NAIL

The merits and feasibility of an international taiga agreement

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This report has been commissioned by WWF Norway. Drawing on the terms of reference for the project, the team has identified the following five questions, which the report aims to respond to:

- How and to what extent is the protection and sustainable management of the taiga relevant for international law and policy efforts?
- Are there any gaps in current protection and forest management laws, policies and practices that could benefit from strengthened international cooperation?
- What are the main options for international cooperation on the taiga? To what extent is an international legally-binding arrangement a useful tool to strengthen the protection and sustainable management of the taiga?
- What is the trajectory of current international efforts on the boreal forest? Who are the key players, and what are their interests?
- What can civil society and other advocacy and communication oriented organizations do to build the case for strengthened international cooperation on the protection and sustainable management of the taiga?

The report begins with a background chapter that describes the role and relevance of the taiga, as well as current and future threats to the resilience of the taiga as a biome. In chapter 2, we provide an overview of existing efforts to protect the taiga, both on national and international level. This includes a presentation of international frameworks with relevance – directly or indirectly – for taiga conservation. In chapter 3, the options for strengthened international cooperation on taiga conservation are considered, including the possibility of a new treaty, and where this might fit in the existing legal landscape. In chapter 4, we move on to consider the feasibility and possible pathways towards the options outlined in chapter 3.

Oslo, December 2021

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List of abbreviations

CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species
CMS	Convention on the Conservation of Migratory Species of Wild Animals
COP	Conference of the Parties
CWG	Circumboreal Working Group
ECOSOC	United Nations Economic and Social Council
FAO	Food and Agriculture Organization of the United Nations
FRA	FAO Forest Resources Assessment
IBFRA	International Boreal Forest Research Association
IFL	Intact Forest Landscapes
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
REDD+	Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries
UNCED	United Nations Conference on Environment and Development
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forests

1 The world's largest land biome

The taiga, or the boreal forests,[1] is a natural resource of enormous scale. It is arguably the world's largest land biome, covering an estimated 17 million km^2, or 11.5 per cent of Earth's land surface, and around 30 per cent of all forest areas in the world.[2]

Despite its size, the taiga spans only a few countries. Almost all the world's boreal forest exists in two large, contiguous forests. The North American taiga is shared between Canada and the United States only. The Eurasian taiga covers large areas of Russia, Sweden, Finland, and Norway, but it also stretches further south, where it gradually changes characteristics. How far south the taiga really extends is, to some extent, up for interpretation: There are forests normally regarded as taiga in Kazakhstan, Mongolia, Estonia, and China.[3]

Similarly, whether and to what extent other US states than Alaska have taiga, is also a matter of definition. In any case, only very small parts of those states will fit with even the broadest definitions of taiga.

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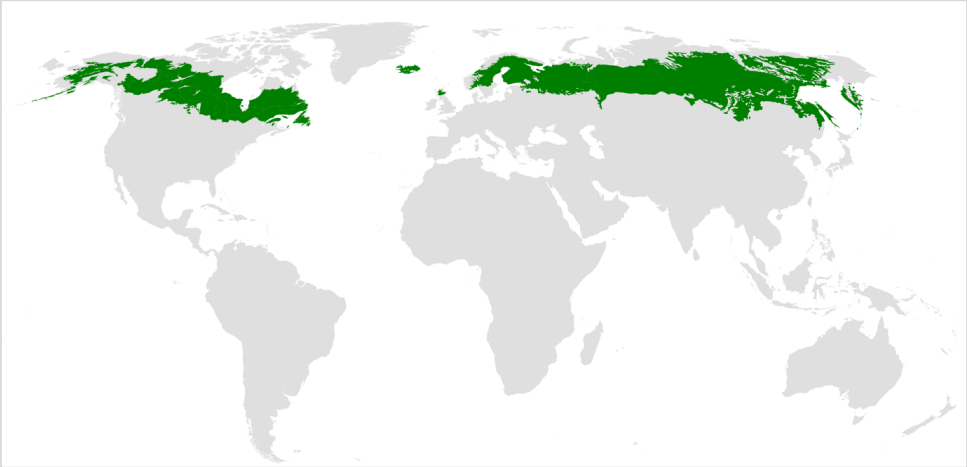
[1] Taiga is a Russian word, possibly of Turkic or Mongolian origin, meaning 'swamp forest' or 'untraversable forest'. In this report, the words 'boreal forests' and 'taiga' are used interchangeably to describe the same biome. There is not one well-established definition of the 'taiga' or boreal forest. Some sources define the taiga by its climatical and physical characteristics, such as 'forests growing in high-latitude environments where freezing temperatures occur for 6 to 8 months and in which trees are capable of reaching a minimum height of 5 m and a canopy cover of 10%' (S. Gauthier et al: Boreal forest health and global change. *Science* 349 (6250), 819-822. DOI: 10.1126/science.aaa9092). Other sources define taiga in biological terms, with the emphasis on the tree species (pines, spruces, and larches), while some use a geographical definition, simply referring only to the two large, contiguous forests in North America and Eurasia. The choice of definition may be strategically and politically important in the follow-up of the report. For example, the definition may decide precisely which states in Eurasia host taiga forest, and whether US states other than Alaska have taiga.

[2] There is no established consensus on measurement of forest areas in the world. The estimates depend both on the definition of forest and forest types, definition of the density of forest cover needed to qualify as 'forest' and measurement methods. When measuring the extent of the taiga, it is not always easy to determine where exactly the taiga begins, and where it ends, since boreal forests gradually blends into to other types of forest in more temperate climates. Similarly, on the Artic side of the taiga, and with higher altitudes also in the southern parts, the density of the forest cover is gradually reduced and how far it stretches is a matter of definition. Work is currently ongoing in the UNECE/FAO Team of Specialists on the Boreal Forests to elaborate a communication note on a definition of the boreal forests. For the purposes of this report, however, the precise extent of the taiga, and the definition used to distinguish between taiga and non-taiga forests is not a primary concern. To avoid confusion and discussion the report therefore avoids using precise figures when not deemed necessary.

[3] In China, there are forest areas with taiga characteristics in Inner Mongolia as well as in the Altai. The extent of taiga in China, Kazakhstan, and Mongolia depends on how much of the forests in the Altai mountains are defined as taiga. Very small forest areas in Belarus are also regarded as taiga. The Baltic countries have forest with similar characteristics, but are defined as a transition zone towards the hemiboreal forest.



In addition, there are also forests with similar characteristics (and the same evolutionary history) in Scotland, Japan (Hokkaido) and Iceland (very small areas).[4]

Regardless of definition, only five countries – Russia, Canada, Norway, Sweden, and Finland – have considerable parts of their land area covered by taiga. These five, in addition to the United States (Alaska), can be regarded as the core taiga states, or circumboreal countries, and would consequently be the main parties to have in mind when exploring options for strengthened international cooperation and regulation, without necessarily excluding other states from a potential agreement.[5]

On either side of the Bering Strait (which separates the two large boreal forests geographically) the taiga states share a large, contiguous forest, and each of these forests constitute one ecosystem uninterrupted by national boundaries: there are no man-made barriers to the migration of species and other interaction across each forest. Different management regimes on each side of the borders have not altered the taiga in ways that dramatically changes its characteristics, with a possible exception for Fenno-Scandinavia.[6] In other words, the taiga can still be seen as two large, transnational ecosystems.

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[4] These countries are left out of the report for practical reasons, and their inclusion would not directly affect the report's main conclusions. This does not, however, mean that inclusion of these states in a cooperative arrangement could not have certain benefits.

[5] In principle, any country can be part of a taiga agreement whether it hosts taiga or not.

[6] More intense logging in Sweden, Finland, and Norway, as well as more intense hunting of the large predators particularly in Norway, has changed the characteristics of the forest in these countries

Another feature of the taiga is its relative homogeneity. There are, indeed, notable regional variations in terms of forest types, climate, habitats, and biodiversity (especially among smaller organisms), and relatively large genetic variation within species.[7] The composition of tree species is also different between the Western and Eastern part of the Eurasian taiga. Still, compared to other types of forests, it is relatively homogenous.

In a discussion on international dimensions of the taiga the relative homogeneity is relevant because it means that there are few forest types that are truly unique to only one state, and relatively few species that are endemic to specific taiga countries. There are exceptions – particularly among smaller organisms and sub species of many species – but for most purposes it is more natural to see the taiga states as a group of states sharing responsibility for the same ecosystem(s) rather than each having responsibility for a unique type of nature.

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In sum, the taiga is a biome with specific characteristics that make it a special case when it comes to international collaboration: It is of enormous size, covering large parts of Earth's land area, but is shared between only a few countries. And it is unusually homogenous, so that with a few exceptions no country can claim to host a unique ecosystem or endemic biodiversity.

1.1 THE ROLE AND RELEVANCE OF THE TAIGA

Like all forests, the taiga produces a wide range of ecosystem services of direct benefit for humans. They include:

- climate regulation, including through carbon storage;
- provision of food, timber, and fuel for direct consumption and commercial use;
- local water management and regional regulation of large river systems in ways that secure stable supply of clean water, reduce sedimentation, and mitigate floods;

(compared to most of the forest in Russia) in negative ways from a biodiversity and resilience point of view. However, these differences are not necessarily bigger than internal variations within Russia owing to different management practices.

[7] S. Gauthier et al: Boreal forest health and global change. *Science* 349 (6250), 819-822. DOI: 10.1126/science.aaa9092.

- controlling soil erosion and nutrient recycling, crucial for the forest's own production and often also for human agriculture;
- weather regulation at local and regional scale: The taiga serves both to make summers cooler and winters warmer,[8] and as all forests it mitigates extreme weather (wind, floods);
- provision of social and cultural value through its wildlife, fishing, hunting and other leisure activities, which may in turn provide economic value (e.g., through tourism); and
- specific cultural and material value for indigenous peoples, including and beyond the above.

Most of the ecosystem services of the taiga are, with some important exceptions, provided and utilized within national boundaries, even if the ultimate utilization of these services may have transnational dimensions (e.g., through international trade or tourism). This is also the case for the taiga's important role in river systems regulation. The largest rivers in Siberia head North and do not enter other countries downstream. Canada and the United States share many rivers (several make up the boundary), but only one of the large watersheds of the North American taiga – the Yukon River system – covers large areas in both countries.[9] In Scandinavia, the Torne River is shared between Sweden and Finland (part of the drainage basin is in Norway). Finland and Russia share about 20 river systems, Finland is upstream of most of them.

The two most important exceptions, where the ecosystem services of the taiga are of direct international relevance, are the effects of the taiga on global climate regulation and continental-level weather and climate patterns, respectively. Both are discussed separately below.

A driver of precipitation

As all large forests, the taiga influences weather and weather systems in several ways. One is by managing humidity in the atmosphere: When it rains, water is kept in the soil, which is then absorbed by plants, and in turn released into the atmosphere through evaporation.[10] This serves to store and keep

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[8] Li, Y., Zhao, M., Motesharrei, S. et al. Local cooling and warming effects of forests based on satellite observations. Nature Communications 6, 6603 (2015). https://doi.org/10.1038/ncomms7603.

[9] The Columbia River originates in British Columbia and its first stretches pass through boreal forest areas. However, that river system is affected by so many other factors, including several artificial lakes and much human activity downstream of the boreal forest areas, that we believe taiga forest conservation is relatively less crucial for the Columbia River on the United States side of the border.

[10] Plants can also absorb water directly through leaves, but this is less efficient and constitutes a small share of the overall absorption.

humidity in and around the forest, and over time, helped by wind, the humidity can also be transported over long distances. This is a main explanation for stable precipitation very far from the oceans.

Recent research suggests that the taiga may have an even more active role in the large weather systems than previously thought. According to the biotic pump theory, large forests influence weather systems by altering atmospheric pressure through the evaporation and condensation of water.[11] This produces or accelerates large-scale wind systems and causes humid air to be drawn long distances towards the forest, typically from an ocean. In other words, the forest creates its own rain. This effect is relatively well described for the Amazon rainforest and explains the favourable climate for agriculture production in large parts of Latin America.[12]

Research suggests that the taiga may have a similar effect on the weather systems in Eurasia. According to some sources, the taiga forms part of a biotic pump that transports humidity from the Atlantic Ocean, across Russia towards China. It has been estimated that as much as 80 per cent of all rainfall in China can be explained this way, which would imply that the taiga plays a crucial role as an enabler of food production in China.[13] There is considerable uncertainty surrounding these estimates, but even so, they indicate that the taiga may play a significant role in regulating weather systems also beyond the countries that host it.

