | CutanicLV & Endogleyic Luvisols | ct | gln | | 2.4 | 70 | + | 18.8 | 95 | 48.4 | 4590 | |
| VI | Glossic AB & Gleyiglossic Albeluvisols | gs | gls | | 3.6 | 92 | + | 18.7 | 64 | 72.6 | 4646 | |
| VII | Haplic AB Albeluvisols | ha | | | 2.7 | 86 | + | 13.9 | 88 | 54.4 | 4787 | |
| VIII | Endogleyic Albeluvisols | gln | | | 1.6 | 72 | + | 19.4 | 65 | 32.2 | 2093 | |
| IX | Haplic PZ Podzols | ha | | | 3.8 | 67 | + | 25.0 | 45 | 76.6 | 3447 | |
| X | Endogleyic Podzols | gln | | | 2.2 | 62 | + | 16.7 | 44 | 44.3 | 1949 | |
| XI | Mollic GL & Calcic & Eutric Gleysols | mo | cc | eu | 12.1 | 39 | + | 12.6 | 120 | 243.9 | 29268 | |
| XII | Luvic GL & Epidystric Gleysols | lv | dye | | 8.0 | 55 | + | 21.0 | 126 | 161.3 | 20324 | |
| XIII | Spodic GL & Umbric & Dystric Gleysols | sd | um | dy | 9.2 | 70 | + | 14.6 | 113 | 185.4 | 20950 | |
| XIV | Saprihisic Gleysols | his | | | 5.3 | 51 | + | 11.9 | 209 | 106.8 | 22321 | |
| XV | Fibrihisic Podzols | hif | | | 3.1 | 76 | + | 18.0 | 114 | 62.5 | 7125 | |
| XVI | Eutric & Salic Fluvisols | eu | sz | | 1.1 | 26 | + | 5.7 | 84 | 22.2 | 1865 | |

| | | | | | | | | | | | | |
|-------|---------------------------|----|----|----|--|------|-----|---|---|-----|-------|---------------|
| XVII | Eutric & Sapric Histosols | HS | eu | sa | | 16.3 | 50 | + | 0 | 333 | 328.6 | 109424 |
| XVIII | Dystric Histosols | HS | dy | | | 6.9 | 50 | + | 0 | 210 | 139.1 | 29211 |
| XIX | Fibric Histosols | HS | fi | | | 13.7 | 50 | + | 0 | 139 | 276.2 | 38392 |
| XX | Protic & Spolic Regosols | RG | pr | sp | | 0.7 | <25 | | | 43 | 14.1 | 619 |
| Total | | | | | | 100 | | | | | 2016 | 314397 |

* Soil cover or solum as a whole, whose depth reaches from the surface to the unchanged parent material or C horizon.

3.3 Analysis and processing of national data

3.3.1 Adjustment

Not applied.

3.3.2 Estimation and forecasting

Growing stock

The National Forest Inventory results of 1999–2012 are combined during data processing for growing stock estimates and for growing stock composition.

- Growing stock for 1990 is combined assessment of stand-wise inventory and extrapolated NFI data.
- Growing stock for 2000 is derived by interpolation from NFI data 1999–2003.
- Estimates for 2005 and 2010 are averages of NFI data 2003–2007 and 2008–2012, respectively.
- Forecasting for 2015 was made by linear extrapolation, using data reported for 2005, 2010 and the latest inventory – NFI 2012. Thus, the possibility of alterations in time is taken into consideration.
- Stock assessment for other wooded land has made by using average NFI data 2006–2012.

Biomass stock, deadwood

Growing stock and deadwood of forest land and other wooded land by tree species was used to calculate biomass stock. Biomass conversion and expansion factors – BCEF_s (expansion of merchantable growing stock volume to above-ground biomass) were used according to IPCC 2006 (p 4.50). Below-ground to aboveground biomass ratio (> 75 t/ha – boreal coniferous forest, 75-150 t/ha – temperate other broadleaf) is obtained from IPCC 2006 (Table 4.4, p.4.49)

Carbon stock

Carbon stock in living biomass and deadwood on forest land and other wooded land was calculated using biomass stock figures. Default factor 50% of carbon content in biomass was used for calculations.

For the calculation of soil carbon in soil cover on forest and other wooded land the following data were used:

- soil organic carbon pools of soil cover
- share of soil groups from total forest land area in 1991.

Areas of forest land and other wooded land were obtained from Question 1. Distribution of soil groups by area and SOC pools in 1991 were applied to the area of forest and other wooded land.

3.3.3 Reclassification

Not applied.

3.4 Data

Table 3a

| Category | | Growing stock volume (million m ³ over bark) | | | | | | | | | |
|---|--------------------------|---|-------|-------|-------|-------|-------------------|------|------|------|------|
| | | Forest | | | | | Other wooded land | | | | |
| | | 1990 | 2000 | 2005 | 2010 | 2015 | 1990 | 2000 | 2005 | 2010 | 2015 |
|  | Total growing stock | 393.3 | 458.3 | 455 | 470.3 | 476.3 | 6.3 | 6.6 | 6.8 | 7 | 7.2 |
|  | ... of which coniferous | 208.3 | 242.3 | 246.9 | 252 | 256.6 | 3 | 3.1 | 3.2 | 3.3 | 3.4 |
|  | ... of which broadleaved | 185 | 215.9 | 208.1 | 218.3 | 219.7 | 3.3 | 3.5 | 3.6 | 3.7 | 3.8 |

Table 3b

| Category/Species name | | | Growing stock in forest (million cubic meters) | | | |
|-----------------------|-----------------|-------------|--|------|------|------|
| Rank | Scientific name | Common name | 1990 | 2000 | 2005 | 2010 |

| | | | | | | |
|-----------|-------------------------------------|--|--------|--------|--------|--------|
| 1 st | Pinus sylvestris | Scots pine | 111.4 | 127.7 | 138.5 | 139.3 |
| 2 nd | Picea abies | Norway spruce | 96.8 | 114.1 | 108.2 | 112.8 |
| 3 rd | Betula pendula, Betula pubescens | Common silver birch, Downy birch | 87.5 | 102.7 | 100.3 | 106.4 |
| 4 th | Populus tremula | European aspen | 32.2 | 37.6 | 34.9 | 35.8 |
| 5 th | Alnus incana | White alder | 31.8 | 37.1 | 32.6 | 33.6 |
| 6 th | Alnus glutinosa | European black alder | 17.6 | 21 | 21.8 | 23.7 |
| 7 th | Fraxinus excelsior | European ash | 5.3 | 5.9 | 5.9 | 5.4 |
| 8 th | Salix caprea | Goat willow | 4.1 | 4.5 | 4.8 | 4.6 |
| 9 th | Quercus robur | Pedunculate oak | 2.4 | 2.7 | 2.8 | 2.7 |
| 10 th | Padus avium | European bird cherry | 1 | 1.2 | 1.1 | 1.3 |
| Remaining | | | 3.2 | 3.8 | 4.1 | 4.7 |
| TOTAL | | | 393.30 | 458.30 | 455.00 | 470.30 |

THE PRE-FILLED VALUES FOR GROWING STOCK REFER TO THE FOLLOWING THRESHOLD VALUES (SEE TABLE BELOW)

| Item | Value | Complementary information |
|---|-------|---|
| Minimum diameter (cm) at breast height of trees included in growing stock (X) | 0 | DBH measured at a height of 1.30 m above stump height |
| Minimum diameter (cm) at the top end of stem for calculation of growing stock (Y) | 0 | N/A |
| Minimum diameter (cm) of branches included in growing stock (W) | N/A | Excluded |
| Volume refers to above ground (AG) or above stump (AS) | AS | N/A |

PLEASE NOTE THAT THE DEFINITION OF GROWING STOCK HAS CHANGED AND SHOULD BE REPORTED AS GROWING STOCK DBH 10 CM INCLUDING THE STEM FROM GROUND LEVEL UP TO A DIAMETER OF 0 CM, EXCLUDING BRANCHES.

Table 3c

| Category | Net annual increment (m ³ per hectare and year) | | | | |
|----------|--|------|------|------|------|
| | Forest | | | | |
| | 1990 | 2000 | 2005 | 2010 | 2015 |
| | | | | | |

| | | | | | | |
|---|--------------------------|------|------|------|------|------|
|  | Net annual increment | 5.1 | 5.53 | 5.41 | 5.56 | 5.57 |
|  | ... of which coniferous | 4.99 | 5.7 | 5.59 | 5.74 | 5.73 |
|  | ... of which broadleaved | 5.23 | 5.36 | 5.21 | 5.38 | 5.4 |

Table 3d

| Category | | Biomass (million metric tonnes oven-dry weight) | | | | | | | | | |
|---|----------------------|---|--------|--------|--------|--------|-------------------|------|------|------|------|
| | | Forest | | | | | Other wooded land | | | | |
| | | 1990 | 2000 | 2005 | 2010 | 2015 | 1990 | 2000 | 2005 | 2010 | 2015 |
|  | Above ground biomass | 228.29 | 256.21 | 253.97 | 264.16 | 267.3 | 4.35 | 4.61 | 4.73 | 4.86 | 4.96 |
|  | Below ground biomass | 53.76 | 60.34 | 59.81 | 62.21 | 62.95 | 1.91 | 2.02 | 2.07 | 2.13 | 2.18 |
|  | Dead wood | 5.74 | 6.46 | 8.05 | 10.63 | 12.27 | 0.67 | 0.75 | 0.95 | 1.25 | 1.42 |
| TOTAL | | 287.79 | 323.01 | 321.83 | 337.00 | 342.52 | 6.93 | 7.38 | 7.75 | 8.24 | 8.56 |

Table 3e

| Category | | Carbon (Million metric tonnes) | | | | | | | | | |
|---|--------------------------------|--------------------------------|--------|--------|--------|--------|-------------------|------|------|------|------|
| | | Forest | | | | | Other wooded land | | | | |
| | | 1990 | 2000 | 2005 | 2010 | 2015 | 1990 | 2000 | 2005 | 2010 | 2015 |
|  | Carbon in above ground biomass | 114.15 | 128.1 | 126.99 | 132.08 | 133.65 | 2.18 | 2.3 | 2.36 | 2.43 | 2.48 |
|  | Carbon in below ground biomass | 26.88 | 30.17 | 29.9 | 31.1 | 31.47 | 0.96 | 1.01 | 1.04 | 1.07 | 1.09 |
|  | <i>Subtotal Living biomass</i> | 141.03 | 158.27 | 156.89 | 163.19 | 165.13 | 3.13 | 3.32 | 3.4 | 3.5 | 3.57 |
|  | Carbon in dead wood | 2.87 | 3.23 | 4.02 | 5.31 | 6.13 | 0.34 | 0.38 | 0.47 | 0.62 | 0.71 |
|  | Carbon in litter | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

| | | | | | | | | | | | |
|---|--|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|
|  | <i>Subtotal Dead wood and litter</i> | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
|  | Soil carbon | 344.01 | 349.74 | 351.22 | 348.39 | 348.07 | 30.6 | 32.39 | 33.21 | 34.16 | 34.86 |
| TOTAL | | 487.91 | 511.24 | 512.13 | 516.88 | 519.32 | 34.08 | 36.08 | 37.08 | 38.28 | 39.14 |

