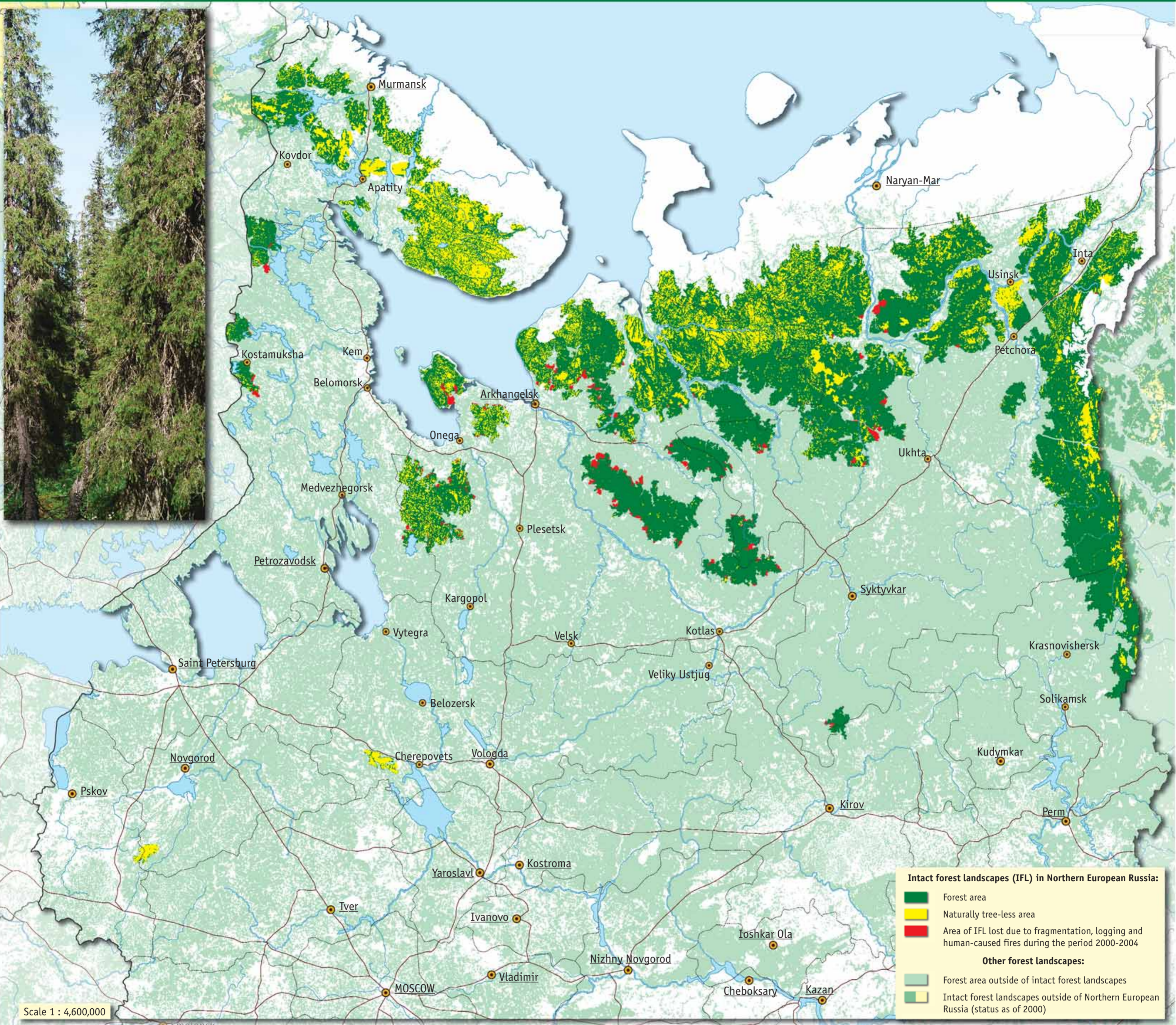


Intact Forest Landscapes of Northern European Russia

The situation as of April 2004, with changes from 2000 through 2004



Intact forest landscapes (IFL) in Northern European Russia:

- Forest area
- Naturally tree-less area
- Area of IFL lost due to fragmentation, logging and human-caused fires during the period 2000-2004

Other forest landscapes:

- Forest area outside of intact forest landscapes
- Intact forest landscapes outside of Northern European Russia (status as of 2000)

Intact Forest Landscapes

An intact forest landscape (IFL) is a large forest area that is free from signs of human management or infrastructure, such as settlements, transportation corridors, agricultural fields or logging sites. An IFL may contain naturally tree-less areas such as lakes, wetlands and alpine meadows. An IFL is large enough to sustain viable populations of all organisms that occur naturally in it, including large predators and species which are sensitive to changing conditions. It is sufficiently large to protect the core area and resist disturbances from outside (so-called edge effects), e.g. logging, colonization by invasive species, poaching, etc. **All areas shown as IFL on this map are at least 50,000 hectares in size and at least 10 kilometers wide** (i.e. wide enough to fully contain a circle with this diameter).

