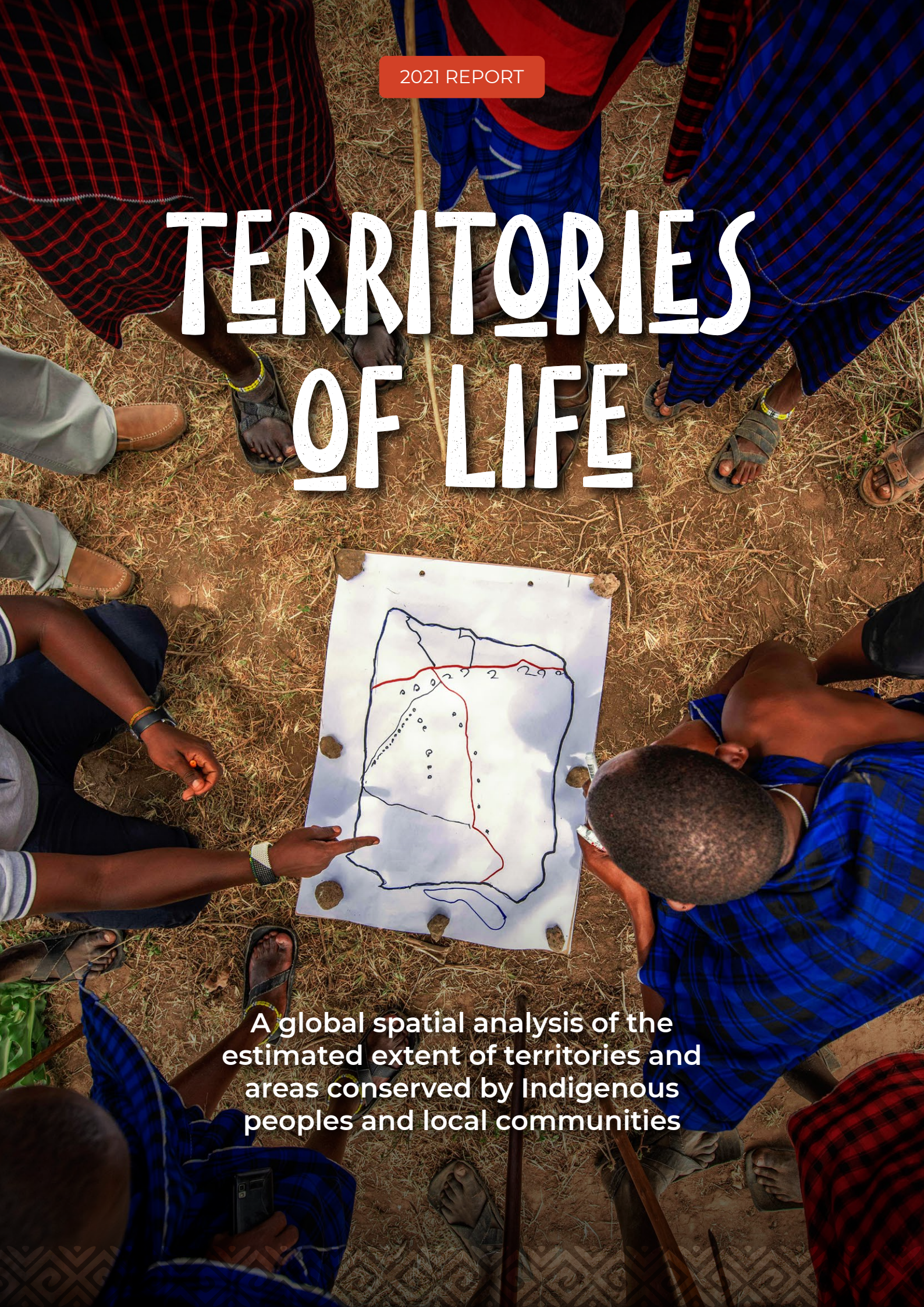
2021 REPORT

TERRITORIES OF LIFE



A global spatial analysis of the estimated extent of territories and areas conserved by Indigenous peoples and local communities

Ghanimat Azhdari. Photo: ICCA Consortium

Dedication

Territories of Life: 2021 Report is dedicated to **Ghanimat Azhdari** (1983-2020), a young and passionate leader from the Qashqai tribal confederacy in Iran. Ghanimat was a specialist in Geographic Information Systems (GIS) and community mapping, working tirelessly to support the participatory documentation of territories of life with the national federations and unions of nomadic tribes in Iran (UNINOMAD and UNICAMEL). She was contributing her deep knowledge, skills and passion to the development of this report when her life was unjustly cut short on 8 January 2020. Ghanimat played important roles in the Centre for Sustainable Development and Environment (CENESTA) in Iran and the ICCA Consortium globally and was pursuing her PhD at the University of Guelph at the time of her passing. She is dearly missed. Her legacy will continue through the work of the many people whose lives she touched during her short time on Earth.

Acknowledgements

We gratefully acknowledge and thank the Indigenous peoples and local communities who self-reported their ICCA data for the purposes of this report, or who had already self-reported data through the Global Support Initiative to ICCAs, including to the ICCA Registry and Protected Planet Initiative databases. Thanks to those who gave permission and advice on the use of their global datasets and who reviewed the text of this report, including (in alphabetical order by surname): Neville Ash, Heather C. Bingham, Neil D. Burgess, Stuart Butchart, Brandie Fariss, Larry Gorenflo, David Harmon, Christina Kennedy, Cécé Noël Kpoghomou, Jonathan Loh, Jim Oakleaf, Andrew Plumptre and Suzanne Romaine.

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About this report

This technical report is part of an ongoing process to develop the knowledge base on territories and areas conserved by Indigenous peoples and local communities (sometimes abbreviated as "ICCAs—territories of life"). It draws on the best available information at the time of analysis and is expected to be developed on a continuing basis; as such, the authors invite feedback and expressions of interest in collaboration (for correspondence, please email: iccaregistry@unep-wcmc.org). It is part of the ICCA Consortium's "Territories of Life: 2021 Report", which also includes 17 case studies of territories of life, six national and regional analyses and an executive summary of the full report. The global spatial analysis and other components, as well as the report in its entirety, are available at: **https://report.territoriesoflife.org/**.

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Box 1.

Key terms and abbreviations

Indigenous peoples: There is no formal or universally agreed definition of Indigenous peoples, but the most cited description is in **Cobo (1981)** including the following excerpt: "Indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing on those territories, or parts of them. They form at present non-dominant sectors of society and are determined to preserve, develop and transmit to future generations their ancestral territories, and their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions, and legal system."