Tiers

| Variable/category | Tier for status | Tier for trend |
|--------------------------------|-----------------|----------------|
| Total growing stock | Tier 3 | Tier 3 |
| Net annual increment | Tier 2 | Tier 2 |
| Above ground biomass | Tier 2 | Tier 2 |
| Below ground biomass | Tier 2 | Tier 2 |
| Dead wood | Tier 2 | Tier 2 |
| Carbon in above-ground biomass | Tier 2 | Tier 2 |
| Carbon in below ground biomass | Tier 2 | Tier 2 |
| Carbon in dead wood and litter | Tier 2 | Tier 2 |
| Soil carbon | Tier 1 | Tier 1 |

Tier criteria

| Category | Tier for status | Tier for reported trend |
|----------------------|---|---|
| Total growing stock | Tier 3: Data sources Recent 10 years National Forest Inventory or remote sensing with ground truthing or programme for repeated compatible NFI 10 years Domestic volume functions Tier 2: Data sources/registers and statistics modelling or old NFI 10 years or partial field inventory Tier 1: Other data sources | Tier 3: Estimate based on repeated compatible tiers 3 (tier for status) Domestic growth functions Tier 2: Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 tier for status Tier 1: Other |
| Net annual increment | Tier 3: Scientifically tested national volume and growth functions Tier 2: Selection of volume and growth functions as relevant as possible Tier 1: Other | Tier 3: Confirmation/adjustment of functions used through scientific work Tier 2: Review work done to seek alternative functions Tier: 1 Other |

| | | |
|---|---|---|
| Biomass | Tier 3: Country-specific national or sub-national biomass conversion expansion factors applied or other domestic or otherwise nationally relevant biomass studies Tier 2: Application of country specific national or sub-national biomass conversion factors from other country with similar climatic conditions and forest types Tier 1: International/regional default biomass expansion factors applied | Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other |
| <ul style="list-style-type: none"> • Carbon in above ground biomass • Carbon in below ground biomass • Carbon in dead wood and litter • Soil carbon | Tier 3: Country-specific national or sub-national biomass conversion expansion factors applied Tier 2: Application of country specific national or sub-national biomass conversion factors form from other country with similar climatic conditions and forest types Tier 1: International/regional default biomass expansion factors applied | Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other |

3.5 Comments on growing stock biomass and carbon

| Category | Comments related to data definitions etc | Comments on the reported trend |
|---|---|---|
| Total growing stock | Minimum DBH 0.1 cm, including the stem from stump up to a diameter of 0 cm, excluding branches. | Growing stock has been decreased during 2000-2005 due to extremely high harvest rates in 1999-2003 (see table 4c). To a certain extent decrease has been caused by the storms in 2001, 2002 and 2005. |
| Growing stock of broadleaved coniferous | N/A | N/A |
| Growing stock composition | N/A | N/A |
| Net annual increment | According to “growing stock” reported | N/A |
| Above-ground biomass | Forest understorey is excluded. | N/A |
| Below-ground biomass | N/A | N/A |
| Dead wood | Deadwood includes all standing and lying dead wood larger than or equal to 8 cm in diameter, useful at least for woodfuel. Includes dead roots. | The amount of dead wood has increased significantly and consistently |
| Carbon in above-ground biomass | N/A | N/A |
| Carbon in below-ground biomass | N/A | N/A |
| Carbon in dead wood | N/A | N/A |
| Carbon in litter | Data is insufficient | N/A |
| Soil carbon | The reported soil depth is of 55 cm | N/A |

Other general comments to the table

Estonia does not report growing stock according to the changed definition FRA 2015, mainly due to keep stable assessments and time-series, also in order to avoid the plurality of estimates in publications.

4. What is the status of forest production and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

4.1 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. |
| Non wood forest product (NWFP) | Goods derived from forests that are tangible and physical objects of biological origin other than wood. |
| Commercial value of NWFP | For the purpose of this table, value is defined as the commercial market value at the forest gate. |
| Category | Definition |
| Production forest | Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products. |
| Multiple use forest | Forest area designated for more than one purpose and where none of these alone is considered as the predominant designated function. |
| Total wood removals | The total of industrial round wood removals and woodfuel removals. |
| ...of which woodfuel | The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use. |

4.2 National data

4.2.1 Data sources

| | References to sources of information | Variables | Years | Additional comments |
|---|---|--------------------------------|------------|--|
| 1 | Eesti NSV metsade majandamise ja puidukasutuse arenduskava "Eesti mets 2010" (Forest management and wood utilisation development plan until 2010), Tallinn 1989 | Designated functions of forest | 1988 | The combined stand-wise forest inventory data of 1979–1988 |
| 2 | FRA 2010 Country report | Production forest | 2000, 2005 | NFI-data, average from periods 1999–2003 and 2003–2007 |
| 3 | "Eesti Metsad 2012" (Estonian Forests 2012), Tallinn 2014 http://www.keskkonnainfo.ee/ | Designated functions of forest | 2010, 2012 | NFI 2012 (combined NFI-data from period 2008–2012) |
| 4 | Calculations for FRA 2015, unpublished | Designated functions of forest | all | NFI 1999–2012 |
| 5 | Statistics Estonia http://www.stat.ee/ | Total wood removals | 1991-1997 | N/A |

| | | | | |
|---|--|---|------|---------------|
| 6 | Calculations for FRA 2015, unpublished | Wood removals | all | NFI 1999–2012 |
| 7 | FRA 2010 Country report Estonia, Table T12 , available at http://www.fao.org/docrep/013/al500E/al500E.pdf | Number of Christmas trees used in Estonia | 2010 | N/A |
| 8 | Estonian Statistical Office on-line database, available at http://pub.stat.ee/px-web.2001/I_Databas/Economy/16Hunting/16Hunting.asp | Number of hunted animals | 2010 | N/A |

4.2.2 Classification and definitions

| National class | Definition |
|-------------------------|---|
| Production forest | According to used FRA 2015 definition |
| Multiple purpose forest | According to used FRA 2015 definition. |
| Wood removals | Comply with FRA 2015 definition: under bark, except woodfuel. Removals from other wooded land included. |
| N/A | N/A |

4.2.3 Original data

| FRA2015 Categories | Forest area (000 hectares) | | | |
|---|----------------------------|-------------|-------------|-------------|
| | 2000 | 2005 | 2010 | 2012 |
| Production | 1746 | 1556 | 1668 | 1664 |
| Multiple use | 360 | 517 | 340 | 339 |
| ... of which Protection of soil and water | 256 | 208 | 139 | 139 |
| Conservation of biodiversity | 137 | 179 | 226 | 231 |
| TOTAL | 2243 | 2252 | 2234 | 2234 |

Hunting of game animals in Estonia in 2010

| Hunted in 2010 | Number |
|----------------|--------|
| Roe Deer | 5075 |
| Wild Boar | 17028 |
| Red Deer | 497 |
| Elk | 4255 |

4.3 Analysis and processing of national data

4.3.1 Adjustment

Not applied.

4.3.2 Estimation and forecasting

The percentages of categories of designated functions (1988) were applied to the forest area for 1990.

The National Forest Inventory results of 1999–2012 are combined during data processing for categories of designated functions.

- Forest area of categories for 2000 is derived by interpolation from NFI data 1999–2003.
- Estimations for 2005 and 2010 are 5-year averages from NFI data.
- Forecasting for 2015 was made by linear extrapolation, using NFI data 2006–2012.

4.3.3 Reclassification

Not applied.

4.4 Data

Table 4a

| Categories | | Forest area (000 hectares) | | | | |
|---|-------------------|----------------------------|------|------|------|------|
| | | 1990 | 2000 | 2005 | 2010 | 2015 |
|  | Production forest | 1629 | 1746 | 1556 | 1668 | 1657 |

| | | | | | | |
|---|---------------------|-----|-----|-----|-----|-----|
|  | Multiple use forest | 297 | 104 | 309 | 201 | 199 |
|---|---------------------|-----|-----|-----|-----|-----|

Table 4b

| Rank | Name of product | Key species | Commercial value of NWFP removals 2010 (value 1000 local currency) | NWFP category |
|-------|-----------------|--------------------------------|--|---------------|
| 1 st | Christmas trees | Norway spruce (Picea abies) | 45000 | 6 |
| 2 nd | Wild meat | Wild boar (Sus scrofa) | 27244.8 | 12 |
| 3 rd | Wild meat | Moose (Alces alces) | 22300 | 12 |
| 4 th | Wild meat | Roe deer (Capreolus capreolus) | 2436 | 12 |
| 5 th | Wild meat | Red deer (Cervus elaphus) | 1192.8 | 12 |
| 6 th | N/A | N/A | N/A | N/A |
| 7 th | N/A | N/A | N/A | N/A |
| 8 th | N/A | N/A | N/A | N/A |
| 9 th | N/A | N/A | N/A | N/A |
| 10 th | N/A | N/A | N/A | N/A |
| TOTAL | | | 98173.60 | |

| | |
|------------------------|-----|
| 2010 | |
| Name of local currency | EEK |

| 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 beeswax |
| 12 Wild meat |
| 13 Raw material for medicine |
| 14 Raw material for colorants |
| 15 Other edible animal products |
| 16 Other non-edible animal products |

Table 4c Pre-filled data from FAOSTAT

| Year | FRA 2015 category (1000 m ³ u.b.) | |
|------|--|----------------------|
| | Total wood removals | ...of which woodfuel |
| 1990 | 2340.8 | 514.5 |
| 1991 | 3496.5 | 757.1 |
| 1992 | 2437.4 | 522.1 |
| 1993 | 2773.2 | 590.2 |
| 1994 | 4138.7 | 878.9 |
| 1995 | 4555.7 | 969.5 |
| 1996 | 5054.6 | 1082.6 |
| 1997 | 7386.1 | 1598.8 |
| 1998 | 8028.8 | 1763.6 |
| 1999 | 10395.5 | 2326.1 |
| 2000 | 10439.2 | 2388.3 |
| 2001 | 9804.8 | 2301.5 |
| 2002 | 9430.9 | 2278.5 |

| | | |
|------|--------|--------|
| 2003 | 8136.6 | 2029.3 |
| 2004 | 5724.8 | 1477.9 |
| 2005 | 5200.6 | 1393.1 |
| 2006 | 4320.3 | 1203.5 |
| 2007 | 4276.2 | 1241.1 |
| 2008 | 4778.9 | 1447.7 |
| 2009 | 5325.3 | 1686.3 |
| 2010 | 6828.9 | 2263.3 |
| 2011 | 6622.7 | 2300.1 |

