

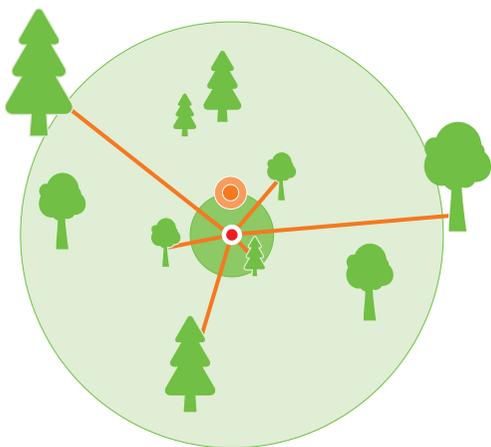
Surveying the forest

The Carbon Inventory is a subsample of the National Forest Inventory with a reduced set of target variables assessed in the field. Not assessed were forest structure and damage caused by game animals. The sampling intensity was reduced to a quarter of the base density used during the National Forest Inventory. Because of this it is not possible to provide results for the federal states of Germany. Some of the states have densified the federal 8 km x 8 km sampling grid on own costs. For assessing forest area change, aerial photos were evaluated at all of the 195,630 sampling locations of the National Forest Inventory 2012.

About 30 field teams have assessed ca. 143,000 trees along a standardised protocol and further attributes at 12,838 forest sample locations.

Carbon stocks are derived from timber volume, tree species specific wood density and average carbon content.

Surveys at the sample location



- Circular sample plot with radius $r = 5$ m for dead wood
- Circular sample plot with radius $r = 25$ m for terrain characteristics and forest edges
- Angle-count sampling with basal area factor 4 for trees from 7 cm diameter at breast height (DBH)
- Circular sample plot with radius $r = 1$ m for trees from 20 cm to 50 cm height (for less than 4 trees: radius $r = 2$ m)
- Sample circle with radius $r = 2$ m for trees from 50 cm and with a DBH less than 7 cm

Who is responsible?

The Forest Carbon Inventory is conducted and evaluated by the Thünen Institute of Forest Ecosystems on order of the Federal Ministry of Food and Agriculture. Aerial photo interpretation was assisted by the federal states of Germany. Some states collected additional data and made them available on own costs.

ADDITIONAL INFORMATION

www.bundeswaldinventur.de – Information and selected results on the National Forest Inventory and the Forest Development and Timber Volume Modelling (WEHAM).

<https://www.thuenen.de/en/wo/projects> – A project overview of the Carbon Inventory 2017

<https://bwi.info> – Here, results from the Carbon Inventory 2017 and the National Forest Inventories can be accessed. Results from the Forest Development and Timber Volume Modelling and two federal state forest inventories are available too. It is possible to generate tables, graphs and maps after user specifications.

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Publisher

Johann Heinrich von Thünen Institute
Institute of Forest Ecosystems
in cooperation with Thünen Press Office
Bundesallee 50, 38116 Braunschweig, Germany

Photos and Graphics

Thünen-Institut of Forest Ecosystems,
Federal Ministry of Food and Agriculture



BUNDESWALDINVENTUR



THÜNEN

Forests in Germany – forests in numbers

Results of the Carbon Inventory 2017



Carbon Inventory 2017

The Carbon Inventory 2017 assesses the state of the German forests in the middle of the period between two regular national forest inventories with a reduced set of target variables. The main goal is to deliver data on forest carbon content for the second commitment period of the Kyoto protocol (2013 to 2020). Beyond that it also shows how forests have changed since the National Forest Inventory 2012.

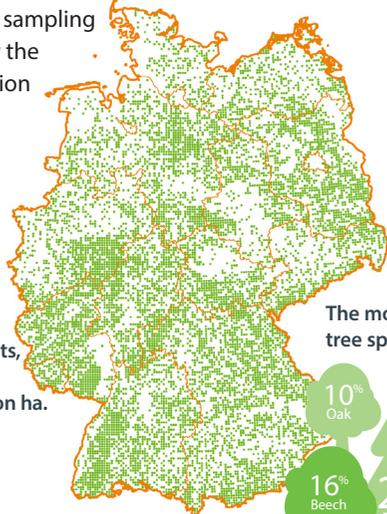
Most trends from former inventory cycles have continued for the 2012-2017 period: There are more deciduous trees, more old and thick trees, more timber stock and more dead wood. Timber increment is still at a high level but slowly decreasing. Timber use is significantly lower than growth. Thus, forests continue to be a carbon sink. The accumulation of timber stocks is further accelerating due to lower timber use than in the previous period. Because of increasing spruce timber stocks, while the area covered by spruce trees maintained constant, the change towards more deciduous trees is slowing down.

Germany, the land of forests – forest area unchanged

Forest covered sampling locations show the forest distribution in Germany.

32%

One third of the total area is covered by forests, amounting to about 11.4 million ha.



The most abundant tree species:

10%
Oak

16%
Beech

23%
Pine

25%
Spruce

Forest habitat – even more old and thick trees

2%

more area with deciduous trees.

6%

more timber stocks. $\frac{4}{5}$ of that change happened in trees with a diameter at breast height of more than 50 cm.

12%

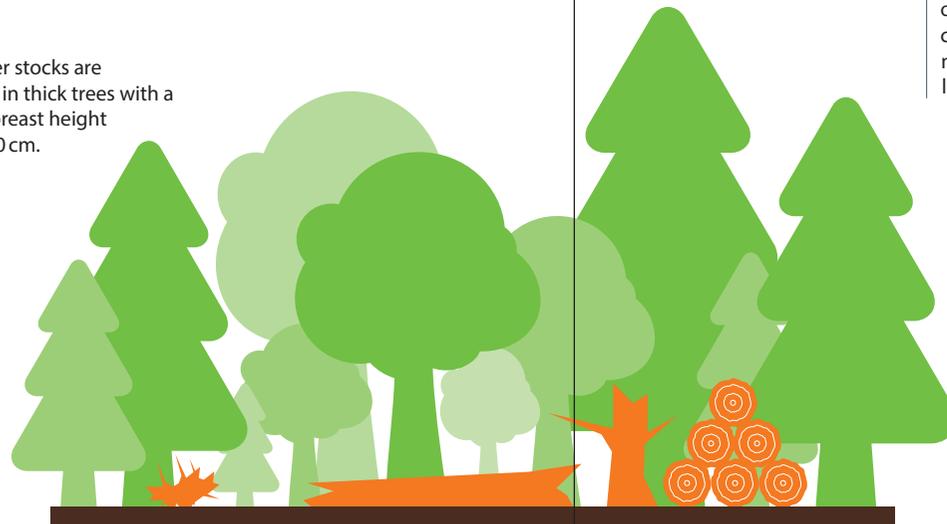
more forests older than 120 years.

14%

more dead wood, now 22.4 m³/ha.

26%

of total timber stocks are accumulated in thick trees with a diameter at breast height larger than 50 cm.



Forest resources – timber stocks with new record high

3.9 billion m³

of timber stocks. On average 358 m³/ha and 6% more than five years ago.

117.4 million m³ per year

of timber growth. $\frac{3}{4}$ of this amount can be attributed to harvest or natural mortality. $\frac{1}{4}$ increased the living stocks.

Forest as climate protector – still a carbon sink

The uptake of carbon dioxide from the atmosphere amounts to about 62 million tons per year. The German forests, thus, compensate ca. 7% of Germany's emissions.

1,230 million tons

of carbon are stored in living trees. This is 5% more than five years ago.

62 million m³ per year

of timber without bark was used, this is 16% (for spruce even 28%) less than in the previous decade.