The biotic pump theory is still subject to scientific debate. The controversy centres around the degree to which the forest is an active driver of the large-scale wind systems. There is no doubt, however, that the taiga has a more passive, but still very important role in the transport of humidity from the Atlantic Ocean and across the continent towards China. Moreover, there are several regional mechanisms through which the Russian taiga influences precipitation across the borders to its southern neighbours.[14]

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[11] See, for instance, Douglas Sheil, Daniel Murdiyarso, How Forests Attract Rain: An Examination of a New Hypothesis, *BioScience*, Volume 59, Issue 4, April 2009, Pages 341–347, https://doi.org/10.1525/bio.2009.59.4.12

[12] See for instance https://www.regnskog.no/en/long-reads-about-life-in-the-rainforest/the-amazonian-effect-how-the-rainforest-sustains-life-in-south-america.

[13] A popular overview of some of the research is given in this link: https://www.science.org/news/2020/06/controversial-russian-theory-claims-forests-don-t-just-make-rain-they-make-wind

[14] See, for instance, Shen, H., Li, F., He, S. et al. Impact of late spring Siberian snow on summer rainfall in South-Central China. *Climate Dynamics* 54, 3803–3818 (2020). https://doi.org/10.1007/s00382-020-05206-5

A giant carbon sink

It is as a carbon sink that the taiga makes its most significant contribution as a global public good. This function is so important that it is difficult to overestimate, and it is no far stretch to say that the future of humanity as we know it may depend on the conservation of the taiga and its carbon storage capacities. In total, the boreal forests probably store more than 30 per cent of all land-based carbon in the world.[15] It compares to, and by several estimates it exceeds, the carbon storage capacity of tropical rainforests.

> *"It is no far stretch to say that the future of humanity as we know it may depend on the conservation of the taiga and its carbon storage services"*

Further, more than other forests, the taiga accumulates and stores increasing amounts of carbon over time, most of it in the soil. As such, the taiga not only serves as a carbon sink, but it also plays a role in carbon capture (sequestration). Research on how much additional carbon the taiga absorbs from the atmosphere each year is still relatively scarce and estimates vary. This is also subject to political controversy as claims are heard in several taiga countries that this sequestration effect can serve to 'offset' much of the taiga countries' annual CO_2 emissions.

In contrast to tropical forests, the taiga's ability to capture and store carbon is growing and may increase further as global temperatures continue to rise (due to longer seasons and perhaps a fertilizer effect from increased levels of CO_2).[16] This may, however, be counteracted by other climate effects expected to reduce the forest's ability to store carbon. They include the increase in forest fires, and damage to trees because of melting permafrost.

The taiga's capacity to capture and store carbon thus depends on several factors,[17] including, of course, the way it is managed. There is, however, still a lack of knowledge and consensus about precisely how the taiga should be managed to best preserve the forest and its ecosystem services while building resilience in the face of steadily increasing global temperatures. In general, forests are best preserved when left alone or utilized at only very low levels

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[15] 32 per cent according to one source (see S. Gauthier et al: Boreal forest health and global change. *Science* 349 (6250), 819-822. DOI: 10.1126/science.aaa9092). Other sources have different estimates within approximately the same range.

[16] Tagesson, T., Schurgers, G., Horion, S. et al. Recent divergence in the contributions of tropical and boreal forests to the terrestrial carbon sink. *Nature Ecology & Evolution* 4, 202–209 (2020). https://doi.org/10.1038/s41559-019-1090-0

[17] Some recent research on the mechanisms involved are described in https://climate.nasa.gov/news/2905/boreal-forest-fires-could-release-deep-soil-carbon/.

of intensity. Under the right conditions, however, it seems the taiga may be able to sustain a certain amount of industrial logging without jeopardizing its capacity to capture and store carbon. Currently, management regimes and practices vary between and within taiga countries, and some management practices are clearly more damaging to the forest than others, but at the same time, there is scant scientific evidence about the exact environmental effects of these different management regimes. Here, as well, there is need for more research, documentation, and evaluation.

Indigenous peoples of the taiga

Indigenous peoples have inhabited the taiga for millennia and traditional utilization of the forest resources is still important for many. Many indigenous people live inside or near the taiga forest, utilizing its resources in Russia, Canada, Alaska, Sweden, Finland, Mongolia, and China.[18] They receive less attention than indigenous peoples of the tundra, perhaps because the pressure towards assimilation has been higher and a larger share of indigenous peoples have adopted lifestyles and forms of natural resource management closer to the majority population. Nonetheless, many indigenous ethnic groups live in and utilize the taiga forest resources in traditional ways. One report says that there are 600 indigenous communities in Canada alone.[19] In Russia, most indigenous peoples live in modern towns or cities and are to a large degree assimilated with the majority population, but many also live and utilize the forest in traditional ways.

The indigenous communities' ways of utilizing resources may easily come in conflict with modern, industrialized resource use. Tensions and sometimes intense conflicts between indigenous use of the forest and modern uses are reported in all taiga states, often relating to forest management and logging, hunting, fishing practice and fishing rights, and occasionally the destruction of forest (clearance or flooding) for industrial purposes.[20] There are also

[18] In Norway, most of the traditional indigenous form of natural resource management (reindeer herding) takes place North of, or at higher altitudes than, the taiga. Sámi in Norway of course also utilize the forest, but relatively few of the tensions and conflicts regarding land use (and land claims) here relate to forest management. This stands in contrast with Sweden and Finland, where reindeer herding also takes place in taiga forest areas with much more tense conflicts and potential conflicts with forest management, in particular logging, in both of these countries.

[19] See, for instance, https://www.borealbirds.org/indigenous-communities-canada-boreal-forest

[20] This is based on media reports, e.g., https://globalforestcoalition.org/sami-logging-sweden/ and http://america.aljazeera.com/articles/2014/3/21/on-internationaldayofforestsfirstnationthreatenedbyclearcutting.html, https://www.culturalsurvival.org/publications/cultural-survival-quarterly/troubled-taiga, and https://www.theguardian.com/environment/2021/sep/08/canada-logging-protest-vancouver-island

cases of relatively good management of forestry and fishery resources, which may potentially serve to inform and inspire management in other countries.[21]

Strengthened international cooperation on the protection and sustainable management of the taiga is not likely to have substantive aspects that are controversial or sensitive from the perspective of indigenous peoples. There are, however, important aspects that governments should be pay attention to. Firstly, indigenous peoples' have several rights under existing international agreements, notably ILO-convention no. 169.[22] Indigenous peoples must, for instance, be consulted and included in processes of relevance to them ('nothing about us without us'), and free prior informed consent must be obtained when applicable. Secondly, several indigenous peoples live across national borders, for instance between Alaska and Canada, in Fenno-Scandinavia, and probably also between Russia, China, and Mongolia where indigenous people have migrated (fled) between countries up until relatively recently.[23]

1.2 CURRENT AND FUTURE THREATS TO THE TAIGA

The taiga as a whole does not appear to be under immediate risk of irreversible decline. There are, however, several potential threats to the taiga that policymakers should be mindful of.

Deforestation

The annual deforestation of the taiga is high in terms of volume, but relatively small in terms of share of the taiga. Estimates vary, partly due to annual variations and different definitions and methods for measurement. One source indicates an annual total forest cover loss at slightly above 55,000 km2 in the period 2001–2020.[24] This is a high number – more than the annual loss of rainforest – but well below 0.5 per cent of all taiga forest. By far the main drivers of forest loss is forest fires – in Russia this is often human ignited and associated with industry, in Canada it normally starts with

[21] See, e.g., https://www.culturalsurvival.org/publications/cultural-survival-quarterly/many-things-many-people-aboriginal-forestry-canada-looking and https://www.researchgate.net/publication/253457290_The_Intersection_of_Environmental_Variability_Policy_and_Human_Values_International_Treaties_Yukon_River_Salmon_and_Food_Security_in_a_Changing_Arctic_Invited

[22] The International Labour Organization (ILO) convention no 169 on indigenous peoples' rights is not ratified by all taiga countries, nor is the non-binding United Nations Declaration on the Rights of Indigenous Peoples.

[23] See, for instance, https://www.culturalsurvival.org/publications/cultural-survival-quarterly/troubled-taiga

[24] See https://www.globalforestwatch.org/dashboards/global. Only the six main taiga states have been included, and the estimates include all forests in those states. Forest loss in in the other states hosting taiga is not taken into account since we have not found sources that distinguish between taiga and other forest types.

natural causes.[25] Forest fires is a naturally occurring phenomenon and, in many ways, beneficial to the ecosystems. However, forest fires in the taiga have in recent years grown in both size and duration. The second most important driver is logging. In the future, the rates of forest loss may change for the worse, not least if damage by climate change (melting permafrost, less rain) adds to the deforestation that is more directly caused by human activities (logging).

Fragmentation and degradation

In addition to deforestation, fragmentation and degradation are worrying threats to the taiga. One of the most important and unique qualities of the taiga is that it still contains large, relatively intact areas, some of the largest remaining intact ecosystems on earth.[26] Russia lost 6.5 per cent of its Intact Forest Landscapes (IFLs) in the period 2000–2013 (more than Brazil), and Canada lost 4.7 per cent.[27] The loss of IFLs means loss of many of the qualities of the forests, including its ability to host large migrating animals, but the most alarming effect of fragmentation and degradation is perhaps that it reduces the resilience of the forests, making it more vulnerable to other threats, including forest fires. Therefore, forest fragmentation and degradation is often seen as an early indicator of future forest loss.

The above data refer to forest cover primarily based on satellite images. The data do not necessarily reflect degradation below the tree cover, which can be considerable. As an example, certain logging practices can change the composition of the forest in ways that impact biodiversity, reduce resilience, and limit the forest's capacity to capture and store carbon. Through intensive forestry, the forests can become 'younger' and more homogenous, and with an accompanied loss of ground vegetation, the biological diversity of the forest comes under threat. Such changes are not reflected in satellite-based data about forest loss. The same applies to unsustainable hunting or fishing practices, local disturbances in river systems, reduced water quality, and so on. Such threats must be assessed specifically on the regional, national, and local levels.

Another cause of degradation of the taiga is insect outbreaks, such as bark beetles and Siberian silk moth (*Dendrolimus sibiricus*), which may cause damage at high economic costs over large areas. As with forest fires, these species are a natural part of the taiga, but changing conditions due to intensive forestry (or other human-induced factors) or climate change may

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[25] See, for instance, https://www.globalforestwatch.org/blog/data-and-research/worlds-last-intact-forests-are-becoming-increasingly-fragmented/

[26] See, for instance, http://www.intactforests.org/

[27] Peter Potapov et al: The last frontiers of wilderness: Tracking loss of intact forest landscapes from 2000 to 2013, *Science Advances,* Vol 3 Issue 1, DOI: 10.1126/sciadv.1600821.

cause massive increases in populations and/or have greater impact due to weakened resistance by plants. This threat also has international dimensions, since transferring insect outbreaks to new areas through trade and travels may have potentially disastrous consequences. As an indication of the scale of the problem, a tiny mountain pine beetle (*Dendroctonus ponderosae*) has, over the past years, destroyed the equivalent of more than 15 years of log supplies in British Columbia, Canada. Between 2000 and 2015, 750 million cubic meters of pine was felled by beetles in that province alone.[28]

Climate change

Climate change poses serious threats to the taiga. The temperature changes faster in northern areas than other forest areas, and some effects of climate change will therefore be seen here first and strongest. To be sure, climate change may also have certain benefits for the taiga, for instance by longer growing seasons and probably also through increased levels of CO_2 (fertilization effect). However, these benefits are probably by far outweighed by the negative effects.

