

NOTE: THE SIGNEES HAVE SIGNED THE FINNISH LANGUAGE VERSION OF THE STATEMENT, WHICH IS THE DEFINITIVE VERSION. THIS IS AN UNOFFICIAL ENGLISH TRANSLATION.

**Public statement
24 March 2017**

We, the undersigned to this statement, wish to express our concern regarding climate and biodiversity impacts of Finland's forest utilisation plans. If it is realised, the increase in the harvesting and use of wood will decrease the biodiversity of nature and accelerate climate change. The undersigned are worried that research on these impacts has not reached the decision-makers and the greater public in the correct form.

In order to stabilise the rise in Earth's mean temperature to under two degrees – the goal of the Paris Agreement – the emissions from the use of fossil fuels need to be reduced significantly, and the carbon sinks which remove CO₂ from the atmosphere need to be strengthened. In order to reach the main goal of the agreement on biodiversity – the halting of the disappearance of diversity – we need to enhance the living conditions of endangered forest species. Finland has set strong goals for the increase of the use of wood, and these are justified particularly with the efforts to mitigate climate change in a sustainable way. However:

1) Finland's planned increase in the use of wood will not mitigate climate change for decades

The public notion that wood-based fuel and wood-based products are climate-friendly is based on the idea that combustion of wood is carbon-neutral; it also ignores the changes that the harvest of wood causes in the carbon stocks of forests. The increase in the harvesting of wood will decrease the carbon storage of forests, compared to a situation of lower harvesting level. In the coming decades, the increase of the carbon storage of Finnish forests (net carbon sink) will actually be smaller the more trees are harvested. From the atmospheric viewpoint, the sink-reduction impact of harvesting trees is similar to the actual emissions.

According to the government targets and definitions of climate and energy strategy, the annual harvesting of stem wood would increase from the current (2013–2015) c. 66 Mm³ to c. 80 Mm³, and the use of wood chips from c. 8 Mm³ to 14–18 Mm³ by the year 2030. The majority of the current and planned use of wood is directed to short-lived products, such as pulp and paper industry products and bioenergy. The carbon which is transferred into long-lived wood products forms only a small part of the entire amount of carbon harvested from the forest. Studies show that the pursued increase in the wood use will not help to mitigate the increase in the atmospheric CO₂ concentration for decades – or not even by the end of the century. This is due to the fact that the increase in wood harvesting decreases the carbon sink of forests; in a few years, the carbon harvested from the forests is released into the atmosphere, and in the

light of current knowledge, the reduction in emissions resulting from replacing non-renewable materials and the fossil-based energy use will not be significant enough.

In the coming decades, forests could be used in the most efficient way in the mitigation of climate change by increasing the carbon sink of forests, and by directing the use of wood into long-lived products in which the carbon would be stored for as long as possible, and whose use would replace emission-intensive non-renewable materials. This would mean a significant change in the entire forestry industry and in the amounts and ways of using wood. The increase of the biomass in forests, and the harvesting of trees at larger size would increase the carbon sink and stock of forests, as well as the relative portion of sawnwood in the logging outturn. In this way, a greater portion of the wood could be used for long-lived products. By investing in material technology and wood construction it would be possible to store a significantly greater amount of the carbon harvested from forests into such long-lived wood products.

2) The current use of forests and its increase endanger biodiversity

The diversity of forests must be ensured in order to maintain the ecosystem services necessary for the maintenance of our societies. In addition, the ability of forests to adapt to the effects of climate change is essentially dependent on their biodiversity. Finland has committed to stopping the loss of biodiversity by 2020.

The conservation status of Finland's forest species has not deteriorated between the last two evaluations. However, the existence of 814 endangered forest species means that without extra effort to enhance their living conditions, the probability of extinction for these species is high. According to the international criteria for the evaluation of the risk of extinction of endangered species, we can estimate that over the next fifty years the diversity of Finland's forests will decrease, and that at least 74, and possibly 243, of the endangered species will become extinct. For this reason, the current forestry is not sustainable, and it is likely that the planned increases in wood harvesting will restart the rise in the number of endangered forest species.

The decrease in the amount of dead wood and old growth forests is the most important reason for the endangerment and extinction of forest species.

The decrease in the amount of dead wood is caused by the forestry. In natural Finnish forests, the amount of dead wood ranges from under 60 to over 120 m³/hectare. Based on the Finnish National Forest Inventory, the current amount of dead wood in Finland is c. 5 m³/hectare. Contrary to the common belief, the amount of dead wood has slightly decreased over the past decade or so, being now under one tenth of that in the natural forests. The risk of extinction and the loss of forest species biodiversity in Finnish forests are due to the fact that the forestry has considerably reduced the resources of the species dependent on dead wood.

The rapid decrease in the area of old growth forests is also due to forestry. Over the past 15 years, the area of over 160-year-old forests has decreased by 42%, and the area of 100 to 160-year-old forests has decreased by 15% on the land utilizable for the forestry industry. As the area of forestry land in Finland has decreased only by 2-3%, Finnish forests have become younger due to wood harvesting. In the light of these figures it is obvious that dozens, possibly hundreds, of species dependent on old forests will disappear in the following decades, even if the amount of wood harvesting would not be increased.

