IUCN Policy Statement on Primary Forests Including Intact Forest Landscapes

1. Introductio n

1.1 IUCN policy context

Building upon the 2012 Jeju Resolution 5.060 Strengthening the role of IUCN in saving the world's primary forests, at the 2016 Hawai'i IUCN World Conservation Congress, members passed resolution WCC-2016-Res-045-EN on The protection of primary forests, including intact forest landscapes (PF-IFL, hereafter). This resolution requested the IUCN Director-General to ensure that the conservation of PF-IFL is an integral component of the implementation of the IUCN Programme 2017-2020 and to have the IUCN Primary Forest Task Team develop a draft policy statement on their conservation to be approved by Council.

This document responds to clause 2.a of the resolution which mandates a draft policy statement on "the importance of the conservation of PF-IFL, taking fully into account conceptual and operational issues with defining these terms so that they are broadly applicable to all forest types, including consideration of how their conservation can contribute to IUCN's nature-based solutions." This policy statement will be supported by the IUCN work programme, particularly the Forest Conservation Programme's business line on primary forests in support of broader Union application.

A second guidance document provides recommendations for implementing this policy by IUCN constituents and other stakeholders, responding to operative clauses 2.b to 2.e of the resolution, namely, to examine mechanisms, opportunities for, and barriers

The Convention on Biological Diversity (CBD)

needed to drive and shape the ambition required to tackle the climate change and biodiversity crises and underpin sustainable development and each of the sustainable development goals. This policy, therefore, is framed to help meet these unprecedented challenges and to assist IUCN to provide the global leadership and guidance called for on PF-IFL.

Whether looked at it in isolation or together, the importance of tackling both crises by improving the protection, restoration, and management of all-natural ecosystems and, in particular, protecting and restoring high integrity, bio-diverse, carbon-rich ecosystems such as PF-IFL, has never been more urgent.

> The severe consequences for humanity of biodiversity loss are a hidden terror already prevalent but rarely understood by society. To secure life on Earth, we need bold, transformative action, underpinned by sound science and effective policy (IUCN submission to the CBD on the post-2020 framework)

2. Purpose, scope and target audience

2.1 Purpose and scope

PF-IFL play a pivotal role in providing essential, effective, and enduring nature-based solutions to address the biodiversity and climate crises that the world is facing. The purpose of this policy statement is to promote understanding of the importance of the conservation of the PF-IFL and to provide guidance on how their conservation can contribute to nature-based solutions for critical challenges facing the world community including responding to climate change, respecting planetary boundaries, protecting and restoring biodiversity and cultural heritage, and advancing sustainable development. It is relevant to all aspects of the design, implementation, and governance of IUCN forest-related policies, guidelines, programmes, and projects. This policy and the accompanying implementation guidance document highlight the benefits of PF-IFL, mechanisms, barriers to, and opportunities for their protection, and how they can be best identified and monitored in different ecosystem contexts, and socio-ecological circumstances.

2.2 Target audience

The primary audience of this policy is all constituent parts of IUCN, including Members, Commissions, Secretariat, and National and Regional Committees, along with partners in communities, governments, the private sector, and

intended to guide the work of the IUCN Secretariat and Commissions and to inform and assist the policies, programmes and activities of Member organisations.

The policy will also contribute to IUCN's engagement with and submissions to the UNFCCC and the implementation of the Paris Agreement, the CBD, the Sustainable Development Goals (SDG), the U.N. Forum on Forests, and the UNCCD, among other relevant high-level international policy processes.

3. Policy statement

3.1 The special value of PF-IFL

PF-IFL should be differentiated from other forests based on forest condition

- PF-IFL represent one end of a gradient or continuum of ecological condition that reflects the impact of human activities – from minimal to severe. Three broad categories of forest condition can be readily distinguished along this gradient: (i) PF-IFL, (ii) degraded, but naturally regenerating forests, and (iii) plantation forests.

