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## THE ROLE OF RESPONSIBLE FOREST MANAGEMENT IN INTACT FOREST LANDSCAPES

Boreal forest in Northern Alberta, Canada near Fort McMurray. © Global Warming Images / WWF

### SUMMARY

The need to confront the threats to intact forest landscapes (IFLs) cannot be underestimated. A multi-pronged landscape level approach that incorporates diverse conservation strategies and recognizes regional differences will be critical to ensure the resilience of these landscapes.

One of these strategies is responsible forest management and Forest Stewardship Council (FSC) certification, which has played an important role in transforming forest management and trade.

Since Motion 65 was passed at the FSC General Assembly in 2014, awareness around IFL protection and the real urgency to find a solution has increased. Yet the solutions being discussed thus far are either unformed or too disputed to be effectively adopted.

WWF believes that the greatest possible effort must be made by all stakeholders to find solutions in time for the next FSC General Assembly in October, which will be a key forum for dialogue and progressing better protection of IFLs through FSC certification. We call on stakeholders to rally toward appropriate IFL resolutions in regional contexts as varied as the Congo Basin, Siberia, the heart of Borneo and the Canadian Shield.

This brief details the challenges and opportunities facing IFL conservation and offers recommendations for immediate action within FSC-certified forests that overlap with IFL areas.

For more information, contact:

**Gijs Breukink**, Coordinator, Responsible Forestry - [gbreukink@wwf.nl](mailto:gbreukink@wwf.nl)

**Annika Terrana**, Programme Officer, Forests - [Annika.Terrana@wwfus.org](mailto:Annika.Terrana@wwfus.org)

## OUR CHALLENGE AND THE IMPORTANCE OF INTACT FOREST LANDSCAPES

Just over one-fifth of the world's forest cover is classified as intact forest landscapes (IFLs)<sup>1</sup>. These are unbroken expanses of natural forest and associated non-forest ecosystems – 50,000 hectares or greater in size – that are undisturbed by major roads or economic activities, and are large enough that all native biodiversity, including viable populations of wide-ranging species, could be maintained. IFLs are important for their numerous attributes – watershed protection, biodiversity, carbon stocks and sinks, aesthetic and spiritual value, anchoring evolutionary and ecological process – and all of this with increased resiliency to environmental change due to their size and scale.

As the world's population and demands grow and competition for land becomes more acute, the challenge to produce more wood, food, and energy without destroying or degrading IFLs is increasing. The world's remaining IFLs are among the forests most at risk of degradation and deforestation in the coming years, from pressures that range from fuelwood to mining to agriculture to destructive logging. WWF's experience suggests it's possible to address the challenges facing IFL conservation with carefully considered compromise and collective accountability within and outside the forest products supply chain.

## PROTECTING IFLs FOR THE LONG TERM

WWF aspires for a world enriched by extensive, resilient forest landscapes that benefit biodiversity, people and climate. Sustaining IFLs and the many values they hold is an integral part of that vision.

The first priority is to ensure that High Conservation Values (HCV), including intactness, are adequately safeguarded in protected area systems. Currently, about 9.7 per cent of IFLs are in strict protected areas<sup>2</sup>. This number must increase for HCVs to be effectively maintained. Yet protected areas alone cannot sustain all the benefits that IFLs provide. In many cases, strict conservation protections are not immediately realistic due to economic and political realities. And, in practice, effective management of IFLs can vary regardless of their protection status. WWF believes protected area networks need to be recognized more broadly as a cornerstone of sustainable land-use mosaics and valued additionally for their provision of ecosystem services in support of “greener economies.” Green economies are needed to maintain natural capital and ecosystem services provided by forests. Such economies could reverse the business-as-usual management consequences when natural capital is maintained, and the depletion of ecosystem services associated with non-forest land uses is avoided.

But to support this approach, governments and public entities need to enlarge protected area networks in a way that enables local people to be involved in their governance, and generate funding and support for the management activities needed to secure ecosystems around IFLs. There is a strong need for a regionally relevant, multi-pronged approach that mandates collective action and incentivizes accountability at a scale commensurate with the drivers of IFL loss. This is critical to achieve sustainable land-use mosaics that balance trade-offs among competing land uses. Hence, WWF advocates for a wider eco-regional conservation strategy through the triple approach of “protect, manage and restore.”

## RESPONSIBLE FOREST MANAGEMENT AS AN IMPORTANT CONSERVATION STRATEGY

In addition to legally protected and community conserved areas, WWF believes that responsible forest management, including commercial management, is a critical and cost-effective tool within larger-scale conservation strategies that can help keep forests standing and help maintain their ecological integrity. If we consider the overlap of IFLs with existing allocations for production forestry, credible forest certification can be a crucial tool to manage long term impacts on these forest areas, the biodiversity they support, and the people who depend on them. For WWF, FSC is currently the most credible certification scheme available at present, and it is the only certification scheme attempting to integrate IFL values into adapted management practices.

Great gains have been made to protect and properly manage forests as a result of commitments to FSC certification, and these gains must be considered alongside the unique value of IFLs as we seek an IFL solution that provides net conservation benefit, judged at the landscape scale rather than for the individual sites. Forest stewardship, motivated by a commercial interest in maintaining wood supply, has a key role in maintaining the planet's natural capital and protecting vulnerable forests from illegal and irresponsible logging, encroachment and conversion to farmland, particularly as demand for wood from these forests is projected to grow dramatically in the coming years.

## IMPASSE IN IFLs: UNLOCKING LASTING SOLUTIONS

Most of the world's IFLs are concentrated in 13 countries. Certified production forests currently overlap with IFLs most significantly in the Russian and Canadian Boreal, the Brazilian Amazon, and the rainforests of Indonesia and the Congo Basin. While other certification schemes are not taking action on adaptive IFL management, there is clear recognition within FSC and among its members that if the present status quo continues in these regions, IFLs will continue to be compromised by unsustainable logging.

It is critical that IFL safeguards be adopted in FSC to ensure trust in the FSC system among environmental stakeholders and the longer-term potential for safeguarded biodiversity and other HCVs in production forests.

## MOTION 65: WORKING TOWARD SOLUTIONS

At the 2014 FSC General Assembly, Motion 65 was passed by a large majority of FSC members. This motion was an important step in bringing more attention to the problem of IFL degradation. It mandates that national and regional FSC standards bodies make changes leading to protection of “the vast majority” of IFLs within FSC-certified forest management units (FMUs), with prerequisite consideration of scale, intensity and risk, and the activities, customary and legal rights of traditional forest communities.

