

from the same political and economic systems that oppress the working class, the developing world, and so on.

These ideas are developed further in *The Ecology of Freedom* and *The Philosophy of Social Ecology*, where Bookchin laid out the teleological philosophy behind social ecology. He argued that human sociality emerges directly from evolution's tendency toward increasing complexity and consciousness. In the context of Bookchin's leftist politics, this argument suggests that an objective basis for a free and just society can be found in nature itself. In practical terms, Bookchin advocated an approach to political organization he called *libertarian municipalism*.

As described in *From Urbanization to Cities and Remaking Society: Pathways to a Green Future*, this approach is based on a radical decentralization of power, allowing citizens direct access to all forms of political decision-making. Bookchin modeled this strategy on classic Greek democratic forms and New England town meetings, updated with an understanding of global environmental problems and appropriate technologies like solar energy and public transportation.

Since the 1980s, Bookchin frequently became entangled in sectarian controversies with other leftists and radical ecologists. In particular, he has taken a hard line against the philosophy and practice of deep ecology, associated with earth spirituality and the militant biocentric environmentalism of groups like Earth First! While these debates generated significant bitterness and divisiveness, Bookchin's ideas remain an important legacy for green political theory and practice.

SEE ALSO: Biocentrism; Earth First!; Social Ecology.

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## Boreal Forest

IN CONVENTIONAL GEOGRAPHIC terms, the boreal forest is a terrestrial biome encircling nearly the entire subarctic. In North America, the boreal forest lies predominantly within Canada, where it occupies a contiguous zone from the province of Newfoundland to the Mackenzie River delta in the Northwest Territories, extending as far south as central Ontario and Québec. Significant portions of boreal forest are also found in central Alaska. In Europe and North Asia, the boreal forest—or taiga forest—is equally impressive in size, spanning northern Scandinavia, northern Russia and Siberia, and the Kamchatka Peninsula. Although frequently represented as a vast wilderness, millions of people reside in the boreal forest. In Canada alone, just fewer than 4 million people are estimated to reside within the boreal forest, including well over 500 hundred First Nations communities and several large resource-dependent municipalities. The taiga in Eurasia is also very heavily populated.

### RICH IN NATURAL RESOURCES

The boreal forest consists of mainly coniferous tree species, including fir, spruce, and tamarack. There are also deciduous tree species, such as trembling aspen and poplar, and large expanses of peat bog, especially in the northern latitudes. Sizeable herds of woodland caribou (reindeer in Eurasia) migrate throughout the boreal forest, as do large populations of black bears, grizzly bears, and timber wolves. Recent estimates suggest that in North America alone, over 4 billion migratory landbirds inhabit the boreal forest at the height of the summer breeding season. Topographically, the boreal forest varies from flat, lowland expanses in central and northern Canada and the Siberian lowland, to mountainous regions in western Canada and west-central Russia.

The boreal forest is among the world's most important sources of natural resources, and for this reason has become an object of environmental concern over the last few decades. Since roughly the early 1990s, environmental and conservation organizations have argued that excessive industrial resource extraction throughout the boreal forest is having a detrimental effect on the forest's capacity





to deliver environmental services such as biodiversity, potable water and carbon storage. In 1997, these concerns were given additional gravitas when the World Resources Institute declared that the boreal forest comprises 50 percent of the world's remaining "frontier forest" and urged governments, civil society and industry to collectively halt the pace of boreal forest destruction. Subsequently, many North American and European conservation organizations began drawing public attention to the boreal forest through media campaigns and consensus-building activities. Similarly, many indigenous peoples' groups—including the Sámi people, the Lubicon Cree, James Bay Cree, and Deh Cho First Nations—have argued that excessive resource extraction in the boreal forest poses a significant threat to their cultural survival, since such activities are frequently carried out on their traditional territories and often infringe on their legal rights.

One noteworthy feature of boreal forest politics is that the forest is represented politically in different terms depending on the region in question. In Canada, many conservation groups recognize the importance of the Canadian boreal forest's carbon storage capacity, echoing the Intergovernmental Panel on Climate Change, which says that the global boreal forest contains 25 percent of the world's terrestrial carbon. They also place heavy emphasis on the protection of mammalian and avian biodiversity. In seeking some degree of boreal forest conservation, these groups have embraced an anthropocentric ideology that places an economic value on the ecosystem goods and services provided by the boreal forest. According to one recent estimate, the total value of ecosystem goods and services supplied by Canada's boreal forest in 2002 was \$93.2 billion, while the total value of carbon stored in the boreal forest was valued at \$3.7 trillion. These groups hope that policymakers will factor these figures into long-term land use planning decisions that affect the boreal forest, and as such, contribute to ecologically benign future development. In Canada, this approach to boreal forest conservation has resulted in an environmental political culture that emphasizes consensus building among numerous stakeholder groups. The Canadian Boreal Initiative, for instance, is currently brokering a social consensus that brings together First Nations, conservation

groups and industry to negotiate a sustainable future for the boreal forest.

In Europe and North Asia, environmental groups articulate the taiga forest in somewhat different terms. While such "green developmentalism" is an important goal for many of these groups, they argue that taiga conservation cannot be implemented without addressing the underlying causes of taiga deforestation, such as illegal forest activity and government corruption. These groups seek to ensure that taiga forest products imported into the European Union conform to the highest environmental, social and governance standards.

SEE ALSO: Canada; First Nations; Forests; Russia

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## Boserup, Ester (1910–99)

ESTER BOSERUP WAS a Danish economist who studied economic and agricultural development. Her most notable work is *The Conditions of Agricultural Growth: The Economics of Agrarian Change under Population Pressure* (1965). Boserup presented her work as a "framework for a dynamic analysis embracing all types of primitive agriculture." She posited the theory that instead of agricultural output determining population size, population pressure was a precondition for the emergence