Tiers

| Category | Tier for status | Tier for reported trend |
|---------------------|-----------------|-------------------------|
| Production forest | Tier 3 | Tier 3 |
| Multiple use forest | Tier 3 | Tier 3 |

Tier Criteria

| Category | Tier for status | Tier for reported trend |
|---------------------------------------|--|---|
| Production forest Multiple use forest | Tier 3: Updated including field verifications national forest maps including functions Tier 2: Forest maps older than 6 years including forest functions Tier 1: Other | Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other |

4.5 Comments

| Category | Comments related to data definitions etc | Comments on the reported trend |
|---------------------|--|---|
| Production forest | N/A | Changes in area of production forest are mainly dependent on the protection of forests regulated by legislation |
| Multiple use forest | Strictly protected forest excluded. Multiple use means generally forest where production of wood and protectional functions exist in parallel. | N/A |
| Total wood removals | Sources: NFI (1998–2012), official statistics 1991–1997 combined with NFI data. Woodfuel is accounted over bark. OWL included. | The relative share of woodfuel has increased over the past decade |

| | | |
|--------------------------|--|-----|
| Commercial value of NWFP | Price for bush meat is expert estimate (40 EEK/kg). For total commercial value (theoretical, most of meat is not marketed) of wild meat by species the number of hunted animals was multiplied with average weight of animal and average price (EEK/kg). The price of Christmas trees is expert estimate.(150 EEK/m). For value of Christmas trees the number of trees was multiplied with average height and average price (EEK/m) of tree. | N/A |
|--------------------------|--|-----|

Other general comments to the table

| |
|-----|
| N/A |
|-----|

5. How much forest area is managed for protection of soil and water and ecosystem services?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

5.1 Categories and definitions

| Category | Definition |
|--|--|
| Protection of soil and water | Forest area designated or managed for protection of soil and water |
| ...of which production of clean water (<i>sub-category</i>) | Forest area primarily designated or managed for water production, where most human uses are excluded or heavily modified to protect water quality. |
| ...of which coastal stabilization (<i>sub-category</i>) | Forest area primarily designated or managed for coastal stabilization. |
| ...of which desertification control (<i>sub-category</i>) | Forest area primarily designated or managed for desertification control. |
| ...of which avalanche control (<i>sub-category</i>) | Forest area primarily designated or managed to prevent the development or impact of avalanches on human life assets or infrastructure. |
| ...of which erosion, flood protection or reducing flood risk (<i>sub-category</i>) | Forest area primarily designated or managed for protecting communities or assets from the impacts of erosion riparian floods and landslides or for providing flood plain services. |
| ...of which other (<i>sub-category</i>) | Forest area primarily designated or managed for other protective functions. |
| Ecosystem services, cultural or spiritual values | Forest area primarily designated or managed for selected ecosystem services or cultural or spiritual values. |
| ...of which public recreation (<i>sub-category</i>) | Forest area designated or managed for public recreation. |
| ...of which carbon storage or sequestration (<i>sub-category</i>) | Forest area designated or managed for carbon storage or sequestration. |
| ...of which spiritual or cultural services (<i>sub-category</i>) | Forest area designated or managed for spiritual or cultural services. |
| ...of which other (<i>sub-category</i>) | Forest area designated or managed for other ecosystem services. |

5.2 National data

5.2.1 Data sources

| | References to sources of information | Variables | Years | Additional comments |
|--|--------------------------------------|-----------|-------|---------------------|
| | | | | |

| | | | | |
|---|---|--|------------|--|
| 1 | Eesti NSV metsade majandamise ja puidukasutuse arenduskava "Eesti mets 2010" (Forest management and wood utilisation development plan until 2010), Tallinn 1989 | Protective functions of forest | 1988 | The combined stand-wise forest inventory data of 1979–1988 |
| 2 | Calculations for FRA 2015, unpublished | Protective functions of forest | all | NFI 1999–2012 |
| 3 | State Forest Management Centre, query made for present report, unpublished | Ecosystem services, cultural or spiritual values ...of which public recreation | 2012, 2014 | N/A |
| 4 | N/A | N/A | N/A | N/A |

5.2.2 Classification and definitions

| National class | Definition |
|--|---|
| Protection of soil and water | Comply with FRA 2015 definitions (in general) |
| Water protection forest | Forest designated or managed for water production, coastal stabilization, or for any other coastal and shore protection purpose |
| Ecosystem services, cultural or spiritual values ...of which public recreation | Forest land designated and managed for public recreation by State Forest Management Centre. |
| N/A | N/A |

5.2.3 Original data

| | |
|---|------|
| Protection of soil and water | |
| - see Table 4.2.3. | |
| Ecosystem services | |
| Forest land designated and managed for public recreation by State Forest Management Centre: | |
| year | ha |
| 2012 | 5995 |
| 2014 | 7470 |

5.3 Analysis and processing of national data

5.3.1 Adjustment

Not applied

5.3.2 Estimation and forecasting

The percentages of categories of protective functions (1988) were applied to the forest area for 1990.

The National Forest Inventory results of 1999–2012 are combined during data processing for categories of designated functions.

- Forest area of categories for 2000 is derived by interpolation from NFI data 1999–2003.
- Estimations for 2005 and 2010 are 5-year averages from NFI data.
- Forecasting for 2015 was made by linear extrapolation, using NFI data 2006–2012.

Forest land designated and managed for public recreation:

- year 2012 figure was used for 2010 figure and
- year 2014 figure was used for 2015 figure

5.3.3 Reclassification

Water protection forest, that includes areas with different purposes of protection ecosystem services, has been reclassified into sub-category “...of which production of clean water” (that is dominant goal for protection among sub-categories).

5.4 Data

Table 5a

| Categories | | Forest area (1000 hectares) | | | | |
|---|--|-----------------------------|------|------|------|------|
| | | 1990 | 2000 | 2005 | 2010 | 2015 |
|  | Protection of soil and water | 153 | 256 | 208 | 139 | 138 |
|  | ... of which production of clean water | 41 | 190 | 142 | 139 | 138 |

| | | | | | | |
|---|---|-----|----|----|---|---|
|  | ... of which coastal stabilization | 0 | 0 | 0 | 0 | 0 |
|  | ... of which desertification control | 0 | 0 | 0 | 0 | 0 |
|  | ... of which avalanche control | 0 | 0 | 0 | 0 | 0 |
|  | ... of which erosion, flood protection or reducing flood risk | 0 | 0 | 0 | 0 | 0 |
|  | ... of which other (please specify in comments below the table) | 112 | 66 | 66 | 0 | 0 |

Other

Forest area designated or managed for soil protective functions (mainly – alvars)

Table 5b

| Categories | Forest area (1000 hectares) | | | | |
|--|-----------------------------|------|------|-------|------|
| | 1990 | 2000 | 2005 | 2010 | 2015 |
| Ecosystem services, cultural or spiritual values | N/A | N/A | N/A | 5.995 | 7.47 |
| ...of which public recreation | N/A | N/A | N/A | N/A | N/A |
| ...of which carbon storage or sequestration | 0 | 0 | 0 | 0 | 0 |
| ...of which spiritual or cultural services | N/A | N/A | N/A | N/A | N/A |
| ...of which other (please specify in comments below the table) | N/A | N/A | N/A | N/A | N/A |

Tiers

| Category | Tier for reported trend | Tier for status |
|--|-------------------------|-----------------|
| Protection of soil and water | Tier 3 | Tier 3 |
| Ecosystem services, cultural or spiritual values | Tier 3 | Tier 3 |

Tier criteria

| Category | Tier for status | Tier for reported trend |
|--|---|---|
| Protection of soil and water | Tier 3: High reliability data derived either from high intensity sample survey or data obtained from national or state agencies responsible for regulations or legislation relating to soil and water protection. Tier 2: Approaches based on low intensity or incomplete sample-based surveys or studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates. Tier 1: Other | Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other |
| <ul style="list-style-type: none"> • Cultural or spiritual values • Public recreation • Spiritual or cultural services • Other | Tier 3: High reliability data derived either from high intensity sample survey or data obtained from national or state agencies responsible for regulations. Tier 2: Approaches based on low intensity or incomplete sample-based surveys or studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates. Tier 1: Other | Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other |

5.5 Comments

| Category | Comments related to data definitions etc | Comments on the reported trend |
|--|---|--|
| Protection of soil and water | N/A | Meantime of reference years 2005 and 2010 changes in legislations took place: – the width of protective belt of coast/shores is reduced approx. twice; – the extra protection of alvars has been waived (a reasoned cases, the protected area will be formed) |
| Production of clean water | Resulting from reclassification, this sub-category also includes forest designated for coastal stabilization and any other shore protection purpose | N/A |
| Coastal stabilization | Forest area designated for coastal stabilization included in sub-category of “Production of clean water” | N/A |
| Desertification control | No need for control desertification in Estonia | N/A |
| Avalanche control | Avalanches are missing in Estonia | N/A |
| Erosion, flood protection or reducing flood risk | Not applicable on forest areas in Estonia | N/A |
| Other protective functions | Soil protective functions, mainly – alvars | N/A |

| | | |
|--|---|-----|
| Ecosystem services, cultural or spiritual values | The area of forest land reported for this variable included area where State Forest Management Centre has assigned recreation as primary goal of management. | N/A |
| Public recreation | N/A | N/A |
| Carbon storage or sequestration | There is no forestt land classified with primary designation for carbon storage or sequestration. | N/A |
| Spiritual or cultural services | There are 4129 cultural heritage objects on forest land and other wooded land (including parks). Data was obtained from GIS analyses by Estonian Environment Agency. Cultural heritage objectcs' layer (data from National Registry of Cultural Monument) was compared with the layer of "woody vegetation" of vectoral basic map of Estonia. Overlapping areas were considered situating in forests. | N/A |
| Other ecosystem services | N/A | N/A |

Other general comments to the table

N/A

6. How much forest area is protected and designated for the conservation of biodiversity and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

6.1 Categories and definitions

| Category | Definition |
|------------------------------------|--|
| 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. |
| Forest area within protected areas | Forest area within formally established protected areas independently of the purpose for which the protected areas were established. |

6.2 National data

6.2.1 Data sources

| | References to sources of information | Variables | Years | Additional comments |
|---|---|--------------------------------|------------|--|
| 1 | Eesti NSV metsade majandamise ja puidukasutuse arenduskava "Eesti mets 2010" (Forest management and wood utilisation development plan until 2010), Tallinn 1989 | Designated functions of forest | 1988 | The combined stand-wise forest inventory data of 1979–1988 |
| 2 | FRA 2010 Country report (Calculations for FRA 2010, unpublished) | Designated functions of forest | 2000, 2005 | NFI-data, combined from periods 1999–2003 and 2003–2007 |
| 3 | "Eesti Metsad 2012" (Estonian Forests 2012), Tallinn 2014 http://www.keskkonnainfo.ee/ | Designated functions of forest | 2010, 2012 | NFI 2012 (combined NFI-data from period 2008–2012) |
| 4 | Calculations for FRA 2015, unpublished | Designated functions of forest | 2010, 2015 | NFI 2008–2012 |

6.2.2 Classification and definitions

| National class | Definition |
|------------------------------------|---|
| Conservation of biodiversity | According to used FRA 2015 definition, strictly protected forest. |
| Forest area within protected areas | Comply with FRA 2015 definitions |
| N/A | N/A |
| N/A | N/A |

6.2.3 Original data

See Table 4.2.3.

