

Declarations of Contents, Surveillance of the condition of forests in Denmark.

0 Administrative Information about the Statistical Product

0.1 Name

Surveillance of the condition of forests in Denmark.

0.2 Heading

Environment and energy

0.3 Responsible Authority, Office, Person, etc.

Ministry of Environment and Energy
The National Forest and Nature Agency
Hørsholm Kongevej 11
DK-2970 Hørsholm
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If necessary:

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Library and Information
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It has been decided to discontinue the compilation of statistics on the condition of Danish forests from 2001. Consequently, future statistics will not be published by Statistics Denmark.

0.4 Purpose and History

The chief aim of the statistics for Statistics Denmark is to register and communicate developments in the condition of forests in Denmark.

The overall purpose of the statistics is to monitor the surveillance of the condition of the forests from year to year and to communicate the results.

It has been decided to discontinue the compilation of statistics on the condition of Danish forests from 2001. Consequently, future statistics will not be published by Statistics Denmark.

0.5 Users and Application

Users:

Ministries, organisations, experts and the media.

Applications:

1. The surveillance of the condition of the forests from year to year is managed by the National Forest and Nature Agency. The surveillance can result in an increase in work to promote the quality process of the forests by improving

provisions for the forests, increased subsidies for new deciduous woodland areas, nature restoration and forest preservation.

2. The National Forest and Nature Agency attends the international work in the UN and the EU about the surveillance of the condition of the forests and the transboundary air pollution and its effects on the forests. The National Forest and Nature Agency publishes annual expert reports on the results of the surveillance of the forest condition as well as supplementary measurements to describe the causes of changes in the forest conditions.

3. Statistics Denmark draws statistical conclusions from these reports and publishes statistics about the forest condition and the trends since 1989, the year of the beginning of the statistics.

0.6 Sources

The National Forest and Nature Agency publishes annual expert reports on the results of the surveillance of the forest condition as well as supplementary measurements to describe the causes of changes in the forest conditions.

0.7 Legal Authority to Collect Data

The Ministry of Environment and Energy worked out a statement of forest policy for the Danish Parliament, 4 May 1994: "Strategy for sustainable forestry". According to this statement, Denmark will support concerted efforts towards the sustainable development of forests, both nationally and internationally. The strategy involves a strengthening of research and development as well as communication and supplementary training within sustainable forestry.

0.8 Response burden

None.

0.9 EU Regulation

None.

1 Contents

1.1 Description of Contents

The statistics show developments in the condition of the forests for different species of trees.

The method used to describe the forest condition is called the *Method for defoliation of coniferous and deciduous trees*:

There is international agreement within the UN that a defoliation of conifers and deciduous trees of up to 25 per cent is within the natural variation in foliage and it is not a reflection of a deterioration of the forest condition. A defoliation of conifers and deciduous trees of more than 25 per cent is regarded as amounting to *damaged trees*. The observation network comprises 51 forest sites in Denmark and these sites are estimated as an average of the observations of 24 trees, which consist of four clusters with six trees in every cluster. The defoliation of conifers and deciduous trees is a symptom of many things, for example climatic pressures, the state of nourishment of the trees, air pollution, soil condition and also fungal and insect attacks. It is not normally possible to

prove the reasons for the observed defoliation of conifers and deciduous trees at the spot of the surveillance. However, it is possible to estimate the trend of the development of the forest condition.

Supplementary surveys of *discoloration and general descriptions*:

Therefore, the forest condition cannot be described by using the method for defoliation of conifers and deciduous trees only.

The defoliation of conifers and deciduous trees is not sufficient to characterise the overall condition of a forest ecosystem. The proportion of trees with a certain defoliation in one year cannot determine the share of a forest area with permanent harmed trees. The climatic pressure in one year, for example, is of great importance for the foliage that year, but it does not mean that this will affect the following year. It is therefore important to obtain supplementary information, such as a description of the discoloration at 51 forest sites and official valuations of the forest conditions from the foresters in the state forest districts plus a general description of the condition of every species of tree.