Climate change may have a direct negative impact on the forest through changes in precipitation. Some estimates say that by the end of the century, parts of the taiga will have a climate that is elsewhere associated more with shrublands than forest.[29] Well before that time, however, drier climate in some areas of the forest will lead to more forest fires, which will grow bigger and last longer. Moreover, the combination of these two scenarios (drier weather and more intense forest fires) is likely to accelerate the release of even more CO_2 into the atmosphere. This is because the thick layer of organic matter in the soil of the taiga, which is normally protected from fire, may be subject to more damage in dryer and warmer climate, releasing much more carbon into the atmosphere.[30]

Furthermore, melting of permafrost in the northern parts of the taiga may cause severe damage to the forest, most directly visible in the form of 'drunken trees' – a natural phenomenon, but intensifying with the melting of permafrost. Melting permafrost is also likely to impact the river systems; in North America, it has changed the chemistry of the Yukon River in ways that may be harmful to human health over time.[31]

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[28] See, for instance, https://www.bloomberg.com/news/features/2020-08-17/mountain-pine-beetle-infestations-are-killing-forests-could-worsen-emissions.

[29] S. Gauthier et al: Boreal forest health and global change. *Science* 349 (6250), 819-822. DOI: 10.1126/science.aaa9092

[30] See, for instance, https://climate.nasa.gov/news/2905/boreal-forest-fires-could-release-deep-soil-carbon/

[31] See, for instance, https://en.wikipedia.org/wiki/Yukon_River_Inter-Tribal_Watershed_Council

The taiga has shown to be relatively resilient until today, but scientists believe there are thresholds above which the combination of threats and disturbances will overwhelm the forest and lead to permanent loss of ecosystems and species. In practice, this means that the taiga may be able to resist climate change quite well for some time, but if or when those thresholds are reached, a period of rapid and dramatic changes is likely to follow. That, in turn, may reduce the taiga's ability to store carbon to such an extent that it shifts from being a net global carbon sink and sequester to becoming a net carbon source.[32]

In the longer term there is the possibility that climate change may increase the incentives for clear-cutting of the taiga for agricultural production. If the relative agricultural value of what is now taiga increases – perhaps combined with large migration flows – forest clearance for agriculture could become a major challenge. We have, however, not seen research or other systematic exploration of such scenarios.

[32] S. Gauthier et al: Boreal forest health and global change. *Science* 349 (6250), 819-822. DOI: 10.1126/science.aaa9092

2 Protecting the boreal forests

As shown in the previous chapter, the boreal forests play an important role both for the states that host these forests and for the planet as a whole. Most of the ecosystem services that the boreal forests provide, including the provision of goods, water and soil management, and the provision of social and cultural value, are utilized primarily at a local and national level by people, including indigenous communities, and business and industry actors, notably in the forestry industry. In addition, the boreal forests, as all forests, play an important role in regulating precipitation, which, naturally, is unconstrained by national boundaries. And at a global level, the boreal forests help stabilize temperatures by capturing and storing carbon from the atmosphere.

Even if the taiga, as a biome, is not at immediate risk of collapse, the list of current and potential threats to the boreal forests should be a cause for concern for policymakers, both among the taiga states and beyond. As mentioned above, many of these threats are expected to become more acute as the planet grows ever warmer – something that should be factored in when options for taiga protection are considered.

The long-term resilience of the taiga will depend on how existing and future threats are mitigated. Government policies and other response options should therefore be designed with this in mind. Fortunately, efforts to protect the boreal forests do not have to start from scratch.

2.1 CURRENT FOREST MANAGEMENT PRACTICES

All the taiga states have laws and policies in place aimed at protecting their own forests. An estimated two-thirds of the taiga is currently under some form of active management for logging purposes.[33] Norway, Sweden, and Finland in general have the largest shares of their forest under active management for logging. Of the taiga that is not subject to logging, almost all is in Russia and Canada, and, to a lesser extent, in the United States (Alaska).

In addition to logging, there are many instances of truly destructive management practices, including forest destruction (clearance, flooding, pollution) for industrial purposes (mineral extraction, hydropower, tar sand etc.) and clear-cutting of forest.

[33] S. Gauthier et al: Boreal forest health and global change. *Science* 349 (6250), 819-822. DOI: 10.1126/science.aaa9092

Forest management

Management here refers to all types of management, whether broad forest management or the management of specific uses of the forest (logging, fishing etc.), whether for conservation or for commercial use, and under indigenous, traditional, industrial, public, or private management. We emphasize logging since this has the most immediate and drastic effect on the forest.

Russia differs from the other countries by having significant internal variation in management practices, partly because of different management regimes in different parts of the country, and partly due to different degrees of law enforcement, with much illegal logging.[34] Chinese companies are reportedly active in logging activities in Eastern Russia, leading to some controversies.[35]

Conservation of the taiga is, in principle, compatible with timber production. However, high intensity of logging can change the characteristics of the forest and has significant implications for its ecosystem services. Clearcutting (even in small areas as part of normal logging practice) has dramatic effects on biodiversity, and almost all types of selective logging leads to a more homogenous forest. In addition to logging, suppression of fires may also lead to a more homogenous forest over time, as seen in Fenno-Scandinavia.

A key dimension of logging, of direct international relevance, is that different logging practices may have different impact on the ability of the forest to store and capture carbon.[36] As long as logging is not too intense, i.e. remains below a certain threshold of activity, the carbon effects do not necessarily correlate with the intensity of logging, meaning there does not necessarily have to be trade-offs between timber production and carbon storage. There may, however, be trade-offs between timber production and other ecosystem services and biodiversity. Therefore, when carbon capture and storage is considered, it changes what is regarded as good forest management. There are also potential trade-offs between different climate interventions, e.g., if one takes more of the biomass out of the forest to

[34] There is enormous variation in the estimates of the share of illegal logging in Russia: we have seen statements ranging from 0.5 to 30 per cent, with independent sources providing much higher estimates than official sources.

[35] This according to several media reports.

[36] S. Gauthier et al: Boreal forest health and global change. *Science* 349 (6250), 819-822. DOI: 10.1126/science.aaa9092

produce biofuel, it may increase carbon loss.[37] By implication, what was historically seen as best management practice is not necessarily the best when climate is taken into account. This is an area in development, where more knowledge is needed – in addition to the policy uptake of existing knowledge, and the political balancing between environmental concerns and other (local, national, commercial) policy interests.

In addition to more knowledge, such political considerations also depend on balancing between local, national, and international dimensions, taking into account international agreements, norms and instruments. International agreements in this field may influence the incentives for what are the most desirable and profitable forest management practices in taiga countries, and the individual choices by different types of actors involved.

International trade is also relevant to forest management since timber products and some other forest products are exported. An international regime to limit illegal or unsustainably logged products may also help national enforcement and reduce the profitability of unsustainable or illegal logging, while increasing the profitability of sustainable logging by attracting more investors and buyers. Also, when it comes to trade, climate concerns may introduce new dimensions. Reportedly, biomass from Canada has been used for biofuel in the EU, having consequences for the estimates and reporting of carbon effects on both sides.

Lastly, indigenous peoples' rights and interests, and their role in forest management, is a key dimension of forest management, with a range of international dimensions discussed above.

2.2 SCIENTIFIC UNCERTAINTY AND LACK OF AWARENESS

Assessing the health of the world's forests is no simple task, and that also applies to the taiga. As noted by one expert, '[a] major difficulty with regard to research of forest ecosystems is the tenuous state of scientific information. Information is largely insufficient and unreliable, rendering the evaluation of the state of the world's forests a difficult task.'[38]

While there is no doubt that the protection and sustainable management of the boreal forests is a task of utmost importance, there is much we still don't know about the taiga and how best to preserve it. It is currently unclear, for instance, how much land-based carbon the boreal forests store and how much

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[37] Bartlett, J., Rusch, G.M., Kyrkjeeide, M.O., Sandvik, H. & Nordén, J. 2020. Carbon storage in Norwegian ecosystems (revised edition). NINA Report 1774b. Norwegian Institute for Nature Research.

[38] Anja Eikermann, A (2015), Forests in International Law: Is There Really a Need for an International Forest Convention?, Springer, p. 23.

they may be able to capture in the future. Deforestation, forest fragmentation, and forest degradation are important general threats, but exactly how these processes affect the boreal forests' ability to capture and store carbon is not known.

Similarly, the threats facing the boreal forests and its ability to deliver ecosystem services at local, national, regional, and global levels are also currently poorly understood. How much logging, fishing, or hunting can the forest and its wildlife sustain? At what point does deforestation, fragmentation, degradation, forest fires, and insect outbreaks trigger a process of irreversible decline? And how exactly will a rise of global temperatures (by an average of 1.5 or 2°C) impact the ecosystem services provided by the boreal forests over time?

Importantly, there is also limited consensus, both within and between countries, about how best to manage the boreal forests in order to maximize economic and social gains, while minimizing negative effects for nature, people, and climate. What, exactly, are the best available policies, practices, and techniques for sustainable management of the taiga? And to what extent would these management regimes have to be adapted to national or local contexts? Are some practices, such as certain forms of clear-cutting, so damaging that they should be abandoned across all taiga states?

Related to but separate from the knowledge gap is the seeming general lack of awareness – public and political – about the role and relevance of the taiga, its ecosystem services, and the threats it is facing. Indicative of this is that proposals for how boreal forest protection can be strengthened have been few and far between.

2.3 INCREASING CIRCUMBOREAL COOPERATION

In recent years, Canada, Finland, Norway, Sweden, Russia, and the United States have sought to strengthen their collaboration on issues related to the protection and sustainable management of the boreal forests. In 2013, these countries established a Circumboreal Working Group (CWG), which carried out joint scientific missions and thematic studies, amongst other activities.[39] Collaboration between the CWG and the International Boreal Forest Research Association (IBFRA) led, in June 2018, to the convening of a two-

[39] Background paper to the first meeting of the UNECE/FAO Team of Specialists on the Boreal Forests, available at https://unece.org/sites/default/files/2021-03/Background%20paper_Boreal%20ToS_final.pdf

day science-policy dialogue in Haparanda, Sweden and the adoption of a ministerial declaration on circumboreal cooperation on forests.[40]

The Haparanda ministerial declaration underscored *inter alia* that 'countries in the circumboreal region are committed to sustainable forest management and report voluntarily on the environmental, social and economic status of their forests according to the criteria and indicators for sustainable forest management under the Montréal Process or Forest Europe', and that sustainable forest management in the region can 'play a critical role in achieving the […] Sustainable Development Goals, as well as contribute to the implementation of other international outcomes including, as applicable, the Paris Agreement […], the Convention on Biological Diversity's Aichi Biodiversity targets, and the UN Strategic Plan for Forests' (see below).

The taiga states also encouraged the establishment of a technical-level 'Team of Specialists on Boreal Forests' under the joint Forestry and Timber Section of the UN Economic Commission for Europe (UNECE) and the Food and Agriculture Organization (FAO).[41] In 2019, the proposed Team of Specialists was approved jointly by UNECE and FAO, with a mandated to, *inter alia*, facilitate a science-policy dialogue on boreal forest issues, strengthen collaboration with IBFRA and other boreal-related research organizations, increase awareness and understanding of the role of the boreal forest in relation to climate change and the bioeconomy, and contribute to the exchange of 'information, experiences and best practices on boreal forests'.[42] The Team has met four times over the past two years,[43] and its members have worked to complete a series of 'communication notes' focused on defining the boreal forests, the boreal forest and climate change, the boreal in the bioeconomy, boreal forest statistics, and the relationship between the boreal forests and the Sustainable Development Goals. In addition, the team has organized and participated in awareness-raising activities.[44]

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[40] Declaration available at https://www.regjeringen.no/contentassets/88033c539e834a65aaaffc130bc8c025/final_boreal-ministerial-declaration-20180607.pdf

[41] The joint UNECE/FAO Forestry and Timber Section 'supports the activities on forests in the UNECE region, provides the Secretariat to the UNECE Committee on Forests and Forest Industry and the FAO European Forestry Commission, and works to implement the UNECE/FAO Integrated Programme of Work', available here: https://unece.org/forests/integrated-programme-work

[42] Background paper to the first meeting of the UNECE/FAO Team of Specialists on the Boreal Forests, available at https://unece.org/sites/default/files/2021-03/Background%20paper_Boreal%20ToS_final.pdf

[43] The initial mandate of the Team of Specialists expires at the end of 2021.

