

Europe's Forests - which way to go?

The current discussions on the role of forests in climate change mitigation are being conducted in science, business and politics with a sense of urgency that cannot be ignored. How do you see the future, are Europe's forests at a crossroads?

Forests all over the world are logically changing due to rapidly changing living conditions in climate change. In principle, Europe is not a special case. However, the nature of the changes varies from region to region. While in the cold mountainous climates and in the extreme northern and southern regions, forests are conquering new growth space through warming, forests in the classic forest countries are drying up. Europe is a potentially densely forested continent. The structures of European forests are almost entirely those of "man-made forests", i.e. only a few natural or even primeval forests. The latter are the preliminary final stage of a permanent evolutionary adaptation to changing living conditions. They react to every change with the great diversity of a super-complex living system. The simply structured, often unnatural forests with many trees that are not native to the location cannot achieve this. Therefore, many millions of trees died off in a short period of time last year. A logical process. The artificial forests, which have been unstable for centuries, have been and will continue to be eliminated by rapid climate change.

Europe indeed is at a crossroad: Refocus on the fact that complex natural ecosystems such as forests have survived optimally for about 300 million years in constant adaptation, or do we trust in "modern" forestry to better master the challenges of the future with scientific intelligence and industrial measures. German forest policy focuses on forest-industry measures and thus risks the final loss of evolutionary handed-down diversity and adaptability. Environmental policy and forest-ecological science, on the other hand, favour a development towards closeness to nature and the inherent dynamics of forests.

As a forest expert and pioneer in sustainable near-natural forest management - what would you see as the most important measures...

1/ to preserve healthy forests?

Really healthy forests, i.e. natural ecosystems, are scarcely to be found in Europe anymore. Around 20% of the world's forests are still self-organised and quite healthy, in Europe perhaps 5% in this sense.

In Germany, forests have already been destabilised for decades by pollutants in the air, lowering of groundwater levels, destructive wood use and alienation of the native tree species composition. In the last forest damage inventory, only about 20 % were considered healthy in terms of the density and colour of leaves and needles. Only about 30% had a tree species composition and structure classified as close to nature according to the Federal Forest Inventory. To sum up: The forests of the world, but especially those in Europe or even Germany, are mostly remote from nature and therefore unstable. If we continue to treat them as we have done up to now, we will lose more and more of them. So the question is rather: What can or must we do to make them more viable?

In principle, forests are more vital the closer their structure and dynamics are to the natural forest society typical of their location, and the less their development is disrupted by human intervention. It is therefore important that these different types of forest communities are set aside in protected areas of sufficient size. Current demands range from 17% to 50% of all forests. The latter "half earth" demand goes back to the famous ecologist E.O. Wilson as his legacy to the world. In fact, now only 3% of the forests in Germany are fully protected by law.

The majority are managed forests. Most forest laws in Europe prescribe their "sustainable" management in the sense of the Agenda 21 of Rio 1992, which aims to harmoniously balance ecological, social and economic aspects. The certification system of the Forest Stewardship Council (FSC) - whose standards are very little pursued by the Rio signatory states in terms of government policy - tries to secure these principles through a certification mechanism via civil society,. Although the EU has drawn up principles in a similar sense with the Natura 2000 directives, the EU forest strategy and the Forest Europe Initiative, the FSC is still in the process of developing a set of guidelines for the protection of forests. However, these principles are formulated very openly and with little ambition, so that governments in all EU countries do not prevent forestry that is remote from nature and weakens the forests. Even huge illegal clear-cutting in the last beech primeval forests in the EU country of Romania has not been stopped to date, although it has been documented and reported to the EU in detail.

With its veto principle and the strong lobby of the timber and machinery industry, the EU is not in a position to adequately protect near-natural forests and restore those that are far from nature. The "modern" forest plantations with spruce, pine and eucalyptus are collapsing in the face of climate change, especially across Europe. The timber market will hardly be able to absorb the calamity woods in the coming decades.

The classical forestry science and the forestry ministers of the federal states are trying to counteract this with the old forestry industry concepts and more efficiency in the use of machinery, selection of exotic fast-growing tree species, control of diseases with pesticides and the like. In contrast to this, forest ecologists and environmental associations plead for a reversal and bringing the commercial forests closer to their naturalness and thus provoke their recovery. The destructive effect of climate change, especially in man-made forest structures, forces rapid decisions and measures to be taken. It is still completely unclear whether the majority of these will follow the forestry industry's path away from nature or a development that is ecologically beneficial to forests.

2/ in the fight against climate change

Climate change, which has become a very threatening climate crisis, manifests itself clearly and predominantly destructively in economic forests, somewhat less so in near-natural forests. Relatively rapid changes in temperatures, precipitation, wind forces, etc. are changing the living conditions of all living things in the forest ecosystem. Natural forests are the final result of previous ongoing evolution over approx. 300 million years, i.e. a synonym for adaptation societies. Such locally optimised ecosystems can regenerate themselves even in the current climate change up to the extreme tipping points. In doing so, they change through genetic selection, in the composition of tree species and vegetation etc. Individual trees and also certain tree species die without endangering the forest itself. The forest adapts through change. The ideal "fight" against climate change is therefore the opposite: disturb near-natural forests as little as possible through human intervention, reduce wood use, and possibly even introduce moratoria on felling in public forests. Cautiously begin the transition to near-natural structures and tree species composition in semi-natural commercial forests, avoid damage due to the use of heavy machinery and the use of poisonous substances, block drainage systems.

Such extensification serves the preservation of the forests, their adaptation capacity in times of the current climate crisis induced upheaval.

However, forests also have the significant ability to actively reduce the content of the greenhouse gas CO² in the air through photosynthesis and the formation of organic carbon-rich mass. They are a natural CO² sink and a C storage. This mitigation function is estimated to reduce the present oversized CO² air content by up to 25 %. Natural forest ecosystems are characterized by high levels of carbon in wood, soil humus, mineral soil and many subsystems.

The living tree population alone can carry up to 1,500 m³ of wood per hectare in Central Europe. By comparison, the current commercial forests are "anorexic". In Germany, 1 hectare of forest carries an average of about 350 m³ of tree wood. The natural potential is estimated to be about twice this amount. In addition, there are considerable quantities of standing and lying dead wood in natural forests, which have been largely removed in commercial forests.

The fight against climate change can therefore be fought in two ways in the forest: passively as adaptation and actively as reduction of the CO² content of the air.

The measures for this are in the same direction: The increase of the tree masses (carbon) serves the nature proximity and the CO² sink, the native tree species strengthen the natural functioning and lower the risk of collapse (CO² source) etc.

However, the role of forest may not be overestimated. Forests cannot really stop climate change. To reach this, the entire global community must practice frugal and low-CO²-emitting lifestyles and economic approaches.

In many regions of Europe, small-scale farm forests are an essential part of the rural economy - do you think that these forests will/ can become more important in the course of the climate change discussion (despite increasing inefficiency of management, increasing massive damage due to storms/ drought)?

In fact, many small farmer's forests contain a significantly higher biodiversity than the professionally managed larger commercial forests. This can be to their advantage in climate change because higher biodiversity and closeness to nature also mean a greater ability to adapt to climate change. Precisely because society will have to do more in the future to maintain the diverse services of the forest ecosystems even in the face of climate change or to prevent the complete collapse of forests, it is likely that such ecosystem services will be financially rewarded as a general public service. For forest owners, this also means that the increased management costs and the reduced revenues from the timber industry must be compensated. Models of remuneration include, for example, CO² certificates for enrichment with living wood (trees) or payments for nature conservation/biodiversity through long-term protection contracts.

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