While Motion 65 is a consistent priority among stakeholders, many regional processes have deadlocked or stagnated due to misinterpretations of the motion and disagreements on the most suitable balance for trade-offs. WWF has observed instances, particularly in tropical countries, when FSC-certified companies face high expectations of employment and economic activity from national governments that have many competing land-users eager to access these same forests. Some public officials are concerned that Motion 65 impinges on their landscape planning mandate. Immediate gains must be made for IFL protection in FSC forests, but



Forest elephant in Dzanga-Ndoki National Park, Central African Republic (CAR). © Martin Harvey / WWF

such a solution will prove more sustainable if it can be integrated into regional planning processes that will address IFL in their entirety. We must balance protection of IFLs in a way that we don't cross the tipping point beyond which certification is disincentivized and risk exposing the very same forest areas to other land uses or to the threat of poor forest practices by other operators who are not committed to FSC-certified management practices.

Given these numerous pressures on forests, and if we are to maintain IFLs whilst balancing ecological with social and economic values unique to the surrounding policy context, it is critical to have flexibility in the approach, including in the proportion of IFLs to be set aside. It is also clear that there will not be one solution that fits the whole world.

**WWF believes in a working solution to IFL conservation within production forests that recognizes regional differences and local community needs, is based on the principle of land-use planning that considers key conservation values, respects the needs of forest dependent communities and protection of wildlife habitat, and accommodates continued forest management where appropriate – all where key safeguards of adapted timber harvesting and adapted road building practices are observed.**

## IFLs, INDIGENOUS CULTURAL LANDSCAPES AND FPIC

**WWF believes that an approach to IFLs based on conservation priority zoning can address concerns among some Indigenous Peoples that Motion 65 might dictate an inflexible approach to their traditional territories, in particular that it would limit opportunities for economic development.** The approach of zoning IFLs into protection and adapted management areas should make it easier to reconcile with the concept of “indigenous cultural landscapes” proposed by the FSC Permanent Indigenous Peoples Committee, which seeks the balance of conservation and development appropriate for each indigenous group. In turn, this will enable IFL solutions that can achieve the free, prior and informed consent (FPIC) of Indigenous Peoples.

# KEY CONSIDERATIONS IN DEFINING RESPONSIBLE FOREST MANAGEMENT WITHIN IFLs

## Conserving biodiversity

IFLs deliver “conservation insurance” because they exist at scales large enough to accommodate natural disturbance regimes, which allows for maintenance of the natural mosaics of ecosystem types and successional stages in which the flora and fauna of a given region have developed. This role will become more important in a changing climate, as natural disturbance regimes become increasingly inconsistent and extreme.

The role of IFLs in conserving biodiversity is especially important for species requiring interior conditions or habitats associated with late-successional forest communities, as well as large-bodied species requiring extensive home ranges. For instance, the Canadian boreal caribou is threatened by the expansion of industrial forest management into IFLs because logging reduces the abundance of arboreal and ground lichens, crucial food sources abundantly found in older forests. Standard logging creates early successional forest habitats inhabited by moose and whitetail deer, which in turn attract predatory wolves. As such, industrial expansion into previously remote forests is one of the primary drivers in the continuing loss of southern caribou herds.<sup>3</sup>

Research indicates that declines of the forest subspecies of reindeer<sup>4</sup> and the Siberian musk deer<sup>5</sup> in Russia are similarly related to the direct and indirect impacts of industrial forest management in previously remote IFLs.

The indirect impacts of forest management on biodiversity often pose a greater threat in tropical countries than the direct effects of habitat alteration, especially in the context of low-intensity selection harvesting practiced by FSC-certified firms. For instance, in the Congo Basin, forest elephants and great apes may actually benefit from the increased woody and herbaceous browse associated with selective logging (providing that other crucial food sources like fruit-bearing trees and lianas are maintained),<sup>6</sup> but the increased access on forest roads for hunters and poachers seeking bush meat, ivory and other organs or body parts valued in global markets can be catastrophic.<sup>7</sup> This is both an argument for maintenance of IFL as havens of difficult-to-access habitat, and for the need to reduce the impacts of forest management on IFLs through advanced road design, patrolling and closure practices.<sup>7</sup>

Taking that into account, the direct impacts of logging in tropical forests differ strongly from species to species. An extensive review of logging impacts on Borneo revealed that the greatest intolerance to logging is displayed by endemic and ancient (evolutionarily) species, which tend to have very narrow habitat niches.<sup>8</sup> And even in the case of large mammals with relatively high tolerance to logging impacts, such as forest elephants and great apes in the Congo Basin, it is probable that managed forests support high biodiversity levels best when they are located adjacent to protected IFLs, which serve as source areas for replenishing wildlife populations.<sup>9</sup> Thus, as a thorough study of this question put it: “Managed production forests can extend, but not replace, the conservation estate.”

## Carbon sequestration and climate resilience

Climate change requires we not only think about what species need now but what they will need as the ecosystem changes with the climate. IFLs serve as natural climate refugia in their scale and size – and as wildlife corridors that may help species move as they need to in response to climate change.

IFLs are also a huge carbon sink – they absorb at least 20 per cent of annual human-caused emissions<sup>10</sup>. Compromising IFLs doesn't just compromise that attribute, it also adds the

carbon stored in forests' biomass. Therefore, conservation of IFLs is also seen as a key strategy for reducing global greenhouse gas emissions, since the late successional forests that dominate IFLs contain exceptionally high carbon stocks in the living and dead biomass and soil pools that can be subject to release during logging operations. In tropical IFLs, large, emergent trees of dense-wooded, late-successional species contain disproportionate amounts of the carbon stored in living biomass. One study with plots across the Congo Basin found that the 20 largest trees (approximately 5 per cent of the trees in measured plots) made up around 50 per cent of the total above ground biomass and the largest 100 trees (approximately 25 per cent of the trees in measured plots) contained 82 per cent.<sup>11</sup> It is such trees that are targeted first in any commercial timber harvesting operation.

Where peat deposits occur beneath natural forests, trees are indispensable to maintain the enormous pools of below-ground carbon accumulated over millennia. For instance, carbon stocks in the vast peatland forest-swamp complex in the middle reaches of the Congo River may exceed above ground stocks in all that region's forests.<sup>12</sup>

Similarly, while rates of carbon sequestration may be higher in regenerating post-logging boreal forests, it can take centuries for those rates to make up for the carbon stocks lost during harvesting of old-growth IFLs,<sup>13</sup> particularly if logging disturbance triggers release of soil carbon<sup>14</sup> – all the while in a still increasingly extreme and volatile climate that demands forests be resilient to thrive.

### **Conservation values are unevenly distributed within IFLs**

The authoritative global IFL data layer (produced by the World Resources Institute)<sup>15</sup> identifies those forest landscapes that to this day have not been brought under modern industrial management. This is an essential piece of information for conservation planning; “intactness” is an inherent and intrinsic conservation value. But within IFLs, there are forests that differ dramatically in their levels of biodiversity, in their role for conservation priority species, and in their sensitivity to management or importance to the lifeways and livelihoods of indigenous peoples.