6.3 Analysis and processing of national data

6.3.1 Adjustment

Not applied

6.3.2 Estimation and forecasting

See 4.3.2.

6.3.3 Reclassification

Not applied.

6.4 Data

Table 6

| Categories | | Forest area (000 hectares) | | | | |
|---|------------------------------------|----------------------------|------|------|------|------|
| | | 1990 | 2000 | 2005 | 2010 | 2015 |
|  | Conservation of biodiversity | 127 | 137 | 179 | 226 | 238 |
|  | Forest area within protected areas | 127 | 141 | 185 | 228 | 239 |

Tiers

| Category | Tier for status | Tier for reported trend |
|------------------------------------|-----------------|-------------------------|
| Conservation of biodiversity | Tier 3 | Tier 3 |
| Forest area within protected areas | Tier 3 | Tier 3 |

Tier criteria

| Category | Tier for status | Tier for reported trend |
|----------|-----------------|-------------------------|
|----------|-----------------|-------------------------|

| | | |
|--|--|--|
| <ul style="list-style-type: none"> • Conservation of biodiversity • Forests within protected areas | <p>Tier 3: Data obtained from national or state agencies responsible for conservation and protected area or legislation relating to area protection. Tier 2: Studies that provide data for specific areas that is extrapolated through statistical analysis to national level estimates Tier 1 Other</p> | <p>Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other</p> |
|--|--|--|

6.5 Comments

| Category | Comments related to data definitions etc | Comments on the reported trend |
|------------------------------------|---|---|
| Conservation of biodiversity | NFI 1999–2012; strictly protected forest | Continually increasing. Covering 10% of total forest area by conservation of biodiversity has been one of the goals of the Forest Development Plan, the purpose of which is actually already met. |
| Forest area within protected areas | NFI 1999–2012; (IUCN I...IV protected area management categories) | Continually increasing. |

Other general comments to the table

N/A

7. What is the area of forest affected by woody invasive species?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

7.1 Categories and definitions

| Category | Definition |
|------------------|--|
| 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. |

7.2 National data

7.2.1 Data sources

| | References to sources of information | Variables | Years | Additional comments |
|---|--|---|------------|---------------------|
| 1 | Communication with Department of Botany of Institute of Agricultural and Environmental Sciences (Estonian University of Life Sciences) | List of woody invasive species and forest area affected by woody invasive species | 2005, 2010 | N/A |
| 2 | Communication with Department of Silviculture of Institute of Forestry and Rural Engineering (Estonian University of Life Sciences) | List of woody invasive species and forest area affected by woody invasive species | 2005, 2010 | N/A |
| 3 | N/A | N/A | N/A | N/A |
| 4 | N/A | N/A | N/A | N/A |

7.2.2 Classification and definitions

| National class | Definition |
|----------------|------------|
| N/A | N/A |

7.2.3 Original data

| |
|--|
| |
|--|

| | | |
|------------------|--|---|
| Invasive species | Tier 3: Systematic assessment in forest inventory or other survey (e.g. by conservation department) within the last 5 years) Tier 2: Systematic assessment in forest inventory or other survey (e.g. by conservation department conducted more than 5 years ago) Tier 1: Other | Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other |
|------------------|--|---|

7.5 Comments

| Category | Comments related to data definitions etc | Comments on the reported trend |
|------------------|--|--------------------------------|
| Invasive species | Several woody species (Populus balsamifera, Amelanchier spicata, Cotoneaster lucidus, Rosa rugosa, Sambucus racemosa, Sambucus nigra, Larix decidua, Larix sibirica, Quercus rubra, Acer negundo etc) are considered as possible threat to local ecosystems. There is no data that mentioned species have caused considerable socio-cultural, economic or environmental harm or harm to human health. Extensive and uncontrolled spreading of listed species has not been registered so far. | N/A |

Other general comments to the table

N/A

8. How much forest area is damaged each year?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

8.1 Categories and definitions

| Category | Definition |
|-----------------------|---|
| Number of fires | Number of fires per year |
| Burned area | Area burned per year |
| Outbreaks of insects | A detectable reduction in forest health caused by a sudden increase in numbers of harmful insects. |
| Outbreaks of diseases | A detectable reduction in forest health caused by a sudden increase in numbers of harmful pathogens, such as bacteria, fungi, phytoplasma or virus. |
| Severe weather events | Damage caused severe weather events, such as snow, storm, drought, etc. |

8.2 National data

8.2.1 Data sources

| | References to sources of information | Variables | Years | Additional comments |
|---|--|---|-----------|---------------------|
| 1 | Voolma, K., Pilt, E., Õunap, H. 2009. Nõmmevõrgendivaablase (Acantholyda posticalis (Mats.), Hymenoptera: Pamphiliidae) esmakordne hulgisigimine Eestis. – Metsanduslikud uurimused Forestry Studies 50. Tartu, p. 115–122. The first reported outbreak of the great web-spinning pine-sawfly, <i>Acantholyda posticalis</i> (Mats.) (Hymenoptera, Pamphiliidae), in Estonia. AND Voolma, K., Pilt, E., Õunap, H. 2009. Nõmmevõrgendivaablane ründas Saaremaa männikuid. – Estonian Forestry Journal | <i>Acantholyda posticalis</i> outbreaks | 2008-2009 | N/A |
| 2 | Õunap, H. 2012. Liblika järelpõlv sõi kuuse okkad ära. – Metsaleht nr. 9 (152) 29. september, lk. 8–9. (Weekly newspaper) | <i>Lymanthria monacha</i> outbreak | 2012 | N/A |

| | | | | |
|---|---|--|------------------------|----------------------------|
| 3 | Voolma, K. 1992. Männivaksik sööb metsa raagu. – Eesti Maa, N. 33, 19. aug. 1992, p. 10. AND Voolma, K., Luik, A. 2001. Outbreaks of <i>Bupalus piniaria</i> (L.) (Lepidoptera, Geometridae) and <i>Pissodes piniphilus</i> (Herbst) (Coleoptera, Curculionidae) in Estonia. – Journal of Forest Science 47 (special issue 2): 171–173. AND Läänelaid, A., Lille, P., Voolma, K. 2008. Männivaksiku kahetine roll. (Journal Eesti Loodus N10) | Bupalus piniarius outbreaks | 1990-1993 | N/A |
| 4 | Communication with Forest Department of the Estonian Environment Agency, query of outbreaks and damages for present report | outbreaks | 1990-2013 | N/A |
| 5 | Forestry Statistical yearbook | area and number of forest fires | 2003-2011 | N/A |
| 6 | Estonian Rescue Board, query made for present report, unpublished | total land area burned (number of fires) | 2010-2012 | number of vegetation fires |
| 7 | Estonian Environment Agency, query made for present report, unpublished | total land area burned (number of fires) | 2006-2009 | number of vegetation fires |
| 8 | Forestry Statistical yearbooks | storm damages | 2001, 2002, 2005, 2010 | N/A |
| 9 | Estonian Environment Agency, query made for present report, unpublished | area and number of forest fires | 2012 | N/A |

8.2.2 Classification and definitions

| National class | Definition |
|----------------|------------|
| N/A | N/A |

8.2.3 Original data

| |
|--------------------------------------|
| Forest fires in Estonia in 2003-2011 |
|--------------------------------------|

| Year | Forest fires | | |
|------|--------------|-----------|-----------|
| | Number | Total | Average |
| | | area (ha) | area (ha) |
| 2003 | 111 | 206,6 | 1,9 |
| 2004 | 89 | 378,9 | 4,3 |
| 2005 | 65 | 86,5 | 1,3 |
| 2006 | 250 | 3 095,6 | 12,4 |
| 2007 | 64 | 292,4 | 4,6 |
| 2008 | 71 | 1279,8 | 18,0 |
| 2009 | 47 | 59,3 | 1,3 |
| 2010 | 30 | 24,8 | 0,8 |
| 2011 | 24 | 19,3 | 0,8 |

8.3 Analysis and processing of national data

8.3.1 Adjustment

Total maximum outbreak area was used when outbreak stretched over several years,

8.3.2 Estimation and forecasting

Not applied

8.3.3 Reclassification

Not applied.