Local communities: There is no clear description or definition for this concept; a **2013 note by the CBD** explains: "Many communities may be considered local and may also be described as traditional communities... They are culturally diverse and occur on all inhabited continents." In this report, local communities refer to communities whose identities, cultures, knowledge systems, practices and livelihoods are closely linked to and embedded in their collective lands and areas.

Indigenous peoples' and local communities' lands: Lands (which can include freshwater) where Indigenous peoples or local communities have ownership and/or governance authority through a complex mix of individual, family and communal tenures, regardless of state legal recognition. These lands are not necessarily governed and managed by customary or culturally embedded institutions and systems. Nor are they necessarily conserved or sustainably used over the long-term.

ICCAs—territories of life: These are a subset of Indigenous peoples' and local communities' lands, which are governed with conservation outcomes. ICCA is an abbreviation for territories and areas conserved by Indigenous peoples and local communities and are often referred to as territories of life. Both ICCAs and territories of life are umbrella terms and concepts used widely, including in this report, and are intended for communication across inherently diverse contexts; they are not intended to replace local concepts or place names. They generally have three characteristics (**ICCA Consortium, 2021a**):

a) There is a close and deep connection between a territory or area and its custodian Indigenous people or local community. This relationship is usually embedded in history, social and cultural identity, spirituality and/or people's reliance on the territory for their material and non-material wellbeing;

b) The custodian people or community makes and enforces (alone or together with other actors) decisions or rules about the territory or area through a functioning and self-determined governance institution, which may or may not be recognised by outsiders or by statutory law of the relevant country; and

c) The governance decisions and rules and the management efforts of the concerned people or community overall positively contribute to the conservation of nature and to community livelihoods and wellbeing.

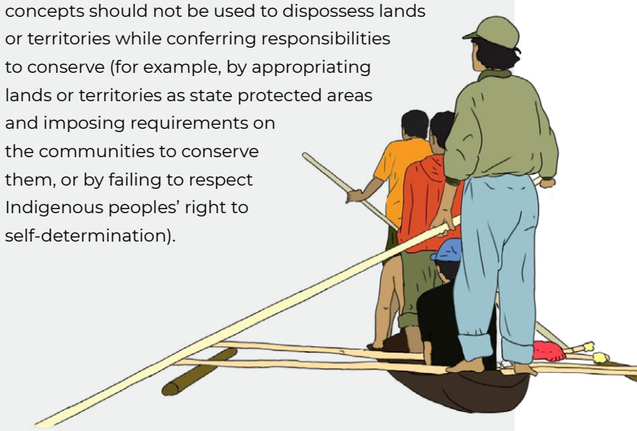
Indigenous peoples' and local communities' lands may have one or more of these characteristics but would not typically be considered ICCAs (in the broad sense, and subject to their free, prior and informed consent) unless they have all three.

Potential ICCAs: Based on the spatial data used in this report, these are estimated areas of potential ICCAs. They are in good ecological condition and appear to be consistent with the main characteristics of ICCAs (see above). They could be considered ICCAs in reality if self-identified as such by their custodians (with their local names always being recognised and taking precedence). The 'Potential ICCAs layer' refers to the spatial data layer of potential and known ICCAs, created specifically for this analysis. It is referred to as "potential" because the vast majority of the data layer was not self-reported as ICCAs by custodian Indigenous peoples and local communities (only 119 sites were self-reported as ICCAs[1] . Therefore, this data layer is used as an estimation of where ICCAs—territories of life might occur based on the best available data and methods at this point in time (limitations of this method are outlined in detail in Annex 1).

State and privately governed protected and conserved areas: In this report, this term refers to all protected and conserved areas that are not under the governance of Indigenous peoples and local communities[2] (as those sites were added to the Potential ICCAs layer). It includes sites under state and private governance as well as shared governance (**Borrini-Feyerabend, 2013**). Although shared governance can include arrangements with Indigenous peoples and local communities, the detail of which parties are involved in the shared governance is not recorded in the Protected Planet Initiative databases used here. Therefore, it was not possible to assess in this report. Sites with shared governance comprise a small portion of these data; only 2% of all the records in the Protected Planet Initiative data.

Conserved areas: Although 'conserved area' is a term used in different ways to describe a range of area types and outcomes (**Jonas & Jonas 2019**), in this report, this term refers specifically to "other effective area-based conservation measures" (OECMs) as defined by the CBD[3] . These areas achieve conservation outside of protected areas.

Custodians/stewards: In this report, these terms refer to Indigenous peoples and local communities who are 'taking care of' their collective lands, territories and areas through their cultural, spiritual and social systems and practices. Custodianship and stewardship are used in a similar way, referring in general to Indigenous peoples' and local communities' cultural and other systems that enable them to 'take care of' and live within the means of their territory or area (**ICCA Consortium, 2021b**; **ICCA Consortium 2021c**). Both are necessarily embedded within customary or community laws, rights, governance systems and cultural practices and any recognition of communities as custodians or stewards should recognise the fullness of these systems. These concepts should not be used to dispossess lands or territories while conferring responsibilities to conserve (for example, by appropriating lands or territories as state protected areas and imposing requirements on the communities to conserve them, or by failing to respect Indigenous peoples' right to self-determination).



[1] Anything pertaining to ICCAs—territories of life must be considered, discussed and verified by their custodian Indigenous peoples and local communities in accordance with their rights, protocols, local knowledge systems and free, prior and informed consent.

[2] As per the January 2021 versions of the Protected Planet Initiative's World Database on Protected Areas (WDPA) and World Database on Other Effective Area-Based Conservation Measures (WD-OECM).

[3] Decision 14/8 of the CBD defined OECMs. **CBD (2018)**.

