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# Russia's Boreal Forests

## Forest location and brief description

Russia is home to more than one-fifth of the world's forest areas (approximately 763.5 million hectares). The Russian landscape is highly diverse, including polar deserts, arctic and sub-arctic tundra, boreal and semi-tundra larch forests, boreal and temperate coniferous forests, temperate broadleaf and mixed forests, forest-steppe and steppe (temperate grasslands, savannahs, and shrub-lands), semi-deserts and deserts.

Russian boreal forests (known in Russia as the taiga) represent the largest forested region on Earth (approximately 12 million km<sup>2</sup>), larger than the Amazon. These forests have relatively few tree species, and are composed mainly of birch, pine, spruce, fir, with some deciduous species. Mixed in among the forests are bogs, fens, marshes, shallow lakes, rivers and wetlands, which hold vast amounts of water. They contain more than 55 per cent of the world's conifers, and 11 per cent of the world's biomass.

## Unique qualities of forest area

Russia's boreal region includes several important Global 200 ecoregions - a science-based global ranking of the Earth's most biologically outstanding habitats. Among these is the Eastern-Siberian Taiga, which contains the largest expanse of untouched boreal forest in the world. Russia's largest populations of brown bear, moose, wolf, red fox, reindeer, and wolverine can be found in this region. Bird species include: the Golden eagle, Black-billed capercaillie, Siberian Spruce grouse, Siberian accentor, Great gray owl, and Naumann's thrush. Russia's forests are also home to the Siberian tiger and Far Eastern leopard.

Many indigenous and local people in Russia's less developed regions rely heavily on the boreal forest for timber harvesting, and non-timber forest product collection (e.g. berries, mushrooms, medicinal plants), traditional agriculture (e.g. grazing, hay making), and hunting. Almost all of the 45 officially registered indigenous nationalities depend on the use of forest and other wild natural resources (tundra, marine, freshwater) for their subsistence. Forests are also significant for the maintenance of indigenous people's traditions (religious customs, and life style). Many indigenous people live near protected areas or within them.

Forest Area Key Facts &  
Carbon Emissions  
from Deforestation

- Holding almost 50% of the northern hemisphere's terrestrial carbon, Russia's natural forest resources play a vital role in regulating climate change.
- The massive forest fires in Siberia in 2003 are said to have released as much greenhouse gas into the atmosphere as the total EU reduction commitment under the Kyoto protocol.
- If all the methane currently stored in the permafrost of the western Siberian peat bog were released, its warming effect would equal to 73 years of current man-made CO<sub>2</sub> emissions.

## Climate Control

Boreal forests play a vital role in the global carbon cycle and in regulating climate change, acting as giant storehouses of carbon emissions. In fact, the world's circumpolar boreal forests and peat-lands are reported to contain as much as five times the carbon of the world's temperate forests, and almost double the carbon in tropical forests.

Studies suggest that Russia holds almost 50 per cent of the Northern Hemisphere's terrestrial carbon. Russian forests contain approximately 56.3 Pg (petagrams, or billion tonnes) of carbon in vegetation, and approximately 135.7 Pg C in soil organic matter. About 60 per cent of this carbon is locked in peat that is currently frozen within permafrost.

Source: Wood's Hole Research Center



## Deforestation data

Recent estimates of rates of deforestation in Russia's forests are as high as 20,000 km<sup>2</sup> annually, comparable to the annual rate of forest clearing in the Brazilian Amazon Basin.

In contrast to the central and southern boreal regions, lands in Siberia and the Russian Far East have little development due to permafrost and cold. Almost 90 per cent of tundra and up to 70-75 per cent of taiga in these regions remain close to their natural states.

## Key threats

Russia's boreal zone is partly fragmented by roads, rail, and infrastructure developments. Coal mining, logging, pollution, oil and gas development all pose significant threats to parts of the region.

The main pressure on Russian forests is caused by timber extraction and other forestry activities. Demand for resources in world markets, such as timber in China and Southeast Asia, and pulp in Europe, is increasingly

threatening Russian forests. Production of pulp in Europe relies to a significant extent on timber from Russia and the Baltic states.

Illegal felling is increasing, and now accounts for 30 per cent of the total felling volume (in some regions up to 70 per cent). Russia loses approximately one billion US dollars per year due to illegal logging and trade, which in turn restricts money available for good harvesting practices, communities and development.