[44] See, for more information, https://unece.org/info/events/event/359917

In parallel, IBFRA has launched a so-called 'insight process' on boreal forest management and climate change mitigation. The process, which has been described as an 'IPCC like assessment of scientific consensus on selected science-based and policy relevant topics focused on the boreal region',[45] is set to culminate with the launch of major report during the FAO XV World Forestry Congress in May 2022.[46]

2.4 A LEGAL GAP?

Currently, there is no dedicated international legal instrument in place – global or regional – that specifically aims to protect the boreal forests. Various aspects of taiga management and conservation are, however, indirectly covered by other multilateral agreements and instruments, including, most importantly, the UN Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD).[47] And even if neither of them has specific provisions on boreal forests, taiga conservation is obviously relevant, and in practice imperative, for achieving the long-term objectives of both conventions.

UN Framework Convention on Climate Change

Under the UNFCCC, forest conservation is a key priority, something confirmed by the recently adopted Glasgow Leaders' Declaration on Forests and Land Use.[48] But, apart from a brief mention in the latest report from the Intergovernmental Panel on Climate Change (IPCC), the role of the boreal forests has so far received little attention. The focus has been on conserving tropical forests. When, for instance, the parties to the UNFCCC decided, in 2005, to set up a dedicated vehicle to reduce emissions from deforestation and forest degradation (REDD+), the main concern was the protection of tropical forests in developing countries.[49] The REDD+ mechanism does not, however, formally exclude boreal forests, and Mongolia, with its taiga, is in fact part of REDD+ (currently in a preparatory phase aiming at 'REDD+

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[45] Background paper to the first meeting of the UNECE/FAO Team of Specialists on the Boreal Forests, available at https://unece.org/sites/default/files/2021-03/Background%20paper_Boreal%20ToS_final.pdf

[46] Report from the fourth meeting of the Team of Specialists on the Boreal Forests available at https://unece.org/sites/default/files/2021-11/Meeting%20report%20-%204th%20meeting%20ToS%20Boreal-final.pdf

[47] For more information on the UNFCCC, see https://unfccc.int/. For the CBD, see https://www.cbd.int/.

[48] The Glasgow Leaders' Declaration was presented in the margins of the 26th conference of the parties to the UNFCCC (COP26). See https://ukcop26.org/glasgow-leaders-declaration-on-forests-and-land-use/. See also the Katowice Forest Declaration, available from https://wedocs.unep.org/bitstream/handle/20.500.11822/28799/Katowice_Decl.pdf.

[49] REDD+ is an abbreviation for 'Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries' (https://redd.unfccc.int/)

Readiness'). Kazakhstan and Estonia with their (limited) areas of taiga might also be eligible for REDD+, but these potentials are limited and cover only small parts of the taiga.[50] Russia seems to be eligible for a more recent spinoff of the REDD+ initiative, the ART/TREES mechanisms,[51] but it seems not a viable option on short term.[52]

Convention on Biological Diversity

The CBD does not explicitly deal with boreal forests either, but two of the targets adopted by the CBD states parties in 2010 (Aichi Biodiversity Targets) specifically mentioned forests (target 5) and forestry (target 7). By 2020, the 'rate of loss of all natural habitats, including forests', was to be at least halved, and 'where feasible' to be brought close to zero.[53] Degradation and fragmentation was to be significantly reduced. The only problem is that when the Aichi targets were evaluated in 2020, not even one of the 20 targets had been reached.[54]

In 2018, at the 14th conference of the parties (COP) to the CBD, it was decided to start a preparatory process for the development of a new set of targets, a 'post-2020 global biodiversity framework'.[55] This new framework was meant to be adopted at the 15th COP, to be held in Kunming, China, in 2020. Due to the COVID-19 pandemic, however, COP-15 has been postponed several times, and the work on the new framework has also been delayed. COP-15 will now most likely be held in 2022, and discussions on the new framework are set to continue until then.

It is broadly recognized that the new post-2020 biodiversity framework must be more effective, and better enforced, than the Aichi targets. Though it is not entirely clear how this is to be achieved. Some, including WWF, have

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[50] Although Russia is sometimes regarded a developing country, it is not so in UNFCCC, as Russia is among the Annex 1 parties of the convention. In preparation of this report, we have not checked all the formal requirements and whether there might be formal opportunities for Russia to benefit from REDD+ schemes.

[51] See, for more information https://www.artredd.org/

[52] Although we have not consulted all the formal requirements it seems that Russia qualifies, and even that sub jurisdictions (oblasts) may formally qualify for financing agreements under ART/TREES. However, for several reasons it does not seem an attractive option for Russia and the mechanisms are not likely to attract sufficient funds to serve as an important incentive for a relative high-income economy like Russia. The most recent initiative in relation to REDD+, the LEAF Coalition (https://leafcoalition.org/), is exclusively designed for tropical forests.

[53] See https://www.cbd.int/sp/targets/.

[54] See, for instance, https://www.theguardian.com/environment/2020/sep/15/every-global-target-to-stem-destruction-of-nature-by-2020-missed-un-report-aoe,, https://www.newscientist.com/article/2254460-massive-failure-the-world-has-missed-all-its-biodiversity-targets/.

[55] CBD/COP/DEC/14/34, available from https://www.cbd.int/doc/decisions/cop-14/cop-14-dec-34-en.pdf.

called for the post-2020 framework to become a 'Paris Agreement for nature'.[56] Based on the first draft of the framework, however, that is not how things are shaping up.[57] After all, the new framework is not designed as a legally binding instrument to be signed and ratified by parties (which is the case for the Paris Agreement). In any case, the Paris agreement is practically void of common targets and indicators. The only substantive and measurable obligation in the Paris agreement is a collective (and therefore unenforceable) goal of keeping global temperatures below 2°C above preindustrial levels. The national-level obligations are, in practice, limited to a requirement to submit (progressively ambitious) nationally determined contributions. The Paris Agreement, therefore, may not be a particularly useful source of inspiration for the new biodiversity framework. Nor does it seem like a very good description of what the post-2020 framework is likely to become.

Equally important in this context, however, is that the first draft of the post-2020 biodiversity framework does not contain any details about how forests are to be protected over the coming decades. In fact, the word 'forest' does not appear at all (except in a footnote), and the word 'forestry' is only mentioned once, in Target 10.[58] On the current trajectory, therefore, there is little that indicates that the CBD will have any direct bearing on efforts to conserve and protect the boreal forests over the coming decades. The best one could hope for, perhaps, is that a new monitoring framework, which is being discussed as a means of promoting implementation of the post-2020 framework, can serve as a tool for harmonizing monitoring, reporting and data gathering about forest management practices. This would also be relevant for the taiga and the taiga states.[59]

Other legal instruments with relevance for the taiga

In addition to the UNFCCC and the CBD, there is a long list of global, regional, plurilateral, and bilateral agreements that, in one way or another, have relevance for the protection of the boreal forests. Some of these are species-oriented, for instance the Convention on the Conservation of Migratory Species of Wild Animals (CMS),[60] and the Convention on

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[56] See, for instance, https://www.weforum.org/agenda/2019/09/why-we-need-a-paris-agreement-for-nature/.

[57] The first draft of the post-2020 global biodiversity framework (CBD/WG2020/3/3) is available from https://www.cbd.int/doc/c/abb5/591f/2e46096d3f0330b08ce87a45/wg2020-03-03-en.pdf.

[58] Target 10 of the first draft reads as follows: 'Ensure all areas under agriculture, aquaculture and forestry are managed sustainably, in particular through the conservation and sustainable use of biodiversity, increasing the productivity and resilience of these production systems'.

[59] All taiga states are parties to the CBD. For a full list of parties, see https://www.cbd.int/information/parties.shtml.

[60] See, for treaty text and more information, https://www.cms.int/en/convention-text.

International Trade in Endangered Species of Wild Fauna and Flora (CITES).[61] Though neither Canada nor Russia nor the United States are parties to the CMS, and CITES is mainly focused on preventing illegal trade with the most endangered species (such as the Amur (Siberian) tiger, *Panthera tigris tigris*).[62] Overall, species-oriented conventions therefore have only marginal relevance when it comes to protecting the boreal forests in general.

There are also some habitat-oriented conventions in place with some degree of bearing on taiga conservation, including the Ramsar Convention on Wetlands, which is one of the oldest multilateral environmental agreements in force.[63] The International Plant Protection Convention also merits mentioning, with its aim of 'protecting the world's plant resources from the spread and introduction of insects and promoting safe trade'.[64]

And then there are regional conventions, such as the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention),[65] as well as the Council of Europe Landscape Convention, which 'promotes the protection, management and planning of the landscapes and organises international co-operation on landscape issues'.[66]

To some extent, several bilateral agreements are also relevant, though these would typically have a broader environmental scope, and not focus exclusively on the taiga. The 1992 agreement between Norway and Russia on cooperation on environmental issues is a case in point.[67] The 1992 agreement has also provided the basis for further bilateral cooperation on environmental issues, including through the establishment of a Joint Norwegian–Russian Commission on Environmental Protection.[68] In the plurilateral category, the 2010 Memorandum of Understanding between Russia, Finland, and Norway on cooperation in developing the Green Belt

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[61] See, for treaty text and more information, https://cites.org/eng/disc/what.php.

[62] See, for instance, https://www.bbc.com/news/newsbeat-53581028.

[63] See https://www.ramsar.org.

[64] See https://www.ippc.int/en/about/overview/.

[65] See https://www.coe.int/en/web/bern-convention.

[66] See https://www.coe.int/en/web/landscape.

[67] See, for text of agreement, https://www.regjeringen.no/contentassets/66b54513e82d453c88f030135513d582/overenskomst_av_1992_no.pdf (in Norwegian)

[68] See, for more information, https://www.npolar.no/en/themes/international-cooperation-in-the-arctic/norwegian-russian-cooperation-on-the-marine-environment/.

of Fennoscandia could also be mentioned, even if it is not a legally binding agreement.[69]

Finally, bilateral agreements on river systems management might, in some cases, cover issues that link with issues concerning the protection of the taiga. Examples include the 1964 Finnish Russian Agreement on the utilization of transboundary watercourses, which regulates the 19 river systems shared between the two countries;[70] the Finnish–Swedish Transboundary River Commission; the US–Canada agreement on a Yukon River Panel for the management of salmon fisheries (where indigenous peoples are also represented); and the Yukon River Inter-Tribal Watershed Council, consisting of representatives of indigenous peoples in both Canada and the United States (based on a treaty with Canadian states and Alaska as signatories).[71]

Forest-oriented frameworks and initiatives

For several years, there were serious discussions in the UN system about the merits of an international convention on forests (though not specifically on boreal forests). In the lead-up to the UN Conference on Environment and Development (UNCED) in 1992, many had hoped that the conference would agree on a new international forest convention, but these efforts failed, and the non-binding 'Forest Principles' were adopted instead.[72]

Nearly a decade later, in 2000, the UN Forum on Forests (UNFF) was established, and as part of its mandate, the Forum was to consider 'the parameters of a mandate for developing a legal framework on all types of forests.'[73] After five years, however, efforts to agree on a mandate for a legally binding instrument were given up, and, yet again, the result was a non-legally binding option (the 'Global Objectives on Forests'), which was extended in 2015.[74] The same year, the UN Economic and Social Council

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[69] See, for more information, http://greenbelt.krc.karelia.ru/index.php?plang=e

[70] See, for instance, https://www.sciencedirect.com/science/article/pii/S002216941830756X, https://www.uef.fi/en/article/world-bank-report-transboundary-water-cooperation-between-finland-and-russia-a-success-story, https://unece.org/fileadmin/DAM/env/water/meetings/2019/2-4_July_Ohrid/FinnRussTransboundarywaters.pdf

[71] See, for more information, https://www.yritwc.org/

[72] See, for instance, Kunzmann, K. (2008), 'The Non-legally Binding Instrument on Sustainable Management of All Types of Forests - Towards a Legal Regime for Sustainable Forest Management?', German Law Journal, Volume 9 - Issue 8 - 01 August 2008.