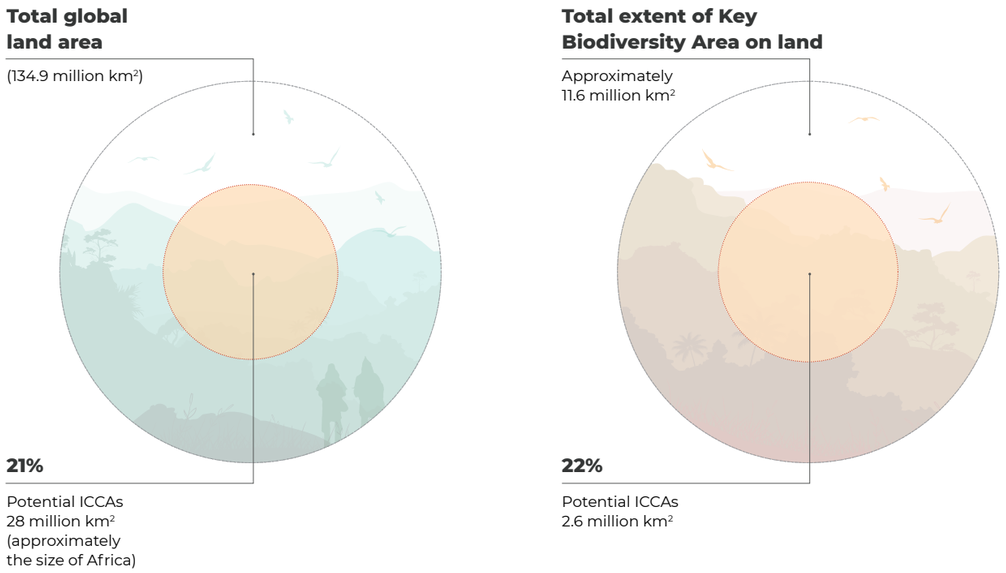
Executive Summary

We have reached a critical juncture in shared human history. We have seen all too clearly since the rise of the COVID-19 pandemic how people and nature are interdependent, how our health and wellbeing are intimately connected with that of the rest of the planet and how the climate, biodiversity and social crises are deeply interlinked. There is growing global consensus around one of the best opportunities to turn the tide and ensure that our species and the billions of others with whom we share the planet continue to co-exist and thrive well into the future. It includes listening to, respecting and appropriately recognising and supporting Indigenous peoples and local communities whose cultures and governance systems have shaped and nurtured the diversity of life on Earth for generations and millennia, and who continue to do so today even in the face of significant threats. From local to global levels, all actors and duty-bearers in the conservation sector should prioritise strengthening the deep connections between cultural and biological diversity, while respecting, protecting and fulfilling the rights of Indigenous peoples and local communities.

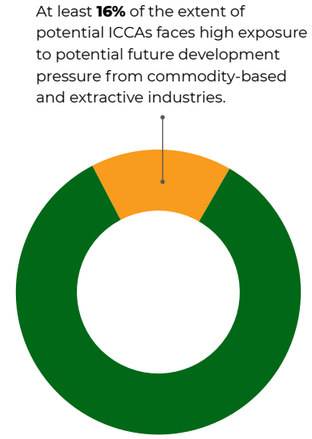
This global analysis is the first of its kind to analyse the estimated extent and conservation values of territories and areas conserved by Indigenous peoples and local communities (abbreviated as ICCAs—territories of life). It builds upon a companion report produced over a similar timeframe (WWF et al., 2021, forthcoming) that assessed Indigenous peoples' and local communities' lands more broadly; it refines the dataset created in that report to focus specifically on the estimated extent of ICCAs—territories of life. The analysis provides technical and scientific evidence to strengthen key aspects of the post-2020 global biodiversity framework and its implementation. It illustrates that fulfilling the Convention on Biological Diversity's proposed 2050 vision of "living in harmony with nature" can only be achieved through a human rights-based approach that respects Indigenous peoples and local communities as rights-holders and holds governments, conservation organisations and private actors accountable as duty-bearers.

Key Findings

• **Indigenous peoples and local communities play an outsized role in the governance, conservation and sustainable use of the world's lands and biodiversity.** It is estimated that potential ICCAs cover more than one-fifth (21%) of the world's land (approximately the size of Africa), and over one-fifth (22%) of the extent of the world's terrestrial Key Biodiversity Areas. As custodians of such a large proportion of the world, they must be acknowledged and respected as rights-holders, protagonists and leaders in relevant decision-making processes, and their rights to self-determination and collective lands and territories recognised and upheld so they can protect themselves from threats.



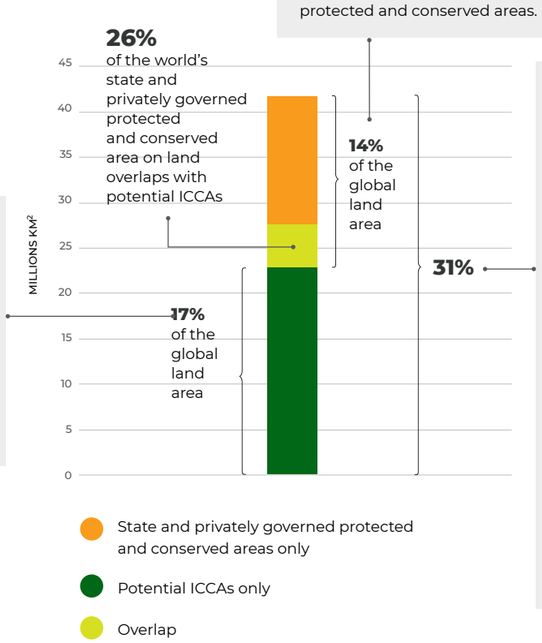
• **At least 16% of the extent of potential ICCAs faces high exposure to future development pressure from commodity-based and extractive industries.** Although these high industrial pressures are not inevitable, it is important to be prepared for this possibility, including proactively and urgently supporting Indigenous peoples and local communities to secure their rights to their collective lands and territories and governance systems. This 16% includes areas under high pressure, but the other 84% of the extent should not be considered free from development pressure. Given the significant linkages between potential ICCAs and areas of crucial importance for biodiversity and a healthy climate, supporting Indigenous peoples and local communities to secure their rights and protect and defend their territories and areas against industrial pressures should also be a priority for all actors in the conservation sector.



• **At least one-quarter (26%) of the world's state and privately governed protected and conserved area on land overlaps with potential ICCAs.** Therefore, Indigenous peoples and local communities are likely the *de facto* custodians of many existing protected and conserved areas, without being formally recognised as such. In many cases, it is precisely because of Indigenous peoples' and local communities' actions and contributions to biodiversity that these sites have been deemed 'suitable' for formal protection. This overlap also raises significant concerns with both the historical and continuing human rights implications of protected and conserved areas for Indigenous peoples and local communities, including potential forced displacement, undermining of customary and local governance and management systems and criminalisation of cultural practices.

• **Almost one-third (31%) of the world's land may already be covered by areas that are dedicated to conservation and/or maintaining the land in good ecological condition.** If potential ICCAs were recognised for their contributions to conservation alongside the existing state and privately governed protected and conserved area network (14% of the world's land), the total coverage would increase to 31%. This finding underscores how essential it is to appropriately recognise and support Indigenous peoples' and local communities' rights and existing conservation efforts in achieving any area-based target in the post-2020 global biodiversity framework, whether it is 30% or otherwise. Indigenous peoples and local communities and civil society organisations have expressed serious concerns with the current draft's Target 2. This analysis illustrates both the opportunity and need to explicitly incorporate human rights, governance diversity and equity into the target, and ensure that its implementation respects Indigenous peoples and local communities as rights-holders.