Forest fires are also a major threat to the region. The average annual forest loss due to fire is approximately one to three million hectares, with larger (and rarer) catastrophic fires averaging 13-14 million hectares in damage. Siberian forests are particularly at risk. Fires in Siberian forests, often started illegally and deliberately by rogue timber firms planning to sell cheap lumber to China, have increased tenfold in the last 20 years. During Europe's 2003 heat wave, 22 million hectares of spruce, larch, fir, pine, and oak were affected by fires.

## Protection status

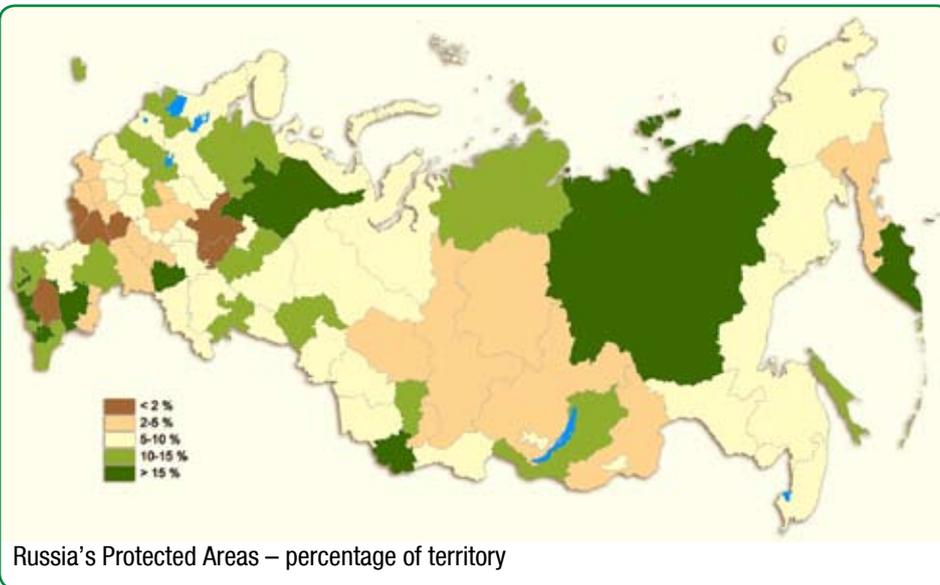
The 1995 Russian federal law defines protected areas as "areas of land and water surface and the air space above them, where natural complexes and objects of special nature conservation, scientific, cultural, aesthetic, and recreational importance are located. These areas are fully or partly withdrawn from economic use on the decision of state authorities, and a special regime of protection is established for them". Protected areas (both federal and regional) cover around 190 million hectares, or about 11 per cent of the whole territory of Russia.

The Russian national protected area system includes:

- Approximately 100 *zapovedniks* – strict nature reserves meeting the category 1 criteria of the IUCN

## New National Parks in Russia's Far East

In June 2007, two new national parks were declared in one of the most biologically diverse provinces in Russia's Far East, the Primorsky Province. The newly created Udege Legend National Park and the Zov Tigra National Park will span 88,600 hectares, and 82,152 hectares respectively, helping to protect the home of the endangered Siberian, or Amur, tiger and other wildlife species,



- classification of protected areas – covering about 330,000 km<sup>2</sup> (about 1.4 per cent of the country's total area);
- 36 national parks, totaling over 6.8 million hectares;
  - 69 federal *zakazniks*, or wildlife refuges;
  - more than 3,000 regional *zakazniks*;
  - more than 10,000 nature monuments, including 28 of federal importance;
  - more than 40 regional nature parks; and,
  - hundreds of other protected areas ranging from a forested area in the middle of Moscow to large tracts of Siberia and the Arctic. These range in size from 2.31 km<sup>2</sup> (570 acres) to 4,692 km<sup>2</sup> (1,876.8 mile<sup>2</sup>). The state plans to create 15 new areas by 2010.

### Carbon emissions from deforestation

At present, Russia is ranked as the 6th largest emitter of greenhouse gas emissions in the world, with 2.8 per cent of total emissions resulting from land-use, land-use change, and forestry (LULUCF). The massive forest fires in Siberia in 2003 are said to have released as much greenhouse gas into the atmosphere as the total EU reduction commitment under the Kyoto protocol.