[73] ECOSOC resolution 2000/35, available at https://www.un.org/esa/forests/wp-content/uploads/2013/09/2000_35_E.pdf. The UNFF had two forerunners: the Intergovernmental Panel on Forests (1995–1997) and the Intergovernmental Forum on Forests (1997–2000).

[74] The global objectives on forests had a timeline until 2015. In 2007, the UN General Assembly also adopted a 'non-legally binding instrument on all types of forests'. In 2015, this instrument was

(ECOSOC) also decided to draw up 'a concise strategic plan for the period 2017–2030 to serve as a strategic framework to enhance the coherence of and guide and focus the work of the international arrangement on forests and its components'.[75]

In parallel, the New York Declaration on Forest was adopted, in 2014, as a voluntary, non-binding political declaration whereby signatories pledged to halve natural forest loss by 2030. Although not formally excluding the taiga, the declaration, which was presented in connection with the UN Secretary General's Climate Summit in 2014,[76] was implicitly written with tropical forests in mind and several taiga governments – including Russia, Finland, Sweden – did not endorse the declaration.

Also worth mentioning is the role played by the UN Food and Agriculture Organization in monitoring the world's forests. Since as far back as 1946, FAO has published, in cooperation with its member states, periodic assessments of the world's forest. These Global Forest Resources Assessments (FRA) serve to support the development of actions and activities related to forests and forest management around the world.[77]

Regional level

For Finland, Sweden, and to some extent Norway, legal and policy frameworks adopted by the European Union, in particular the New EU Forest Strategy for 2030,[78] are of direct relevance to the protection of the boreal forests, although the strategy's scope extends to all of the EU's forests.[79] In addition, the commitments, principles, resolutions, decisions, declarations, and guidelines adopted by the Ministerial Conference on the

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renamed the United Nations Forest Instrument (See General Assembly Resolution 70/199). It remains a voluntary, non-legally binding agreement. The instrument is available at https://www.un.org/esa/forests/wp-content/uploads/2018/08/UN_Forest_Instrument.pdf.

[75] See ECOSOC resolution 2017/4 (E/RES/2017/4), available at https://documents-dds-ny.un.org/doc/UNDOC/GEN/N17/184/62/pdf/N1718462.pdf.

[76] See https://unfccc.int/news/un-climate-summit-ban-ki-moon-final-summary.

[77] See https://www.fao.org/forest-resources-assessment/background/en/.

[78] See, for full text, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021DC0572

[79] The following EU legal and instruments are relevant for the protection of the boreal forests: The Land Use, Land Use Change and Forestry (LULUCF) Regulation (841/2018); The EU Timber Regulation; the Forest Law Enforcement Governance and Trade Regulation; The New European Bauhaus Regulation (305/2011); The 2018 Renewable Energy Directive; The 2008 Waste Framework Directive; The Birds Directive (2009/147); The Habitats Directive (92/43/EEC); The Environmental Liability Directive; The Environmental Crime Directive; the Strategic Impact Assessment Directive; the Environmental Impact Assessment Directive; Directive of public access to environmental information; The EU Biodiversity Strategy for 2030; The EU Renovation Wave Strategy; the Common Agricultura Policy (CAP).

Protection of Forests in Europe ('Forest Europe'),[80] as well as the work carried out in the context of other regional arenas, such as the Barents Forest Sector[81] (previously the Barents Forest Sector Network), are of relevance primarily for the forestry sectors in Russia, Finland, Sweden, and Norway. The Montreal Process for the Sustainable Management of Temperate and Boreal Forests provides an international arena for discussion and exchange of sustainable forestry management criteria and measures between, amongst others, Canada, the United States, and Russia,[82] although the boreal forests are rarely explicitly mentioned in these discussions.[83]

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In sum, it seems clear that there is a need for better knowledge about role and relevance of the taiga, as well as about the effectiveness of different management regimes. There is also a need for more awareness. In recognition of this, the taiga states have in recent years taken steps to strengthen the circumboreal cooperation on taiga conservation. As of now, however, there is no dedicated legal framework in place, and the legal frameworks that do exist are only partially relevant, at best. On a global level, the UNFCCC and the CBD are the two key conventions with bearing on taiga conservation, but neither of these deals explicitly with the issue of taiga conservation. And attempts to put in place a global convention on forests have so far failed.

As noted in the preambular section of the Haparanda Declarations, 'countries across the circumboreal region face similar challenges and opportunities, and [...] there are significant benefits to be gained from increased research cooperation and knowledge-sharing to address complex boreal forest issues'.[84] What is not entirely clear, however, is whether it would require a legally binding agreement to reap the benefits of this cooperation and knowledge-sharing, or whether a non-binding political cooperation might be a better path forward. That is the question we turn to in the next chapter.

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[80] See, for an overview of all commitments, https://foresteurope.org/wp-content/uploads/2017/08/ALL_COMMITMENTS.pdf

[81] See, for more information, https://www.barentscooperation.org/en/Working-Groups/BEAC-Working-Groups/Barents-Forest-Sector

[82] In addition to Canada, Russia and the United States, Argentina, Australia, Chile, China, Japan, South Korea, Mexico, New Zealand, and Uruguay are members of the Montreal Process.

[83] See presentation on the Montreal Process for the Sustainable Management of Temperate and Boreal Forest, delivered to the UNECE/FAO Team of Specialists on the Boreal Forests on 13 November 2021, https://unece.org/sites/default/files/2021-10/Item%203.Montreal%20Process%20and%20Boreal%20Forests--Robertson.pdf

[84] See, for full text, https://www.regjeringen.no/contentassets/88033c539e834a65aaaffc130bc8c025/final_boreal-ministerial-declaration-20180607.pdf

3 Options for strengthened international cooperation

There is a wide range of policies, mechanisms, and national and international laws in place to protect and/or ensure sustainable management of the boreal forests. There are, however, also significant gaps in our knowledge about the value of and threats to the ecosystem services provided by the boreal forests, and while several regional and global laws and initiatives are of relevance to the protection of the boreal forests, there is currently no international legal framework in place dedicated to the protection of the boreal forests. The question we turn to now, is whether such a legal framework is merited and if so, what it might look like.

The task of protecting and ensuring the sustainable management of the world's forests is first and foremost a responsibility of the national governments that host forests. This follows from the principle of sovereignty, which is a pivotal principle of international relations and law. As reaffirmed, e.g., in the 2030 Agenda for Sustainable Development, 'every State has, and shall freely exercise, full permanent sovereignty over all its wealth, national resources and economic activity'.[85] By adopting and implementing domestic laws, policies, strategies, and other initiatives, the national governments of the states hosing boreal forests may to a significant degree address gaps in knowledge and mitigate the threats identified in the previous chapters. To a certain extent, this is also already being done.

Yet, the fact that national governments are primarily and ultimately responsible for the protection and sustainable management of the world's forests, does not mean that international cooperation in this area is not needed or that it could not be beneficial. That is presumably also the reason why the protection and sustainable management of forests appears to be a topic of growing international concern.

In general, the taiga states can be expected to seek international cooperation on issues related to the protection and sustainable management of the boreal forests either because the laws, policies, and institutions of one country impact other countries, or because they see an opportunity to streamline or learn from each other in these efforts.

3.1 AN AD HOC COOPERATIVE FRAMEWORK

At the 'thinnest' level of cooperation, states may exchange technical information, experiences, lessons learned, and best practices on issues related to the protection and sustainable management of the boreal forests

[85] See, for full text, https://sdgs.un.org/2030agenda

because they face similar, yet not necessarily the same, challenges and/or opportunities in these efforts. The boreal forests of the circumpolar states share a broad set of biological characteristics. While systems of governance, culture, socio-economic conditions, and other factors may differ, the specificities of the biome may give rise to a set of common questions and challenges related to its protection and sustainable management. As guardians of different parts of a common biome, the representatives of the circumboreal states may therefore benefit from comparing notes on how they address these questions and challenges.

The work carried out in the Barents Forest Sector (previously Barents Forest Sector Network) appears to be an example of 'thin' international forest cooperation. While attempts have been made to carve out common positions within the Barents Forest Sector, most recently through the Barents Euro-Arctic Council Joint Declaration, signed 18–19 October 2017 in Arkhangelsk, Russia,[86] the Working Group and Forums of the Barents Forest Sector appear primarily aimed at networking and information sharing. Its mandate, adopted in May 2020, allows the Working Group 'to launch and implement activities with a view to promoting' its priority areas.[87] It has recently provided input to the Action Plan on Climate Change for the Barents Cooperation.[88]

Similarly, the work carried out within the framework of the Montreal Process Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests could also be considered an example of 'thin' international forest cooperation. The Process provides a framework for reporting on progress made by its members towards sustainable forest management based on seven criteria[89] and 54 indicators. These criteria and indicators are not management standards or regulations. Rather, they provide a 'common frame of reference from which

[86] See, for full text, https://www.barentscooperation.org/news/Joint-Declaration-of-the-XVI-Session-of-the-Barents-Euro-Arctic-Council/yeyiz4z5/5bef9498-a392-4bf0-be22-5b102e569188

[87] See, for full text of the mandate of the working group, https://www.barentsinfo.fi/beac/docs/WGBFS_mandate_updated_February_2021.pdf

[88] See https://www.barentsinfo.fi/beac/docs/WGBFS_online_meeting_21_May_2021_WGBFS_input_Climate_Action_Plan_May2021_v3.pdf

[89] The criteria include (1) conservation of biological diversity; (2) maintenance of productive capacity of forest ecosystems; (3) maintenance of forest ecosystem health and vitality; (4) conservation and maintenance of soil and water resources; (5) maintenance of forest contribution to global carbon cycles; (6) maintenance and enhance of long-term multiple socio-economic benefits to meet the needs of societies; (7) legal, institutional and economic framework for forest conservation and sustainable management.

to engage in complex, shared discussions about how the diverse forest stakeholder community' in the member countries can work together.[90]

3.2 A FORMALIZED NON-BINDING PLATFORM

A slightly 'thicker' type international cooperation between the circumboreal states may aim not merely at the sharing of information, experiences, lessons learned, and best practices, but also seek to develop common positions and perspectives on, and commitments to, the protection and sustainable management of the boreal forests. This 'thicker' type of international cooperation will normally only be possible in so far as the countries involved understand the boreal forests as a *common concern* in one way or the other. The adoption of the Haparanda ministerial declaration suggest that the circumboreal states subscribe to such a view of the boreal forests, at least at the level of political rhetoric.

What brought Canada, Finland, Norway, Sweden, the Russian Federation, and the United States together in Haparanda in 2018 was seemingly not just the fact that they are all hosts to a particular biome. The declaration also expresses a common concern for the ecosystem services provided by the boreal forests (notably as 'sources of renewable goods and services [...] a habitat for a unique and vulnerable collection of biodiversity';[91] a 'home to many indigenous peoples who possess traditional knowledge and rely on forests to provide resources for their livelihoods, income, and cultural and spiritual values';[92] and as 'the largest terrestrial carbon pool', a significant contributor to 'minimizing greenhouse gas (GHG) emissions and to limiting further increase of global average temperature'[93]) as well as the global factors that may hamper the delivery of these ecosystem services (notably 'the impact of climate change [which] has the potential to alter tree growth and mortality rates, to increase the risk of disturbances such as fires and insect outbreaks, and to affect soils, peatlands and permafrost systems that store large amounts of carbon, and that these impacts will in turn alter global carbon and methane cycles'[94]).

Moreover, through the Haparanda ministerial declaration the circumboreal states expressed a joint commitment to address this shared concern together, notably through 'circumboreal collaborative research and cooperation'.[95] To implement this joint commitment, the taiga states moved to establish the

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[90] See, for instance, https://sustainableforests.net/wp-content/uploads/Fact-sheet-MPCI.pdf

[91] Haparanda ministerial declaration, preambular paragraph 2.

[92] *Ibid*, preambular paragraph 3.