It is possible to identify conservation priorities within IFLs, and conversely, those areas where adapted forms of timber harvesting could be appropriate. But the challenge of doing so is to maintain the principle of conservation of natural ecosystems at the landscape scale and not simply revert to the delineation of “patches and ribbons” within IFLs.

It also should be recognized that IFLs do not always overlap with other HCVs. For instance, in some countries, IFLs are largely contained to difficult mountainous terrain, while the highest levels of biodiversity and habitats of conservation priority species are found in more fragmented lowland forests. WWF has observed cases when logging has already been conducted in the most biologically productive portions of IFL, while untouched areas are species-poor and have few clear HCV besides intactness.

### **Forest management systems differ in their effects on the HCV associated with IFL**

Forest management is particularly destructive for IFLs when its form differs strongly from that of natural disturbance dynamics.

Large-scale, even-aged silviculture in boreal forests superficially resembles natural disturbances observed in some of these ecosystems, such as forest fires, massive blowdown or insect outbreaks. But at a landscape scale such management tends to produce mosaics of successional stages without natural precedent. Logging spreads across the landscape at a tempo vastly exceeding natural disturbance rates, inevitably leading to the predominance of younger forests. This fundamentally transforms the character of these IFLs, with profound consequences for species dependent on natural mosaics dominated by late-successional forests, such as the Canadian boreal caribou.

The effect of such timber harvesting practices can be moderated through protection of residual features from the original stand (“key biotopes,” “eternity trees,” “residual patches,” etc.). But many ecological stakeholders in northern countries concur that a major portion of IFLs must be left in an unmanaged state to maintain the HCV associated with them.

Unquestionably, IFLs in tropical countries contain exceptional biodiversity value. A growing body of scientific literature suggests that while forest logged with low-intensity selection logging practices used by FSC-certified companies sometimes lose habitat specialist wildlife species with narrow ecological niches,<sup>16</sup> they nonetheless maintain much of the composition, structure and processes of IFLs and the HCV associated with them.<sup>16</sup> When protecting all IFLs in an untouched state proves impossible, selectively logged forests (especially with retention of important habitat features) are the least-worst option<sup>17</sup> and can be considered a relatively benign matrix between conserved areas of IFLs.

There are major caveats to this position. First, the effects of logging are most often measured after the first or second entry. The true impacts of such timber harvesting may become visible only after later rotations. Furthermore, low-intensity logging does not necessarily equal “low impact logging.” While only a few trees per hectare are removed, they are often the largest. Such trees both contain the lion’s share of above-ground carbon in tropical forests and form a distinct “super-canopy” that greatly diversifies the habitat conditions for birds, primates and other species.

In addition, while adapted management practices like Reduced Impact Logging (RIL) can mitigate the effects of timber extraction, in and of themselves they do not ensure the basic sustainability of selective logging regimes. In regions like the Amazon Basin precaution must be practiced in fully embracing RIL as an IFL solution while many questions of long-term sustainable yield of commercial species remain.<sup>18</sup>

Finally, there is the critical issue of indirect effects of logging (increased access) which are addressed in the next section.

**Thus, changes to existing logging practices is also necessary in tropical IFLs if management is to continue in a major part of them.** The inherently lighter touch of low-intensity selection logging allows for greater flexibility in approaches to IFLs, but does not eliminate the need for conservation of IFLs at larger scale.

### **Some of the most profound threats to IFLs from forest management are indirect**

In tropical regions, it is often not ecosystem transformation by logging that causes the greatest damage to IFLs, but increased encroachment in previously remote areas by hunters, illegal loggers and agriculturalists on forest roads. In the worst cases, intense hunting pressure can devastate wildlife populations and incite the “empty forest syndrome” while the forests themselves remain only lightly affected by logging. Lack of control of these forest roads often leads to the aforementioned encroachment, which has even been observed to a limited extent in certified forests.

Roads also greatly increase the risk of catastrophic forest fires in previously intact boreal forests. In the Russian Far East, forests within 4 km of a road are two times more likely to be destroyed by fires than remote forests.<sup>19</sup>

On the one hand the heightened risk that roads pose to HCV is an argument for even stricter IFL protection requirements. But experience (especially in the Congo Basin) demonstrates that this risk is manageable through road planning, patrolling and closure practices that control access for unauthorized resources extractors to managed forests. This has led to maintenance of forest elephant and great ape populations in roaded, managed forests that are comparable or higher than in neighboring unmanaged forests, sometimes even official protected areas.

If the dire indirect impacts of forest management can be significantly reduced, and the direct impacts are kept minimal through low-intensity logging practices, this could open the way for flexibility on the proportion of IFLs within FSC certified FMUs that should be set aside. This is not a justification eliminating strong protection as a component of the IFL solution. Even rigorous patrolling practices cannot exclude all agents of degradation, as evidenced by recent large forests fires in a FSC-certified FMU in the Republic of Congo.<sup>20</sup>

## GETTING MOTION 65 RIGHT

WWF has been supporting initiatives and analysis in key IFL regions to catalyze sound and focused decision-making – to develop methodologies for core area delineation, gather experience on adapting timber harvesting systems, and accurately assess the economic impacts of IFL conservation on commercial forest management. WWF has and will continue to participate in technical processes and stakeholder dialogues with the goal of developing global and local working IFL solutions within the extended timeframe for Motion 65.

FSC must move away from the unsustainable status quo, but without imposing solutions that de-incentivize certification in production forests of the world's IFL-rich regions, where the role of responsible forest management is critical to broader landscape-level planning and conservation results. FSC must not abdicate its role in striking the balance of interests that makes conserving IFLs such a challenge, and stakeholders must weigh the above factors if we are to move forward with solutions in the coming months.

In our own effort to do this, WWF offers below more detailed perspective and regional recommendations for the Amazon Basin, Congo Basin, Russia, Canada, and Indonesia.





# REGIONAL ASSESSMENTS

Aerial shot of Amazon rainforest in Acre, Brazil. © Greg Armfield / WWF-UK

## AMAZON BASIN

Conserving the biological diversity of the Amazon Basin has been one of WWF's signature efforts. WWF has participated together with other environmental organizations, scientists, local residents and government in many rounds of landscape planning in the Amazon that have produced an extensive network of protected areas (PA), indigenous reserves and sustainable use zones meant to protect the Basin's ecological integrity and halt deforestation.

