

GLOBAL FOREST RESOURCES ASSESSMENT 2015

COUNTRY REPORT

Sweden

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

The most important producers of official forestry statistics, in Sweden are the Swedish Forest Agency, the Swedish National Forest Inventory at the Swedish University of Agricultural Sciences and Statistics Sweden.

Swedish Forest Agency

The Swedish Forest Agency (Skogsstyrelsen) is the Government's expert authority on forests and forest policy. Their mission is to work for a sustainable utilisation of the Swedish forests according to the guidelines given by the Parliament and the Government. The SFA (Swedish Forest Agency) is as well responsible for producing Official Statistics of Sweden's forest. Annually, SFA publish a Statistical Yearbook of Forestry. The Statistical Yearbook of Forestry is a compilation of relevant official and unofficial statistics about Swedish forests, forestry and forest industry.

National Inventory of Landscapes in Sweden

National Inventory of Landscapes in Sweden (NILS) is a nation-wide environmental protection programme, financed by the Swedish Environmental Protection Agency (SEPA), but performed by the Swedish University of Agricultural Sciences (SLU) that monitors the conditions and changes in the Swedish landscape and how these changes influence the conditions for biodiversity. The programme was started in 2003 and finished their second cycle in 2012.

Swedish Forest Soil Inventory

The Swedish Forest Soil Inventory (SFSI), financed by SEPA, but performed by SLU, carries out long-term monitoring on the permanent sample plots of the Swedish National Forest Inventory. The Programme has been ongoing since 1983.

National Forest Inventory

The Swedish National Forest Inventory (NFI), financed and performed by SLU, is an annual inventory covering the entire area of Sweden. It is performed as a sampling survey with low sampling fraction. The objective of the inventory is to provide basic data for planning and control of the forest resource at the national and regional level and to give basic data for forest research. The main task is therefore to give information on the state and change of the forest resource and of land use.

The Swedish NFI has been ongoing since 1923. Since 1953, the inventory has covered the entire country every year. Since 1983, the annual sample has consisted of some 17,000 systematically distributed circular plots. Of these, 10,000–11,000 fall on productive forest land. The inventory consists of permanent plots with a radius of 10 m as well as temporary ones with a radius of 7 m. The permanent plots are re-inventoried after 5 years, thus allowing an effective estimation of changes. The main observations on all land are land use category, ownership category, growing stock, growth, tree distribution and recent felling. On productive forest land: terrain conditions, vegetation cover, maturity class, age, site quality, recent and suggested silvicultural measures, the degree of stocking damage and regeneration status (in young stands). From 2003 a modified methodology was introduced in the NFI, where also areas within National parks and Nature reserves were visited in the field. In the NILS-programme also Alpine areas are visited in the field, which is not the case in the NFI. Combining data from NILS and the NFI makes it now possible to report all land area by FRA2015 definitions of Forest, OWL and Other land. Calibration of earlier reported figures has been made to adjust time series not to show the modified methodology, but instead reasonably realistic trends. In this report no calibration to a fixed national area according to the UN has been made. Instead the area of Inland water bodies is fixed and the land class Other land has been used for balancing the total national area. Estimates for 2005 and 2010 has been made using NFI-data for other land of which with tree cover, while the figures for 1990 and 2000 has been set to the same area as for 2010 as an expert judgment of marginal change. In all, this has lead marginal changes overall.

The results of the NFI are in most cases unbiased, but may have significant sample errors. To secure a good precision for the estimates usually mean values from several years is used, generally a five year period. In the reporting for FRA 2015 data from the inventory years 2007-2011 has been used.

Target-tailored Forest Damage Inventory

The Swedish Target-tailored forest damage inventory (TFDI) is aiming at providing data for operational decision making at local level and linked to specific damage event and are undertaken at the Swedish University of Agricultural Sciences.

Although the Swedish NFI is an objective and uniform inventory of forest damage in Swedish forests at international, national and regional scales, less common or less widespread occurrences of forests pests and pathogens are difficult to survey solely through large-scale monitoring programmes. There is a need for complementary tailored inventories to facilitate timely delivery of relevant information. TDFIs are developed to give a rapid response to requested information on specific damage. The TDFIs are carried out in limited and concentrated samples, with flexible but robust methods and design.

Statistics Sweden

Statistics Sweden bears overall responsibility for coordination and supervising official statistics in Sweden. They also have particular responsibility for official statistics in certain broad social fields for example the labour market, the economy, trade and industry, population and welfare, housing and construction.

The forestry sector benefits especially from the statistics on industrial production and consumption of raw materials, foreign trade with forest- and forest industry products and transports of timber and stocks of timber, chips and sawn wood.

Swedish Rescue Services Agency

The Swedish Rescue Services Agency annually collects turn-out reports from the municipal fire brigades and read them into a national turn-out database from which statistics on forest fire can be drawn.

National Data and Transformation/Reclassification

The detailed information from the National Forest Inventory is annually recorded in a database. National reported statistics are extracted according to national definitions and needs. Original data can be extracted from the database according to the defined query put to the database. Depending on definitions and restrictions entered in the query different primary data can be extracted from the database.

In case of Sweden, when reporting for the FRA 2015, Sweden will in most cases not need to transform or “Reclassify” national forest data to FRA reporting tables with appurtenant classes and definitions. The main bulk of national information for the FRA 2015 global reporting tables can be extracted as primary data from the detailed NFI database using FRA 2015 variables and definitions. However since major changes has been made in the NFI methodology from 2003, earlier reported figures has been adjusted using expert judgements to reflect the actual lack of obvious trends.

Exceptions of data delivery not from the NFI are data on forest land and OWL-area within the alpine region and the estimates of below ground carbon, which are delivered by the SLU monitoring programmes NILS and SFSI. Additional data on protected land has also been extracted from the Swedish Forest Agency registers.

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	The National Forest Inventory (NFI).	Forest, Other wooded land, Other land, Other land of which with tree cover. The National Forest Inventory (NFI).	NFI-data since 1923. Years applied: 1990: 1988-19922000: 1998 – 20022005: 2003-20072010: 2007-20112015: Forecast; No change	The current NFI data permit direct calculation of data according to the FRA categories and definitions. Forest characteristics is here a combination of silvicultural measures and previous land use.
2	National Inventory of Landscapes in Sweden (NILS)	Forest, Other wooded land, Other land within Alpine areas	NILS-data since 2003. 2005: 2003-20072010: 2006-2010	The current NFI data combined with data from NILS within Alpine areas permit direct calculation of data according to the FRA categories and definitions.
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A

1.2.2 Classification and definitions

National class	Definition
Forest	According to FRA 2015 definition.
Other wooded land	According to FRA 2015 definition.
Other land with tree cover	According to FRA 2015 definition. Land classified as “Other land”, spanning more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity. In Sweden these areas mainly consists of power-lanes and agricultural land with occurrence of trees.
Afforestation	Annual successful silviculture on areas where the previous land use were not forest
Reforestation	Annual silvicultured area – reduced by annual afforestation
...of which on areas previously planted	Not possible to assess
Natural expansion of forest	Annual change of previously non forest land that is now classified as forest but that not has been silvicultured

1.2.3 Original data

Forest area				
Original national data for the reference years is extracted according to FRA 2015 categories and definitions.				
FRA Classes	Land area (1000 hectares)			
	1990	2000	2005	2010

Forest			28218	28073
Other wooded land			2544	2432
Other land				
... of which with tree cover			831	864
Total for country	41060	41071	40721	40727

Forest expansion, reforestation

The National Forest Inventory (NFI). Data inserted directly into Table 1b

1.3 Analysis and processing of national data

Forest area

The figures in the original data table above are estimates using original data from the NFI database.