### Massive carbon storehouse at risk

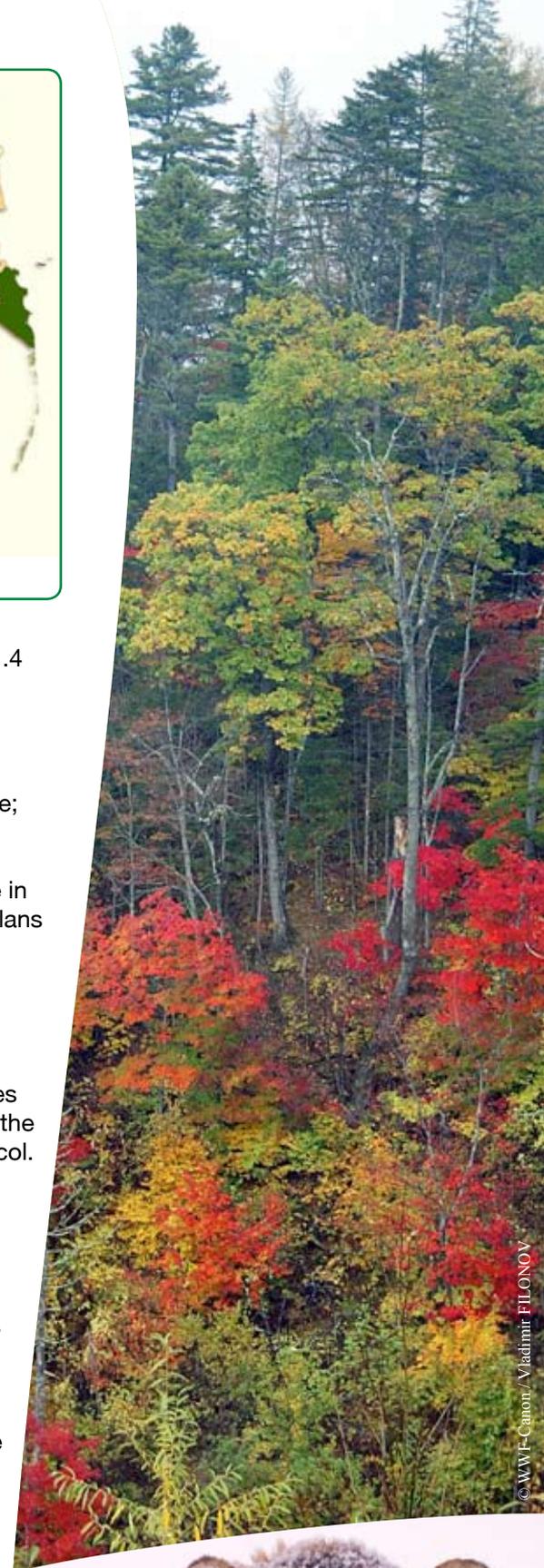
Thawing permafrost could also potentially increase emissions as a huge amount of carbon stored in Russia's forests is locked in peat that is currently frozen within the permafrost. Thinning of the permafrost can trigger the release of CO<sub>2</sub> and methane, another greenhouse gas 20 times as potent as CO<sub>2</sub>.

Already, scientists have reported the world's largest frozen peat bog in western Siberia, is melting. One of nature's best defenses against climate change, the sudden melting of this million square kilometer bog (the size of France and Germany combined), could unleash billions of tonnes of methane into the atmosphere.

The permafrost of the west Siberian peat bog alone is reported to contain 70 billion tonnes of methane,

including brown and black bears, 30 species of endangered plants and extensive Korean pine forests.

For more information visit: [http://www.panda.org/news\\_facts/newsroom/successes/index.cfm?uNewsID=106820](http://www.panda.org/news_facts/newsroom/successes/index.cfm?uNewsID=106820)



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a quarter of all the methane stored on the land surface worldwide. If all of it were released, its warming effect would equate to 73 years of current man-made CO<sub>2</sub> emissions.

### WWF Forest Activities

WWF Russia's Forest Programme works to safeguard the country's forests through:

- supporting the development of a network of protected forest areas;
- introducing sustainable forestry management models in the Model Forests network;
- promoting responsible business strategies, ecological policies and FSC voluntary certification among Russian timber producing companies;
- curbing illegal logging and timber trade; and
- helping to formulate national forest policy.

### Sources/References

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### Notes

Emission data for Russia was sourced from CAIT, Climate Analysis Indicators Tool version 3.0 (Washington, DC: World Resources Institute, 2006). This is based on year 2000 data and total greenhouse gas emissions which include estimates of LULUCF activity. Note that net emissions associated with LULUCF, particularly those associated with deforestation, are uncertain.



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**For further information, please visit:**  
<http://www.wwf.ru/forests/eng/>