Conclusion

The scientific results on the impacts of forest use on climate and biodiversity need to be taken into account in the strategic decision-making and policy instruments of forest use. Otherwise there is the risk that climate change will accelerate and forest biodiversity will decrease further. Of particular importance is to find solutions which will both mitigate climate change and ensure forest biodiversity. In these solutions, the carbon sink and carbon storage of forests is increased by fixing more carbon both to forests and harvested wood products. We hope that this statement will stimulate national and international discussion on the ways to position the wood use in climate commitments so that it enhances the global climate mitigation efforts without compromising biodiversity.

The undersigned (in alphabetical order, academic titles in Finnish)

Eeva Berglund	Ympäristöpolitiikan ja kaupunkitutkimuksen dosentti
Frank Berninger	Associate Professor Applied Forest Ecology, PhD
Heidi Björklund	FT
Patrik Byholm	Ekologian ja evoluutiobiologian dosentti
Jaana Bäck	Professori
Yrjö Haila	Ympäristöpolitiikan professori (emeritus)
Jari Haimi	Dosentti
Panu Halme	Luonnonsuojelubiologian dosentti
Jussi Heinonsalo	Akatemiatutkija, mikrobiologian dosentti
Toini Holopainen	Ekologisen ympäristötieteen professori
Janne I. Hukkinen	Ympäristöpolitiikan professori
Nina Janasik-Honkela	Tutkijatohtori, FT
Pekka Jokinen	Professori
Veijo Jormalainen	Professori
Tuomo Kalliokoski	Tutkijatohtori, MMT
Patrik Karell	Biotalouserikoistutkija, ekologian ja evoluutiobiologian dosentti
Anne Kasurinen	Akatemiatutkija
Saana Kataja-Aho	FT
Minna Kivimäenpää	Ympäristöekologian dosentti
Matti J. Koivula	Yliopistotutkija, ekologian ja luonnonsuojelubiologian dosentti
Atte Komonen	Maa- ja metsätaloustieteen tohtori
Kaisa Korhonen-Kurki	Ympäristöpolitiikan dosentti, VTT
Erkki Korpimäki	Professori
Raine Kortet	Professori
Janne Kotiaho	Ekologian professori
Jari Kouki	Professori
Markus Kröger	Yliopistonlehtori, dosentti
Markku Kuitunen	Ympäristötieteen professori (emeritus)
Liisa Kulmala	MMT
Jan Kunnas	Ympäristöhistorian tohtori
Timo Kuuluvainen	Yliopistonlehtori, MMT, metsäekologian dosentti

Anssi Lensu	Ympäristötieteen yliopistonlehtori, FT
Matti Leppäranta	Professori
Andreas Lindén	Erikoistutkija, ekologian ja evoluutiobiologian dosentti
Tapio Linkosalo	MMT
Anna Lintunen	MMT
Sirkku Manninen	Ympäristöekologian dosentti
Annamari Markkola	Kasvi- ja maaperäekologian dosentti
Tuomas J. Mattila	Erikoistutkija, tekniikan tohtori
Lauri Mehtätalo	Apulaisprofessori, metsäbiometriian dosentti
Juha Mikola	Yliopistonlehtori
Annikki Mäkelä	Professori
Sanna Mäkeläinen	FT
Mikko Mönkkönen	Professori
Pekka Niemelä	Professori (emeritus)
Eero Nikinmaa	Professori (emeritus)
Jenni Nordén	FT
Kai Norrdahl	Professori
Nina Nygren	Ympäristöpolitiikan yliopistonlehtori, HT
Ossi I. Ollinaho	Ympäristösosiologi, tekniikan tohtori
Otso Ovaskainen	Professori
Pauli Paasonen	Yliopistotutkija, fysiikan dosentti
Markus Piha	FT
Mari Pihlatie	Akatemiatutkija
Anna Maria Pirttilä	Yliopistotutkija, dosentti, FT
Timo Pukkala	Professori, MMT
Kaisa Raitio	Ympäristökommunikaation dosentti, YTT
Taina Ruuskanen	Ilmakehätieteen yliopistonlehtori, FT
Aleksi Räsänen	Tutkijatohtori, FT
Laura Saikku	Ympäristötieteen dosentti, FT
Ilkka Savolainen	Tutkimusprofessori (emeritus)
Sampo Soimakallio	Erikoistutkija, ympäristötieteen dosentti, TkT
Teemu Tahvanainen	Yliopistonlehtori, dosentti
Olli Tahvonen	Professori
Päivi Tiiva	FT
Timo Vesala	Meteorologian akatemiaprofessori, FT
Tarmo Virtanen	Yliopistonlehtori, ympäristötieteen dosentti
Anna-Liisa Ylisirniö	Erikoistutkija, ympäristötieteen dosentti, FT