Since the total area for Sweden in table 1a, including inland water bodies, is fixed to 45029' hectares the categorie "Other land" is used as a balance post.

Methodological changes within the NFI was made in 2003, therefore earlier reported figures are not comparable with 2005 and 2010. These changes concerned direct assessment in the field of the FAO-categories, inventory within National parks and Nature reserves and also the introduction of the NILS-programme from where estimates of the FAO categories within the alpine region can be made.

In order to report realistic time series we therefore completed table 1a in the following ways:

1. Analysis using permanent sample plots within the Swedish NFI showed that the Forest area for Sweden increased with 155' hectares between 1990 and 2005, i.e the reported Forest area in table 1a for 1990 is the direct estimate for 2005 decreased by 155' hectares ($28212-155=28063$). The reported Forest area for 2000 is a linear interpolation i.e the estimate for $1990+100'$ hectares ($28063+100=28163$).
2. A "best guess" is that no change has occurred for OWL, i.e. same figure for 1990 and 2000 as for 2010
3. A "best guess" is that no change has occurred for Other land of which with tree cover, i.e. same figure for 1990 and 2000 as for 2010.

Forest expansion, deforestation and reforestation

Forest expansion and deforestation for the reference years 2010 and 1990 is calculated as the annual gross change using permanent sample plots from the Swedish NFI inventoried with a 5-year interval. Due to economic difficulties this interval of re-inventory of permanent sample plots varied a lot between 1993 and 2002 and therefore no figures on forest expansion and deforestation can be given for reference years 2000 and 2005. The data indicates a very small net increase in forest area (Forest expansion minus deforestation) as an average between 2008-2012

Reforestation is calculated by a simple area estimate using sample plots where silviculture or natural regeneration has been performed the year before inventory, i.e. results can be given for all reference years.

1.3 Analysis and processing of national data

1.3.1 Adjustment

Not necessary.

1.3.2 Estimation and forecasting

Forest area

National data is available for current reporting year. The forecast for 2015 is “no change”.

1.3.3 Reclassification

Forest area

Not necessary.

1.4 Data

Table 1a

Categories		Area (000 hectares)				
		1990	2000	2005	2010	2015
	Forest	28063	28163	28218	28073	28073

	Other wooded land	2432	2432	2432	2432	2432
	Other land	10539	10439	10384	10529	10529
	... of which with tree cover	864	864	831	864	864
	Inland water bodies	3996	3996	3996	3996	3996
	TOTAL	45030.00	45030.00	45030.00	45030.00	45030.00

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	20.5	N/A	N/A	24.7	0	0	0	0
	... of which afforestation	0.43	N/A	N/A	0.03	0	0	0	0
	... of which natural expansion of forest	20	N/A	N/A	24.6	0	0	0	0
	Deforestation	23.9	N/A	N/A	14	0	0	0	0
	... of which human induced	23.9	N/A	N/A	14	0	0	0	0
	Reforestation	248.8	197.8	185.2	172.4	36.6	5.5	4.1	2.2
	... of which artificial	189.2	122.8	136.6	138.3	36.6	5.5	4.1	2.2

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 3	Tier 3

Tier criteria

Category	Tier for status	Tier for reported trend
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<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 Tier 2 : Data sources: Full cover mapping / remote sensing or old NFI (more than 10 years ago) 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>
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1.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trends
Forest	Due to recent changes in NFI methodology combined with data from NILS, areas according to the international definitions are assessed directly in the field. This improves the quality of the data.	Earlier reported trends were most probably no real trends since the data before 2003 were incomplete regarding alpine and protected areas. Since we now only have two reliable datapoints our expert judgement for 2015 is “No change”. The reported net increase i forest area in years 2008-2012 (table 1b), is very small in comparison to total forest area and well within the error margin of the point estimate for total forest area. We interpret the expansion figures as fluctuating and not a steady trend
Other wooded land	All area categories affected by changes in methodology.	No credible trend can be reported
Other land	All area categories affected by changes in methodology.	No credible trend can be reported
Other land with tree cover	All area categories affected by changes in methodology.	No credible trend can be reported
Inland water bodies	Fix area	No change
Forest expansion	Sweden has obviously misunderstood this in previous FRA-reporting.	No credible trend can be reported
Deforestation	N/A	No credible trend can be reported
Reforestation	...of which artificial Introduced species is Pinus contorta and Larix sp.	...of which artificial The large number for 1990 was partly the result of high harvest levels but more important it reflects that a lot of “catching up” of areas previously not planted were done in this period. The reason for the drop of area planted with P. Contorta is that it’s more regulated in the forestry act today.

Other general comments to the table

Since 1998 the FRA-definitions are applied in the field. Since 2003 areas within legally protected areas are included in the NFI-fieldwork. Additional areas of Forest and OWL within the alpine region has been estimated using data from the NILS monitoring program 2006--2010. 2015 forecast is identical to 2010, i.e. no forecast except ”no change” is made.

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 outside its natural range (past or present) and dispersal potential (i.e. outside the range it occupies naturally or could occupy without direct or indirect introduction or care by humans).
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
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1	The National Forest Inventory (NFI).	Forest characteristics	Years applied: 2000: 1998-2002 2005: 2003-2007 2010: 2007-2011	The NFI data combined with NILS-data does permit direct calculation according to some but not ALL the FRA categories and definitions (See explanations of national classes). Forest characteristics is here a combination of stand age, within or outside legally protected areas and the Swedish definitions on land use classes
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

2.2.2 Classification and definitions

National class	Definition
Primary forest	150 yrs, no forestry measures during the last 25 years, occurrence of large dead trees (dbh>25 cm), two or more tree-layers)-Forest within the alpine area-Subalpine spruce and pine forests" /> New definition compared to FRA2010 reporting:Includes:-Productive Forestland (national definition) with a high degree of naturalness (stand age > 150 yrs, no forestry measures during the last 25 years, occurrence of large dead trees (dbh>25 cm), two or more tree-layers)-Forest within the alpine area-Subalpine spruce and pine forests
Other naturally regenerated forest	All forests not considered as primary or planted. The regeneration method is not registered in the NFI unless conducted within the last 20 years.
...of which of introduced species	No natural regeneration of introduced species in Sweden (i.e in the NFI database)
Planted forest	Accumulations of annual planted area from the NFI 1953 and onwards
...of which of introduced species	Proportion of introduced species (i.e. Pinus Contorta in Sweden) at least 6 %

2.2.3 Original data

The National Forest Inventory (NFI). Data inserted directly into Table 2a. The estimate for planted forest is an accumulation of the annually silvicultured area since 1953.

TEST

OTHER TEXT

2.3 Analysis and processing of national data

2.3.1 Adjustment

Other naturally regenerated forest is a balance post, i.e. all forest area that is not Primary or Planted forest.