8.4 Data

Table 8a

| Category | | 000 ha, number of fires | | | | | | | | | |
|----------|---------------------------------|-------------------------|------|--------|------|--------|------|--------|------|--------|------|
| | | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | |
| | | 000 ha | # | 000 ha | # | 000 ha | # | 000 ha | # | 000 ha | # |
| CFRQ | Total land area burned | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6783 | N/A | 2055 |
| CFRQ | ... of which forest area burned | 0.2066 | 111 | 0.3798 | 89 | 0.0865 | 65 | 3.0956 | 250 | 0.2924 | 64 |
| Category | | 2008 | | 2009 | | 2010 | | 2011 | | 2012 | |
| | | 000 ha | # | 000 ha | # | 000 ha | # | 000 ha | # | 000 ha | # |
| CFRQ | Total land area burned | N/A | 1991 | N/A | 2045 | N/A | 1737 | N/A | 1396 | N/A | 790 |
| CFRQ | ... of which forest area burned | 1.2798 | 71 | 0.0593 | 47 | 0.0248 | 30 | 0.0193 | 24 | 0.0033 | 8 |

Table 8b

| Outbreak category | Description/name | Year(s) of latest outbreak | Area damaged (000 hectares) |
|-------------------|------------------------|----------------------------|-----------------------------|
| 1 | Bupalus piniaria | 1990-1993 | 5 |
| 1 | Calliteara pudibunda | 2004, 2005 | 0.4 |
| 1 | Acantholyda posticalis | 2008-2013 | 0.8 |
| 1 | Lymanthria monacha | 2012, 2013 | 0.02 |
| 3 | Storm damage | 2001 | 14.4 |
| 3 | Storm damage | 2002 | 16 |
| 3 | Storm damage | 2005 | 39.9 |
| 3 | Storm damage | 2010 | 7.9 |
| N/A | N/A | N/A | N/A |
| N/A | N/A | N/A | N/A |

Outbreak category

| |
|-------------------------|
| 1 Insects |
| 2 Diseases |
| 3 Severe weather events |

Tiers

| Category | Tier for status | Tier for trend |
|--|-----------------|----------------|
| Area affected by fire | Tier 3 | Tier 3 |
| <ul style="list-style-type: none"> Insects Diseases Severe weather events | Tier 3 | Tier 3 |

Tier criteria

| Category | Tier for status | Tier for reported trend |
|--|--|---|
| Burned area | Tier 3 : National fire monitoring routines Tier 2 : Remote sensing surveys Tier 1 : Other | Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other |
| <ul style="list-style-type: none"> Insects Diseases Severe weather events | Tier 3 : Systematic survey (e.g. via inventory or aerial damage assessment) Tier 2 : Management records Tier 1 : Other | Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other |

8.5 Comments

| Category | Comments related to data definitions etc | Comments on the reported trend |
|-----------------------|---|--------------------------------|
| Burned area | Area of vegetation (landscape) fires is not registered (only initial area when accident is registered). Area of burned forest lands has been identified after fires via communication with forest managers or assessment of areas | N/A |
| Insects | Area of damage recorded by forest damage assessment procedure | N/A |
| Diseases | N/A | N/A |
| Severe weather events | Area of damage recorded by forest damage assessment procedure | N/A |

Other general comments to the table

| |
|-----|
| N/A |
|-----|

9. What is the forest area with reduced canopy cover?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

| Category | Definition |
|---------------------------|--|
| Reduction in canopy cover | Forest that has undergone a reduction of canopy cover of more than 20% between the years 2000 and 2010 within the forest canopy cover range of 30-80% as detected by the MODIS VCF sensor. |

Table 9

| Category | Area of forest with reduced canopy cover (000 ha) |
|---------------------------|---|
| Reduction in canopy cover | N/A |

Tiers

| Category | Tier for reported trend |
|---------------------------|-------------------------|
| Reduction in canopy cover | N/A |

Tier criteria

| Category | Tier for reported trend |
|---------------------------|--|
| Reduction in canopy cover | Tier 3 : Remote sensing with ground truthing and/or Landsat imagery Tier 2 : Remote sensing using Modis (using pre-filled data provided by FAO) Tier 1 : Expert opinion |

Comments

| Category | Comments related to data definitions etc |
|---------------------------|--|
| Reduction in canopy cover | N/A |

Other general comments

| |
|--|
| |
|--|

10. What forest policy and regulatory framework exists to support implementation of sustainable forest management SFM?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

10.1 Categories and definitions

| Category | Definition |
|--|--|
| Policies supporting sustainable forest management | Policies or strategies that explicitly encourage sustainable forest management. |
| Legislation and regulations supporting sustainable forest management | Legislation and regulations that govern and guide sustainable forest management, operations and use. |

10.2 National data

10.2.1 Data sources

| | References to sources of information | Variables | Years | Additional comments |
|---|--|---|-----------|---|
| 1 | Development plan of State Forest Management Centre 2011–2014 and RMK Development Plan Supplement Nature Conservation, available at http://www.rmke.ee/files/RMK_Arengukava_ENG_20110622.pdf and http://www.rmke.ee/files/RMK_arengukava_lisa_20130708_EN.pdf | Policies supporting sustainable forest management, ... of which, in publicly owned forests | 2011-2014 | State Forest Management Centre manages majority of state owned forests |
| 2 | Sihtasutuse Erametsakeskus ja Erametsanduse Tugisüsteemi Arengukava 2009 kuni 2013 (Development Program for The Foundation Private Forest Centre and private forest support system in 2009-2013), available at http://www.eramets.ee/static/files/705.EMK_arengukava_2009-2013.pdf | Policies supporting sustainable forest management, ... of which, in privately owned forests | 2009-2013 | The Foundation Private Forest Centre (PFC) ensures meeting of the responsibilities of the state towards private forest owners providing advice, trainings and facilitating the application for state support. |
| 3 | Eesti Erametsaliidu arengukava 2014-2020 (Development Program of The Estonian Private Forest Union for 2014-2020), available at http://www.erametsaliit.ee/documents/2013/12/eeml-i-arengukava-2014-2020.pdf | Policies supporting sustainable forest management, ... of which, in privately owned forests | 2014-2020 | The Estonian Private Forest Union (EPFU) is an umbrella organisation for the local organisations of private forest owners |

| | | | | |
|---|--|---|------------|--|
| 4 | Eesti metsapoliitika (Estonian Forest Policy), available at https://www.riigiteataja.ee/akt/73663 | Policies supporting sustainable forest management | 1997-... | adopted by Parliament in 1997 valid till now |
| 5 | Eesti Metsanduse Arengukava aastani 2020 (Estonian Forestry Development Program (EFDP) until 2020), available at https://www.riigiteataja.ee/akt/3180/2201/1003/Eesti_%20metsanduse_arengukava.pdf | Policies supporting sustainable forest management | 2011-20120 | EFDP is implementation program for national forest policy |
| 6 | Metsaseadus (Forest Act), available at https://www.riigiteataja.ee/akt/MS (english translation available at https://www.riigiteataja.ee/en/eli/524032014004/consolide) | Legislation and regulations supporting sustainable forest management, in publicly and privately owned forests | 2007-... | Forest Act is in force since 1 January 2007 and has been several times amended |

10.2.2 Classification and definitions

| National class | Definition |
|----------------|------------|
| N/A | N/A |

10.2.3 Original data

| |
|--|
| |
|--|

10.3 Data

Table 10

| Category | | | | |
|---|----------|--------------|------------------|-------|
| | National | Sub-national | | |
| | | Regional | Provincial/State | Local |
| Policies supporting sustainable forest management | yes | no | no | no |
| ... of which, in publicly owned forests | yes | no | no | no |

| | | | | |
|--|-----|----|----|----|
| ... of which, in <u>privately</u> owned forests | yes | no | no | no |
| Legislation and regulations supporting sustainable forest management | yes | no | no | no |
| ... of which, in <u>publicly</u> owned forests | yes | no | no | no |
| ... of which, in <u>privately</u> owned forests | yes | no | no | no |

10.4 Comments

| Variable / category | Comments related to data definitions etc |
|--|--|
| Policies supporting sustainable forest management | Estonian National Forest Policy and its implementation program Estonian Forest Development Program until 2020 consider both private and public forests. There is no separate overall policies for public and private forestry but specific policy documents exist for main state forest managing company (Development Plan of State Forest Management Centre 2011–2014 and Development Plan Supplement Nature Conservation) and for private forestry umbrella and support organisations (Development Program of The Estonian Private Forest Union for 2014-2020 and Development Program for The Foundation Private Forest Centre and private forest support system in 2009-2013) |
| Legislation and regulations supporting sustainable forest management | Forest Act and several connected regulations are the main legislative basis for sustainable forest management in Estonia. Legislation is uniform for all forest owners if not stated otherwise in specific cases. There is no general legislative acts for private forestry and public forestry. Several specific regulations are valid for state forests (e.g. Statutes of State Forest Management Centre, Regulation for stumpage and timber sales from state forests) and private forests (regulations which consider support and subsidies for private forest owners). |

Other general comments

| |
|--|
| |
|--|

11. Is there a national platform that promotes stakeholder participation in forest policy development?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

11.1 Categories and definitions

| Category | Definition |
|-------------------------------|---|
| National stakeholder platform | A recognized procedure that a broad range of stakeholders can use to provide opinions, suggestions, analysis, recommendations and other input into the development of national forest policy. |

11.2 National data

11.2.1 Data sources

| | References to sources of information | Years | Additional comments |
|---|--|-----------|--|
| 1 | Ministry of Environment, information about the formation of Forestry Council, available at http://www.envir.ee/992316 | 2012 | N/A |
| 2 | Eesti metsanduse arengukava aastani 2020 (Estonian Forestry Development Program 2020) available at https://www.riigiteataja.ee/akti/3180/2201/1003/Eesti_%20metsanduse_arengukava.pdf | 2011-2020 | Program section 4.2 Intersectoral cooperation foresees the establishment and tasks of the Forestry Council |
| 3 | Metsaseadus (Forest Act), available at State Gazette website https://www.riigiteataja.ee/en/eli/524032014004/consolide | N/A | Establishment of working group for forestry development program compilation, stakeholder participation |
| 4 | N/A | N/A | N/A |

Table 11

| | |
|---|-----|
| Is there a national platform that promotes or allows for stakeholder participation in forest policy development? | yes |
|---|-----|

11.3 Comments

| Category | Comments related to data definitions etc |
|----------|--|
|----------|--|

| | |
|-------------------------------|--|
| National stakeholder platform | The highest level of stakeholder involvement is Forestry Council. Present Forestry Council was formed with the Directive of the Minister of Environment No 44 in 11.01.2012. Main aim of the Forestry Council is to support the implementation of the Forestry Development Program until 2020 and to include different stakeholders in solving the strategic problems in forestry. Council includes representatives from Estonian University of Life Sciences, Estonian Environment Agency; Estonian Private Forest Union; Tartu University; Estonian Council of Environmental NGOs; Estonian Forest and Wood Industries Association; State Forest Management Centre; Foundation Private Forest Centre; Ministry of Economic Affairs and Communications; Parliament; Ministry of Agriculture; Ministry of Environment. |
|-------------------------------|--|

Other general comments

Forest sector takeholders are also involved in compilation and drafting of the Forestry Development Program, Forest Act and other forest-related policy and legislation formulation processes.

Forest Act states the inclusion of stakeholders in Forest Development Program compilation process:

Forest Act:

§ 7. *Development plan of field covering forestry*

(4) The Minister of the Environment will establish a working group for the preparation of the forestry development plan and the research institutions engaged in forestry and other relevant interest groups related to forestry will be involved in the activities of the group.