[93] *Ibid*, preambular paragraph 8.

[94] *Ibid*, preambular paragraph 9.

[95] *Ibid*, preambular paragraph 18.

UNECE/FAO Team of Specialists on the Boreal Forests as an ad hoc technical level structure (relies on voluntary contributions and participation). Note that the Team of Specialists does not have a mandate to propose or elaborate common standards, institutions, principles, rules, or actions to strengthen the protection and sustainable management of the boreal forests. While the mandate may conceivably be expanded to include discussions of what the circumboreal states should *do* to best protect and manage the boreal forests, the work that has so far been carried out appears aimed at building a deeper common understanding of the values, challenges, threats, and opportunities of sustainable management of the boreal forests amongst the circumboreal states.

One way to further institutionalize the work carried out within the Team of Specialists would be to elaborate and adopt, building on the Haparanda declaration and the work carried out since 2018, a shared plan of action or similar non-legally binding instrument amongst the circumboreal states on the protection and sustainable management of the boreal forests. A proposal for such an action plan was recently considered at a meeting of the Team of Specialists.[96] It was suggested that the action plan could be adopted at a possible ministerial meeting, and that the action plan could be modelled on the Rovaniemi Action Plan for the Forest Sector in a Green Economy in Europe.[97] The key challenge in this effort would be to identify the specific steps that relevant actors in the circumboreal states would need to take to meaningfully strengthen the protection and sustainable management of the boreal forests. Ideally, and as suggested by the Team of Specialists, an action plan on the boreal forests should specify what the different government agencies could to do and establish a structure for the timebound implementation of these actions.

3.3 A LEGALLY BINDING AGREEMENT

At the 'thickest' level of cooperation, the circumboreal states may aim to develop exactly what the UNECE/FAO Team of Specialists on the Boreal Forest does not have a mandate to do: Common standards, institutions, principles, rules, or actions to strengthen the protection and sustainable management of the boreal forests.

A condition for this kind of 'thick' international cooperation is normally that the laws, policies, and institutions of one country have significant impacts – positive or, more often, adverse – on the interests of other countries. For example, the 1979 Convention on Long-Range Transboundary Air

[96] Report from the fourth meeting of the Team of Specialists on the Boreal Forests available at https://unece.org/sites/default/files/2021-11/Meeting%20report%20-%204th%20meeting%20ToS%20Boreal-final.pdf

[97] See, for full text, https://unece.org/DAM/timber/publications/SP-35-Rovaniemi.pdf

Pollution,[98] which is a legally binding instrument with 51 States Parties in Europe, Central Asia, and North America,[99] became possible once it became clear that emission of sulphur and other harmful substances in one country had significant adverse consequences for other countries, including through so-called 'acid rain' that was 'destroying forests, causing fish loss in lakes and putting entire ecosystems at risks in the Northern Hemisphere'.[100] The case for a legally binding instrument on the boreal forests would, in principle, require a similar causal account of how the policies and practices of one or more countries create negative effects for other countries – or for areas beyond national jurisdiction. The understanding amongst the circumboreal states of the boreal forests as a common concern would in other words have to be replaced by an understanding of the protection these forests as a *transboundary issue* that cannot be adequately addressed at the national level alone.

It does not seem to be the case that the protection and sustainable management of the boreal forests is currently understood as a transboundary issue that would warrant a new legally binding instrument. Forests are, in contrast to air pollution, largely stationary. Yet, as noted in the previous chapters, there are important transboundary touchpoints between the protection and forest management practices of the taiga states. These include international trade in timber and non-wood forest products, international tourism, and cross-border activities of indigenous peoples, who rely on the boreal forests for their livelihoods, income, and culture. And, of course, the roles of the boreal forests as a global carbon sink and a potential regional biotic pump also have obvious transboundary aspects.

It is doubtful whether the protection and sustainable management of the boreal forests, given available research and evidence, can credibly be framed as a transboundary issue that would warrant a new legally binding instrument.

However, many of these transboundary touchpoints are already regulated through existing international agreements, most importantly through the UNFCCC (climate dimension) and the CBD (biodiversity dimension). There is, of course, nothing that prevents the taiga states from raising their own level of ambition and leading by example when it comes to climate-action on forests. Politically, however, this would likely be an uphill battle.

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[98] See, for more information, https://unece.org/sites/default/files/2021-05/1979%20CLRTAP.e.pdf

[99] See, for more information, https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-1&chapter=27&clang=_en

[100] See, for more information, https://unece.org/convention-and-its-achievements

Perceptions of fairness, reciprocity and burden sharing are deeply embedded in the international community's approach to tackling climate change (the relative failure of the Kyoto protocol is a testament to this).[101] If the main purpose of a proposed boreal forest agreement is to contribute towards tackling climate change (an archetype of a global problem), the question of what the rest of the world would do to match these efforts would quickly emerge. Moreover, one likely effect of a closer circumboreal cooperation specifically on climate change is that the methodologies for measuring the boreal forests' capacity to capture and sequester CO_2 would improve (and be harmonized), which in turn could have the unintended – and very unfortunate – effect of downrating the net emissions of the taiga states (meaning there would be less pressure to implement other types of climate action).

The potential concerns that one or more of the taiga states may have with respect to trade, tourism, and/or the rights of indigenous peoples could conceivably be addressed through strengthened domestic action or regulation, or through existing international mechanisms. Another reason for caution is that an initiative to start negotiation of a new legally binding instrument to address these issues could become a red herring that incentivizes states to postpone the introduction of measures under domestic and existing international mechanisms to strengthen the protection and sustainable management of the boreal forests.[101]

While it seems clear that the laws, policies, and practices of the taiga states have an impact on the conservation of the taiga, the case for elaborating a legally binding instrument appears to require more knowledge and greater clarity of the causal relationship between specific protection and forest management regimes, on the one hand, and the circumboreal effects of these regimes, on the other. In other words, how does protection of the taiga in one country affect protection of the taiga in another country? What are the negative externalities of this issue (apart from carbon emissions, which are not boreal-specific and already subject to global regulation)? A set of laws, policies, and practices that, if implemented across the circumboreal states, would serve to effectively mitigate against the threats facing the taiga, has yet to be identified. Even if such a set of laws, policies, and practices could be identified, it remains questionable whether this would warrant a boreal-specific legally binding response, considering that all forests – be they

[101] This may have been the (inadvertent) impact of the proposal, adopted in Oslo in 2011, to start negotiating a legally binding agreement on forests in Europe. The proposal was based on an explicit understanding of 'issues of transboundary nature and common concern with regard to forests' in the European continent. Although an International Negotiation Committee (INC) was established and a draft treaty text developed, the process appears to have run out of steam in the ensuing years. At the 8th Forest Europe ministerial conference in Bratislava in 2021, the signatory countries finally took note 'of the lack of consensus as regards the FOREST EUROPE Signatories' invitation to resume negotiations on a possible legally binding agreement on forests in Europe'. For more see: https://foresteurope.org/legally-binding-agreement2/

boreal, temperate, or tropical – drive precipitation and store and capture carbon. The most obvious transboundary aspects of taiga conservation (e.g., carbon emissions) are not specific to the boreal countries, which suggest that it makes limited sense for the taiga states to try to tackle these issues in isolation (through a new legally binding agreement where participation is restricted to the taiga states).

Instead, the taiga states could explore how existing international frameworks and mechanisms can be utilized to strengthen the protection and sustainable management of the boreal forests. For example, the Glasgow Leaders' Declaration on Forests and Land Use commits 141 states, including all the taiga states, to strengthen their efforts to 'conserve forests and other terrestrial ecosystems and accelerate their restoration'.[102] The taiga states could set up a workstream within the framework of this declaration to explore how these commitments could be most effectively and efficiently implemented in the circumboreal region. This could for example include a consideration of how the agricultural policies and programmes of the taiga states could best be implemented and, if necessary, redesigned, to 'incentivize sustainable agriculture, promote food security, and benefit the environment', in line with commitment 4 of the Glasgow Leaders' Declaration. A report of these efforts could be submitted to future Conference of Parties to the UNFCCC (or another relevant multilateral forum).

The taiga states could also seek to raise the profile of the boreal forests within the framework of the CBD. The taiga states could build upon the joint positions and concerns outlined in the Haparanda declaration and, on that basis, support efforts – through joint statements, working papers, and side events – to raise awareness of the ecosystem services provided by the taiga.

One could try to push for more specific language on the boreal forests to be included in the post-2020 biodiversity framework, but given the time and energy that has already been put into developing a text that all CBD parties can agree on, the room for manoeuvre on that seems limited.

One could, of course, also consider other types of initiatives under the CBD, beyond the post-2020 framework. There is nothing in the text of the CBD that prevents taiga states from using the convention as a vehicle for developing closer cooperation on boreal forest conservation. In fact, the "need to promote international, regional and global cooperation […] for the conservation of biological diversity and the sustainable use of its

[102] Glasgow Leaders' Declaration on Forests and Land Use, available at https://ukcop26.org/glasgow-leaders-declaration-on-forests-and-land-use/

components" is explicitly recognized in the convention.[105] And Article 28 of the CBD provides for the adoption of protocols to the convention.

The problem is that the CBD was not designed as framework for developing issue-specific sub-agreements. And unlike the CMS, for instance, which contains procedures for how supplementary agreements should be negotiated between "range states",[106] the CBD is extremely generic. As a result, there is no tradition for developing legally binding agreements on specific issues or species under the CBD. A legally binding regulation of the boreal forest under the CBD (e.g., in the form of a protocol) therefore seems very unlikely.

A more promising route would arguably be to build upon the momentum created by the Glasgow Leaders' declaration and initiate a process for a global legally binding instrument for the protection and sustainable management of all the world's forests (not just the taiga). As noted, such an instrument could in principle be attached as a protocol to the UNFCCC or the CBD, but given the established practice under these two regimes, it would likely be far easier to develop new a stand-alone instrument, as originally proposed in the leadup to the 1992 Earth Summit (UNCED).

Before embarking on a political process to explore this option, however, it would be important to develop a better understanding of why past efforts to put in place a forest convention failed. Was it due to unfavourable political circumstances at that time, or was the main problem a lack of convincing arguments for why a legally binding framework was required and, closely related, a failure to identify the provisions that, if faithfully implemented by states, would protect, and provide for the sustainable management of the world's forests?

4 Assessment of prospects and feasibility

As shown in the previous chapter, cooperation between the circumboreal countries on the boreal forests has reached a certain level of political maturity. While the boreal forests were, from the perspective of international law and policy, long regarded as a (not particular important) part of a broader 'forest' category, the work of the Circumboreal Working Group (CWC) has, coupled IBFRA's efforts to 'promote and coordinate research related to boreal forests', produced significant results. For example, it has led to the establishment of a dedicated international arena for expert-level discussion; the convening of a ministerial-level international conference; and the adoption by leaders of the circumboreal countries of a declaration that explicitly frames the boreal forests as a common concern in need of a joint response.

What will happen next in this process is an open question. It is possible that, after years of progress, the circumboreal countries will conclude that their perspectives on the protection and sustainable management of the boreal forests are not sufficiently aligned and decide to scale back their current cooperation. Perhaps more likely, the cooperation that is currently taking place within the UNECE/FAO Team of Specialists will be further institutionalized, including through the adoption of a joint action plan or a similar voluntary instrument on the boreal forests. It is also possible that the circumboreal countries will decide to deepen their collaboration even further and make a collective effort to bring their common concern for the boreal forests to the meetings of the UNFCCC or the CBD, as outlined above. Finally, the circumboreal countries may conclude that the issues that have been brought up in their discussions warrant not a boreal-specific response, but a stronger global effort to protect and sustainably manage the world's forests through e.g., a new legally binding instrument.

The trajectory of future international efforts in this area will depend on two main factors: One the one hand, it will depend on the interests and perspectives of the circumboreal countries. On the other hand, it will depend on the ability of civil society organizations and other advocacy and communication initiatives to influence the circumboreal countries' perspectives and views of their own interests.