WWF is committed to helping update and expand this network, which should maintain a significant portion of the Amazon Basin's forests in an intact condition.<sup>21</sup> One of WWF's leading efforts to that end is the Amazon Regional Protected Areas Programme (ARPA), a multi-stakeholder programme that offers a hard line against deforestation – and a necessary shield, as approximately 70 per cent of the Amazon's forest cover needs to be protected to sustain the ecosystem as a whole. Since 2000, ARPA has helped a scattered group of protected areas grow into a strategic gallery of Amazon jewels covering more than 51.8 million hectares. Systems like ARPA must be vigilantly prioritized in the face of short-term development pressures, illustrated by recent efforts to downgrade its size. To buffer the ecosystem services these protected areas provide, an additional component of the conservation strategy in the region is developing sustainable commercial forest management in areas that were not previously zoned for strict protection or indigenous management (federal and state forests, sustainable development reserves). These public forests are meant to provide long-term economic benefit while maintaining their ecological integrity, and to break the frequent cycle by which selective logging in the Amazon Basin has simply led to destructive forest fires or been followed by agricultural deforestation.<sup>22,23</sup>

Many such public forests are choosing FSC certification to ensure the ecological and social responsibility of their management, but their overlap with IFLs is extremely high – 62.75 per cent on average, but as high as 99 per cent.<sup>24</sup>

A requirement to conserve the “vast majority” of IFLs within certified forests could seriously undermine FSC certification in these public forests. Given the vast majority of the Brazilian IFL is already zoned for protection in the region, and given the current political climate, it is unlikely that the Brazilian government would choose to award these public forests official protected status if they are not used by certified forest managers. There is serious risk that they will be subjected to far less scrupulous forms of land use.

Furthermore, it should be recognized that a second level of zoning also takes place within these public forests: conservation zones that cover on average 26 per cent of the territory.<sup>25</sup>

It is necessary to assess to what extent these set-asides comprise existing “core areas” for IFL in public forests, which should influence the requirements that will be imposed on certified companies.

The situation in private FSC-certified natural forests differs somewhat, since these forests do not have legally mandated reserves within them. We believe it would be appropriate at minimum to delineate core areas within these IFLs at a similar proportion to the reserve areas delineated in public forests. Some private companies have already delineated significant set-aside areas within their concessions, and comply with environmental regulations that restrict logging in many zones. These existing set-asides can also contribute significantly to core area delineation.

FSC-certified companies in the Amazon Basin widely practice Reduced Impact Logging (RIL), a key component of a strategy to alleviate the negative influence of timber harvesting in substantial portions of IFLs. However, RIL practices likely require further adaptation to maintain structural features and processes associated with IFLs, for instance limiting gap size and overall harvesting intensities to prevent sharp swings in composition from shade tolerant to pioneer species<sup>26</sup>. Given concerns over the basic sustainability of selective logging of a limited number of commercial species in Amazonian forests<sup>27</sup>, the burden of proof should be on certified forest managers to demonstrate that timber harvesting within IFLs will provide sustained economic benefit and not comprise a one-off “skimming of the cream.”



Fish-eye view of a forest canopy. Tambopata Region, Amazon, Peru. © WWF-US / Steve Morello



A woodland caribou in the boreal forest in Slate Islands, Ontario, Canada. © GaryAndJoanieMcGuffin.com / WWF-Canada

## CANADA

The level of recognition for the value of IFLs among the Canadian public is uniquely high. This is heightened by the strong connection between IFLs and the habitat of the boreal caribou, a conservation priority species in Canada.

Public interest and the engagement of NGOs is visible in conservation campaigns in intact temperate rainforests of British Columbia, and in the ambitious Canadian Boreal Forest Agreement (CBFA), which sought through zoning to resolve the conflict between conservation and wood supply for forest industry. However, the limited results of the CBFA demonstrate the difficulty of finding that balance, which has major implications on the Motion 65 process.

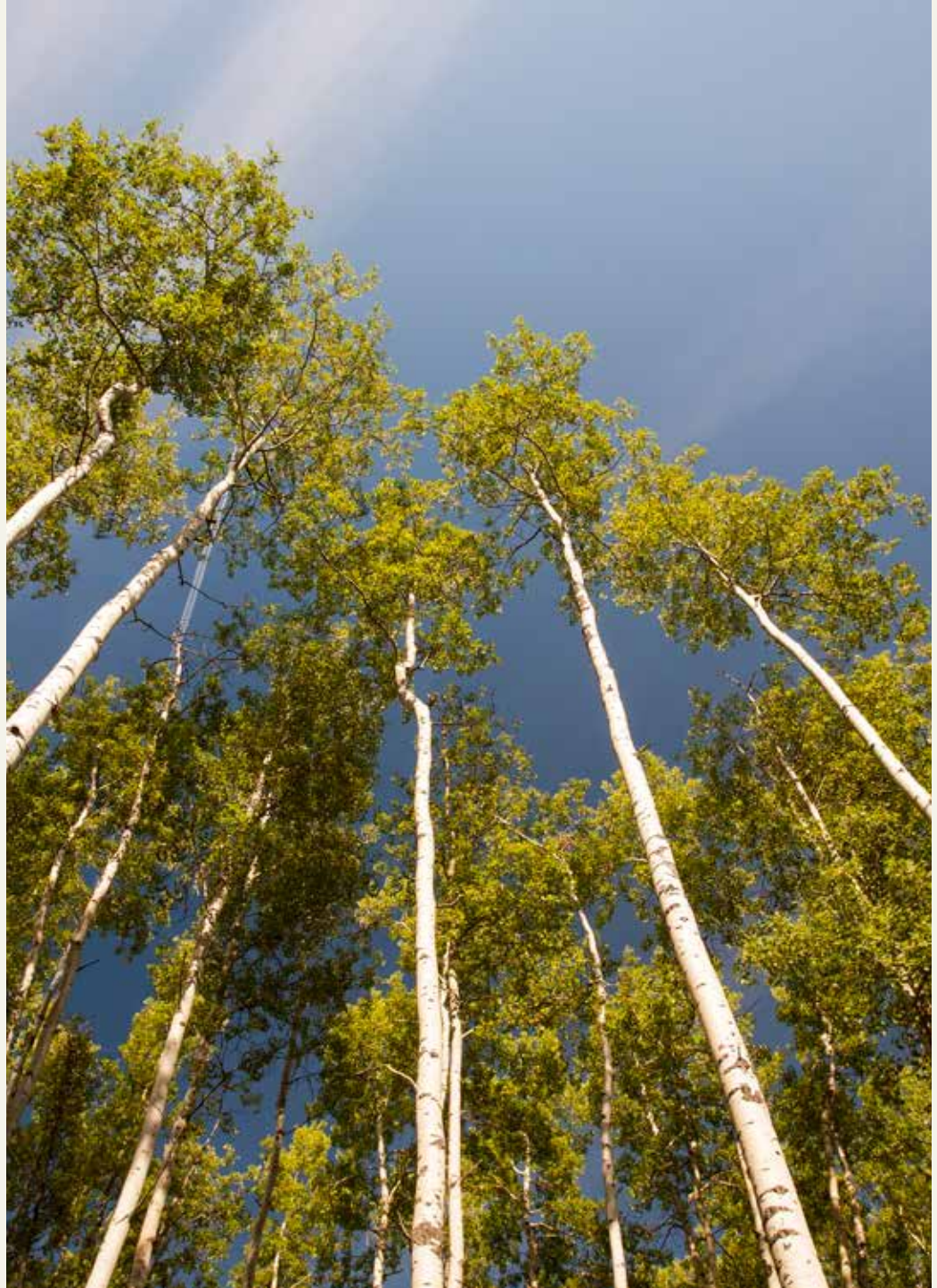
A further element of the IFL debate in Canada is the concept of Indigenous Cultural Landscapes (ICL) developed by representatives of First Nations communities. The ICL concept seeks to ensure that the rights, interests and values of indigenous communities, including economic development, are considered when decisions are made about land use in FSC-certified forests.