14% of the world's land is currently covered by state and privately governed protected and conserved areas.



Potential ICCAs cover an area greater than the terrestrial state and privately governed protected and conserved area network. Outside of this network (which currently covers 14% of land), potential ICCAs cover 17% of land.

If potential ICCAs were appropriately recognised for their contributions to conservation alongside the existing terrestrial network of state and privately governed protected and conserved areas, the total coverage would increase to 31% of the world's land.

This finding underscores how essential it is to appropriately recognise and support Indigenous peoples' and local communities' rights and existing conservation efforts in achieving any area-based target in the post-2020 global biodiversity framework, whether it is 30% or otherwise.

• **Potential ICCAs cover at least one-third (33%) of intact forest landscapes globally.** They also cover at least one-third (32%) of areas that are considered key to reversing biodiversity loss, preventing CO_2 emissions from land conversion and enhancing natural carbon sinks. This finding indicates that in addition to being rights-holders to these territories and areas, Indigenous peoples and local communities are also the protagonists and agents of change in local-to-global efforts to protect forest landscapes, halt further biodiversity loss, reduce wildfires and mitigate climate breakdown.

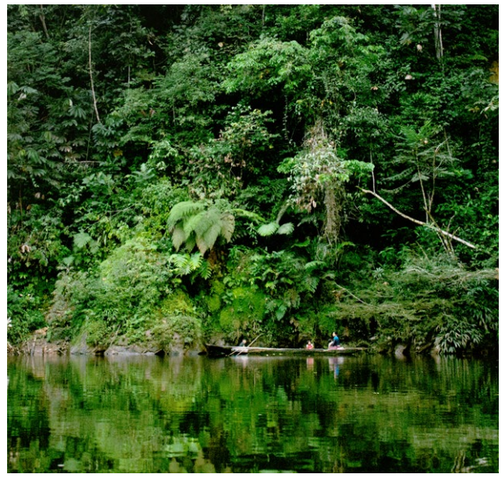
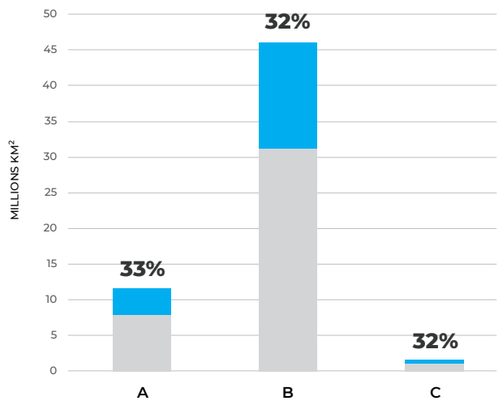


Photo: Jacob Balzani Lööv

Extent covered by potential ICCAs



A: Intact forest landscapes

B: Areas that are considered key to reversing biodiversity loss, preventing CO_2 emissions from land conversion and enhancing natural carbon sinks*

C: Terrestrial UNESCO World Heritage sites

*outside the state and privately governed protected and conserved area network

• **Some areas governed by Indigenous peoples and local communities are recognised by UNESCO as natural sites of outstanding universal value.** Almost one-third (32%) of the extent of UNESCO's Natural and Mixed World Heritage sites on land overlaps to some extent with potential ICCAs. This role should be acknowledged and supported, with subsequent conservation efforts aiming to reinforce and support the deep connections between cultural and biological diversity in Indigenous peoples' and local communities' lands and territories and the social, cultural and spiritual practices that nurture and sustain them.

Photo: Lopsang Chiring Lama

Part I
Introduction, Purpose and Methods

Introduction

Indigenous peoples and non-Indigenous local communities[4] (hereafter referred to as Indigenous peoples and local communities) are increasingly recognised for their contributions to a healthy planet. With growing attention placed on the nexus of these interconnected issues, it is more important than ever to better understand the diverse contexts in which Indigenous peoples and local communities are living and asserting their rights, including to their collective lands and territories[5]. Respecting, protecting and upholding these rights is expected to become a determining factor for equitable and effective conservation in the coming years (**RRI, 2020a**). As Parties to the UN Convention on Biological Diversity (CBD) negotiate and eventually implement the post-2020 global biodiversity framework[6], this report aims to shine a light on Indigenous peoples' and local communities' outsized role in nature conservation around the world. It analyses the estimated global extent of territories and areas conserved by Indigenous peoples and local communities (abbreviated as "ICCAs—territories of life"), thereby contributing to the technical and scientific evidence base required to strengthen key aspects of the post-2020 framework and its implementation.

Around the world, Indigenous peoples and local communities have deep relationships with their customary and collective territories and areas and the nature within them. These relationships are intertwined with their self-determined visions for the future, and include guiding principles such as reciprocity, respect and responsibility (**Artelle et al., 2018**, **Ayers et al., 2012**, **Gauvreau et al., 2017**). Such communities make and uphold decisions about their territories and areas through their own governance systems, sometimes in collaboration with others, and regardless of whether they are formally recognised by state governments. Their decisions and actions contribute to community wellbeing and nature conservation in diverse ways and for varying reasons – often rooted in their cultural and spiritual practices and their desire to sustain their territories and areas in honour of their ancestors, and for generations to come.

Such territories and areas have been recognised as "ICCAs" in a wide range of resolutions and recommendations of the International Union for Conservation of Nature (IUCN) and decisions of CBD Parties since 2003 and 2004, respectively (**Jonas, 2017**). Earlier estimates suggest that ICCAs may cover an equal or greater area than government-designated protected areas, despite having little if any formal or appropriate[7] recognition or support for their contributions to nature conservation (**Kothari et al., 2012**). However, this knowledge base is likely to significantly underestimate the actual diversity, extent and breadth and depth of these territories and areas. This global analysis is part of a broader initiative to strengthen the evidence and knowledge base of ICCAs. Along with 17 community level and six national and sub-regional level analyses, this global analysis is part of a 2021 report produced by the ICCA Consortium and is expected to be updated and revised over time (**https://report.territoriesoflife.org/**).

Purpose of the analysis

This is the first global analysis to bring together the best available information to create a global data layer that represents the estimated spatial extent of potential ICCAs. It builds on and complements a companion report on the biodiversity and ecosystem service values of Indigenous peoples' and local communities' lands (WWF et al., 2021, forthcoming), referred to hereafter as the 'IPLC Technical Report'. By adapting the dataset generated for that report (see methods in subsequent section), the present analysis created a dataset of "potential" ICCAs.