2.3.2 Estimation and forecasting

The interpreted definition of *primary* forest as implemented in FRA 2015 can not be applied to older data, not even data reported in FRA2010, mainly because of re-evaluation in how to interpret the definitions using NFI-data. Therefore the area of Primary forest is the same for all reference years in Table 2a.

The obvious trends for Table 2a is that the area of planted forest will increase, and also of which of introduced species. The area of Other naturally regenerated forest will decrease, however this is mainly a balance post. The reported forecasts are linear extrapolations of the reported figures for 1990, 2000, 2005 and 2010.

2.3.3 Reclassification

The category “Primary” has been interpreted as defined above. The category planted forests consists of all forests of introduced species plus the accumulated planted area of native species since 1953 . All other forests, i.e. when the regeneration method is unknown, is reported in the category other naturally regenerated forests.

2.4 Data

Table 2a

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Primary forest	2417	2417	2417	2417	2417
	Other naturally regenerated forest	18247	15907	14702	13092	11919
	... of which of introduced species	0	0	0	0	0
	... of which naturalized	0	0	0	0	0
	Planted forest	7399	9839	11099	12564	13737
	... of which of introduced species	520	618	642	642	693

TOTAL	28063.00	28163.00	28218.00	28073.00	28073.00
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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 3	Tier 3
Other naturally regenerated forest	Tier 3	Tier 3
Planted forest	Tier 3	Tier 3
Mangroves	Tier 3	Tier 3

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)</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>

2.5 Comments

Category	Comments related to data definitions etc	Comments on reported trend

Primary forest	The characteristic “primary” cannot be directly assessed from NFI and NILS data. We have opted to report the area from portions of the forest land where the forest is very likely to have characteristics matching the definition. For productive forest (national def.), the variable “naturalness” is used to identify primary forests. In low-productive forest, restrictions on forestry operations apply, increasing the likeliness of the forests matching the primary criteria. A few types of low productive forests in remote areas in northern Sweden are included. Also in other types of low-productive forests, primary forests may be found –with a decreasing likeliness to the south of the country. These types of low-productive forests are however not included.	The historical data cannot be adapted to the interpretation of the definition for 2010 due to changes in NFI design concerning both variables measured as well as the areas covered. Therefore no figures for Table 2b can be estimated.
Other naturally regenerating forest	This is forests not reported as primary or planted	N/A
Planted forest	The NFI register silvicultural operations, such as planting. This category is reported as the accumulated area that has been planted since 1953. (assuming that almost all of this forest has not yet been harvested).	The trend reflects that more and more of the Swedish forests are known to have been originally planted. For most of our current old growth forest we have no information on how they have been established.
Mangroves	No mangroves in Sweden	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	The National Forest Inventory (NFI).	Growing stock and growing stock composition Biomass Carbon	Years applied: 2000: 1998 – 2002 2005: 2003-2007 2010: 2007-2011 2015: Forecast	The NFI data permit direct calculation of data according to the FRA categories and definitions. The NFI data combined with the SFSI-data permits direct calculation according to the FRA categories and definitions, excluding volume of alpine birch. Forecast for 2015 is a simple extrapolation using reference years 2005 and 2010.

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

3.2.2 Classification and definitions

National class	Definition
Growing stock	=10 cm. Total volume, except volume in alpine birch areas, directly calculated using NFI-data. " /> All living trees on all Forest areas (see T1) and all living trees on all Other wooded land areas; Growing stock according to terms and definitions FRA 2015. Stem volume above stump of living trees includes bark, excludes branches, dbh >=10 cm. Total volume, except volume in alpine birch areas, directly calculated using NFI-data.
Net annual increment (NAI)	Increment per hectare and year on Forest including increment on trees harvested during the increment period, excluding increment in alpine birch areas, reduced by annual natural mortality per hectare.
Above-ground biomass	FRA 2015, alpine birch areas excluded
Below-ground biomass	FRA 2015, alpine birch areas excluded
Dead wood	FRA 2015 except dead wood in the soil. Alpine birch areas excluded.
Carbon in above-ground biomass	FRA 2015 definition. Minimum dbh 0 cm. Carbon = 0.5 x Biomass.
Carbon in below-ground biomass	FRA 2015 definition. Carbon = 0.5 x Biomass.
Carbon in dead wood	FRA 2015 except dead wood in the soil. Un-decomposed dead wood minimum dbh 4 cm. Decomposed dead wood minimum dbh 10 cm. Carbon = 0.5 x Biomass.
Carbon in litter	FRA 2015 definition. Includes also the humic layer, annual and coarse litter.
Soil carbon	FRA 2015 definition. Organic carbon in mineral soil down to 65 cm depth and organic soils (including peat) down to 50 cm chosen by the country and applied consistently through the time series.

3.2.3 Original data

Growing stock

Data for 2005 and 2010 calculated using the NFI database. Estimates for 1990 and 2000 by applying per ha values for 2005 on area estimates 1990 and 2000 respectively to get the total growing stock. The forecasting is made by extrapolation from 2005 and 2010. Volume from alpine birch areas not included in the growing stock.

Biomass stock

Data for 2010 calculated using the NFI database. Estimates for 1990 and 2000 by applying per ha values for 2005 on area estimates 1990 and 2000 respectively to get the total biomass. The forecasting is made by extrapolation from 2005 and 2010. Biomass from alpine birch areas not included in the growing stock.

Carbon stock

Data calculated using the NFI and the NFSI databases. Estimates for 1990 and 2000 by applying per ha values for 2005 on area estimates 1990 and 2000 respectively to get the carbon total. Carbon stock from alpine birch areas not included in the growing stock.

3.3 Analysis and processing of national data

3.3.1 Adjustment

Not needed.

3.3.2 Estimation and forecasting

Growing stock

National data is available for current reference years. The forecasting made using extrapolation from NFI estimates.

Biomass stock

See above.

3.3.3 Reclassification

Not needed.

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	2501.4	2703.2	2906.9	2947.7	2988.5	6	6.5	7	5.4	7
	... of which coniferous	2173.6	2313.1	2455.2	2468.2	2481.2	5.1	5.5	5.8	4.4	5.8
	... of which broadleaved	327.8	390.1	451.7	479.5	507.3	0.9	1	1.2	1	1.2

Table 3b

Category/Species name			Growing stock in forest (million cubic meters)			
Rank	Scientific name	Common name	1990	2000	2005	2010
1 st	<i>Picea abies</i>	Norway spruce	1139.5	1171.4	1248.4	1237.3
2 nd	<i>Pinus sylvestris</i>	Scots pine	1019	1118.4	1187.3	1204.6
3 rd	<i>Betula pubescens</i>	Downy birch	158.9	189.8	219.3	231.7
4 th	<i>Betula pendula</i>	Silver birch	55	68.3	77	81.4
5 th	<i>Populus tremula</i>	European aspen	31	35.7	42.3	44.9
6 th	<i>Quercus robur</i>	English oak	22	29.4	30.9	35.8
7 th	<i>Alnus glutinosa</i>	Black alder	10.1	23.1	25.6	28.3
8 th	<i>Fagus sylvatica</i>	Beech	18.2	17.7	23.1	19.7
9 th	<i>Salix caprea</i>	Goat willow	5.2	12.3	12.8	13.4
10 th	<i>Alnus incana</i>	Grey alder	3.1	7.1	7.8	8.3
Remaining			39.4	30	32.4	42.3
TOTAL			2501.40	2703.20	2906.90	2947.70