We believe that a conservation priority zoning approach offers flexibility that will make ICL and IFL compatible. This approach can accommodate the individual visions of First Nations about conservation and management choices in their traditional territories. The traditional and scientific knowledge of First Nations will unquestionably enrich the decision-making process for delineating IFL core areas.

WWF believes that IFL solutions should seek to be boreal caribou solutions to the greatest extent possible, given the already unprecedented challenge that maintaining this species poses. IFL solutions should help achieve the recommendations of the Canadian government's Federal Recovery strategy for Caribou to maintain a minimum of 65 per cent of the range of remaining boreal caribou herds in an undisturbed state (to provide 60 per cent probability of herd survival).<sup>28</sup> The importance of IFL for meeting these goals will vary from FMU to FMU depending on the surrounding landscape context, and so appropriate IFL solutions may vary as well.

But we acknowledge the concerns raised by many Canadian stakeholders about economic and social impacts of these landscape-level decisions about protection and management. To

understand the true extent of these potential trade-offs, WWF is supporting analyses into how new boreal caribou habitat protection indicators in the Canadian national standards will overlap with IFLs, and how differing levels of IFL protection would affect wood supply in key Canadian regions. We believe an informed compromise is possible that enhances IFL and caribou conservation while maintaining the viability of FSC-certified forest management.



Forest in Athabasca, Alberta, Canada. © Global Warming Images / WWF



Road west of Minkébé Forest Gabon. © Michel Gunther / WWF

## CONGO BASIN

WWF is concerned that the pace of fragmentation of IFLs within FSC-certified FMUs in the Congo Basin is as fast or even exceeds that of non-certified FMUs. Certified companies are among the most active managers in the region and regularly open new IFL areas to development. To date, IFLs have received limited consideration during land use planning either at regional or FMU level.

Given rapidly expanding infrastructure, expanding “forest degradation fronts”, an increasing awareness of the importance of old growth forests as carbon stores, IFLs require serious conservation attention.

Keeping them unroaded and difficult to access is unquestionably a key element in the regional biodiversity conservation strategy. There are alarming trends that increased anthropogenic pressure, often facilitated by increasing road networks, is leading to “defaunation” of forests in the Congo Basin. The critical role played by forest elephants, great apes and other native species in spreading seeds of many tree species and creating proper conditions for their germination (by clearing other vegetation and stirring soil, for instance) raises concerns that defaunated forests will gradually lose vegetative diversity and go down successional pathways without any natural precedent.<sup>29</sup>

We also recognize that FSC-certified managed forests often support populations of conservation priority species (such as forest elephant and great ape species) at levels equal to or higher than adjacent protected areas.<sup>30</sup> This is due both to the low intensity of selection harvesting practiced by certified companies, which maintains habitat features important to these species while actually increasing woody and herbaceous browse valued by them,<sup>31</sup> and also to advanced road patrolling and policies that limit access to poachers and other encroachers.

We recognize that the nature of low-intensity selection harvesting (which removes 1-3 trees per hectare on average) makes it possible to maintain a significant part of the structure and function of IFLs.<sup>32</sup> That said, we believe that further adaptations may be needed to ensure

that important structural features such as emergent trees (often targeted for logging due to their large diameters) are not eliminated. Furthermore, we note that many IFLs have only experienced one or two entries of selection harvesting. The long-term effects on structure and function may become visible only later, after multiple entries, at which point restoration may be impossible – monitoring and impact assessments of harvesting in IFLs is needed to inform future adaptive management.

The precautionary approach thus dictates that a sizable portion of IFLs be left in an unaltered condition to maintain their associated HCV. This corresponds to the opinion of many regional specialists that populations of conservation priority species in managed forests may partially depend on the presence of untouched forest massifs nearby,<sup>33</sup> and on the heightened impact of selection logging on wildlife species with narrow ecological niches.

WWF supports the processes begun in Congo Basin countries to craft a regionally appropriate IFL strategy:

- 1) Efforts by regional stakeholders and experts to develop a core area delineation methodology that draws on vegetative diversity, successional stage (“forest maturity”), the human footprint, key habitats for conservation priority species and other indicators of HCV to identify the most important areas within IFL for protection. More precise and up-to-date data on the condition of IFL in the Congo Basin and on current fragmentation levels can also help make the baseline delineation of IFLs in the region more accurate.
- 2) A review by certified companies in the region of possible modifications to timber harvesting and road building for use inside IFL to reduce impacts to HCV

WWF believes that these efforts can produce a scientifically valid and implementable approach in which IFL area is available for forest management on the condition that adaptations to logging and road layout, patrolling and closure are enacted. Core areas delineation should be focused on areas with concentrated ecological HCV (late-successional forest types, rare, sensitive or exceptionally diverse ecosystems, key elephant and great ape habitats) and social HCV (as determined by indigenous and other local communities) and, to the greatest extent possible, should draw on High Conservation Value Forests (HCVF) already identified by certified companies.



Tropical rainforest in Gabon. © Martin Harvey / WWF

Maximizing “roadless space”,<sup>34</sup> or minimizing permanent roads versus temporary roads should remain a key strategy in delineating core areas. Even the significant gains made by FSC-certified companies in reducing the negative impacts of their road networks cannot fully offset the risks they create, as evidenced by a significant forest fire (exceedingly rare in Congolese rainforests) that occurred along recently-built forest roads in one concession.<sup>35</sup>



Forest after rain, Kalimantan (Borneo), Indonesia. © Alain Compost / WWF

## INDONESIA

Of all the countries discussed in this position paper, in Indonesia, IFLs face the highest level of pressure from competing land uses, of which FSC-certified forest management is just one. The highly profitable palm oil sector in particular offers an enticing alternative to both sustainable forest management and protection in a nation seeking to rapidly develop its economy. Indonesia has created a protected area network that is close to international recommendations on the amount of land area it covers (10–12 per cent). At present, a lacking political will must first be bolstered before these areas are significantly expanded.