4.1 THE INTERESTS OF THE CIRCUMBOREAL COUNTRIES

For the purposes of assessing the interests of the circumboreal countries in cooperation on issues related to the boreal forests, the taiga states can be divided into four main groups: While there are important differences in the forest protection and management regimes of Finland, Norway, and Sweden, their small size and 'Nordic outlook' on the environment and international cooperation justify a common assessment of their interests. In contrast, the

interests and perspectives of Canada, the United States and Russia are arguably so different as to warrant distinct assessments.

Finland, Norway, and Sweden

In general, this group of states tends to be quite positively inclined towards international collaboration, including on environmental protection. In part, this can be attributed to their stated preference for a rules-based international order, which is understood as a natural geopolitical position for relatively small states. This is particularly attractive in situations that are clearly asymmetrical, as is the case with all the other taiga states, not only in terms of geopolitical power but also because the other states have much more of the resource in question, taiga forest. It is also in line with these countries' policy orientations. Norway provides a case in point: While – or perhaps, partly because – its domestic track record on forest conservation is not particularly good, it gives high priority to the same policy issues internationally.

For Finland, Norway, and Sweden, strengthened circumboreal collaboration on taiga conservation can be expected to have appeal beyond the general inclination towards rules-based international cooperation. The protection of the boreal forests represents an issue that is not plagued by deep geopolitical tensions. It therefore provides an opportunity to strengthen technical and substantive cooperation with Russia without being pulled into some of the more contentious areas of their relationships. An appealing aspect of a closer collaboration on boreal forest conservation is that it would encounter few obstacles linked to territory, cross-border issues, and delineation of sovereign rights, which dominates other cooperation in the Arctic, including marine resources.

From a foreign policy and diplomatic point of view, any collaboration with Russia on joint interests would therefore likely be perceived as attractive, if it can serve to promote closer cooperation without increasing tensions. They have a common interest in technical and expert-level collaboration that could help keep lines of communication open, build trust, and showcase the benefits of cordial relations. And if a possible new legally binding taiga agreement were to prove a success, it would likely serve as a model for closer circumpolar cooperation in other areas as well.

Even if these countries may have a general interest in stronger international cooperation on boreal forest protection,[103] the views of these countries when

[103] The newly elected center-left Norwegian government, which took office in October 2021, has stated that it wants to take an initiative to establish a collaboration on climate issues with the other

it comes to forest management policies and practices may not necessarily be aligned with those of the other taiga states. Norway, for instance, has a rather weak track record when it comes to forest protection, with a relatively high intensity of logging (although well regulated) and a comparatively small share of protected forest. Norway's protection of wildlife is also very poor compared to the other countries.

Canada

A major question when it comes to Canada's appetite for strengthened international collaboration on the protection of the boreal forests is whether Canadian policymakers consider the regulation of the Eurasian boreal forest as relevant for how Canada manages and protects its own forests. This would depend a lot on the actual content of an agreement, and what Canada might gain from it, for instance the practical benefits from collaboration on research, management best practices, and perhaps technology (e.g., related to forest fires). Canada could, however, be expected to share an interest in improved collaboration with the same (circumpolar) partners on environment and other issues, which might itself be a relatively strong motivation.

The United States (Alaska)

It seems fruitful to distinguish between the interests of Alaska and the United States as such (federal level). The United States is notoriously uninterested in international regulation and will most likely not enter into any binding agreement (it very rarely does). It may enter a non-binding collaboration, but any participation of the United States in a collaboration with Russia will be subject to a more complex set of foreign policy and security interests, which may not help and perhaps delay collaboration on forest conservation.

Alaska, on the other hand, would be more likely to be interested in collaboration and probably with less reservations. Alaska already cooperates with Canada on many aspects of natural resource management and can, under very specific conditions, be part of an international agreement without the rest of the United States on board. This has potentially important strategic implications: An agreement and collaboration with content and features that make it natural to include the state of Alaska as a party might be very different – less complex and much easier to achieve – than one in which the United States is included.

However, even if Alaska may seem a more relevant partner in the development of some sort of international cooperation on the taiga, it is by

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countries having boreal forest. See
https://www.regjeringen.no/no/dokumenter/hurdalsplattformen/id2877252/ (Norwegian only)

no means certain – and even quite unlikely – that the US government would be content with a setup that formalizes collaboration between the state of Alaska and Russia, without the US government being signatory and overseer of the agreement. And in practice, it would be near impossible for the other taiga states to enter into a multilateral arrangement with Alaska if the US government is opposed to it. Moreover, it is also possible that Washington – like Norway, Sweden, and Denmark, as discussed above – sees this issue an opportunity to build confidence, trust and closer ties on an issue that is not wrought with geopolitical tensions. If so, including the United States in the cooperation would make more sense than excluding them.

Russia

As with the other taiga states, Russia's interest in international collaboration on taiga conservation will likely be influenced and shaped by more than just the specific benefits that any cooperation could bring when it comes to protecting the boreal forests. There will always be a broader geopolitical backdrop that can shape perceptions about specific topics, and it is in line with Russian foreign policy interests (indicated by current practice) to seek cooperation with selected Western countries on certain narrowly defined issues. A functional cooperation between taiga states, in the form of a semi-formal multilateral grouping, might therefore be seen as beneficial, especially since Russia would naturally play a dominant role (given the size of its taiga). With or without the United States, a closer forest-oriented cooperation between the taiga states issues might serve to emphasize a cooperative atmosphere among the circumpolar states, despite the broader diplomatic tensions between Russia and the other taiga states.

In the broader context of China's global rise, Russia may see utility in the advancement of multilateral cooperation that does not include China. From this perspective, close collaboration on an internationally important resource, in which Russia has a dominant role and China little or no role, might have high political value for Russia. This interest might be best served by an agreement having high political profile, involving all the other taiga countries.

How taiga collaboration is framed and communicated is important. Russia may see value in branding itself as a responsible, pivotal caretaker of a global public good. Cooperation framed in this way will likely have a far higher political value for Russia than if the collaboration is perceived as an attempt by other countries at interfering with Russia's management of its own territory. A perception of outside pressure could easily lead Russia to adopt an attitude similar to that of Brazil's attitude to the Amazon rainforest under Bolsonaro, creating tensions that make it very difficult to discuss even matters of common interest.

The framing of taiga protection must start from the basic question of how the boreal forest is conceptualized as a public good. In terms of more practical benefits, a taiga collaboration can be useful for Russia in several ways. First, Russia has a clear interest in increasing the availability and reliability of scientific data to serve the sustainable management of its forests. Science in Russia suffers from under-investment over many years, which has led to a deterioration of infrastructure and institutions, limited access to good data, brain drain, and other challenges. Better collaboration with other countries' scientific institutions would almost certainly be attractive.

Second, depending on the substance, international collaboration could potentially also increase investment in the Russian logging sector. As of now, investors such as the Norwegian Sovereign Wealth Fund avoid the logging industry in Russia due to risks of causing unacceptable environmental damage. A taiga collaboration might facilitate the entry of investors and companies with strict ESG standards in ways that would improve the profitability of sustainable forest utilization and in turn benefit the Russian economy.

Third, international collaboration might also be of interest for Russia by serving to improve its reputation in terms of sustainable natural resource management. While Russia's policies and track record on many environmental concerns are mixed at best, it can be argued that it has been quite successful in managing the forest, taking into account the size of the Russian taiga and the fact that large parts of it is still intact. International collaboration might serve to establish this narrative and draw international attention towards Russia as a guardian of one of the world's most important natural resources.

Finally, international collaboration may to some degree help the Russian central authorities strengthen their control with the management of the taiga. The relatively complex institutional setup of the Russian federation entails numerous obstacles for streamlined environmental management at the local level, creating a breeding ground for corrupt practices and illegal logging. International cooperation might help (albeit just a little) to facilitate the federal government's implementation of policy in several ways. It may provide some normative legitimacy to the best available knowledge and best practice on forest management, and lead to more transparency and more reliable data – less open to contestation because it is 'international'. This might, in some cases, be used to put some pressure on local authorities to adapt to norms, expose environmentally harmful practices. It might also increase the risk involved in some corrupt and illegal practices and improve the profitability of legal and sustainable utilisation of forest resources. Although cooperation with certain legally binding elements – especially on issues such as transparency and data-sharing – would be best, non-binding cooperation would also be of value to this end.

4.2 THE ROLE OF CIVIL SOCIETY

To date, the process to strengthen cooperation between the circumboreal countries on the protection and sustainable management of the boreal forests seems to have been driven mainly by representatives of international organizations, government agencies, and research institutes, notably those organized under IBFRA. As shown above, all the circumboreal countries are likely to see value in some form of cooperation on issues related to the boreal forests. This would therefore appear to explain why this cooperation has become increasingly strengthened over the past decade.

At the same time, the scope of circumboreal cooperation is likely to reach a saturation point. There are aspects to the interests and forest management practices of most, if not all, of the circumboreal countries that are likely to hamper or delay such cooperation. As noted in the previous chapter, Russia and the United States are both likely to be sceptical of anything that could be perceived as ceding sovereignty over their own forests. Canada may question the relevance of strengthened international cooperation for their own forest protection and management efforts. And some of the Nordic countries, in particular Norway, may be reluctant to expose their weak track-record on forest protection to international scrutiny.

In a business-as-usual scenario, therefore, the circumboreal cooperation appears likely to continue its current trajectory towards gradually increased institutionalization and technical-level cooperation, with a heavy emphasis on the voluntary (i.e., non-legally binding) exchange of data, research, policy, and practices. The proposal espoused in the UNECE/FAO Team of Specialists to develop a 'Rovaniemi-style' action plan on the boreal forests will be an important test of how deep the circumboreal countries' interest in cooperation runs. The proposal may lead to a general action plan with vague commitments and a weak implementation structure. Or it may lead to something stronger. It is also possible that the proposal will be discarded altogether in favour of the option to extend the current mandate of the Team of Specialists for another two years.

However, the future of circumboreal cooperation on the protection and sustainable management of the boreal forests is a function not only of the existing interests and perspectives of the circumboreal countries. Whether and the extent to which we will see a trend towards 'thicker' forms of cooperation between the circumboreal countries also depends on the ability of civil society organizations and other advocacy and communication initiatives to influence the circumboreal countries' perspectives and views of their own interests.

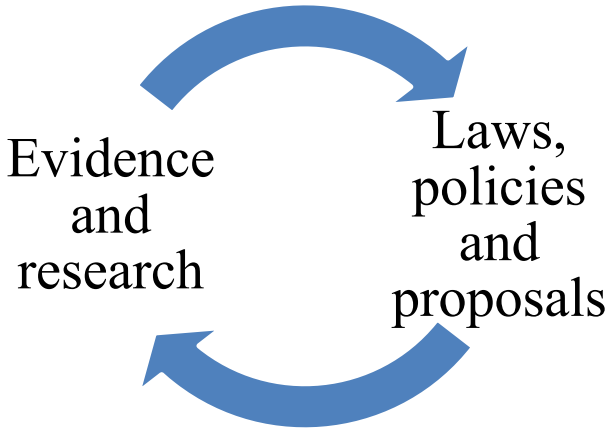
Civil society organizations and other non-governmental actors have become increasingly important actors in national and international politics. In many cases where change is being sought – for examples with respect to marine

plastic pollution – civil society organizations and activist groups have, often in close partnerships with governments and other actors, built the required conditions for change.

Advocacy- and communication-oriented civil society organization have been conspicuously absent from international discussions about the need for strengthened international cooperation for the protection and sustainable management of the boreal forests. While there is no blueprint for how an international advocacy and communication initiative may achieve its desired end goal, past efforts suggest that three conditions ought to be in place for such an initiative to succeed, and civil society organizations are likely to find crucial roles in each of them, as discussed below.

Build the issue, change the debate

Identifying, marshalling, and disseminating evidence that demonstrates the negative transboundary effects of existing policies and practices have in most instances been a first, essential, step in this process. Evidence is an important source of policy legitimacy, especially in so far as it addresses the question of why a particular problem is or should be an issue of multilateral concern in the first place. Yet, states by themselves often lack the expertise or incentive to collect evidence or research the negative consequences of their own laws, policies, and practices. Civil society representatives, researchers, and other dedicated individuals therefore often play an important role in collecting and framing evidence in ways that question the terms of an existing international debate; instil policy debates with a sense of urgency; and challenge the established view of the legitimacy or appropriateness of existing laws, policies, and practices. In some cases, these reframing activities have created productive 'feedback loops' between new evidence and research, on the one hand, and laws, policies, and practices, on



the other (see figure).