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)	10	N/A

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	N/A
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	3.3	3.1	3.3	3.3	3.3
	... of which coniferous	2.9	2.6	2.7	2.8	2.8
	... of which broadleaved	0.4	0.5	0.5	0.5	0.5

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	1426.2	1525	1636.7	1653.9	1671.1	5	5.3	5.7	4.5	5.7
	Below ground biomass	474.5	506.9	546	551.7	557.4	1.6	1.7	1.9	1.5	1.9
	Dead wood	39.8	42.1	54.7	57	59.3	0.8	0.8	0.6	0.5	0.6
TOTAL		1940.50	2074.00	2237.40	2262.60	2287.80	7.40	7.80	8.20	6.50	8.20

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	713.1	762.5	818.4	827	835.6	2.5	2.7	2.8	2.2	2.8
	Carbon in below ground biomass	237.2	253.5	273	275.8	278.7	0.8	0.9	0.9	0.7	0.9
	<i>Subtotal Living biomass</i>	950.3	1016	1091.4	1102.8	1114.3	3.3	3.5	3.8	3	3.8
	Carbon in dead wood	19.9	21.1	27.3	28.5	29.7	0.4	0.4	0.4	0.3	0.3
	Carbon in litter	653.2	645.3	640.3	633.3	629.7	56.6	55.7	57.7	54.9	54.5
	<i>Subtotal Dead wood and litter</i>	673.1	666.4	667.6	661.8	659.4	57	56.1	58.1	55.2	54.8
	Soil carbon	1805.8	1838.7	1873.6	1876.7	1901.1	156.5	158.8	168.9	162.6	164.7
TOTAL		3429.20	3521.10	3632.60	3641.30	3674.80	216.80	218.50	230.70	220.70	223.20

Tiers

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

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	Alpine birch areas not included	The growing stock on forest land has increased steadily in Sweden for the last 100 years.
Growing stock of broadleaved coniferous	Alpine birch areas not included	Increase of both broadleaved and coniferous. However the proportion of broadleaved is increasing, mainly due to increased consideration according to certification standards (eg. FSC) together with general considerations stated in the Forestry act.
Growing stock composition	Volume of Pinus contorta 2010 is 28.2 mill m3 (8th place) but since the list is defined on the situation year 2000 (P. contorta 11.5 mill m3) P. contorta not listed. Alpine birch areas not included	The proportion of Broadleaves and P Contorta is increasing.
Net annual increment	Alpine birch areas not included	N/A
Above-ground biomass	Minimum dbh 10 cm. Alpine birch areas not included	The biomass on forest land has increased steadily for the last 100 years.

Below-ground biomass	Alpine birch areas not included	N/A
Dead wood	Dead wood in the soil not included. Alpine birch areas not included	Increasing due to increased consideration according to certification standards (eg. FSC) together with general considerations stated in the Forestry act.
Carbon in above-ground biomass	Alpine birch areas not included	N/A
Carbon in below-ground biomass	Alpine birch areas not included	N/A
Carbon in dead wood	Alpine birch areas not included	N/A
Carbon in litter	Alpine areas not included	N/A
Soil carbon	Data for litter and soil carbon deviates from previous reported numbers. Recalculations was made due to a new sample from the NFI and due to an error in previously reported data.	There is a small increase in Soil carbon.

Other general comments to the table

N/A

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	Areas in different protection categories according to a national database on protected areas at the Swedish Environmental Protection Agency.	Input data for designated functions	Years applied: All	This data is used to sort areas into different categories
2	Habitat protection areas and nature conservation agreement areas from the Swedish Forest Agency database	Input data for designated functions	All	This data is used to sort areas into different categories

3	Areas of voluntary protected forests compiled in “Fördjupad utvärdering av Levande skogar”. Skogsstyrelsen 2007, Swedish Forest Agency, Meddelande 4/2007. ISSN 1100-0295. Areas for 2010 from the report “Skogsbrukets frivilliga avsättningar. SFA report 5/2012.	Input data for designated functions	Situation 2000, 2005,2010	Based on questionnaires to all large forest owners and to a sample of individuals/ households owning forests
4	Area of environmental considerations at operations. % of gross-area of operations. Source:The polytax multi-purpose inventory. Swedish statistical Yearbook of Forestry. www.svo.se	Input data for designated functions	2005	All final fellings should be notified in advance. A sample of these are visited in the field before and after the felling. The area not affected by the felling of the gross area of the operation is recorded. Data for 1990 is assumed as 0 while all other years are 4,5 %.
5	Swedish NFI	Area of forest and “productive forest” (nat. def.)	All	The forestry act distinguishes between “productive” and “low-productive” forest. This affect the classification of function

4.2.2 Classification and definitions

National class	Definition
N/A	N/A

4.2.3 Original data

		1990	2000	2005	2010	2015
NFI DATA						
Forest	1000 ha	28063	28163	28218	28073	No change
Productive For.	1000 ha	23222	23222	23222	23222	No Change

Low-productive For.	1000 ha	4841	4941	4996	4851	No Change
SFA DATA						
Voluntary protection	1000 ha	0	705	1167	1248	1329*
Habitat protection areas	1000 ha	0	1	15	21	28*
Nature conservation agreements	1000 ha	0	1	20	30	41*
Environmental cons. at operation	%	0	4,5**	4,5	4,5	4,5
SEPA DATA						
Forest area within National parks, Nature reserves, Nature conservation areas and Natura 2000	1000 ha	837	2094	2159	2170	2236
Of which: Prod. forest in NP, NR and NCA***		392	767	833	946	1058*
Of which: Unprod. forest in NP, NR and NCA	1000 ha	444	1125	1149	1164	1179*

OF which: Forest within Natura 2000	1000 ha	0	203	176	61	0
Prod. forest in NP, NR, NCA with explicit regulations concerning forestry	1000 ha	253	609	674	781	887*
Forest in NP, NR and NCA classified as IUCN I-IV	1000 ha	679	1709	1772	1886	2000*

*Extrapolated based on 2005 and 2010 data

** Estimated from Polytax P0/1 inventory. SFA unpublished data.

*** The equivalent analysis has been made also using NFI data –it shows very similar values.

NFI: National forest inventory

SFA: Swedish Forest Agency

SEPA: Swedish Environmental Protection Agency

4.3 Analysis and processing of national data

4.3.1 Adjustment

4.3.2 Estimation and forecasting

The extent of forest is not anticipated to change in the near future. No trend can be detected in the times-series. Thus “no change” is anticipated for 2015. The other categories of original data used to fill in the data-table is extrapolated to 2015 using the datapoints for 2005 and 2010.

4.3.3 Reclassification

Production forest is assumed to be all productive forest land (national def.) less areas of productive forests within voluntary protection, habitat protection areas, nature conservation agreement, national parks, nature reserves, nature conservation areas and the area of environmental considerations at operations. *Multiple use forest* is assumed to consist of all unproductive forest land less areas of unproductive forests within habitat protection areas, nature conservation agreement, national parks, nature reserves and nature conservation areas.

