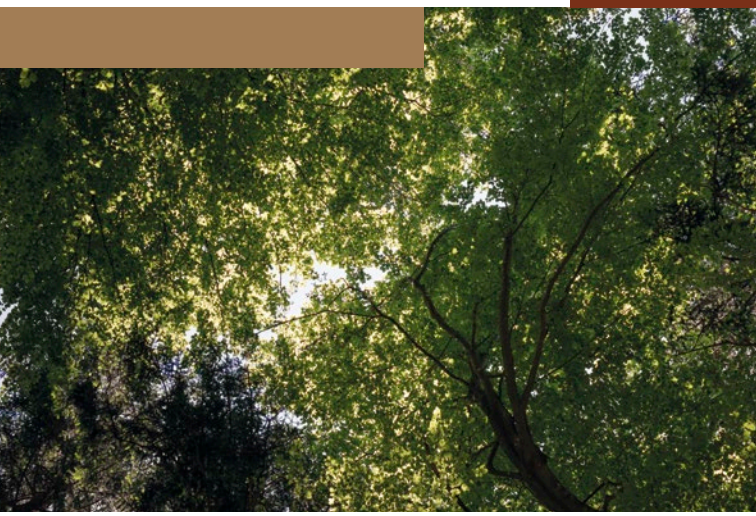
Conference on **“Carbon Sequestration in Forest Ecosystems and Wood Products”,** Göttingen 2025



13 Conclusions

drawn by the heads of German-speaking forestry research institutes

TOP PRIORITY: SUBSTANTIAL REDUCTION OF GREENHOUSE GAS EMISSIONS

1 Forest Protection through the Consistent Reduction of Greenhouse Gas Emissions

The single most effective means of protecting our forests in Germany, Austria and Switzerland – and thereby also the most important contribution to climate protection – is the consistent reduction of anthropogenic greenhouse gas emissions in all sectors.

THE FOREST CONTRIBUTION TO CLIMATE PROTECTION – AND ITS LIMITS

2 Carbon Sequestration by Forests

As trees grow, CO_2 is captured from the air and sequestered in the wood as carbon. The ongoing CO_2 sequestration per unit of area is greatest in young and medium-aged forest stands, which have high growth rates. As a result of climate change, however, there is an increasing risk of carbon already sequestered in the forests being released uncontrollably through large-scale damage events. **Levels of carbon stored in forests are therefore increasingly volatile.** Evidence of this is to be found in the national forest inventories, for example, albeit with significant regional and site-specific differences.

3 Safeguarding Carbon Sequestration Through Forest Conservation

Only climate-resilient and site-appropriate forests can safeguard the efficient and consistent sequestration of CO_2. The **long-term conservation of existing forests, i.e. the forest area, as well as forest health,** is **the** key to climate protection.

4 Increased Carbon Sequestration Through the Planting of New Forests

The planting of new forests **(afforestation)** is one way of increasing CO_2 sequestration and forest carbon storage. However, large-scale forest expansion is difficult to achieve in many regions of central Europe due to competition for land, and cannot be implemented everywhere in view of other social needs.

5 Limited Potential of Forests as Carbon Sinks

The potential of forests as carbon sinks is often emphasised, and rightly so. However, the carbon storage capacities of our forests are limited. As global warming leads to warmer and drier sites, and growing conditions often deteriorate as a result, the potential sink is likely to be reduced still further – which is why the **conservation and sustainable management of forests** must be central elements of climate policy.

6 No One-Sided Focus on the Carbon Storage of Forests

Our forests provide a multitude of important, sometimes vital ecosystem services. Increasing carbon storage in the wood stock of sustainably managed forests therefore only makes sense if it does not jeopardise other important ecosystem services. Furthermore, forest stands with very high stock levels are exposed to increasing risks of calamities and the danger of rapid release of stored carbon as a result of climate change.

It is particularly important to ensure that the focus on increasing carbon storage in the forest does not prevent the necessary development from species-poor forests of low structural diversity towards more adaptable mixed forests – including tree species that require light. A **one-sided focus** on maximising forest carbon storage by increasing the wood stock of forests is therefore not recommended from a technical point of view.