- It is important to understand and recognize the differences between these forest conditions to ensure that the benefits and risks of different management decisions are transparently evaluated. Failure to do so can result in adverse outcomes and management decisions, for biodiversity conservation, nature-based climate solutions, and sustainable livelihoods.

PF-IFL should be recogni sed as providing greater benefits than forests in poorer condition

- There are significant differences between these three major categories of forest condition in terms of biodiversity, carbon stocks, and other ecosystem services, their stability, resilience, and adaptive capacity and the benefits they provide to people. PF-IFL consistently provide benefits and functions that are unique, or of significantly higher quality, than those provided by degraded or plantation forests in the same ecological context across most ecosystem services. For example, PF-IFL play a critical role in providing the following benefits:

  (i) Terrestrial and freshwater biodiversity conservation;
  (ii) Contributions to climate change mitigation and adaptation;
  (iii) Sustainable development pathways (local, national and global);
  (iv) Health, cultural wellbeing, and livelihoods of Indigenous Peoples and local communities; and
  (v) Provision of other ecosystem services.

Community Conserved Areas (ICCAs), Other Effective Area-Based Conservation Measures (OECMs), and indigenous territories.
  - Encouraging land conservancies to protect and restore PF-IFLs on private land.
  - Increasing enforcement capacity for protection (e.g., through increased funding for surveillance and equipment).
  - Improving the planning, design, and regulation of roads to: (i) avoid further fragmentation of PF-IFL and Protected Areas, and (ii) differentiate between roads needed for community development and industrial development.
  - Encouraging restoration of degraded natural forests, including, where feasible and appropriate, of commodity production forests to improve carbon sequestration and storage and the outlook for biodiversity, ecosystem integrity, stability and resilience.
  - Encouraging policy and legislative reforms that will ensure the protection of PF-IFL in Protected Areas and private concessions.

- Promote research, studies and awareness raising activities that facilitate understanding of the value for PF-IFL since this will promote their conservation as a means to tackle the climate and biodiversity crises.

3.3 Considerations of how the conservation of PF-IFL can contribute to IUCN's nature-based solutions

- The IUCN Global Programme and Secretariat's Forest Conservation Programme of work already recognise the importance of protecting and conserving PF-IFL in tackling the climate and biodiversity crises and sustainable development. The Global Programme is revised every four years, which provides timely opportunities to update the focus of IUCN's work on the two crises and elevate the importance of protecting PF-IFL. Improving the conservation status of PF-IFL should be a standard component of the Secretariat's forest programme of work.

- The protection and conservation of PF-IFL are at the centre of and the highest priority in, forest based solutions to the climate change and biodiversity crises, and also prioritised in the Global Standard on Nature-Based Solutions being developed by the Ecosystem Management Programme and Commission. E :.ÄÆÂÄæ*'l Ú há f #" Á! ¡ B

Forests that have been least affected by these pressures and where structure, composition, and function are predominantly the result of ecological and evolutionary processes, generally support the highest levels of many desirable environmental values and deliver the highest level of ecosystem services.

Primary forests are naturally regenerated forests of native tree species, including mangroves and peat forests, whose structure and dynamics are dominated by ecological and evolutionary processes, including natural disturbance regimes, and where if there has been significant prior human intervention it was long enough ago to have enabled an ecologically mature forest ecosystem to be naturally re-established. Many primary forests are also home to Indigenous Peoples and local communities and are the basis of their identity, culture, belief system, traditional knowledge, and livelihoods; a forest that meets the definition above would not be excluded due to the presence of these communities.

As used here, primary forest is a broad term which encompasses related terms including: stable forest,[7] intact forest,[8] old-growth, frontier, long-untouched and virgin forest[9] and is consistent with the ways 'primary forests' are defined by other authorities such as the CBD and the United Nations Food and Agriculture Organization (FAO).