The Importance of Intact Forest Landscapes

The intact forest landscapes shown on this map are the last remaining areas of wild forest landscapes in Europe. Each IFL represents the accumulated result of spontaneous ecological processes that have occurred with minimal or no human influence. An IFL is therefore an ecological point of reference - a benchmark for understanding managed forest landscapes and designing management schemes that preserve or restore significant aspects of the natural forest landscape. The remaining tracts of IFL also have intrinsic value as part of the Earth's natural endowment. Indeed, intact forest landscapes should be regarded as areas of opportunity and responsibility, where all land use options from development to conservation are still open. They are areas in which the best available knowledge and technology should be applied to inform effective and responsible decision-making. Intact forest landscapes are the least suitable for exploitation of all boreal forests (this is the very reason why they are

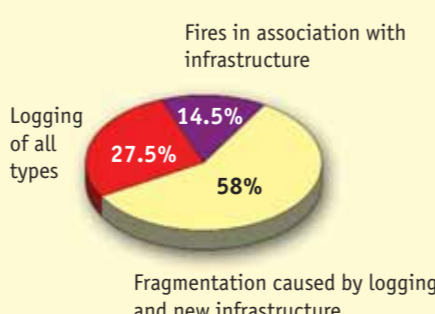
still intact). Their natural value and their poor accessibility for economic development make them prime candidates for becoming protected areas. This is particularly important to consider in the southern and middle zones of the taiga, where intact forest landscapes are disappearing at the most rapid rate. The forests within an IFL are natural ecosystems that are only minimally affected by management. They are therefore priority areas for conservation in accordance with Articles 3 and 4 of the Russian Federal Act "On the Protection of the Environment".

Sources of Information

This map is based on the *Atlas of Russia's Intact Forest Landscapes* that was published in 2002 by a group of non-governmental environmental organizations cooperating in Global Forest Watch Russia. A detailed description of the research method is given in *The Last Intact Forest Landscapes of Northern European Russia* (Greenpeace and Global Forest Watch, 2000).

The map shows how the boundaries of intact forest landscapes have changed from the year 2000 to 2004. These changes are the result of logging, road construction, and associated fires, but some changes are also due to a higher precision in the analysis, made possible by the appearance of new sources of information (mainly high-quality satellite images with high resolution). Images from the satellite Terra MODIS, showing the situation for different years during early spring (March or April), were

Contributing factors to the reduction in extent of intact forest landscapes



used for a preliminary change-detection analysis. A more detailed analysis was carried out using images of medium and high resolution ASTER from Landsat ETM (until 2002), Meteor-3M, Terra ASTER, IRS PAN, and IRS LISS.

Threats to Intact Forest Landscapes

The area of intact forest landscapes has decreased during the period of study. The main cause of this loss is logging and associated construction of transportation infrastructure. The decrease has occurred in two ways: through direct transformation and through fragmentation. The latter happens when new roads cut off pieces of an intact forest landscape from the main area. Most of the logging is in the form of clearcuts with a size of up to 50 hectares. Thinning and other forms of selective cutting occur only rarely.

The average annual area logged within intact forest landscapes during the study period was 19,700 hectares, corresponding to an estimated volume of 2.3 million m³ per year. Most of this logging occurred in the southern and middle zones of the taiga, while the logging intensity in the northern taiga was very low. **The reduction in area was most rapid south of the city of Kostamuksha - 1.9 percent per year, between the rivers of Northern Dvina and Pinega - 1.4 percent per year, and on the Onega peninsula - 1.2 percent per year.** In the Northwestern Federal District as a whole, 6 percent of all wood removed is from intact forest

landscapes. In individual regions, the corresponding number is: Arkhangelsk - 23 percent, Komi - 7 percent, Murmansk - 4 percent, Karelia - 2 percent. Logging in intact forest landscapes is also taking place in regions of the Volga Federal District: Perm - 7 percent, Kirov 0.2 percent. No logging in intact forest landscapes could be detected in the Vologda, Pskov and Novgorod regions, where the remaining intact forest landscapes consist mainly of peatlands.

Forest fires represent another threat. These occur in association with logging and establishment of new infrastructure. In keeping with the method established by Global Forest Watch Russia, these are classified as human-caused unless they occur inside of intact forest landscapes at some distance from areas of human activity.

Reduction in area for individual tracts of intact forest landscapes from 2000 through 2004 (shown as a percentage of the total initial area for each tract)