Researchers from the National Forest and Nature Agency have gone through the estimates of the growth of certain trees and they have inspected the sites of the most significant observations.

1.2 Statistical Concepts

The observed defoliation of conifers and deciduous trees can be categorised into five classes:

Defoliation class 0: Undamaged trees with up to 10 per cent defoliation.

Defoliation class 1: Undamaged trees with between 11 per cent and 25 per cent defoliation.

Defoliation class 2: Damaged trees with between 26 per cent and 60 per cent defoliation.

Defoliation class 3: Damaged trees with between 61 per cent and 99 per cent defoliation.

Defoliation class 4: Dead trees with 100 per cent defoliation.

As can be seen from the above, data can only be seen as damaged rate.

2 Time

2.1 Reference Period

The surveillance of the forest condition is implemented in July and August every year.

2.2 Date of Publication

The National Forest and Nature Agency publishes its report annually in May.

It has been decided to discontinue the compilation of statistics on the condition of Danish forests from 2001. Consequently, future statistics will not be published by Statistics Denmark.

2.3 Punctuality

Look at 2.2.

2.4 Frequency

Look at 2.2.

3 Accuracy

3.1 Overall accuracy

Inaccuracies in the forest statistics:

The results from the network of 51 surveillance sites are not quite representative of the total forest area. The surveillance of one site of the network is carried out as one joint evaluation of the four clusters of six trees and this surveillance reflects the pressures to which these trees are exposed every year. The conditions of these trees do not necessarily reflect the condition of the total stand. In addition, different business approaches between the stands also give rise to inaccuracies in the survey random checks.

The use of figures for the defoliation of coniferous and deciduous trees must be supplemented by "Level II Observations". The EU Commission has since 1995 established a permanent network of observation areas throughout Europe, involving the establishment of sixteen areas in Denmark divided into four state forest districts, two in Western Jutland, one in Southern Jutland and one in the County of Frederiksborg. These areas have been chosen for their different soil conditions. Supplementary surveys and surveillances have been established since 1985 of the ecosystems of the forests, of air pollution, of the populations of insects causing the loss, etc. Level II Observation areas allow us to see the causal connections between the forest condition and the factors which have caused this condition.

3.2 Sources of inaccuracy

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3.3 Measures on accuracy

None

4 Comparability

4.1 Comparability over Time

The standard of reference is ensured by continuing to use the above-mentioned surveillance method.

The National Forest and Nature Agency holds courses for experts who are going to be in charge of the surveillance programme around Denmark. The courses are given to ensure unanimity in the estimation of the forest condition.

4.2 Comparability with other Statistics

The surveillance takes place throughout Europe.

4.3 Coherence between provisional and final statistics

No provisional figures are published.

5 Accessibility

5.1 Forms of dissemination

www.Statistikbanken.dk and the publication: *Environment and Energy*.

5.2 Basic material: Storage and usability

Basic statistics are per cent specifications for the classes of defoliation of coniferous and deciduous trees in every stand.

This information is only available from the National Forest and Nature Agency. Statistics Denmark has registered the per cent specifications for all the classes of defoliation of coniferous and deciduous trees in Denmark in total.

The observed defoliation of conifers and deciduous trees is categorised within five classes of damage rate:

Defoliation class 0: Undamaged trees with up to 10 per cent defoliation.

Defoliation class 1: Undamaged trees with between 11 per cent and 25 per cent defoliation.

Defoliation class 2: Damaged trees with between 26 per cent and 60 per cent defoliation.

Defoliation class 3: Damaged trees with between 61 per cent and 99 per cent defoliation.

Defoliation class 4: Dead trees with 100 per cent defoliation.

The different species of coniferous and deciduous trees:

Per cent of all conifers

Per cent of Norway spruces

Per cent of Sitka spruces

Per cent of Scotch pine

Per cent of Other conifers

Per cent of all deciduous trees

Per cent of Beech

Per cent of Oak

Per cent of Other deciduous trees

5.3 Documentation

The documentation exists here.

5.4 Other Information

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Vibeke Ravn Sørensen
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