While primary forests of all extents have conservation value, areas of greater extent warrant particular attention where they persist, as they support more biodiversity, contain larger carbon stocks, provide more ecosystem services, encompass larger-scaled natural processes, and are more resilient to external stresses. The significance of large areas of primary forests has been highlighted by the global mapping of Intact Forest Landscapes (IFL) greater than 500 km² in extent.[10] While suitable for many purposes, other thresholds may be more suitable at regional and national levels that reflect local ecological factors.

Further down the forest condition gradient are largely naturally regenerating forests which have experienced significant degradation, for example, due to forest management for commodity production.[11] A range of conditions is evident within this broad category depending on the intensity of silvicultural management regimes and/or other human uses.

The most intensive forms of silviculture result in forests in a third broad category – plantation forests (including timber plantations, agroforests, shelterbelts and so on) that are predominantly composed of trees established through planting and/or deliberate seeding.

Unless key international policy regimes recognise the differences between the three broad categories of forest condition, the loss and degradation of PF-IFL can go unreported or under-reported. While geographically, there will always be 'fuzzy

boundaries' between categories along a gradient, approaches and data sets are now available to map, at a global scale, the three main condition categories: (1) PF-IFL; (2) naturally regenerated but degraded; and (3) plantation forests. For example, a number of approaches and sets of indices have been proposed and applied to measure and map ecosystem condition which can be applied to forests (for example primary forest mapping,[12] IFL mapping,[10] Ecosystem Red List criteria,[13] forest intactness indices,[14] Human Footprint index,[15] Wilderness Quality Index,[16] and mapping of planted forests[17]). However, lack of data at the national and subnational jurisdictional levels in some geographies can limit the ability of some countries to report reliably on forest condition. Where feasible, knowledge gaps can be filled by incorporating local and traditional knowledge and combining citizen science approaches.

4.2. Distinct importance and benefits

IUCN has recognised that PF-IFL play a critical role in maintaining biodiversity, providing ecosystem goods and services on which human society depends, and contributing to national development and advancement of the goals of the CBD, the Paris Agreement,

microclimates, and we are still discovering new species in them. Examples of wildlife dependence on features only found in PF-IFL are evident in all forest ecosystems, for example: (1) ~300 species of hollow-dependent arboreal vertebrate animals in temperate Australian forests;[21] (2) Canadian boreal bird species that are dependent on older forest – such as golden-crowned kinglets, bay-breasted warblers – show a strongly skewed distribution to older stands[22] or are forest interior specialists;[23] and (3) boreal forest management has been found to have caused woodland caribou (Rangifer tarandus) and grizzly bear (Ursus arctos) to undergo long-term range contractions.[24]

The scale of the biodiversity crisis shows every sign of escalating. Habitat loss, fragmentation, and degradation increase as development pressures increase and as ecosystems suffer additional shocks associated with climate change. Reversing the rapid declines in biodiversity will require strong policy and practical action at every level. Conserving the remaining PF-IFL and preventing fragmentation and industrial

old trees do not act simply as senescent carbon reservoirs but actively fix large amounts of carbon compared to smaller trees. At the extreme, a single big tree can add the same amount of carbon to the forest within a year as is contained in an entire mid-sized tree.[29]

Boreal forests are of special concern given that they account for approximately 25% of the planet's forest area and contain more than 35% of all terrestrial carbon. Their carbon dynamics differ from tropical, subtropical and temperate forests in terms of the proportion of ecosystem carbon stocks found in living biomass. The total stock of boreal forest ecosystem carbon is globally significant with estimates in the range of: biomass 40.7 Pg C; dead biomass 7.2 Pg C; soil to 3m 1,307 Pg C; and peat 547 Pg C.[30] Also significant in boreal forests is buried deadwood (up to 935 m^3 ha^{-1}), which failing to account for can lead to misinterpretations of ecosystem dynamics.[31] Half (0.6310^9 ha) of the PF-IFL are located in the boreal and temperate regions of the Northern Hemisphere.[32] Old-growth forests are usually carbon sinks that steadily accumulate carbon for centuries with boreal and temperate forests alone sequestering at least 1.360.5GtC annually. Old-growth forests contain vast quantities of carbon and will lose much of this carbon to the atmosphere if disturbed.[32] Furthermore, it has been evident for some time that salvage logging of boreal forests does not replicate forest structure and biomass loss resulting from natural fires.[33]