4.4 Data

Table 4a

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Production forest	22691	20638	20101	19900	19699
	Multiple use forest	4536	3955	3986	3826	3811

Table 4b

Rank	Name of product	Key species	Commercial value of NWFP removals 2010 (value 1000 local currency)	NWFP category
1 st	Wild Meat	Moose, Roedeer	490000	12
2 nd	Berries	Bilberry, cowberry	301000	1
3 rd	Christmas trees	Piceaabies	168000	6
4 th	N/A	N/A	N/A	N/A
5 th	N/A	N/A	N/A	N/A
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			959000.00	

2010	
Name of local currency	Swedish Krona (SEK)

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	52871	3800
1991	51400	3800
1992	53520	3800
1993	54000	3800
1994	56300	3800
1995	63600	3800
1996	56300	3800
1997	60200	3800
1998	60600	5900
1999	58700	5900
2000	63300	5900
2001	63200	5900
2002	66600	5900
2003	67100	5900
2004	67300	5900
2005	98200	5900
2006	64600	5900
2007	78200	5900
2008	70800	5900
2009	65100	5900
2010	72200	5900
2011	72103.3	5900

Tiers

Category	Tier for status	Tier for reported trend
Production forest	Tier 3	Tier 3

Multiple use forest	Tier 3	Tier 3
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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	The area has decreased significantly since 1990 though the decrease has slowed down. The trend is driven by an increase in areas primarily designated for conservation of biodiversity
Multiple use forest	Includes low-productive forests	As above
Total wood removals	N/A	As above
Commercial value of NWFP	Data is incomplete.	N/A

Other general comments to the table

Due to revisions of the time-series of areas of forest (Table 1) compared to previous reporting to FRA and SoEF, credible trends are now reported for these. As a consequence, also the trends of subcategories, such as those presented in this table, have a higher consistency.

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	Swedish Environmental Protection Agency, database on protected areas	Designated functions	All	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

5.2.2 Classification and definitions

National class	Definition
N/A	N/A

5.2.3 Original data

See 4.2.3.

5.3 Analysis and processing of national data

5.3.1 Adjustment

See 4.3.1.

5.3.2 Estimation and forecasting

See 4.3.2.

5.3.3 Reclassification

Most categories in table 5a-b area not relevant or cannot be interpreted into anything meaningful for Swedish condition. In the category “.. of which for public recreation .” is reported the area within protected areas (NP,

NR, NCA and Natura 2000) as these areas, among other functions, also explicitly should fulfil public need for recreation.

5.4 Data

Table 5a

Categories		Forest area (1000 hectares)				
		1990	2000	2005	2010	2015
	Protection of soil and water	N/A	N/A	N/A	N/A	N/A
	... of which production of clean water	N/A	N/A	N/A	N/A	N/A
	... 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)	N/A	N/A	N/A	N/A	N/A

Other

N/A

Table 5b

Categories	Forest area (1000 hectares)				
	1990	2000	2005	2010	2015
Ecosystem services, cultural or spiritual values					
...of which public recreation	837	2094	2159	2170	2236

...of which carbon storage or sequestration	N/A	N/A	N/A	N/A	N/A
...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 1	Tier 1
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	This category is to “wide” for us to answer. National environmental and forestry legislation prescribes considerations to soil and water in all forest. The “function” of protecting water quality is expected from all forests.	N/A

Production of clean water	Special water protection areas exist around important tap water sources. Regulations differ in different zones. Compiled data is missing but the areas in question are small	N/A
Coastal stabilization	No such designated forest exist.	N/A
Desertification control	Not relevant as we have no deserts	N/A
Avalanche control	No such designated forest exist. Forests in the mountain region are mostly classified as “low-productive” and thus not available for forestry.	N/A
Erosion, flood protection or reducing flood risk	No such designated forests exist. General legislation prescribes caution not to disturb natural water regimes. (See comment on protection of soil and water above)	N/A
Other protective functions	N/A	N/A
Ecosystem services, cultural or spiritual values	N/A	N/A
Public recreation	The area reported are the protected areas as they also have this expressed purpose. However, the “right of public access” gives the general public access to all Swedish forests.	N/A
Carbon storage or sequestration	No forest has this explicit designation but the service is expected in all forests.	N/A
Spiritual or cultural services	No such areas registered	N/A
Other ecosystem services	N/A	N/A

Other general comments to the table

This reporting format is not well adapted to Swedish conditions. All forests are to provide eco-system services. Regulations on forestry and other exploiting activities are in place to safeguard these functions. Specific functions are seldom explicitly appointed to specific forest areas. Thus most data-cells in table 5 are empty although provision of ecosystem services are an overall important issue in Sweden. Protection of soil and water and the supply of other eco-system services are seldom expected from explicitly designated areas. They are instead expected from all or most of the forest area. Regulations on exploitation and management aim to safeguard these functions and services.

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	Areas in different protection categories according to a national database on protected areas at the Swedish Environmental Protection Agency.	Input data for designated functions	Years applied: All	This data is used to sort areas into different categories
2	Habitat protection areas and nature conservation agreement areas from the Swedish Forest Agency database	Input data for designated functions	All	N/A
3	Areas of voluntarily protected forests compiled in "Fördjupad utvärdering av Levande skogar". Skogsstyrelsen 2007, Swedish Forest Agency, Meddelande 4/2007. ISSN 1100-0295. Areas for 2010 from the report "Skogsbrukets frivilliga avsättningar. SFA report 5/2012.	Input data for designated functions	Situation 2000, 2005, 2010	Based on questionnaires to all large forest owners and to a sample of individuals/households owning forests

4	Area of environmental considerations at operations. % of gross-area of operations. Source :The polytax multi-purpose inventory. Swedish statistical Yearbook of Forestry. www.svo.se	Input data for designated functions	2005	All final fellings should be notified in advance. A sample of these are visited in the field before and after the felling. The area not affected by the felling of the gross area of the operation is recorded. Data for 1990 is assumed as 0 while all other years are 4,5 %.
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6.2.2 Classification and definitions

National class	Definition
N/A	N/A

6.2.3 Original data

See 4.2.3.

6.3 Analysis and processing of national data

6.3.1 Adjustment

See 4.3.1.

6.3.2 Estimation and forecasting

See 4.3.2.

6.3.3 Reclassification

All national parks, nature reserves, nature conservation areas, Natura 2000 (SCI & SPA) habitat protection areas, nature conservation agreements and areas set aside voluntarily by the forest owners are classified as belonging to *conservation of biodiversity*. To this class is also added a percentage value of forests which could be subject to forestry, corresponding to the extent of environmental considerations made at forestry operations.

Forest area within protected areas is all forests within national parks, nature reserves and nature conservation areas classified as IUCN class I-IV and all habitat protection areas.