WWF believes we must approach the question of IFLs in Indonesian FSC-certified forests with consideration of these factors. FSC is reasonably well-established in Borneo, is just beginning to expand in New Guinea and is still a minor player in Sumatra, where economic alternatives to palm oil are needed more than anywhere else. Mandated protection of the “vast majority” of IFLs could stunt further growth of the system, and possibly inspire some certified companies to exit, especially in Borneo. There is virtually no likelihood that the vacuum will be filled by more scrupulous land users.

WWF supports an approach in Indonesia similar to that in the Congo Basin and Brazil: core areas should be delineated within IFLs based on concentration of HCVs such as critical habitats for conservation priority species, rare and sensitive communities and significance to indigenous peoples, while the greater part of IFLs should remain available for forest management on the strict condition that adapted timber harvesting and road building, patrolling and closure practices will be adopted.

The Indonesian FSC natural forest standards dictate that 10 per cent of certified FMUs be set aside from harvesting, preferably in a single large bloc. To the greatest extent possible, IFL core areas should be delineated to incorporate these existing set-asides.

RIL, widely practiced in Indonesia, should be only a starting point for adapting harvesting practices; significant further adaptations will likely be necessary to maintain the HCV of IFLs. For instance, upper limits on the size of trees that can be logged could help maintain unique habitat structures (emergent “super canopy” trees), prevent creation of excessively large logging gaps, and provide seed for regeneration of dominant tree species.<sup>36</sup> Particular attention is needed towards timber harvesting adaptations in Borneo, where some of the highest tree removal rates per hectare of all tropical selection harvesting systems are observed.

Fortunately, a significant body of scientific research indicates that selection harvesting is compatible with conservation of biodiversity in Bornean forests. Much of this research is summarized in *Life After Logging*, which demonstrates that the large majority of mammal, bird, amphibian and fish species persist in selectively logged forests and the waterways associated with them.<sup>37</sup> Nonetheless, it also highlights that certain species with specific habitat niches show negative population dynamics after logging-induced habitat transformation. While timber harvesting adaptations may be able to reduce these negative dynamics, the precautionary approach dictates that significant habitat areas for such species are maintained in an unaltered condition.



Intact forests in the Bikin River basin, Russian Far East. © Vasily Solkin / WWF-Russia

## RUSSIA

WWF has long supported the increased protection of IFLs in Russia, both the relatively rare massifs in the country's west ("the last virgin taiga of Europe") and the vast expanses of IFLs in Siberia and the Far East. We believe they play an essential role in carbon sequestration, maintenance of the hydrologic regime of Russia's great rivers, and biodiversity conservation, especially for development-sensitive species such as the forest reindeer<sup>38</sup> and Siberian musk deer.<sup>39</sup> We are alarmed by the 7.5 per cent reduction of IFLs from 2000 to 2013, driven by forest fires near infrastructure, logging and fossil fuel development.<sup>40</sup> WWF vigorously opposed the expansion of forest management into the IFLs of Russia's unique Bikin River valley, homeland of the Udegei people and habitat for 10 per cent of Russia's tigers, even by FSC-certified firms. This helped keep the Bikin undeveloped until the establishment of a national park with indigenous co-management.

WWF also endorses the transition away from "wood mining" in which new IFLs are constantly opened to harvest the best available timber, after which these forests largely fall out of production and timber harvests move deeper into IFLs. We call for accelerated development of intensive forest management in Russia, whereby timber production can be increased in the vast areas of already developed forests through improved planting, tending and thinning practices and investments in forest infrastructure and processing capacity of low-grade timber.<sup>41</sup> Without such a transition, the pressures on IFLs will be too intense to withstand.

We recognize that in many instances, socio-economic conditions require compromise on the portion of IFL to be set aside. Some FSC-certified companies will not be able to maintain sustained yield of forest products or economic viability, which is also a requirement of the FSC standards – at least for some time – without using some portion of the IFL on their territory. Such considerations do not relieve FMUs of the obligation to protect HCV.

WWF-Russia has put forward an approach to IFLs that has been included in the FSC Russia draft national standard and has been widely discussed by stakeholders. In the "80-50-30" approach to IFL conservation, the proportion of IFLs that must be included in "core areas" without timber harvesting is contingent on the rigor of delineation and the legal status awarded to these areas. If companies engage stakeholders and regional experts in the core area delineation process, and can fix these approaches in agreements with ecological NGOs, then the proportion of core area can be lowered to 50 per cent. In both Eastern Siberia and the Far East core area delineation methodologies have been produced with stakeholder and timber company input that can help guide this process. The proportion can be further lowered to less





Intact forest landscapes of the Russian Far East provide invaluable habitat for the Amur tiger. © Vasily Sokin / WWF-Russia

than 50 per cent (but not less than 30 per cent) if companies reach consensus with all stakeholders for the official protected status of the core areas.

In any of these options, the companies must produce a publicly available, well-grounded and realistic plan demonstrating how they will reduce dependence on IFL while maintaining sustained yield. Planned logging volumes for the company must be adjusted in proportion to the volume of timber they have agreed not to cut within the core areas. If this is not done the company may simply increase logging levels outside the core area, leading to further undermining of sustainability and possible exhaustion of available timber stocks. This plan should be used in the transition to effective forest management in already developed forests, since one means to compensate for the wood that will not be harvested in conserved IFL is to improve productivity in the most accessible, productive forests in the FMU.

WWF has been active in the planning and endorsement of protected area establishment in IFL core areas in the country's northwest and Far East. We consider this the optimal means to achieve the "30 per cent option." However, this is a complicated technical and political process which is likely not feasible for all the core areas that will be delineated by FSC-certified companies. For that reason, we strongly support the development of the National Forest Heritage (NFH) concept, whereby core areas of IFLs can be assigned a no-logging regime without necessitating establishment of a protected area (with all the associated bureaucracy and monetary cost). NFH is an essential component of the IFL solution in Russia.

We also believe that, whenever possible, a "landscape approach" should be used that considers IFL in their totality and not only that portion which is within a FSC-certified FMU. Such an analysis requires engagement with government forest agencies that are in fact the "owner" of Russian forests, and with neighboring land users (including non-certified forest managers). If an integrated approach to IFL conservation and management can be developed with these land users, which could justify a greater level of flexibility on the proportion of IFL that need be set aside within FSC-certified FMUs. On the other hand, when such an analysis can also reveal those cases when HCV is most concentrated in certified FMUs, when flexibility would be inappropriate.