Protecting PF-IFL through conservation management is an important mitigation strategy because it avoids emission from deforestation and degradation as well as enabling ongoing sequestration into the growing ecosystem carbon stock. Moreover, their higher levels of ecosystem integrity, compared to production and plantation forests, means they have greater resistance, resilience, r

forests accumulate vast stocks of below-ground carbon. It is particularly important to avoid draining peat soils or other damage directly or indirectly arising from industrial activities to these carbon-rich soils, and particularly to those encompassing areas of permafrost.

The climate crisis dictates that we dramatically reduce emissions from all sources by 2030 and achieve net-zero by 2050. Climate action in land and forests must be scaled up, not as a substitute for reducing emissions from fossil fuels but to help achieve the level of ambition necessary to limit warming to as close as possible to 1.5 degrees – the guardrail needed to minimise the loss of biodiversity, ecosystem integrity, and the ecosystem services on which all life depends.

(b) Adaptation

While ecosystem-based adaptation (EbA) is a well-known adaptation strategy, the importance of PF-IFL for their role in facilitating natural adaptation by species in addition to providing benefits for people is currently under-recognised.

One of the key roles for PF-IFL in protecting biodiversity in the face of climate change will be to act as refugia and source habitats. To keep pace with climate change, tree and animal species will need to migrate at paces that may far exceed those observed in the historical-paleo record. Human barriers and fragmentation make the situation far worse.

Biodiversity and Indigenous Peoples play a critical, functional role in key ecological and evolutionary processes, including adaptation to climate change, which depends on natural selection having sufficient diversity at every level to yield optimum stability and integrity to changed environmental conditions. Natural selection operates on the pool of available ecosystems, species, and genes to yield the characteristic biodiversity best suited to environmental conditions, which in turn generates ecosystem-level outcomes that contribute to ecosystem integrity. At a time of rapid climate and other change, maximising available genetic, species, habitat and ecosystem diversity is a key strategy to support natural adaptation responses. Maintaining PF-IFL is thus a critically important adaptation strategy.

The role of PF-IFL in EbA for people is considered further in the sections on other ecosystem services.

workings of life. It follows that large-scale human influences over this biota have tremendous impacts on human well-being. It also follows that the nature of these impacts, good or bad, is within the power of humans to influence."

The importance of ecosystem integrity and the benefits to people from the ecosystem services from PF-IFL have been under-valued and under-recognised in both the framing and implementation of the UN Sustainable Development Goals. Some progress, however, is evident in the High-Level Political Forum on Sustainable Development (2018) review of Goal 15 'Life on Land' which noted that, "The monitoring framework of SDG 15 does not capture essential elements related to quality that are crucial for more meaningful results, pointing to the need for additional indicators in areas such as forest intactness, management effectiveness of protected areas, and meaningful integration of biodiversity into other processes. No indicator exists yet to measure the integration of ecosystem and biodiversity values into national planning; it is likely that a future indicator will be based on national self-assessments of progress towards national targets, possibly with a rating system to provide a degree of standardization."

Achieving the SDGs, therefore, depends on maintaining and enhancing ecosystem conditions. This means that the protection and conservation management of PF-IFL need to be integrated into climate-resilient development pathways.

(iv) Other ecosystem services and functions

In addition to the benefits they provide for climate change responses and biodiversity conservation, PF-IFL contribute to all the major categories of ecosystem services including supporting, provisioning, regulating services and reciprocal relationships that underpin cultural services and support human health and well-being. Key examples include:

- Maximising regional precipitation through water recycling;
- Delivery of the cleanest water supply;
- Air quality;
- Enhanced resistance to drought, fire, disease, invasive species and pests;
- Spiritual, recreational and human mental and physical health services; and
- The knowledge and belief systems of Indigenous Peoples and local communities.