To a certain extent, this condition appears to be fulfilled in the case of the protection and sustainable management of the boreal forests. IBFRA and, in North America, the International Boreal Conservation Science Panel,[104] represent efforts to collect, research, and disseminate evidence at an international level of the global value the boreal forests. As noted by IBFRA:

> Boreal forests provide critical services to local, regional, and global populations. Communities, including those of indigenous people, benefit from ecosystem services provided by the forest for fishing, hunting, leisure, spiritual activities, and economic opportunities. Internationally, more than 33% of the lumber and 25% of the paper on the export market originate from boreal regions. Globally, boreal forests help regulate climate through the exchange of energy and water. They are also a large reservoir of biogenic carbon.[105]

There is also clear evidence to suggest that IBFRA's activities have influenced international policy discussions on the boreal forests. The content of the Haparanda ministerial declaration appears to a considerable extent to reflect IBFRA's framing of the boreal forests. Members of IBFRA have also been invited to participate in the meetings of the UNECE/FAO Team of Specialists. However, IBFRA's activities appear not yet to have succeeded in building a common understanding among the circumboreal countries of protection and sustainable management of the boreal forests as a *transboundary* concern. IBFRA's ongoing 'Insight Process',[106] which seeks to link the protection and management of the boreal forests more closely with science related to climate change, may help build a deeper appreciation of how protection and forest management of the circumboreal countries impact the goal achievement of other countries. Yet, it appears that much work remains to be done to link scientific findings more concretely with the laws, policies, and practice of specific states, and to instil greater urgency in the debate. More engagement with the evidence collected by IBFRA and other research organizations by advocacy- and communication-oriented organizations may help fill this gap.

Create a propitious environment for new proposals

Articulating a clear policy objective and a credible narrative for its achievement is a crucial, second step in any effort to influence states' interests and perspective at an international level. Often, building new solutions to old problems requires critical engagement with existing

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[104] See, for more information, https://www.borealscience.org/

[105] See, for more information, http://ibfra.org/

[106] See, for more information, http://ibfra.org/insight-process/. See also https://www.slu.se/centrumbildningar-och-projekt/future-forests/projekt/ibfra-insight-process-sustainable-boreal-forest-management--challenges-and-opportunities-for-climate-change-mitigation/

international arenas, instruments, and mechanisms. Largely free from traditional institutional or bureaucratic constraints, civil society actors, individual researchers, and other dedicated individuals may, to a greater extent than government agencies, have opportunities to explore and put forward proposals that may initially appear excessively ambitious. By embracing these opportunities, civil society can play an important role in identifying new and innovative solutions, expanding the perceived scope for political action over time. Civil society cannot, however, pursue these solutions alone. Successful international advocacy and communication initiatives have therefore established diverse networks and partnerships of trust with diplomats and other government actors, representatives of international organizations, parliamentarians, professional organizations, business and industry actors, media actors, and other practitioners to critically assess the merits of new proposals.

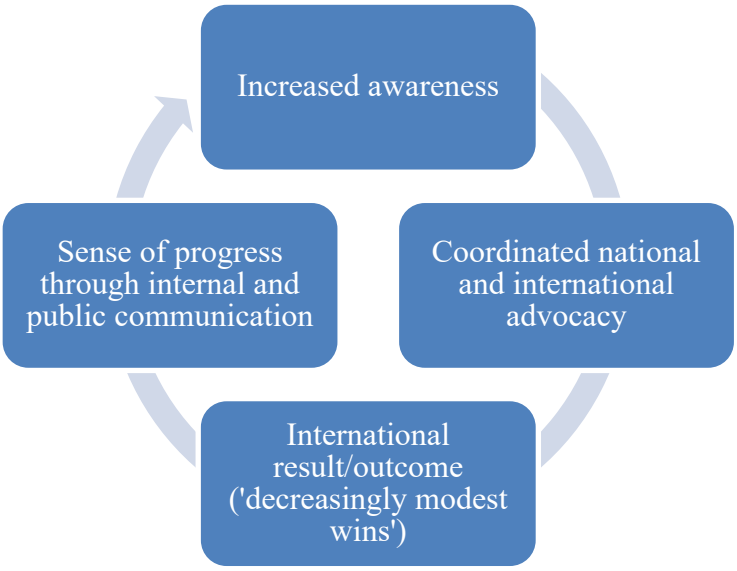
Currently, international arenas, groups, or mechanisms conducive to the exploration, identification, and discussion of new proposals for strengthened international cooperation for the protection and sustainable management of the boreal forests do not seem to exist. The arenas, groups, and mechanisms that exist appear either constrained by narrow mandates or are otherwise ill-suited to the type of discussion that such an exercise would require. The UNECE/FAO Team of Specialist, the Montreal Process, and IBFRA, for example, do not have mandates to propose new, prescriptive solutions. Existing multilateral arenas, such as the UNFCCC and the CBD appear not sufficiently focused to provide for a discussion about the specific challenges related to the boreal forests, although opportunities may, as noted in the previous chapter, be explored within the Glasgow Leaders' Declaration. Other regionally focused arenas, such as the Arctic Council and the Barents Cooperation, do not have the required membership or geographical focus to allow for a discussion of the management of the taiga as a whole.

Advocacy and communication oriented civil society organizations may, however, create these arenas. A series of informal 'track 1.5' meetings[107] between government representatives, researchers, representatives of international organizations and civil society actors – e.g., in the run-up to a second ministerial conference on the boreal forests – may, if well framed and organized, lead to an environment more conducive to the exploration of new and innovative solutions to concerns related to the protection and sustainable management of the boreal forests.

[107] 'Track 1.5' meetings are semi-structured conversations that include a mix of government officials –who participate in an unofficial capacity—and non-governmental experts. The meetings offer a private, open and dynamic environment to build trust and explore ideas and new policy proposals.

Mobilize, advocate, communicate

Debates will not change, and proposals will not succeed, without a group of individuals with the capacity, ability, and willingness to organize and implement a sustained advocacy and communication initiative. As noted above, a crucial step in any advocacy and communication initiative is to articulate a clear policy objective and a credible narrative for its achievement. In most cases, creating a feasibility narrative is more challenging than identifying a desired policy goal. Past efforts have overcome this challenge by identifying and pursuing a series of 'modest wins', such as a statement in support of a specific proposal, a decision made by a government to attend a meeting, or a well-placed media story that conveys the initiative's key messages. These 'modest wins' can, if well framed, be used for internal or external communication to generate a sense of momentum. The sense that 'something is happening' in a specific policy arena will normally mobilize increasing support and interest, which in turn may help produce 'decreasingly modest' advocacy wins (see figure).



There are several examples of several nationally or regionally focused civil society initiatives to strengthen the protection of the boreal forests, including the Russian 'Boreal Forest Platform' established by WWF-Russia and Mondi,[108] the National Resources Defense Council's efforts to 'Save the Canadian Boreal',[109] and the North-American 'International Boreal Conservation Campaign'.[110] However, there appears to be no truly

[108] See, for more information, https://wwf.ru/en/resources/news/lesa/borealnaya-lesnaya-platforma-aktivno-razvivaetsya/

[109] See, for more information, https://www.nrdc.org/save-canadian-boreal

[110] See, for more information, https://www.borealconservation.org/contact-us

international civil society initiative capable of coordinating advocacy and communication activities across all the circumboreal countries. Such an initiative could conceivably be established around a demand for strengthened international protection of the boreal forests. The initiative could develop a shared set of messages and identify mobilization, advocacy, and communication targets – including, as feasible, politicians, government officials, journalists, experts, and other practitioners – in each of the circumboreal countries. It could seek to mobilize attention around its demand in the run-up to relevant international meetings, notably the proposed second ministerial conference on the boreal forests. By successfully influencing the outcomes or the statements delivered during these meetings, the initiative could generate a sense of forward momentum that could, in turn, help mobilize increased attention to and support for its demand. If well organized – and given the fulfilment of the two other conditions described above – such an initiative could conceivably build sufficient political support for even 'thicker' forms of circumboreal cooperation on the protection and sustainable management of the boreal forests.

5 Conclusion

The taiga is a natural resource of enormous scale, with great value for wildlife and all of humanity. It provides a range of vital ecosystem services at local, national, regional, and global levels. Its role in global carbon sequestration and as a driver of precipitation makes the protection and sustainable management of the taiga a relevant issue for international environmental law and policy efforts. The taiga is – as many forest ecosystems – threatened by deforestation, fragmentation, and the impacts of climate change, but currently subject to less attention than tropical forests. Some of the main threats against the taiga are likely to become more acute in the future. Addressing these dangers ought to be an important domestic and foreign policy concern, notably for the circumboreal countries.

Yet, the question of how the taiga should be managed – how its conservation and ecosystem services could be protected while simultaneously allowing for the utilization of its resources – is mired in uncertainty. Currently, all the circumboreal states are taking a range of measures to protect and manage their forests in a sustainable manner. However, there are large knowledge gaps with respect to how specific protection and forest management regimes impact the taiga's ability to deliver ecosystem services for current and future generations. There is also a need for more evidence, research, and awareness about how protection and forest management regimes may help prevent or mitigate the threats of deforestation, fragmentation, and the impacts of climate change.

There exists a wide range of global arenas, instruments, and mechanism related to the protection and sustainable management of the boreal forests, including UNFCCC, CBD, species- and habitat-oriented frameworks, and forest-oriented frameworks and initiatives. There are also several regional and cross-regional initiatives in which the protection and management of parts of the taiga is – or has been – directly or indirectly considered.

Over the last decade, the circumboreal countries have sought to strengthen their cooperation on issues more specifically related to the boreal forest. The 2018 Haparanda ministerial declaration and the work carried out in the UNECE/FAO Team of Specialists on the Boreal Forests have, in conjunction with the research efforts done by IBFRA, generated an understanding of the protection and sustainable management of the taiga as a common concern among the circumboreal countries. The proposal made by members of the Team of Specialists to organize a second ministerial conference and elaborate a joint action plan on the boreal forests suggests that cooperation between the circumboreal countries may be further strengthened in the coming years.

Yet, circumboreal cooperation on issues related to the boreal forests is, in a business-as-usual scenario, likely to reach a saturation point. Although available evidence suggest that the taiga plays an extremely important role as a global carbon sink, this has not yet been translated into a clear understanding of the protection and sustainable management of the boreal forests – as opposed to forests in general – as a *transboundary concern* in need of new international regulation. There is, in other words, not yet a clear understanding among the circumboreal countries of how their forest protection and management practices impact – negatively or positively – the goal achievement of other countries. Moreover, while there is currently no dedicated legally binding instrument regulating the protection and sustainable management of the taiga, it remains questionable whether a clearer understanding of the taiga as a global carbon sink would warrant a boreal-specific legally binding response. Other avenues, including the consideration of new boreal-specific initiatives within the UN Forum on Forests, the UNFCCC and the CBD, would likely have to be seriously explored before a separate legally binding instrument on the boreal forest could become a viable proposal.

Finally, there are important aspects to the interests of the circumboreal countries that would likely delay or hamper efforts to seek 'thicker' forms of cooperation on the taiga. This does not mean, however, that such forms of cooperation, including a boreal-specific legally binding instrument, may not become possible in the future. To make this a credible proposal, however, more work will likely need to be done to raise awareness and build an understanding of boreal-forest protection as a transboundary concern. Civil society and other non-governmental actors would also, in partnership with government representatives and other officials, have to create an international policy environment more propitious to new and innovative proposals. This should be accompanied by a plan for how such a proposal may be achieved.

This report suggests some concrete actions that can be taken by civil society actors and other stakeholders interested in strengthening the protection and sustainable management of the taiga. Creating change at the international level is, however, an art and not a science. While there is no blueprint for how a legally binding taiga agreement can be achieved, past and ongoing international advocacy and communication efforts provides important lessons.