12. What is the forest area intended to be in permanent forest land use and how has it changed over time?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

12.1 Categories and definitions

| Category | Definition |
|---|---|
| Forest area intended to be in permanent forest land use | Forest area that is designated or expected to be retained as forest and is highly unlikely to be converted to other land use. |
| ...of which permanent forest estate (<i>sub-category</i>) | Forest area that is designated by law or regulation to be retained as forest and may not be converted to other land use. |

12.2 National data

12.2.1 Data sources

| | References to sources of information | Variables | Years | Additional comments |
|---|--|--|-------|---|
| 1 | Forest Act, available at State Gazette web-site: https://www.riigiteataja.ee/en/eli/524032014004/consolide | ...of which permanent forest estate (sub-category) | 2010 | Act provides share of mainland to be retained as public forest land |
| 2 | N/A | N/A | N/A | N/A |
| 3 | N/A | N/A | N/A | N/A |
| 4 | N/A | N/A | N/A | N/A |

12.2.2 Classification and definitions

| National class | Definition |
|---------------------------------|---|
| Area of permanent forest estate | Forest area that is designated by law or regulation to be retained as forest land and may not be converted to other land use. |
| N/A | N/A |
| N/A | N/A |
| N/A | N/A |

12.2.3 Original data

| |
|--|
| |
|--|

12.3 Analysis and processing of national data

12.3.1 Adjustment

| |
|-------------|
| Not applied |
|-------------|

12.3.2 Estimation and forecasting

| |
|-------------|
| Not applied |
|-------------|

12.3.3 Reclassification

| |
|--------------|
| Not applied. |
|--------------|

12.4 Data

Table 12

| Categories | | Forest area 2010 (000 ha) |
|---|---|---------------------------|
|  | Forest area intended to be in permanent forest land use | |
|  | ... of which permanent forest estate | 905 |

Tiers

| Category | Tier for status |
|---|-----------------|
| Forest area intended to be in permanent forest land use | Tier 1 |
| Permanent forest estate | Tier 1 |

Tier Criteria

| Category | Tier for status |
|---|---|
| Forest area intended to be in permanent forest land use | Tier 3 : National or sub-national land use plans strategy documents or other reports within the past 10 years Tier 2 : National or sub-national land use plans strategy documents or other reports within the past 20 years Tier 1 : Other |
| Permanent forest estate | Tier 3 : National or sub-national land use plans strategy documents or other reports within the past 10 years Tier 2 : National or sub-national land use plans strategy documents or other reports within the past 20 years Tier 1 : Other |

12.5 Comments

| Category | Comments related to data definitions etc |
|----------|--|
|----------|--|

| | |
|---|---|
| Forest area intended to be in permanent forest land use | There is no fixed forest land area to be in permanent forest land use in Estonia. |
| Permanent forest estate | Forest Act: § 5. State forest land (1) In order to ensure the stable state of the environment and multiple uses of forest, the area of state forest land must be at least 20 per cent of the area of the mainland of the Republic of Estonia. |

Other general comments

| |
|---|
| <p>According to Forest Act deforestation is allowed in specific when certain legal procedures have been carried out:</p> <p>§ 32. Deforestation</p> <p>(1) Deforestation means the cutting that is done in order to enable the use of land for purposes other than silviculture.</p> <p>(2) Deforestation is carried out:</p> <p>2) on the basis of building design documentation conforming to the provisions of the Building Act or Land Improvement Act, or on the basis of an operational plan of the electrical installation conforming to the provisions of the Electrical Safety Act if the preparation of a detailed plan is not mandatory;</p> <p>4) on the basis of other valid design documentation, maintenance schedule or document arising from legislation which serves as the basis for the use of land for purposes other than forest management.</p> |
|---|

13. How does your country measure and report progress towards SFM at the national level?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

13.1 Categories and definitions

| Category | Definition |
|--|--|
| Forest area monitored under a national forest monitoring framework | Forest area monitored by a national monitoring framework or systems that provide measurement based periodic monitoring of forest extent and quality. |
| Forest reporting at national scale | National reporting of forest extent and characteristics that includes some measure of progress toward sustainable forest management. |

13.2 National data

13.2.1 Data sources

| | References to sources of information | Variables | Years | Additional comments |
|---|---|-----------------------------------|------------|----------------------------|
| 1 | National Forest Inventory, see introduction to present report, annual publication | Forest Inventory | 1999-2012 | N/A |
| 2 | Standwise forest inventory data in State Register for Accounting of Forest Resources, data accessible at public web-service (http://register.metsad.ee/avalik/) and statistics in forestry statistics yearbook | Other field assessments | continuous | at 10-year interval |
| 3 | Sustainable forest management in Estonia", 2003, Centre of Forest Protection and Silviculture, http://www.keskkonnainfo.ee/publications/16285_PDF.pdf | Criteria and Indicators reporting | 2003 | Report to MCPFE conference |
| 4 | National Forest Inventory yearbook "Eesti metsad", http://www.keskkonnainfo.ee/main/index.php/et/vaeljaanded-ja-uelevaated/vaeljaanded-ja-uelevaated available at | Other type of forest reporting | 2004-2010 | N/A |

| | | | | |
|---|---|--|------------|---|
| 5 | Statistical Yearbook of Forestry "Mets", available at http://www.keskkonnainfo.ee/main/index.php/et/vaeljaanded-ja-uelevaated/vaeljaanded-ja-uelevaated | Other type of forest reporting | 2002-2011 | N/A |
| 6 | Forestry sector overviews "Estonian Forests", available at http://www.keskkonnainfo.ee/failid/forestry2011/EstonianForestry.swf | Periodic national state of the forest report | 2009, 2011 | Initially published for World Forest Congress in Buenos Aires |

13.2.2 Classification and definitions

| National class | Definition |
|----------------|------------|
| N/A | N/A |

13.3 Data

Table 13a

| Category | % of total forest area | Most recent year | Check all boxes that apply | | | | | |
|--------------------------|------------------------|------------------|----------------------------|----------|------------------------|------------------------|------------------------------------|-------------------------------------|
| | | | Continuous | Periodic | Permanent ground plots | Temporary ground plots | Aerial/remote sensing sample based | Aerial/remote sensing full coverage |
| Forest inventory | 100 | 2013 | yes | no | yes | yes | no | no |
| Other field assessments | 75 | 2013 | yes | yes | no | no | no | yes |
| Updates to other sources | N/A | N/A | | | | | | |
| Expert estimate | N/A | N/A | | | | | | |

Table 13b

| Type of forest reporting used at national scale | Check boxes that apply |
|---|------------------------|
| 1 Criteria and Indicators reporting | yes |

| | |
|--|-----|
| 2 Periodic national state of the forest report | yes |
| 3 Other (please document) | yes |
| 4 None | |

Other type of forest reporting

Other type of forest reporting include Forestry Statistical Yearbook "Mets" and NFI yearbook "Eesti metsad". Several international reporting processes include Estonian national reports (FRA, MCPFE, GHG reporting)

13.4 Comments

| Category | Comments |
|--|--|
| Criteria and indicators reporting | National reports have been compiled for MCPFE (Forest Europe) conferences at irregular interval. Most of the data for MCPFE SFM criteria and indicators can be found (although not presented in C&I framework) in Forestry Statistical Yearbook "Mets" or for forest resources in NFI Yearbook "Eesti metsad" |
| Periodic national state of the forest report | Ministry of the Environment has compiled the implementation reports for National Forestry Development Programme until 2020 in recent years. Several forest sector overviews have been compiled in recent years ("Estonian forestry") but not with regular periodicity. |
| Other field assessments: | Stand-wise forest inventory, mostly visual assessment in forest with compilation of Forest Management Plan as final output for owner; inventory data are kept in national register. Aerial photographs are used in inventory process for delineation of subcompartments and assessment of stand composition. State Forest Management Centre carries out continuous inventory but other forest owners use periodic inventory (data cannot be older than 10 years). Forest inventory data in national register is precondition for regeneration fellings, thinnings and selection felling. For private physical forest owners with forest land less than 5 hectares per holding (2 hectares for other owners) the existence of standwise forest inventory is not compulsory. |

Other general comments

14. What is the area of forest under a forest management plan and how is this monitored?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

14.1 Categories and definitions

| Category | Definition |
|--|---|
| Forest area with management plan | Forest area that has a long-term documented management plan, aiming at defined management goals which is periodically revised |
| ...of which for production (<i>sub-category</i>) | Forest management plan mainly focused on production |
| ...of which for conservation (<i>sub-category</i>) | Forest management plan mainly focused on conservation |
| Monitoring of forest management plans | Government monitoring of forest management plan implementation conducted through field visits or audits of forest management plan performance |

14.2 National data

14.2.1 Data sources

| | References to sources of information | Variables | Years | Additional comments |
|---|---|---|------------------|--|
| 1 | Estonian Environment Agency, Forest Register http://register.metsad.ee/avalik/ , calculations made for present report | Forest with management plan, .. of which for production, .. of which for conservation | as of 01.01.2013 | Register contains stand-wise forest inventory data for all ownership categories. |
| 2 | N/A | N/A | N/A | N/A |
| 3 | N/A | N/A | N/A | N/A |
| 4 | N/A | N/A | N/A | N/A |

14.3 Data

Table 14a

| Forest plan type | Forest area 2010 (000 ha) |
|----------------------------------|---------------------------|
| Forest area with management plan | 1650.9 |
| ... of which for production | 1493.3 |
| ... of which for conservation | 157.6 |

Table 14b

| |
|---|
| Indicate which (if any) of the following are required in forest management plans in your country |
|---|

| | |
|---|-----|
| 1 Soil and water management | yes |
| 2 High conservation value forest delineation | yes |
| 3 Social considerations community involvement | yes |

Table 14c

| | |
|--|------------|
| Percent of area under forest management plan that is monitored annually | N/A |
|--|------------|

Tiers

| Category | Tier for status |
|---|-----------------|
| Forest area with management plan | Tier 3 |
| Percent of area under forest management plan that is monitored annually | N/A |

Tier criteria

| Category | Tier for status |
|---|---|
| Forest area with management plan | Tier 3 : Reports that describe national records 5 years old or less that contain long-term forest monitoring plans Tier 2 : Industry or other records indicating the presence of a long-term forest management plan Tier 1 : Other |
| Percent of area under forest management plan that is monitored annually | Tier 3 : Government documentation of monitoring extent Tier 2 : Reports from forest managers or other documental sources Tier 1 : Other |

14.4 Comments

| Category | Comments |
|--|---|
| Forest area with management plan | Data in table 14.a refers to situation at 1. January 2013. Query from the Forest Register, forest area with valid (– not older than 10 years) management plans. Forest management plan is not compulsory from year 2009, instead the standwise forest inventory data not older than 10 years which has been registered in Forest Register is pre-requisite for most of forest management activities. |
| Soil and water management | Stand-wise forest inventory data include status of and possible suggestions for melioration. Detailed forest site type classifications is connected to soil types and and water regime, site type is compulsory indicator in inventory data. |
| High conservation value forest delineation | Forest inventory data for every sub-compartment (as basic unit of standwise forest inventory) include reason of protection (if exists) and possibilty to register indicators of high biological value. There is no specific protection and production plans. Forest inventory data (and forest management plan) are compiled at property unit level; it may include both production and protection forests. |

Other general comments

Social considerations community involvement: . In private forests the forest owner is entitled to participate in compilation of forest management plan (licenced companies have to consider the wishes of owner). All valid forest inventory data (not older than 10 years) and forest notifications (document sent prior to the forest management activity by forest owner for approval to forest authority) are made public in limited extent on public web service (<http://register.metsad.ee/avalik/>) . So every forest owner can follow the forest management activities of other forest owners. State forest management Centre (manager of majority of state forests) informs local stakeholders after FMP compilation process and displays plans for public in special events and on web-site.