In a world facing an escalating likelihood of extreme weather events including drought and catastrophic fire, forest resistance and resilience will be increasingly important. Forests with high ecosystem integrity, such as closed-canopy tropical and temperate primary forests, are far less susceptible and vulnerable to drought and fire than degraded and plantation forests. The presence of species in their natural patterns of

distribution and abundance ensures that ecosystems have the maximum possible checks and balances to prevent any one species from increasing to the point where other ecosystem components are threatened.

(v) Health, cultural wellbeing and livelihoods of Indigenous Peoples and local communities (IP&LC)

Indigenous Peoples have rights to or manage at least 37.9 million km^2 of land, accounting for 37% of all remaining natural lands, of which 7.8 million km^2 (20.7%) are within protected areas – 40% of the global protected area.[37] Indigenous lands and other protected areas created to safeguard land rights, indigenous livelihoods, biodiversity, and other values contain globally significant stocks of carbon, mainly in forests. Amazonian indigenous land contains some 28 Gt C,[38] which is around 25% of the remaining carbon budget of ~114 Pg C for a 66% probability of limiting global warming to 1.5 °C above pre-industrial levels[39] (IPCC 2019). In Brazil, Indigenous lands are the most important barrier to Amazon deforestation and degradation.[40]

but global area-based data on forest cover provide little indication of ongoing changes in forest ecosystem integrity and are inadequate for assessing vulnerability of PF-IFL to further loss and damage.

Despite extensive global conservation programmes and initiatives, the available data show that rates of loss and damage to PF-IFL have not slowed. Studies suggest that, in aggregate, forest degradation may be as significant for carbon emissions as deforestation.[42]

Fragmentation, particularly by new roads is projected to increase very significantly. The scale of the potential threat is illustrated by scientific research and analysis which reveals that: (1) by 2050, 25 million kilometres of planned new roads (the equivalent of circling the Earth 625 times) will vastly increase the human footprint on the planet; (2) 50,000 km of new logging roads are proposed for the Congo Basin alone and 7,500 additional km in the Brazilian Amazon; and (3) new roads are opening up the last intact forest landscapes in Sumatra, Kalimantan and New Guinea, and bisecting many forested protected areas. There is ongoing primary and old-growth forest lost recorded even in the wealthiest regions such as Europe, where inappropriate and illegal logging threatens the last remaining primary forests in the Carpathian Mountains.[43] Core forests are collapsing with 70% of all forests now less than 1km from an edge: habitat fragmentation reduces biodiversity by 13 to 75% and impairs key ecosystem functions by decreasing biomass and altering nutrient cycles. Effects are greatest in the smallest and most isolated fragments, and magnify with the passage of time. Fragmentation of tropical forests has reached critical thresholds.[44,45,46]

Large-scale production of timber and other commodities reduces the carbon stock, biodiversity value, and stability and resilience of PF-IFL, even in well-managed forests. Forest conservation initiatives based on introducing sustainable forest management into PF-IFL as a well-intentioned strategy aimed at preventing deforestation, nevertheless cause significant damage and increase the vulnerability of forests to furter loss and degradation.

---

[1] Díaz, S., Settele, J., Brondízio, E., Ngo, H., & Guèze, M. (2019) Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

[2] CBD/COP/DEC/14/5 30 November 2018 ; https://www.cbd.int/doc/decisions/cop-14/cop-14-dec-05-en.pdf

[3] CBD/COP/DEC/14/30 30 November 2018; https://www.cbd.int/doc/decisions/cop-14/cop-14-dec-30-en.pdf

[4] NYDF Assessment Partners. (2019). Protecting and Restoring Forests: A Story of Large Commitments yet Limited Progress. New York Declaration on Forests Five-Year Assessment Report. Climate Focus (coordinator and editor)

[5]

[21] Gibbons, P. and Lindenmayer D. (2002) Tree hollows and wildlife conservation in Australia. CSIRO Publishing. eBook.