We believe that compromise on IFLs must be accompanied by adoption of rigorous new indicators in the FSC national standards regarding calculation of sustainable logging levels. The problem of IFL degradation has long been tied to unrealistic annual allowable cut (AAC) calculations, which include timber volumes located in commercially inaccessible, unproductive or legally restricted forests. As a result, the AAC is inflated and logging occurs at unsustainable levels in the most accessible forests. Indicators in the Russian national standards must be strengthened to mandate that FSC-certified companies adjust their logging levels to fit the actual volumes of available timber, and not simply rely on official figures produced by outdated and unrealistic methods. WWF strongly supports this.

## GLOSSARY

**Annual allowable cut (AAC):** A dearly expressed specification of the average quantity (of wood, bamboo or cane), usually in an approved management plan, that may be harvested from a forest management unit annually (FAO).

**Core area:** Areas within IFL considered most critical for conservation. In many interpretations core areas should be entirely or primarily without timber harvesting and road building.

**Free, prior and informed consent (FPIC):** the principle that a community has the right to give or withhold its consent to proposed projects that may affect the lands they customarily own, occupy or otherwise use (Forest Peoples Programme).

**High Conservation Value (HCV):** an exceptional or critical ecological attribute, ecosystem service or social function of forests and other biomes, defined by the Forest Stewardship Council as follows –

**HCV1 - Species Diversity:** Concentrations of *biological diversity* including endemic species, and *rare, threatened or endangered species*, that are significant at global, regional or national levels.

**HCV2 - Landscape-level ecosystems and mosaics:** Large landscape-level *ecosystems* and ecosystem mosaics that are significant at global, regional or national levels, and that contain viable populations of the great majority of the naturally occurring species in natural patterns of distribution and abundance.

**HCV3 - Ecosystems and habitats:** Rare, threatened, or endangered ecosystems, habitats or *refugia*.

**HCV4 - Critical ecosystem services:** Basic *ecosystem services* in critical situations, including protection of water catchments and control of erosion of vulnerable soils and slopes.

**HCV5 - Community needs:** Sites and resources fundamental for satisfying the basic necessities of local communities or *indigenous peoples* (for example for livelihoods, health, nutrition, water), identified through engagement with these communities or indigenous peoples.

**HCV6 - Cultural values:** Sites, resources, habitats and *landscapes* of global or national cultural, archaeological or historical significance, and/or of critical cultural, ecological, economic or religious/sacred importance for the traditional cultures of local communities or indigenous peoples, identified through engagement with these local communities or indigenous peoples.

**Reduced Impact Logging (RIL):** the intensively planned and carefully controlled implementation of timber harvesting operations to minimise the environmental impact on forest stands and soils (International Tropical Timber Association).