6.4 Data

Table 6

Categories		Forest area (000 hectares)				
		1990	2000	2005	2010	2015
	Conservation of biodiversity	837	3779	4317	4417	4573
	Forest area within protected areas	679	1709	1772	1886	2000

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 	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	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

6.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Conservation of biodiversity	In 1990 the concepts of “voluntary protection areas” and “environmental considerations at operations” were not yet established. In practise, forest owner may have had “personal reserves” or taken environmental consideration also at this point in time, but no data exist.	See comment on data. The increase between 1990-2000 is affected by the introduction of new concepts and a new direction of forestry. From 2000 and onwards all components of this category i measured with consistent methods.
Forest area within protected areas	N/A	N/A

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	Skogsstyrelsen 2009. Regler om användning av främmande trädslag	N/A	N/A	Report on the rules for using exotic tree species in Sweden and the current situation.
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

7.2.2 Classification and definitions

National class	Definition
N/A	N/A

7.2.3 Original data

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7.3 Analysis and processing of national data

7.3.1 Adjustment

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7.3.2 Estimation and forecasting

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7.3.3 Reclassification

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7.4 Data

Table 7

Scientific name of woody invasive species	Forest area affected (000 ha)	
	2005	2010
1.	0	0
2.	0	0
3.	0	0
4.	0	0
5.	0	0
6.	0	0
7.	0	0
8.	0	0
9.	0	0
10.	0	0
Total	0	0

Tiers

Category	Tier for status	Tier for reported trend
Invasive species	Tier 3	Tier 3

Tier Criteria

Category	Tier for status	Tier for reported trend
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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
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7.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Invasive species	The most commonly used exotic tree species in Swedish Forestry is Pinus Contorta (approx 0.5 mill. ha). The Swedish Forest Agency does not consider it to be invasive.	N/A

Other general comments to the table

Other species, such as Acer Pseudoplatanus and the bush Sambucus racemosa i spreading in the wild in Sweden. The tree is not native to Sweden (national borders) but are common in the Continental biogeographic region (EEA) to which parts of southern Sweden belong There are reports on some problems with both species but currently they are not considered as major threats. There are no data on areas affected

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	MSB (Swedish Civil Contingencies Agency) Official statistics	Area/number of fires	All	N/A
2	National Forest Inventory (NFI)	Damage stand	2005-2012	National monitoring of the main damaging agents
3	Target-tailored forest damage inventory (TFDI)	Damage stand	2007-2012	Regional inventory of specific damage agents
4	N/A	N/A	N/A	N/A

8.2.2 Classification and definitions

National class	Definition
Produktiv skog (productive forest land)	< 1 m ³ /year" /> Forest according to FAO def. But excluding area with production capacity < 1 m ³ /year
Annan trädbevuxen mark ("other land with trees")	Land with sparse tree cover which normally produces less than 1 m ³ /year. E.g zone between forest and wetlands, montaneous conifer and birchforests, areas where christmas trees and coppice for bioenergy are grown. Parks and green urban areas. (transl. from Swedish)
N/A	N/A

N/A	N/A
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8.2.3 Original data

	2003		2004		2005		2006		2007	
	ha	#								
Total burned area	4 002	8 071	1 883	4 886	1 562	4 492	5 709	4 610	1 090	3 783
-Of which productive forest land or other land with trees	2 337	3 584	1 446	2 272	1 139	2 317	5 185	2 479	834	2 098
	2008		2009		2010		2011			
	ha	#	ha	#	ha	#	ha	#		
	6 113	5 420	912	4 179	540	3 120	820	4 030		
	5 657	3 164	653	1 980	291	1 398	537	1 826		

8.3 Analysis and processing of national data

8.3.1 Adjustment

Not needed

8.3.2 Estimation and forecasting

Not needed

8.3.3 Reclassification

The national classes “productive forest land” plus “other land with trees” are approximated to correspond well to forest

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	#
	Total land area burned	4.002	8071	1.883	4886	1.562	4492	5.709	4610	1.09	3783
	... of which forest area burned	2.337	3584	1.446	2272	1.139	2317	5.185	2479	0.834	2098
Category		2008		2009		2010		2011		2012	
		000 ha	#	000 ha	#	000 ha	#	000 ha	#	000 ha	#
	Total land area burned	6.113	5420	0.912	4179	0.54	3120	0.82	4030	N/A	N/A
	... of which forest area burned	5.657	3164	0.653	1980	0.291	1398	0.537	1826	N/A	N/A

Table 8b

Outbreak category	Description/name	Year(s) of latest outbreak	Area damaged (000 hectares)
Severe weather events	Storms (windthrown and broken trees (<i>Picea abies</i> ; <i>Pinus sylvestris</i>)), Southern Sweden	2005	1239

Severe weather events	Storms (windthrown and broken trees (<i>Picea abies</i> ; <i>Pinus sylvestris</i>)), Southern Sweden	2007	1060
Severe weather events	Storms (windthrown and broken trees (<i>Picea abies</i> ; <i>Pinus sylvestris</i>)), northern Sweden	2011	730
Insects	European spruce beetle (<i>Ips typographus</i>), Southern Sweden	2006 -2009	119
Insects	Barkbeetles (<i>Ips typographus</i> ; <i>Polygraphus poligraphus</i>) on Norwayspruce (<i>Picea abies</i>), northern Sweden	2007 - 2010	91
Diseases	Resin top disease (<i>Cronartium flaccidum</i>) on Young Scotspine (<i>Pinus sylvestris</i>)	2005-2012	33
Diseases	Ash tree disease (<i>Chalara fraxinea</i>) on ash (<i>Fraxinus excelsior</i>)	2005-2012	N/A
N/A	N/A	N/A	N/A
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
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8.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Burned area	Definitions of burned area classification is not a perfect match with “Forest” (FAO def.). The categories used serve as a very close approximation	N/A
Insects	Data concerns only productive forest land	N/A
Diseases	Data concerns only productive forest land	N/A
Severe weather events	Data concerns only productive forest land	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

No interpretable data exist

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	Skogsvårdslagstiftningen –gällande regler 1 januari 2012. [Forestry Act – compilation of rules in effect as of January 1st 2012]	N/A	N/A	SFA publication of legislative text in the Forestry Act including legal text, ordinance, injunctions and SFA general advice.
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

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	yes	no	no
... of which, in <u>publicly</u> owned forests	yes	yes	no	no
... of which, in <u>privately</u> owned forests	yes	yes	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	Forest policy is mostly national matters in Sweden but some regionalisations of objectives are made. Forest policy is interpreted by the Swedish forest agency in the “Forest sector objectives” which expresses a desired direction of development of the forest and forest sector. These objectives have been regionalised thus giving a regional component to forest policy. This resembles how environmental policy is handled. National and societal wide environmental quality objectives are set on the national level and passed through parliament. These objectives are then regionalised.
Legislation and regulations supporting sustainable forest management	Legislation is a national matter in Sweden.