Percent of area under forest management plan that is monitored annually: There is no fixed system of monitoring of FMP-s. Next round of stand-wise forest inventory describes activities performed during previous period. Most of the attention of authorities is focussed on legality of planned and performed management activities. FMP is not compulsory and has more advisory character. Several inventories (including NFI) estimate the amount and quality of performed activities.

15. How are stakeholders involved in the management decision making for publicly owned forests?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

15.1 Categories and definitions

| Category | Definition |
|-------------------------|---|
| Stakeholder involvement | Stakeholder involvement is defined as significant inputs into at least one aspect of forest management at the operational scale |

Table 15

| Please indicate the type of stakeholder involvement in forest management decision making required in your country | |
|---|----|
| 1. Planning phase | no |
| 2. Operations phase | no |
| 3. Review of operations | no |

Tiers

| Category | Tier for status |
|----------------------------|-----------------|
| Type of stakeholder inputs | Tier 1 |

Tier criteria

| Category | Tier for status |
|----------------------------|--|
| Type of stakeholder inputs | Tier 3 : Government (national or sub-national) documentation of stakeholder inputs Tier 2 : Government (national or subnational) requirement but stakeholder inputs not documented Tier 1 : Other |

15.2 Comments

| Category | Comments |
|----------|----------|
| N/A | N/A |
| N/A | N/A |
| N/A | N/A |

Other general comments

There is no official stakeholder process in planning, operational or review phase in public forests. Stakeholders are informed but not actively involved in management decision making for publicly owned forests. Stakeholders are actively involved in national forestry round-table (Forestry Council), policy formulation processes (Forest Development Plan, RDP, other national policies) and

legislation formulation processes i.e. indirect influence on forest management via policies and legislation. Forest management plans are publicly available from forest managing institutions and in State Register for Accounting of Forest Resources. All public forest owners with forest area more than 1000 ha must submit for approval every year the area of stands for regeneration fellings (by dominant tree species of stands) for next 5 years. Optimum regeneration felling area is analysed by Estonian Environment Agency and approved by regulation of the Minister of Environment. Majority of public forest land is managed by State Forest Management Centre (SFMC, state profit institution). SFMC informs local stakeholders after compiling new FMP-s, public event where all stakeholders are welcome. SFMC publishes list of possible regeneration felling areas for next 3 years on their website. Forest notification (document sent to authorities prior to operations in forest and approved by Estonian Environment Board) information about planned fellings and occurred severe forest damages is available at public GIS web-service (<http://register.metsad.ee/avalik/>).

16. What is the area of forest under an independently verified forest certification scheme?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

16.1 Categories and definitions

| Category | Definition |
|---|--|
| FSC certification | Forest area certified under the Forest Stewardship Council certification scheme |
| PEFC certification | Forest area certified under the Programme for the Endorsement of Forest Certification scheme |
| Other international forest management certification | Forest area certified under an international forest management certification scheme with published standards and is independently verified by a third-party, excluding FSC and PEFC certification. |
| Certified forest area using a domestic forest management certification scheme | Area certified under a forest management certification scheme with published standards that are nationally recognized and independently verified by a thirdparty |

16.2 Data

Table 16a

| International forest management certification | | Forest area (000 ha) | | | | | | |
|---|-------|----------------------|---------|---------|---------|---------|---------|---------|
| | | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|  | FSC | 0 | 0 | 1082.6 | 1082.6 | 1082.6 | 1083.05 | 1083.36 |
|  | PEFC | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | |
|  | FSC | 1063.91 | 1083.23 | 1082.92 | 1081.96 | 1086.94 | 1106.5 | |
|  | PEFC | 0 | 0 | 0 | 51.468 | 878.468 | 897.688 | |
|  | Other | 0 | 0 | 0 | 0 | 0 | 0 | |

Table 16b

| Domestic forest management certification | | Forest area (000 ha) | | | | | | |
|---|-----|----------------------|------|------|------|------|------|------|
| | | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|  | N/A | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | N/A | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | N/A | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | |
|---|--|------|------|------|------|------|------|--|
|  | | 0 | 0 | 0 | 0 | 0 | 0 | |
|  | | 0 | 0 | 0 | 0 | 0 | 0 | |
|  | | 0 | 0 | 0 | 0 | 0 | 0 | |

Tier criteria

| Category | Tier for status |
|--|--|
| International forest management certification | Tier 3: International forest management scheme records maintained by the certifying organization for the reporting year Tier 2: International forest management scheme records reported by the certifying organization for a period 2 years prior to the reporting year Tier: 1 Other |
| Domestic forest management certification | Tier 3: National registry reports for domestic forest management certification maintained by the certifying organization for the reporting year Tier 2: Domestic forest management scheme records reported by the certifying organization for a period 2 years prior to the reporting year Tier: 1 Other |

Tiers

| Category | Tier for status |
|--|-----------------|
| International forest management certification | Tier 3 |
| Domestic forest management certification | N/A |

16.3 Comments

| Category | Comments related to data definitions etc |
|---|---|
| Certified forest area using an international forest management certification scheme | Estonian PEFC certification scheme was endorsed in 2008. There is no other FM certification schemes available except FSC and PEFC |
| Domestic forest management certification | There is no domestic forest management certification schemes in Estonia. |

Other general comments

| |
|--|
| |
|--|

17. How much money do governments collect from and spend on forests?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

17.1 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 revenue include: <ul style="list-style-type: none"> • Goods : roundwood; sawnwood; biomass; woodbased panels; pulp and paper and non-wood forest products. • Services : including concession fees and royalties, stumpage payments, public timber sales revenue taxes and charges based on forest area or yield, taxes on domestic trade and export of forest products, special levies on forestry activities and payments into forest related funds, other miscellaneous inspection, licence and administrative fees levied by forest administrations, permit and licence fees for recreation and other forest related activities. |
| Public expenditure on forestry | All government expenditure on forest related activities. |

17.2 National data

17.2.1 Data sources

| | References to sources of information | Variables | Years | Additional comments |
|---|--|--------------------------------|------------|---------------------|
| 1 | Estonian Statistical Office, query made for present report | Public expenditure on forestry | 2005, 2010 | N/A |
| 2 | N/A | N/A | N/A | N/A |
| 3 | N/A | N/A | N/A | N/A |
| 4 | N/A | N/A | N/A | N/A |

17.3 Data

Table 17

| Category | Revenues / expenditures (000 local currency) | | |
|--------------------------------|--|-------|-------|
| | 2000 | 2005 | 2010 |
| Forest revenue | N/A | N/A | N/A |
| Public expenditure on forestry | N/A | 46279 | 72762 |

| | | | |
|------------------------|------|------|------|
| | 2000 | 2005 | 2010 |
| Name of Local Currency | EEK | EEK | EEK |

17.4 Comments

| Category | Comments related to data definitions etc |
|--------------------------------|---|
| Forest revenue | No published data available for years 2000, 2005 and 2010. Data are located in different datasets e.g. Estonian Statistical Office is able to provide from National Accounts the Employers' social contributions (D.121) and Other taxes on production (taxes on land, pollution resulting from production activities, charge for special exploitation of water, tax on use of motor vehicles, etc - D.29): relevant figures for year 2000 are 528,3 and 60,8 million EEK and for year 2005 1 006,4 and 86,6 million EEK (including data for NACE 02, 20, 21, 361). For the reference years Tax and Customs Board cannot provide relevant figures for VAT and other taxes according to same categories. On the revenue side the functional classification is not used in system of public sector financial statements (see comments below). |
| Public expenditure on forestry | Starting from 2004 government finance statistics are based on the detailed data from the Ministry of Finance's information system of public sector financial statements (PSFS). Reports presented in PSFS include the functional classification of expenditure. Government expenditure on forestry are allocated to function 04220 "Forestry" (according to the COFOG-il. - Classification of the Functions of Government) and include operating costs, expenditure on fixed assets, transfers and subsidies to support forest activities. |
| Other general comments | N/A |

Other general comments

| |
|--|
| |
|--|

18. Who owns and manages the forests and how has this changed?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

18.1 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. |
| ...of which owned by the state at national scale (<i>sub-category</i>) | Forest owned by the State at the national scale or administrative units of the public administration or by institutions or corporations owned by the public administration. |
| ...of which owned by the state at the sub-national government scale (<i>sub-category</i>) | Forest owned by the State at the sub-national government scale 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 cooperatives corporations and other business entities, private, religious and educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions. |
| ...of which individuals (<i>sub-category</i>) | Forest owned by individuals and families. |
| ...of which private business entities and institutions (<i>sub-category</i>) | Forest owned by private corporations cooperatives companies and other business entities as well as private nonprofit organizations such as NGOs nature conservation associations, and private religious and educational institutions etc. |
| ...of which local tribal and indigenous communities (<i>sub-category</i>) | Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a forest area or forest owned by communities of indigenous or tribal people The community members are coowners that share exclusive rights and duties and benefits contribute to the community development. |
| Unknown ownership | Forest area where ownership is unknown includes areas where ownership is unclear or disputed. |
| Categories related to management rights of public forests | Definition |
| 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 companies | Forest management rights and responsibilities are transferred from the Public Administration to corporations, other business entities private cooperatives, private nonprofit 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. |

18.2 National data

18.2.1 Data sources

| | References to sources of information | Variables | Years | Additional comments |
|---|---|---|------------------|---|
| 1 | Land Title Book https://kinnistusraamat.rik.ee | Ownership categories | 2000, 2005, 2010 | N/A |
| 2 | Land cadastre (Land Board) http://xgis.maaamet.ee | Forest area registered in land cadastre | 2000, 2005, 2010 | N/A |
| 3 | “Eesti Metsad 2012” (Estonian Forests 2012), Tallinn 2014 http://www.keskkonnainfo.ee/ | Forest area by ownership categories | 2010, 2012 | NFI 2012 |
| 4 | Calculations for FRA 2015, unpublished | Forest area by ownership categories | 2000, 2005, 2010 | NFI data (combined) from period 2000–2012 |

18.2.2 Classification and definitions

| National class | Definition |
|---|--|
| Public ownership | According to used FRA 2015 definition. |
| Private ownership | According to used FRA 2015 definition. |
| ...of which owned by individuals | According to used FRA 2015 definition. |
| ...of which owned by private business entities and institutions | According to used FRA 2015 definition. |
| Land left for privatization | According to law (– Ownership Reform program): land, which had been unlawfully expropriated in 1940, was due to be returned to its initial owners or to their descendants. In case, there is no subjects of ownership reform – land left for privatization. Sub-category of public ownership, classified as ‘Unknown ownership’. |

18.2.3 Original data

| FRA2015 Categories | Forest area (000 hectares) | | | |
|----------------------------------|----------------------------|------|------|------|
| | 1988 | 2000 | 2005 | 2010 |
| Public ownership | 1916 | 899 | 894 | 923 |
| Private ownership | 0 | 953 | 978 | 1038 |
| ...of which owned by individuals | 0 | 793 | 783 | 746 |

| | | | | |
|---|-------------|-------------|-------------|-------------|
| ...of which owned by private business entities and institutions | 0 | 160 | 195 | 292 |
| Other types of ownership | 0 | 391 | 380 | 273 |
| TOTAL | 1916 | 2243 | 2252 | 2234 |

18.3 Analysis and processing of national data

18.3.1 Adjustment

Not applied.