SUSTAINABLE FOREST MANAGEMENT FOR CLIMATE PROTECTION

7 Development of Climate-Resilient, Diverse Mixed Forests

Forest management must focus on the **active development of site-appropriate, diverse and adaptable mixed forests** that can continuously absorb and store CO_2 through growth and timber utilisation. These forests sequester carbon in biomass and soils, while also performing diverse other ecosystem services.

Through timber utilisation, the carbon is transferred from the forest carbon sink to a wood product sink (e.g. wooden houses, paper) for the duration of the product's use. Sustainable timber utilisation in forests managed in a close-to-nature way also creates the conditions for the growth of young trees with particularly high carbon sequestration rates. Sustainable forest management therefore plays a significant role in a climate balance that takes both forest carbon sink and wood product carbon sink into account.

8 Maintenance and Expansion of Carbon Storage in Forest Soils

Forest soils contain considerable proportions of the carbon bound in forests. Sustainable, **soil-friendly forest management,** which includes appropriate management of the soil water balance, helps to maintain this carbon reservoir and also to increase it in the long term.

9 Preventing Large-Scale Disturbances

The risk of large-scale disturbances is considerable, particularly in forests unsuitable for their site, dominated by a single tree species, species-poor, or poorly adapted to the future climate. These disturbances are not only associated with uncontrollable CO_2 emissions from stands and forest soils, but also with the impairment of other key ecosystem services.

Sustainable, active management geared towards climate adaptation can significantly increase the resistance and resilience of our forests. The keys to this are **forest conversion measures, increases in tree species diversity and mixing, forest management geared towards reducing risks and maintaining the stability of the forests, adapted wildlife management** and other protective measures.

CLIMATE PROTECTION THROUGH TIMBER UTILISATION

10 The Importance of Wood as a Carbon Sink

Another essential lever in climate protection is the storage of carbon in wood products. The storage time depends on the service life of the wood products. The possibilities for efficient wood use must therefore be developed further, and the emphasis laid on maximising the proportion of durable products (e.g. construction timber or wood-based materials). The goal should also be to create a cascade of utilisation in order to ensure that the wood is used as efficiently as possible.

11 Substitution of Wood for More Greenhouse Gas-Intensive Materials

Wood can be used as a raw material (e.g. in building materials) to replace other materials that cause higher greenhouse gas emissions at the production stage. This can reduce emissions in other sectors. This substitution potential of wood use (especially in timber construction or in the thermal insulation of buildings) can thus contribute to the reduction of total national emissions.

LULUCF CLIMATE PROTECTION TARGETS

12 Adjustment of LULUCF Climate Protection Targets

In view of the increasing risks, experts believe that the **forest contributions to LULUCF climate protection targets** as set for Germany and Austria, for example, **are not achievable. They should therefore be urgently reviewed and – if necessary – adapted to the realities and limits of the ecosystems.** Risks and disturbances must in future be better integrated into models, so that realistic climate protection targets for forests can be formulated and the appropriate intervention measures derived.

The **emissions saved** in other source groups through the use of wood are not currently assigned to the **LULUCF source group.** They thus do not formally contribute to the achievement of the LULUCF target, but help other source groups to reduce emissions. This leads to misunderstandings and irritation in many political debates.

CO_2-CERTIFICATES

13 Forest-Related CO_2-Certificates

In Germany, Austria and Switzerland, forest-related CO_2-certificates (forest carbon credits) do not in themselves offer any added value for climate protection. In some cases, they can even lead to false incentives:

- Certificates that are designed to promote expansion of the forest area, i.e. the reafforestation of agricultural land or other areas, create incentives for the additional sequestration of CO_2. However, it should be borne in mind that it will be decades before these have a substantial impact.
- Certificates geared towards climate-stable forest conversion (indirectly) support positive effects on the long-term storage of carbon in these forests.
- Certificates based solely on non-utilisation are designed to increase the amount of carbon in forest biomass. Here it should be borne in mind that uncontrollable natural disturbance events in forests can quickly result in a complete loss of storage capacity. The risk of such calamities occurring is rising sharply due to rapid climate change, especially in ageing forest stands. In addition to this high risk to the forest carbon sink, certificates like these are inevitably linked to an abandonment of the expansion of the wood product sink on these areas.

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