This analysis identifies spatial overlaps between estimates of potential ICCAs and areas identified as important for biodiversity and planetary health using existing global datasets (including Key Biodiversity Areas, Intact Forest Landscapes and the ''Global Safety Net''[8]).

Box 2.

Supporting Indigenous peoples and local communities to map their ICCAs

This analysis highlights, with available spatial data, the crucial role ICCAs play in global conservation. However, it also highlights the current paucity of data on documented (known) ICCAs. Estimating coverage through the compilation of various datasets has inherent limitations. The only way to truly know about ICCAs, including their location, extent and diverse values, is to support Indigenous peoples and local communities to document and map their own ICCAs on their own terms, including through collective and collaborative efforts with other communities and related initiatives.

*Indigenous peoples and local communities, if they so choose, should be supported to map their ICCAs and have opportunities to share their data following a self-determined process of free, prior and informed consent from the communities themselves (**Doyle et al., 2019**).[9] During this process Indigenous peoples and local communities have an opportunity to reflect on the importance of their ICCAs, discuss threats, and collectively decide on how their data should be shared and used. It is critical that during this process Indigenous peoples and local communities are fully aware of and consider some the potential benefits and considerations associated with sharing their mapped data (**UNEP-WCMC, 2021a**).*

Enabling Indigenous peoples and local communities to self-report the digital boundaries of their ICCAs could facilitate their efforts to gain appropriate recognition and defend their territories. From a global perspective, mapping ICCAs can result in their collective conservation values being better understood; the areas can be counted towards global conservation targets if the ICCAs' custodians so choose; and they can be factored into decision-making across multiple sectors.

The authors recognise the complexities of gathering and sharing such sensitive data, and support following the lead of Indigenous peoples and local communities to decide if or how their data should be shared, including whether the data is available for use.

[4] Although these two groups are only considered together in the context of their close relationships between their cultures and territories and areas; the authors recognise the clear differences between them under international law. See Annex 3 for an Overview of the legal distinction between Indigenous peoples' rights and local communities' rights.

[5] Land rights are rights held to land and related natural resources. They may be recognised under customary law and/or state law, which can sometimes lead to overlapping claims and conflicts between legal systems.

[6] The post-2020 global biodiversity will replace the Strategic Plan for Biodiversity 2011-2020, which included the Aichi Biodiversity Targets. The zero draft of the post-2020 framework is contained in document **CBD/POST2020/PREP/2/1**.

[7] By using the word 'appropriate', this report acknowledges that recognition and support should be adequate to meet the needs of ICCAs, and appropriate to the ecological, cultural, political and economic conditions of the respective Indigenous people or local community (**Kothari et al., 2012**; **ICCA Consortium, 2021a**; **ICCA Consortium 2021b**). Recognition or support provided should be determined and requested by Indigenous peoples and local communities themselves.

[8] Areas of the world that (according to **Dinerstein et al. 2020**) if conserved, would reverse further biodiversity loss, prevent CO_2 emissions from land conversion, and enhance natural carbon removal.

[9] The rights to give or withhold free, prior and informed consent is recognised in the UN Declaration on the Rights of Indigenous Peoples (2007). Although this right has been recognized in principle in various contexts – such as academic research, conservation and private sector activities – its application has been inconsistent at best. In some contexts, perhaps most notably in the Philippines where it is legally recognized under the Indigenous Peoples Rights Act, external actors have used the concept of free, prior and informed consent as a box-ticking exercise to do what they were already planning to do. See: **Philippine ICCA Consortium, 2021**. Indigenous peoples' own protocols and procedures for consultation, consent, decision-making and self-determination should be the basis for engagement and seeking their free, prior and informed consent. See **Doyle et al., 2019**.

Photo: KESAN

It explores the role that ICCAs might play in the UN CBD, including the draft post-2020 global biodiversity framework and Target 2 therein[10] (**CBD, 2020**), and highlights the need for appropriate recognition and support to achieve this.

Furthermore, it illustrates linkages between cultural and biological diversity, including the spatial overlap between potential ICCAs and Natural and Mixed UNESCO World Heritage sites, while also considering the external industrial, extractive and commodity-based development pressures that might affect ICCAs in the future. The spatial analysis in each section is contextualised in the broader knowledge base with a brief discussion of the relevant literature.

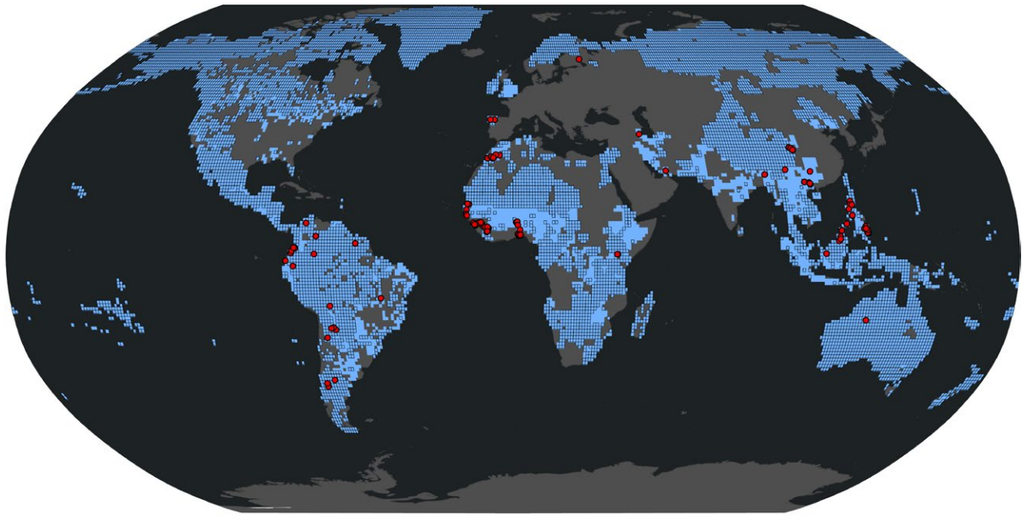
The statistics provided in this report are global estimates that add to the evidence that ICCAs are a vital component of global conservation efforts, and that Indigenous peoples and local communities should be supported to map their ICCAs and share their data on their own terms following a process of free, prior and informed consent (Box 3). In this way, the estimated spatial layer presented here can gradually be replaced with an accurate dataset of self-identified, self-reported and peer-reviewed[11] ICCAs.