18.3.2 Estimation and forecasting

In 1990, under the Soviet occupation, the only ownership category was public ownership.

The National Forest Inventory results of 2000–2012 are combined during data processing using data of the Land Cadastre and the Land Title Book:

- Year 2000 is calculated using the NFI data from 2000–2003;
- Estimations for 2005 and 2010 – average values of the NFI data from 2003–2007 and 2008–2012, respectively.

18.3.3 Reclassification

National class ‘Land left for privatization’ classified as ‘Unknown ownership’.

18.4 Data

Table 18a

| Categories | | Forest area (1000 hectares) | | | |
|---|---|-----------------------------|------|------|------|
| | | 1990 | 2000 | 2005 | 2010 |
|  | Public ownership | 2206 | 899 | 894 | 923 |
|  | ... of which owned by the state at national scale | N/A | N/A | N/A | N/A |

| | | | | | |
|-------|--|---------|---------|---------|---------|
| | ... of which owned by the state at the sub-national government scale | N/A | N/A | N/A | N/A |
| | Private ownership | 0 | 953 | 978 | 1038 |
| | ... of which owned by individuals | 0 | 793 | 783 | 746 |
| | ... of which owned by private business entities and institutions | 0 | 160 | 195 | 292 |
| | ... of which owned by local, tribal and indigenous communities | 0 | 0 | 0 | 0 |
| | Unknown ownership | 0 | 391 | 380 | 273 |
| TOTAL | | 2206.00 | 2243.00 | 2252.00 | 2234.00 |

Tiers

| Category | Tier for status | Tier for reported trend |
|-------------------|-----------------|-------------------------|
| Public ownership | Tier 3 | Tier 3 |
| Private ownership | Tier 3 | Tier 3 |
| Unknown ownership | Tier 3 | Tier 3 |

Tier criteria

| Category | Tier for status | Tier for reported trend |
|-----------|--|---|
| Ownership | Tier 3: National forestry statistics registers of land titles or maps on land ownership or all forest area under one ownership category that is five years old or less. Tier 2: National forestry statistics registers of land titles or maps on land ownership or questionnaires that are more than five years old. Tier 1: Other | Tier 3 : Estimate based on repeated compatible tiers 3 (tier for status) Tier 2 : Estimate based on repeated compatible tier 2 or combination tier 3 and 2 or 1 (tier for status) Tier 1 : Other |

Table 18b - Holder of management rights of public forests

| Categories | Forest area (000 hectares) | | | |
|-----------------------|----------------------------|------|------|------|
| | 1990 | 2000 | 2005 | 2010 |
| Public Administration | 2206 | 898 | 893 | 922 |
| Individuals | 0 | 1 | 1 | 1 |
| Private companies | 0 | 0 | 0 | 0 |

| | | | | |
|-------------|---------|--------|--------|--------|
| Communities | 0 | 0 | 0 | 0 |
| Other | 0 | 0 | 0 | 0 |
| TOTAL | 2206.00 | 899.00 | 894.00 | 923.00 |

| Category | Tier for reported trend | Tier for status |
|-----------------------|-------------------------|-----------------|
| Public Administration | Tier 3 | Tier 3 |
| Individuals | Tier 3 | Tier 3 |
| Private companies | Tier 3 | Tier 3 |
| Communities | Tier 3 | Tier 3 |
| Other | Tier 3 | Tier 3 |

18.5 Comments

| Category | Comments related to data definitions etc | Comments on the reported trend |
|-------------------|--|---|
| Public ownership | NFI 2000–2012, Land Cadastre, Land Title Book | Forest land, bounded by the "land left for privatization", shall be owned by the state (State Forest Management Centre) in general politics. |
| Private ownership | NFI 2000–2012, Land Cadastre, Land Title Book | In 1990, private forest ownership was absent, until the land reform started in 1993 in Estonia. The latest trend shows that private ownership owned by individuals goes slightly downwards due to increasing area of land owned by private business entities. |
| Unknown ownership | Land left for privatization (sub-category of public ownership). NFI 2000–2012, Land Cadastre | Decreasing trend - until the finish of the land reform program. |
| Management rights | By default, holder of management rights of public forest is public administration. Individuals could hold management rights by law: a) on hereditary farm land https://www.riigiteataja.ee/ert/act.jsp?id=22203 b) by usufruct of agricultural land https://www.riigiteataja.ee/ert/act.jsp?id=13183713 | N/A |

Other general comments to the table

N/A

19. How many people are directly employed in forestry?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

19.1 Categories and definitions

| Category | Definition |
|-----------------------------|--|
| Full-time equivalents (FTE) | A measurement equal to one person working full-time during a specified reference period. |
| Employment in forestry | Employment in activities related to production of goods derived from forests. This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging). |

19.2 National data

19.2.1 Data sources

| | References to sources of information | Variables | Years | Additional comments |
|---|--|--|------------------------|---------------------|
| 1 | Estonian Labor Force Survey results, Estonian Statistical Office on-line database available at http://pub.stat.ee/px-web.2001/I_Databas/Social_life/09Labour_market/04Employed_persons/02Annual_statistics/02Annual_statistics.asp ; Statistical observation: ML0201: EMPLOYED PERSONS by Indicator, Economic activity (EMTAK 2008), Sex and Year | Employment in forestry, .. of which female | 1990, 2000, 2005, 2010 | N/A |
| 2 | N/A | N/A | N/A | N/A |
| 3 | N/A | N/A | N/A | N/A |
| 4 | N/A | N/A | N/A | N/A |

19.2.2 Classification and definitions

| National class | Definition |
|------------------------|--|
| Employment in forestry | According to FRA 2015 definition: Estonian Classification of Economic Activities (EMTAK 2008) is based on NACE, Rev. 2 |
| N/A | N/A |
| N/A | N/A |
| N/A | N/A |

19.2.3 Original data

| Employed* | Employed persons, thousands | | | |
|--|-----------------------------|------|------|------|
| ..forestry and logging | 1990 | 2000 | 2005 | 2010 |
| Males and females | 9,8 | 9,1 | 6,1 | 5,8 |
| Females | 2 | 0,8 | 0,5 | 0,7 |
| annual average * | | | | |
| 1990: employed persons aged 15-69; | | | | |
| 2000, 2005, 2010: employed persons aged 15-74. | | | | |

19.3 Data

Table 19

| Category | | Employment (000 years FTE) | | | |
|---|------------------------|----------------------------|------|------|------|
| | | 1990 | 2000 | 2005 | 2010 |
|  | Employment in forestry | 9.8 | 9.1 | 6.1 | 5.8 |
|  | ... of which female | 2 | 0.8 | 0.5 | 0.7 |

19.4 Comments

| Category | Comments related to data definitions etc | Comments on the reported trend |
|------------------------|--|--------------------------------|
| Employment in forestry | Number of employed persons include for 1990 employed persons aged 15-69 and for 2000, 2005, 2010 persons aged 15-74. | N/A |

| Other general comments to the table |
|-------------------------------------|
| N/A |

20. What is the contribution of forestry to Gross Domestic Product (GDP)?

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

20.1 Categories and definitions

| Category | Definition |
|---|--|
| Gross value added from forestry (at basic prices) | This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging). |

20.2 Data

Table 20 (Pre-filled data from UNdata/EUROSTAT)

| Category | Million | Currency | Year for latest available information |
|---|---------|----------|---------------------------------------|
| Gross value added from forestry (at basic prices) | 269.25 | EURO | 2013 |

20.3 Comments

| Category | Comments |
|---|---|
| Gross value added from forestry (at basic prices) | Source: On-line database of the Estonian Statistical Office at http://pub.stat.ee/px-web.2001/I_Databas/Economy/23National_accounts/01Gross_domestic_product_(GDP)/11Gr Statistical observation NAA046: VALUE ADDED by Economic activity (EMTAK 2008) |

Other general comments

| |
|--|
| |
|--|

21. What is forest area likely to be in the future

Documents for this question:

- [Guide for country reporting FRA 2015](#)
- [FRA 2015 Terms and Definitions](#)

21.1 Categories and definitions

| Category | Definition |
|--|---|
| Government target/aspiration for forest area | Government target/aspiration for forest area for a specific year. |
| Forests earmarked for conversion | Forest area that is allocated/classified or scheduled to be converted into non-forest uses. |

21.2 National data

21.2.1 Data sources

| | References to sources of information | Variables | Years | Additional comments |
|---|--|--|-------|---------------------|
| 1 | Forest Act, English translation available at http://www.legaltext.ee/et/andmebaas/tekst.asp?loc=text&dok=XX00045K3&keel=en&pg=1&ptyyp=RT&tyyp=X&query=metsaseadus | Government target/aspiration for forest area | N/A | N/A |
| 2 | N/A | N/A | N/A | N/A |
| 3 | N/A | N/A | N/A | N/A |
| 4 | N/A | N/A | N/A | N/A |

21.3 Data

Table 21a

| Category | Forest area (000 ha) | |
|--|----------------------|------|
| | 2020 | 2030 |
| Government target/aspiration for forest area | N/A | N/A |

Table 21b

| Category | Forest area (000 ha) |
|----------------------------------|----------------------|
| | 2013 |
| Forests earmarked for conversion | N/A |

21.4 Comments

| Category | Comments |
|--|--|
| Government target/aspiration for forest area | There is no government target for forest area |
| Forests earmarked for conversion | Deforestation rules are described in Forest Act. There is no earmarked forest lands allocated for conversion. Deforestation rates: see table 1b. |

Other general comments

Only government target for forest area is set for state forest land in Forest Act

§ 5. State forest land

(1) In order to ensure the stable state of the environment and multiple uses of forest, the area of state forest land shall be at least 20 percent of the area of the mainland of the Republic of Estonia.