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	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
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
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11.3 Comments

Category	Comments related to data definitions etc
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National stakeholder platform	<p>At Governmental level there is a dialogue on sustainable forest management where interest groups are invited to give input on the forest policy development. The Minister for Rural Affairs is chairing those meetings. The Minister for Rural Affairs also has consultations on international forestry issues with a wide range of stakeholders. The Swedish Forest Agency has a number of national advisory fora, in which stakeholders are invited to give their opinions on various matters: Swedish Forest Agency's advisory group on forest related statistics (give stakeholders possibilities to influence on the production of forest related statistics) National Committee on forest health (an advisory body and reference forum, which include issues on forest damage caused by insects, fungi, wildlife, weather and air pollution) National Council for Forest reproductive material (an advisory body in the core area of seeds and seedlings, including the genetic aspects and forest regeneration, in order to achieve good future forests) Central coordination group on forestry and reindeer husbandry (a group that gives advice and discuss fundamentally important issues related to forestry and reindeer husbandry) National Forest Sector Council. (deals with policy issues not covered by any of the other advisory fora above)</p>
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Other general comments

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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	N/A	N/A	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

12.2.2 Classification and definitions

National class	Definition
N/A	N/A

12.2.3 Original data

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12.3 Analysis and processing of national data

12.3.1 Adjustment

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12.3.2 Estimation and forecasting

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12.3.3 Reclassification

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12.4 Data

Table 12

Categories		Forest area 2010 (000 ha)
	Forest area intended to be in permanent forest land use	N/A
	... of which permanent forest estate	N/A

Tiers

Category	Tier for status
Forest area intended to be in permanent forest land use	Tier 3
Permanent forest estate	Tier 3

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	The concepts of permanent forest land use or permanent forest estate does not exist in Sweden. The law does not forbid land use changes from forest to other land use, but the forest authority should be notified. Generally the land use situation has been very stable in Sweden over a long time period (century). There are at present no significant conversions of forests to other land use and no such changes can be foreseen.

Permanent forest estate	See above
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Other general comments

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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	Statistical Yearbook of Forestry (http://www.skogsstyrelsen.se/en/AUTHORITY/Statistics/Statistical-Yearbook-/)	N/A	Annual	N/A
2	Skogsdata [Forest Data] (www.slu.se/en/collaborative-centres-and-projects/swedish-national-forest-inventory/)	N/A	Annual	N/A
3	Swedish Environmental objectives (http://miljomal.nu/sv/Environmental-Objectives-Portal/)	N/A	Annual update	N/A
4	Nationella skogliga produktionsmål. Report 7/2012. Skogsstyrelsen. [National Forest Sector Objectives](http://shop.skogsstyrelsen.se/sv/publikationer/rapporter/nationella-skogliga-produktionsmal-uppfoljning-av-2005-ars-sekto.html)	N/A	Periodic	N/A

13.2.2 Classification and definitions

National class	Definition
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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	2012	yes		yes	yes		
Other field assessments	100	2012	yes	yes	yes	yes	yes	yes
Updates to other sources	N/A	N/A	no	no	no	no	no	no
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	no

Other type of forest reporting

Sweden does not have periodical reporting named as 1) or 2) above. However there exist annual reporting of progress for indicator variables of the national “Environmental quality objectives” as well as periodic reporting on progress for indicators variables of “forest sector objectives”. There are two annual publications in which the state of the forest are thoroughly described. These are; the reporting of main results from NFI in publication “Forest Data”, and the annual publication of a wide selection of commented forest sector statistics in the publication “Swedish Statistical Yearbook of Forestry”

13.4 Comments

Category	Comments
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Forest inventory	In this category we include the National Forest Inventory only
Other field assessments	In this category include several different assessments targeting specific variables of interest. E.g.-Inventory of environmental considerations at forestry operations-Monitoring of biological diversity in permanent sample plots-Remote sensing analysis of harvested areas-...
N/A	N/A

Other general comments

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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	Ad-hoc survey of forest management plan production;Ragnar Spross, Swedish Forest Agency.	Annual production of Forest management plans	1997-2004	Plans produced mainly for individual/household forest owners. Only large plan producers included
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	27000
... of which for production	N/A
... of which for conservation	3470

Table 14b

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

1 Soil and water management	no
2 High conservation value forest delineation	no
3 Social considerations community involvement	no

Table 14c

Percent of area under forest management plan that is monitored annually	0
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Tiers

Category	Tier for status
Forest area with management plan	Tier 1
Percent of area under forest management plan that is monitored annually	Tier 3

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
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Forest area with management plan	<p>Forest management plans are not required for forest owners and there are no difference between publicly and private owned forests regarding obligations in legislation. A previous obligation was taken away 1994. Instead a nationwide GIS database, covering all forest properties and made available through internet, incl. information on protected areas and other ecosystems with biodiversity and social values. All forest land is covered by regularly updated satellite imagery and aerial photography. All past and planned (for the following 2 years) harvest activities are shown for each individual property, including regeneration method used/planned, soil preparation scarification, environmental protection activities etc. Forest owners have free access to this database and increasingly use it as a planning tool. Furthermore, forest owners can send harvest notifications to the Swedish Forest Agency immediately through this platform. Because the GIS database integrates data on Natura 2000 areas and other nature reserves, special considerations areas (hydrological, historical, biological) the SFA system for monitoring the implementation of the forest legislation is highly interactive and automated without losing in quality. Anyhow, most forest owners still have their own management plan Institutional owners (companies, publicly owned, foundations etc.) generally have management plans for their forests. Individuals owning forest largely have plans but they are not recorded and only estimated statistics exist. The expert judgement is that coverage of plans is almost complete (>95%). Here approximated by 27 milj. ha. Management plans covering forest owned by individuals/households; annual production of management plans by large plan producers 1997-2004 was 560 000 ha (also smaller producers exist –thus implying that this may be an underestimation). Assuming that the production continues and that the length of life of a plan is 15 years there should be approx. 8,5 mill. ha of management plans in use in family forestry. Estimation and forecasting: Forest management plans for institutional forest owners are assumed to have full coverage. For individuals/household owners the larger part of their holdings should be covered given the assumptions made above. Statistics indicate that a large share may have plans from the major producers, also smaller plan producers exists. Many forest owners have the capacity to produce their own management plans.</p>
... of which for production	<p>The design of plans used in Sweden (except those specifically for conservation, see below) cover entire properties and thus include information on all parts of an estate. This means that they hold information and suggests measures to be taken both for production AND conservation. The category would be difficult to answer to even if we had information on plan coverage.</p>
... of which for conservation	<p>Forest areas in Table 6 category “designated for conservation of biodiversity” are here considered to have management plans for conservation except the area of environmental considerations at operations.</p>

Other general comments

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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	yes
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
Planning phase	According to §31 of the Forestry Act forest owners are expected to consider the needs of reindeer husbandry in management and in planning of management operations. This is accomplished mainly through annual consultations. There are a number of voluntary initiatives to involve stakeholders in the process in different ways. Many public forest owners invite stakeholders to inform them about their plans and give opportunities for stakeholders to have an opinion regarding the forest management. When it comes to the operation phase and the review of operations the stakeholders are not normally involved. Stakeholders that have a special interest might have their own follow up/review of the operations, which can cause a debate in media, if they find the operations unsatisfactory.