Challenges associated with global documentation of ICCAs

A number of studies have tried to illustrate the extent of Indigenous peoples' and local communities' lands (e.g., **RRI, 2015**; **Garnett et al., 2018**; WWF et al., 2021, forthcoming), using a range of methods and geographic scopes. Furthermore, initiatives such as **LandMark**, **Mapping Back** and **Native Land** are among efforts directed and guided specifically by Indigenous peoples in mapping their territories, cultural and sacred sites, languages and more.

However, the range of scopes and methods make it difficult to understand how they relate to one another, to extrapolate and to replicate. For instance, Indigenous and tribal peoples' governance of forest systems is relatively well researched in the Amazon Basin (e.g. **FAO & FILAC, 2021**) but less attention has been paid to tropical and other forests in other regions. Furthermore, academic research on Indigenous peoples' and local communities' conservation governance is dominated by terrestrial territories and ecosystems with limited attention to coastal and marine territories of life (**Reid et al., 2020**; **Ryks, 2014**). Despite this, collaborative research, including initiatives supporting co-creation of knowledge, is gaining traction in certain regions and biomes such the Arctic (**Brooks et al., 2019**; **Dale & Armitage, 2011**) and Australia (**Gould et al., 2021**; **Rist et al., 2019**).

The paucity of consistent, global data is complicated by tenure insecurity, boundary disputes, lack of rights, lack of recognition, and community conflicts, which make it difficult to create maps that are agreed upon by all relevant rights-holders and stakeholders (WWF et al., 2021, forthcoming). Furthermore, many territories and areas rely on oral methods and history to document ancestral ownership, land tenure, traditional knowledge, and customary laws, adding further complications to documentation (**Gafner-Rojas, 2020**; **McIvor, 2020**)



The extent of Indigenous peoples' and local communities' lands overlaid with potential ICCAs, scaled up to 1 -degree grid cells to obscure boundaries

Indigenous peoples' and local communities' lands

Potential ICCAs

Known ICCAs

Figure 1. The extent of Indigenous peoples' and local communities' lands in light blue (from WWF et al., 2021, forthcoming), overlaid with potential ICCAs in blue, with grid lines (from the present analysis). The potential ICCAs layer comprises a subset of the former. This is due to ICCAs having the additional characteristic of contributing to conservation (see Box 1 for more information). Areas not covered should not be assumed to lack Indigenous peoples' and local communities' lands or ICCAs.

Box 3.

Note on map visualisation

Boundaries of potential ICCAs have been obscured in some of the maps. This is due to the uncertainty in the boundaries and whether all data in the Indigenous peoples' and local communities' lands base layer (WWF et al., 2021, forthcoming) were gathered in accordance with Indigenous peoples' right to provide or withhold free, prior and informed consent. Due to these limitations these maps should not be used as means for identifying these areas as ICCAs.

Boundaries have been obscured by intersecting the datasets with a 1-degree grid and scaling up coverage in each 1-degree grid cell. Each cell is covered to some extent with the dataset it is representing. Although each grid cell is not completely covered by dataset, it is visualised in this way to obscure the boundary, and therefore visually overestimates the coverage.

In maps that show the overlap between two datasets, sometimes the boundary is shown without grid cells, as the map does not show the boundary of potential ICCAs. It only shows the extent of the potential ICCAs layer that overlaps with the second dataset.

Although there are many dedicated locally led initiatives that can and should be integrated into global efforts, with free, prior and informed consent from the concerned Indigenous peoples and local communities, managing and monitoring data in a globally consistent way also has its challenges as it can be difficult to incorporate the level of diversity and complexity found at a local and national scale (**Hirt, 2012**; **Reid et al., 2020**; WWF et al., 2021, forthcoming). The WWF et al., forthcoming (2021) was the first report to map the global extent of lands under the custodianship of both Indigenous peoples and local communities using the best available datasets. Nevertheless, the dataset produced was acknowledged to be an underestimate due to the lack of available data for many locations.

Methods

This report is focused on a range of global spatial analyses, using an estimated spatial layer of potential ICCAs that was created specifically for use in this report, building on the dataset created in WWF et al., forthcoming (2021) (see detailed methods in Annex 2). Although the method for creating this spatial layer has its limitations (see Annex 1), it provides an indication of the estimated extent of ICCAs based on data provided by the ICCA Registry, partners of the Global Support Initiative to ICCAs (an initiative managed by UNDP-implemented GEF Small Grants Programme), **LandMark (2020)**, **Garnett et al. (2018)**, Conservation International (2020), **the Protected Planet Initiative** and the **ICCA Registry**[12] . This analysis only focuses on the terrestrial environment, due to shortcomings in quality and access to available data for the marine environment. These analyses are complemented by a comprehensive literature review to provide context to the analyses and to the discussion.

[10] This target is being negotiated by CBD Parties and it will act as a successor to Aichi Target 11, focusing on protected and conserved area networks.

[11] The purpose of peer review of ICCA data is to: (1) raise any concerns regarding the data or how it was collected, including issues of free, prior, and informed consent, (2) check the accuracy of the data, and (3) check for alignment with definitions. More broadly the ICCA peer-review networks should play an important support role that supports self-strengthening within and between ICCA custodian communities, and facilitates mutual support (**UNEP-WCMC, 2020**).

[12] See Table 1 in Annex 1 for full descriptions of all the datasets used, including what they contain, their limitations and citations. See Annex 2 for detailed methods.

Generating the layer of potential ICCAs

A combination of datasets was used to create the estimated spatial layer of potential ICCAs.
Firstly, it used the spatial layer of Indigenous peoples' and local communities' lands that was created for WWF et al., forthcoming (2021). This spatial layer is a combination of datasets where Indigenous peoples and local communities have ownership and/or governance authority of the land. It overlaps to some extent with 132 countries and territories.

Secondly, to identify areas that might be potential ICCAs, it was intersected with areas of low human modification from the Global Human Modification (GHM) layer (**Kennedy et al., 2018**), which was used as a proxy for good ecological condition. Potential ICCAs were identified in this way on the assumption that Indigenous peoples' and local communities' lands that are in good ecological condition are likely to meet at least two of the three characteristics of an ICCA, namely, governance by Indigenous peoples and local communities and positive conservation outcomes (see Box 1).

The final step involved adding documented (known) ICCAs to the spatial layer. This data had two key sources: (1) **ICCA Registry** (67 records); and (2) partners of the Global Support Initiative to ICCAs (52 records). In total, 119 known ICCAs were added to the potential ICCAs layer. The final potential ICCAs layer overlapped, to some extent, with 113 countries and territories. Although this layer contains a small number of known ICCAs, the layer is referred to as the potential ICCAs layer. See Figure 1 for the difference between spatial layer of Indigenous peoples' and local communities' lands that was created for WWF et al., forthcoming (2021), and the potential ICCAs layer that was created in this present analysis (also see Box 3 on map visualisation).