[22] Welsh, D. (1992) 'Birds and boreal forests in Canada'. In Birds in the boreal forest - proceedings of a workshop held March 10-12 in Prince Albert, Saskatchewan. Edited by D.H. Kuhnke. Forestry Canada, pp.40-47. http://www.cfs.nrcan.gc.ca/pubwarehouse/pdfs/23800.pdf

[23] Venier, L. and Mackey, B.G. (1997) 'A method for rapid, spatially explicit habitat assessment for forest songbirds'. Journal of Sustainable Forestry 4, 99-118.

[24] Venier, L. A. et al. (2014) 'Effects of natural resource development on the terrestrial biodiversity of Canadian boreal forests 1', Environmen. Res., 490(September), pp. 457–490.

[25] Mackey, B., Kormos, C.F., Keith, H., Moomaw, W.R., Houghton, R.A., Mittermeier, R.A., Hole, D. and Hugh, S. (2019, in press) 'Understanding the importance of primary tropical forest protection as a mitigation strategy'. Mitigation and Adaptation Strategies for Global Change

[26] Keith, H., Lindenmayer, D., Mackey, B., Blair D., Carter, L. McBurney, L.,Okada, S. and Konishi-Nagano, T. (2014) 'Managing temperate forests for carbon storage: impacts of logging versus forest protection on carbon stocks'. Ecosphere 5(6), Article 75, 1-34. http://www.esajournals.org/toc/ecsp/5/6

[27] Roxburgh, S.H., Wood, S.W., Mackey, B.G., Woldendorp, G. and Gibbons, P. (2006) 'Assessing the carbon sequestration potential of managed forests: A case study from temperate Australia'. Journal of Applied Ecology 43, 1149-1159.

[28] Dean, C., Wardell-johnson, G. W. and Kirkpatrick, J. B. (2012) 'Are there any circumstances in which logging primary wet- H X F D O \ S W I R U H V W Z L O O Q R W D G G A Wand Forest Meteorology, 161, pp. 156–169.

[29] Stephenson, N. L. et al. (2014) 'Rate of tree carbon accumulation increases continuously with tree size', Nature, 507(7490), pp. 90–93. doi: 10.1038/nature12914.

[30] Bradshaw, C. J. A. and Warkentin, I. G. (2015) 'Global estimates of boreal forest carbon stocks and flux', Global and Planetary Change. Elsevier B.V., 128(February), pp. 24–30. doi: 10.1016/j.gloplacha.2015.02.004.

[31] Moroni, M. T., Hagemann, U. and Beilman, D. W. (2010) 'Dead wood is buried and preserved in a labrador boreal forest', Ecosystems, 13(3), pp. 452–458. doi: 10.1007/s10021-010-9331-8.

[32] Luyssaert, S. et al. (2008) 'Old-growth forests as global carbon sinks', Nature, 455(7210), pp. 213–215. doi: 10.1038/nature07276.

[33] Schmiegelow, F. K. A. et al. (2006) 'Reconciling salvage logging of boreal forests with a natural-disturbance management model', Conservation Biology, 20(4), pp. 971–983. doi: 10.1111/j.1523-1739.2006.00496.x.

[34] Thompson I., Mackey B., McNulty S. and Mosseler A. (2009). Forest Resilience, Biodiversity, and Climate Change. A synthesis of the biodiversity/ resilience/stability relationship in forest ecosystems. Secretariat of the Convention on Biological Diversity, Montreal. Technical Series no. 43, 67 pages; https://www.cbd.int/doc/publications/cbd-ts-43-en.pdf

[35] Connecting Biodiversity and Climate. Change Mitigation and Adaptation. Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change. CBD Technical Series No. 41. Secretariat of the Convention on Biological Diversity. ISBN: 92-9225-134-1.

[36] Griscom et al., Natural climate solutions, PNAS 2017 114 (44) 11645- 11650, https://www.pnas.org/content/114/44/11645

[37] Garnett, S. T. et al.