# REFERENCES

1. Potapov, P., Hansen, M. C., Laestadius, L., Turubanova, S., Yaroshenko, A., Thies, C., ... & Esipova, E. (2017). The last frontiers of wilderness: Tracking loss of intact forest landscapes from 2000 to 2013. *Science Advances*, 3(1), e1600821.
2. a) Bowman, J., Ray, J. C., Magoun, A. J., Johnson, D. S., & Dawson, F. N. (2010). Roads, logging, and the large-mammal community of an eastern Canadian boreal forest. *Canadian Journal of Zoology*, 88(5), 454-467.  
b) Antoniuk, T.E., E. Dzus, and J. Nishi. 2015. A Methodological Framework for Caribou Action Planning in Support of the Canadian Boreal Forest Agreement. Iteration 2. The Canadian Boreal Forest Agreement
3. a) Mordosov, A. and A. Krivoschapkin. 2008. The condition of the population of wild forest reindeer (*Rangifer tarandus* Linnaeus, 1758) in Yakutia. *Vestnik YGU* volume 5, № 4. In Russian.  
b) Dunishenko, Y.M., A.B. Ermolin, A.A. Darenky, V.V. Dolinin, A.A. Solovey, A.M. Golub, A.Y. Zhukov. 2014. Hunting resources of Khabarovsk Krai. *Khabarovsk Provincial Typography*, 324 p. In Russian
4. a) Zaitsev, V.A. 2006. Musk deer: Ecology, population dynamics, perspective for conservation. Biodiversity Conservation Center Press, Moscow, Russia.  
b) Slaughter, J., B. Milakovsky, D. Maksimova, I. Seryodkin, V. Zaitsev, A. Panichev, D. Miquelle. 2017. Habitat selection by Siberian musk deer: anthropogenic influences on the distribution of a coniferous forest specialist. In publication (*Oryx*)
5. Edwards, D. P., Tobias, J. A., Sheil, D., Meijaard, E., & Laurance, W. F. (2014). Maintaining ecosystem function and services in logged tropical forests. *Trends in ecology & evolution*, 29(9), 511-520.
6. Harrison, R. D. (2011). Emptying the forest: hunting and the extirpation of wildlife from tropical nature reserves. *BioScience*, 61(11), 919-924.
7. Kleinschroth, F., Healey, J. R., Gourlet-Fleury, S., Mortier, F., & Stoica, R. S. (2016). Effects of logging on roadless space in intact forest landscapes of the Congo Basin. *Conservation Biology*.
8. a) Ernst, R., Linsenmair, K. E., & Rödel, M. O. (2006). Diversity erosion beyond the species level: dramatic loss of functional diversity after selective logging in two tropical amphibian communities. *Biological Conservation*, 133(2), 143-155.  
b) Life after logging: Reconciling wildlife conservation and production forestry in Indonesian Borneo/ Meijaard, E., Sheil, D., Nasi, R., Augeri, D., Rosenbaum, B., Iskandar, D., Setyawati, T., Lammertink, M., Rachmatika, I., Wong, A., Soehartono, T., Stanley, S. and O'Brien, T.–Bogor, Indonesia: CIFOR, 2005.  
c) Thollay, J. (1992). Influence of selective logging on bird species diversity in a Guianan rain forest. *Conservation biology*, 6(1), 47-63. Life after logging: Reconciling wildlife conservation and production forestry in Indonesian Borneo/ Meijaard, E., Sheil, D., Nasi, R., Augeri, D., Rosenbaum, B., Iskandar, D., Setyawati, T., Lammertink, M., Rachmatika, I., Wong, A., Soehartono, T., Stanley, S. and O'Brien, T.–Bogor, Indonesia: CIFOR, 2005.
9. a) Clark, C. J., et al. "Logging concessions can extend the conservation estate for Central African tropical forests." *Conservation Biology* 23.5 (2009): 1281-1293.  
b) Stokes EJ, Strindberg S, Bakabana PC, Elkan PW, Iyenguet FC, et al. (2010) Monitoring Great Ape and Elephant Abundance at Large Spatial Scales: Measuring Effectiveness of a Conservation Landscape. *PLoS ONE* 5(4): e10294. doi:10.1371/journal.pone.0101294  
c) Poulsen, J. R., Clark, C. J., & Bolker, B. M. (2011). Decoupling the effects of logging and hunting on an Afrotropical animal community. *Ecological Applications*, 21(5), 1819-1836
10. Harris N., Gibbes S. and Potapov P. 2017 Intact Forest Landscapes Matter for Climate Change. *Here Are 3 Reasons Why*.
11. Bastin, J.-F., Nicolas Barbier, Maxime Réjou-Méchain, Adeline Fayolle, Sylvie Gourlet-Fleury, Danae Maniatis, Thalès de Haulleville et al. "Seeing Central African forests through their largest trees." *Scientific reports* 5 (2015).
12. Greta C. Dargie, Simon L. Lewis, Ian T. Lawson, Edward T. A. Mitchard, Susan E. Page, Yannick E. Bocko & Suspense A. Ifo. 2017. Age, extent and carbon storage of the central Congo Basin peatland complex. *Nature*.
13. a) Harmon, M.E., Ferrell, W.K., Franklin, J.F., 1990. Effects on carbon storage of conversion of old-growth forests to young forests. *Science* 247, 699-702.  
b) Tang, J., Bolstad, P.V., Martin, J.G., 2009. Soil carbon fluxes and stocks in a Great Lakes forest chronosequence. *Global Change Biology* 15, 145-155.
14. Diochon, A., Kellman, L., Beltrami, H., 2009. Looking deeper: An investigation of soil carbon losses following harvesting from a managed northeastern red spruce (*Picea rubens* Sarg.) forest chronosequence. *Forest Ecology and Management* 257, 413-420.
15. <http://www.globalforestwatch.org/map>
16. Putz, F.E., Zuidema, P.A., Synnott, T., Peña-Claros, M., Pinard, M.A., Sheil, D., Vanclay, J.K., Sist, P., Gourlet-Fleury, S., Griscom, B. and Palmer, J., 2012. Sustaining conservation values in selectively logged tropical forests: the attained and the attainable. *Conservation Letters*, 5(4), pp.296-303.
17. a) Chaudhary, Abhishek, Zuzana Burivalova, Lian Pin Koh, and Stefanie Hellweg. "Impact of forest management on species richness: global meta-analysis and economic trade-offs." *Scientific reports* 6 (2016).  
b) Gibson, Luke, Tien Ming Lee, Lian Pin Koh, Barry W. Brook, Toby A. Gardner, Jos Barlow, Carlos A. Peres et al. "Primary forests are irreplaceable for sustaining tropical biodiversity." *Nature* 478, no. 7369 (2011): 378-381
18. Richardson, V.A. and Peres, C.A., 2016. Temporal Decay in Timber Species Composition and Value in Amazonian Logging Concessions. *PLoS one*, 11(7), p.e0159035. de Avila, A. L., Ruschel, A. R., de Carvalho, J. O. P., Mazzei, L., Silva, J. N. M., do Carmo Lopes, J., ... & Bausch, J. (2015). Medium-term dynamics of tree species composition in response to silvicultural intervention intensities in a tropical rain forest. *Biological Conservation*, 191, 577-586.
19. See reference 1
20. Vladimirova, A. Krylov, B. Milakovsky, A. Purekhovskiy. 2017. The influence of roads and logging on forest mortality from fire in the southern Far East. *Ustoichivoe lesopolzovanie* (in press) (in Russian).
21. Example: A conservation vision for the Tapajos basin. WWF Brazil. Brasilia, 2016. 54p.; il; color 29,7 cm
22. Broadbent, E. N., Asner, G. P., Keller, M., Knapp, D. E., Oliveira, P. J., & Silva, J. N. (2008). Forest fragmentation and edge effects from deforestation and selective logging in the Brazilian Amazon. *Biological conservation*, 141(7), 1745-1757
23. Asner, G. P., Broadbent, E. N., Oliveira, P. J., Keller, M., Knapp, D. E., & Silva, J. N. (2006). Condition and fate of logged forests in the Brazilian Amazon. *Proceedings of the National Academy of Sciences*, 103(34), 12947-12950.
24. Comparison of FSC certified leases and 2013 Greenpeace IFL map conducted by Imaflo.
25. Based on zoning of Flona Crepori, Altamira, Itaituba and Tapajos, Flota Paru and Sustainable Development Reserve do Juma
26. de Avila et al (2015) Medium-term dynamics of tree species composition in response to silvicultural intervention intensities in a tropical rain forest. *Biological Conservation* 191:577-586
27. See reference 18
28. Environment Canada. 2012. Recovery Strategy for the Woodland Caribou (*Rangifer tarandus caribou*), Boreal population, in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. xi + 138pp
29. Beaune, D., Bretagnolle, F., Bollache, L., Hohmann, G., Surbeck, M., & Fruth, B. (2013). Seed dispersal strategies and the threat of defaunation in a Congo forest. *Biodiversity and conservation*, 22(1), 225-238.
- 30 a) Stokes EJ, Strindberg S, Bakabana PC, Elkan PW, Iyenguet FC, et al. (2010) Monitoring Great Ape and Elephant Abundance at Large Spatial Scales: Measuring Effectiveness of a Conservation Landscape. *PLoS ONE* 5(4): e10294. doi:10.1371/journal.pone.0101294  
b) Putz, Francis E., et al. "Sustaining conservation values in selectively logged tropical forests: the attained and the attainable." *Conservation Letters* 5.4 (2012): 296-303.  
c) Hurez, B., Petre, C. A., Vermeulen, C., Tagg, N., & Doucet, J. L. (2014). Western lowland gorilla density and nesting behavior in a Gabonese forest logged for 25 years: implications for gorilla conservation. *Biodiversity and conservation*, 23(11), 2669-2687.
31. See reference 5
32. Gourlet-Fleury S., Mortier F., Fayolle A., Baya F., Ouedraogo D., Bénédet F., Picard N., 2013. Tropical forest recovery from logging: a 24 year silvicultural experiment from Central Africa. *The Royal Society. Volume 368, Issue 1625*.
33. Poulsen, J. R., Clark, C. J., & Bolker, B. M. (2011). Decoupling the effects of logging and hunting on an Afrotropical animal community. *Ecological Applications*, 21(5), 1819-1836.
34. See reference 7
35. See reference 1
36. Sist, P., Sheil, D., Kartawinata, K., & Priyadi, H. (2003). Reduced-impact logging in Indonesian Borneo: some results confirming the need for new silvicultural prescriptions. *Forest Ecology and Management*, 179(1), 415-427-37
37. See reference 8
38. See reference 3
39. See reference 4
40. Worldwide Fund for Nature (WWF). 2013. Intact forest landscapes of Russia: current condition and losses over 13 years. Poster, Format A1. Moscow.
41. Angelstam, P., Naumov, V., & Elbakidze, M. (2016). Transitioning from Soviet wood mining to sustainable forest management by intensification: are tree growth rates different in northwest Russia and Sweden?. *Forestry*.