Finding spatial overlaps between potential ICCAs and other datasets

Spatial intersections were performed to calculate the area of overlap between the potential ICCAs layer and a range of other global datasets[13], which are listed with brief descriptions in Box 4, and with full descriptions and limitations in Annex 1. Due to many instances of protected and conserved areas overlapping ICCAs (see Box 5 later in this document) this analysis differentiates the findings by dividing the potential ICCAs layer into areas covered by, and not covered by, state and privately governed protected and conserved areas. Protected and conserved areas recorded as governed by Indigenous peoples or local communities were included in the layer of potential ICCAs. The considerations listed in Box 5 must be noted when interpreting the results.

[13] Finer resolution data, such as that at national or local scales, could improve understanding further, but was outside the scope of this global analysis

Box 4.

Snapshot of global datasets intersected with the potential ICCAs layer

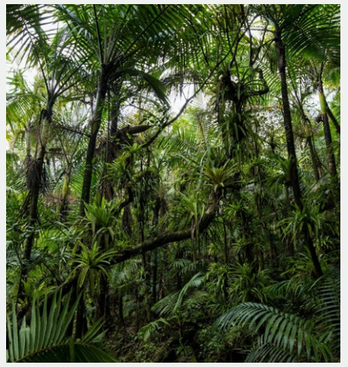
Key Biodiversity Areas:
Sites of significance for the global persistence of biodiversity (**IUCN, 2016**). Over 16,000 have been identified in terrestrial, marine and freshwater environments in all countries worldwide (**BirdLife International, 2020**). These areas encompass, among others, Alliance for Zero Extinction sites and Important Bird and Biodiversity Areas (**IUCN, 2016**).

Photo: Martin Harvey, WWF
keybiodiversityareas.org

World Heritage sites (Natural and Mixed):
The World Heritage List comprises 1121 properties of Outstanding Universal Value (**IUCN, 2021**); 249 Natural and Mixed sites were used in this analysis.

Baby elephant, Sangha Trinational. Photo: Andréa Turkalo
whc.unesco.org/en/list/1380

Global Safety Net:
Terrestrial areas that are considered essential for biodiversity and climate resilience, creating a 'blueprint' for saving life on Earth according to **Dinerstein et al., 2020**. They cover 50% of the global land surface, and (according to the authors) if conserved could prevent further biodiversity loss, prevent CO_2 emissions from land conversion, and enhance natural carbon removal.



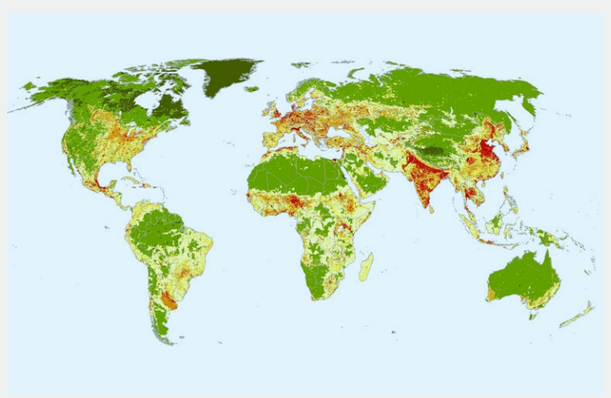
Puerto Rican moist forests.
Photo Gregoire Dubois
www.globalsafetynet.app

Photo: Jacob Balzani Lööv

Intact Forest Landscapes:
An Intact Forest Landscape is a seamless mosaic of forest and naturally treeless ecosystems with no remotely detected signs of human actvity, and a minimum area of 500 km^2. They are large enough to maintain all native biodiversity and are crucial for carbon storage and regulating hydrological regimes, as well as other ecosystem functions (**Potapov et al., 2017**).

Cumulative Development Potential Index (DPI):
This index is a cumulative development pressure map created by combining previously published Development Potential Indices (DPIs) (**Oakleaf et al., 2019**) for renewable energy (concentrated solar power, photovoltaic solar, wind, hydropower), fossil fuels (coal, conventional and unconventional oil and gas), mining (metallic, non-metallic), agriculture (crop, biofuels expansion) and urban pressure map based on global urban growth projections from 2020 to 2050 (**Zhou et al., 2019**).

Photo: Unsplash.com

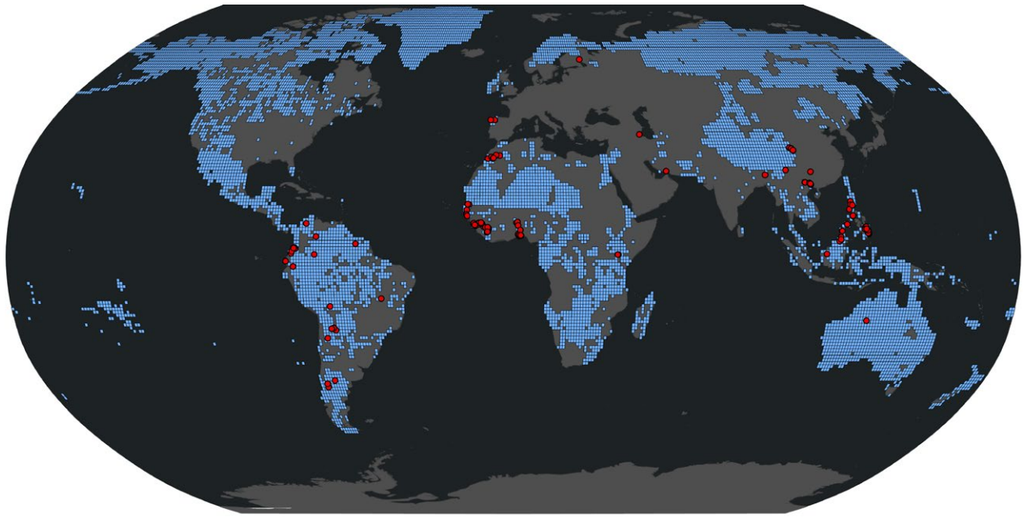


Human Modification:
The Global Human Modification (GHM) layer provides a measure of the ecological condition of terrestrial lands globally (at a 1-km resolution circa ~2016) based on the extent of human modification by activities, ranging from human settlement, agriculture, transportation, mining, and energy production (**Kennedy et al. 2018**). Low GHM were selected following Kennedy et al. (2018) and intersected with the Indigenous peoples' and local communities' lands layer.