N/A	N/A
N/A	N/A

Other general comments

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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	11973.89	9587.18	9311.49	9652.3	9697.47
	PEFC	1334	1983	2259	3757	4076	6512	7042
	Other	0	0	0	0	0	0	0
		2007	2008	2009	2010	2011	2012	
	FSC	11233.98	10647	9736.01	10970.52	11327.85	11572.82	
	PEFC	7428	7613	7969	8382	11043	11100	
	Other	0	0	0	0	0	0	

Table 16b

Domestic forest management certification		Forest area (000 ha)						
		2000	2001	2002	2003	2004	2005	2006
	1.Name	0	0	0	0	0	0	0
	2.Name	0	0	0	0	0	0	0
	3.Name	0	0	0	0	0	0	0

		2007	2008	2009	2010	2011	2012	
	1.Name	0	0	0	0	0	0	
	2.Name	0	0	0	0	0	0	
	3.Name	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	Tier 3

16.3 Comments

Category	Comments related to data definitions etc
Certified forest area using an international forest management certification scheme	Data received from national branch of PEFC. Data from FSC are prefilled from IPD
Domestic forest management certification	No such exists

Other general comments

Prefilled data for area under FSC could not be verified from their national secretariat. The variation between years are unlikely to be real.

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"> • <u>Goods</u> : roundwood; sawnwood; biomass; woodbased panels; pulp and paper and non-wood forest products. • <u>Services</u> : 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	Statistics Sweden, National Accounts.	Forest revenue	2000, 2005 and 2010	N/A
2	Government appropriation directions to Swedish Forest Agency.	Public expenditure on forestry	2000, 2005 and 2010	Regards means for Swedish Forest Agency
3	Statistics Sweden, National Accounts.	Public expenditure on forestry	2000 and 2005	Refers to Forest Industry sector, i.e. not forestry.
4	Swedish University of Agricultural Science	Public expenditure on forestry	2005 and 2010	N/A
5	Skogforsk	Public expenditure on forestry	2005 and 2010	N/A

17.3 Data

Table 17

Category	Revenues / expenditures (000 local currency)		
	2000	2005	2010
Forest revenue	22376797	26771249	29762225
Public expenditure on forestry	1004524	3561262	1545922

	2000	2005	2010
Name of Local Currency	Swedish kronor (SEK)	N/A	N/A

17.4 Comments

Category	Comments related to data definitions etc
Forest revenue	Includes all taxes from production in forestry, industry for wood and wood products, industry for pulp and papers and land transport of all wood products. VAT is not included since this is transferred to end consumer.
Public expenditure on forestry	Operational expenditure Operational expenditure has increased which is expected. This expenditure tends to follow the general economic trend. Transfer payments Refers only to direct subsidies to broad-leaved forest management and reforestation in some storm areas in 2005. Also some direct subsidies in forest industries. Transfer payment has increased from 2000 to 2005 but has decreased again. The increase can be explained by the storm in 2005 leading to a relatively extensive Government aid program to forest owners. As a rule the Government policy is not to have transfer payment for production measures in forestry, only for environmental measures. The data for 2000 and 2010 is therefore more representative and in line with a “normal” year.
Other general comments	Original data: Only the major funds are included in operational expenditure. There are some small funds to for example some University and public institution but difficulties in getting the relevant data made it impossible to include these. Data filled in are therefore an underestimation.

Other general comments

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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	The National Forest Inventory (NFI). Classification of ownership using the cadastral and land registration authority.	Ownership, Forest	Years applied: 2000: 1998-20022005: 2003-20072010: 2007-2011	The NFI data combined with NIS-data, permit direct calculation of data according to the FRA categories and definitions.
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

18.2.2 Classification and definitions

National class	Definition
FRA 2015 classes used	FRA 2015 definition
Other types of ownership	Not recorded
N/A	N/A
N/A	N/A

18.2.3 Original data

The National Forest Inventory (NFI).

18.3 Analysis and processing of national data

18.3.1 Adjustment

All alpine birch areas classified as Public ownership

18.3.2 Estimation and forecasting

Not necessary.

18.3.3 Reclassification

Not necessary. Only regrouping of national categories which are more detailed than the FRA-classes.

18.4 Data

Table 18a

Categories		Forest area (1000 hectares)			
		1990	2000	2005	2010
	Public ownership	6837	6861	6875	6881
	... 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	21226	21302	21343	21192
	... of which owned by individuals	13419	13466	13493	13277
	... of which owned by private business entities and institutions	6146	6168	6180	6027
	... of which owned by local, tribal and indigenous communities	1661	1667	1671	1888
	Unknown ownership	0	0	0	0
TOTAL		28063.00	28163.00	28218.00	28073.00

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	6837	6861	6875	6881
Individuals	0	0	0	0
Private companies	0	0	0	0
Communities	0	0	0	0
Other	0	0	0	0
TOTAL	6837.00	6861.00	6875.00	6881.00

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 2	Tier 3

18.5 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Public ownership	Not possible to distribute on state or sub-state level.	No credible trends to report.
Private ownership	N/A	No credible trends to report.
Unknown ownership	N/A	No credible trends to report.

Management rights	N/A	N/A
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Other general comments to the table

Using data from the National Cadastre, all NFI plots are classified using five owner classes. All land within alpine areas is considered as owned by the state, i.e. Public ownership, since no ownership data are gathered within the NILS-programme.

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	Statistics Sweden, Labour Force Survey(LFS)	Employment in primary production of goods	1990,2000,2005	Changes in methodology between 2006 and 2007. The time series is not consistent.
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
02	Forestry
20	Wood products
21	Pulp, paper & paper products
N/A	N/A

19.2.3 Original data

For years 1990-2005: **National class 02 (forestry)** + National class 20 (Wood products) + National class 21 (Pulp, paper & paper products) according to classification system SNI 2002. Age group in selection 16-64 years
 1990 (**33700** +50500+60100=144300)

2000 (**17300** +39400+40200=96900)

2005 (**20000** +38000+37000=95000)

For year 2010: **National class 02 (forestry)** + National class 16 (Wood products) + National class 17 (Pulp, paper & paper products) according to classification system SNI 2007. Age group in selection 15-74 years.

2010 (**29900** +35200+30600=95700)

In year 2007, the age-group 65-74y represented an additional 15 % number of employed compared to the no of employed <65 y. Thus, to the data for 1990-2005 is added 15 % to make it comparable to the data for 2010. Still, the trend appear unlikely.

Only class **02** Forestry is reported in table 19.

19.3 Data

Table 19

Category		Employment (000 years FTE)			
		1990	2000	2005	2010
	Employment in forestry	39	20	23	30
	... of which female	5	2.3	2.3	2.7

19.4 Comments

Category	Comments related to data definitions etc	Comments on the reported trend
Employment in forestry	No of employed (fulltime or part-time) in industrial branch 02. Several changes in definitions between 2005-2007 makes the last year reported (2010) inconsistent with the rest of the time series.	Figures for 1990-2005 are fully comparable. The year 2005 are however not typical due to heavy storm early 2005 temporarily increasing the need for labour. Number of employees has decreased continuously during this time-period. Data for 2010 are not fully comparable and although an adjustment has been made to compensate for changes in definitions, we are uncertain about the trend. A higher level of labour-intensive solvicultural activity may explain (parts of) the increase.

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)	35557	Swedish Krona(SEK)	2010

20.3 Comments

Category	Comments
Gross value added from forestry (at basic prices)	Calculated by those working with the “National Accounts” at Statistics Sweden.

Other general comments

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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	N/A	N/A	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 are no special targets for forest area

Forests earmarked for conversion	There are no such forests in Sweden
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Other general comments

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