Part II
Findings

According to WWF et al., forthcoming (2021), Indigenous peoples' and local communities' lands cover at least 43 million km², which is one-third (32%) of the world's land. They are found to overlap to some extent with 132 countries and territories. This analysis highlights builds on this to find the overlap specifically between potential ICCAs (i.e., Indigenous peoples' and local communities' lands which have good ecological condition) and areas of importance for biodiversity, intact forest landscapes, and areas considered globally important for carbon storage and climate resilience. Furthermore, it highlights what proportion of this area is not already covered by state and privately governed protected and conserved areas.

Section 1: Global coverage of potential ICCAs



Distribution of potential ICCAs globally, scaled up to 1-degree grid cells to obscure boundaries

Potential ICCAs Known ICCAs

Main findings and their implications

This analysis finds that potential ICCAs cover at least 28 million km², which is over one-fifth (21%) of the world's land surface (see Figure 2), and an area approximately the size of the African continent. They overlap to some extent with at least 113 countries and territories, and all the world's 14 biomes.

Figure 2. The estimated distribution of potential ICCAs globally based on available data, scaled up to 1-degree grid cells to obscure specific boundaries. Red dots represent the actual locations of known ICCAs that have been self-reported by the ICCAs custodians. Areas of dark grey are areas of land that are not covered by potential ICCAs according to the analysis. Areas not covered should not be assumed to lack ICCAs.

Furthermore, 83% (23 million km²) of the extent of potential ICCAs lies outside of state and privately governed protected and conserved areas. This equates to 17% of the world's land being covered uniquely by potential ICCAs (i.e., this land is not also covered by state and privately governed protected and conserved areas).

This analysis also finds that 14% of the world's land is covered by state and privately governed protected and conserved areas together, so state coverage alone would be less than 14% of the world's land[14]. Therefore the finding supports previous estimates (e.g., in **Kothari et al., 2012**) that ICCAs might cover an area equal to or greater than state protected areas.

These analyses, along with others such as **RRI (2020b)**, show that Indigenous peoples and local communities are contributing extensively to nature conservation around the world. Appropriately recognising and supporting their rights, including to collective lands, territories and resources, would bolster their custodians' capacities to sustain their ICCAs in the long-term as well as respond to threats such as industrial activities. The legal recognition and protection of Indigenous peoples' and local communities' collective lands and territories is one of the most equitable, reliable and efficient ways to ensure sustainable stewardship of nature (**RRI, 2020c**; see also **Ban et al., 2020**; **Oktavia et al., 2018**; **Rist et al., 2019**).

The next section details how this potential coverage of ICCAs could contribute to the post-2020 global biodiversity framework's proposed target on protected and conserved areas, including how potential ICCAs already contribute to conservation inside and outside state and privately governed protected and conserved areas.

Section 2: Potential ICCAs and the post-2020 global biodiversity framework

In 2021, CBD Parties are negotiating the post-2020 global biodiversity framework (**CBD, 2020**). This will be the successor to the Strategic Plan for Biodiversity 2011-2020 and associated Aichi Targets, and is expected to be adopted at the 15th meeting of the Conference of the Parties to the CBD. The draft framework includes 20 Targets. Target 2 focuses on area-based conservation, including percentage coverage (and other aspects) of protected areas and other effective area-based conservation measures (abbreviated as "conserved areas" in this present analysis) (**CBD, 2020**). Given that potential ICCAs cover over one-fifth (21%) of the world's land, they could play a major role in achieving aspects of this target if their custodian Indigenous peoples and local communities wish to be recognised in this way, and if they are appropriately recognised and supported in doing so[15].

Findings in the Protected Planet Report (**UNEP-WCMC, IUCN & NGS, 2021**) show that progress has been made over the past ten years in expanding the world's protected and conserved area network in line with Aichi Target 11 in the 2011-2020 Strategic Plan for Biodiversity. However, the report also highlights significant gaps in ecological representation, connectivity, and coverage of areas of importance for biodiversity. Furthermore, there is not yet adequate data to fully assess whether the world's protected and conserved areas are generally effective in achieving positive conservation outcomes, or whether they are equitably governed. Within the post-2020 global biodiversity framework, there is active debate about equitable conservation and potential implications for Indigenous peoples and local communities whose rights and ways of life could be harmed if it is implemented through government-centric or exclusionary forms of protected and conserved areas (e.g., **Agrawal et al., 2020**). This is of particular concern as many existing protected areas already overlap with ICCAs (see Box 5).

[14] Using the January 2021 version of the Protected Planet Initiative's World Database on Protected Areas (WDPA) and the World Database on Other Effective Area-Based Conservation Measures (WD-OECM), having removed areas under the governance of Indigenous peoples and local communities.

[15] Including support to self-report their ICCA data (with free, prior and informed consent) to the Protected Planet Initiative so that their ICCAs are counted when tracking progress towards area-based conservation targets.

Box 5.

ICCAs overlapped by protected and conserved areas

(adapted from WWF et al., 2021, forthcoming)

*In many cases, Indigenous peoples and local communities manage their lands in ways that are consistent with the definition of a protected area (**Borrini-Feyerabend et al., 2013**) or conserved area (**CBD, 2018**; **Jonas et al., 2017**). However, although ICCAs can also meet the definition of a protected or conserved area (if the custodian Indigenous peoples and local communities choose to assign one of these terms) the status of these lands is often not formalised by states.*

*In many cases, protected areas under different governance types (government, shared, private) have been designated over areas that the Indigenous peoples and local communities have self-declared as ICCAs or otherwise self-recognise as their collective lands and territories. Indigenous peoples' and local communities' lands and territories are sometimes considered to be 'suitable' or prioritised for formal protection by states precisely because they have conserved and sustained the nature within them. Protected areas have been designated on their lands and territories, and specifically on de facto ICCAs, for many years. The designation process has sometimes been conducted in a way that is not only disempowering and damaging to Indigenous peoples and local communities, but also violates their rights, including by removing them from their lands and territories and preventing their access to and use of resources (**Stevens et al., 2016**; **Tauli-Corpuz et al., 2020**). This is a key reason for concerns with the current formulation of Target 2 in zero draft of the post-2020 global biodiversity framework.*

In other contexts, the designation of a protected area that overlaps with an ICCA may have little influence over how the ICCA is governed and managed, meaning that Indigenous peoples and local communities are the de facto (but unrecognised) custodians. As national and local contexts are highly diverse, the relationships between Indigenous peoples and local communities and protected and conserved areas vary widely across the world.

As noted elsewhere (**ICCA Consortium, 2021d**; **Participants of the Thematic Workshop on Human Rights in the Post-2020 Global Biodiversity Framework, 2021**), the lack of reference to human rights or to Indigenous peoples and local communities specifically in Target 2 raises concerns for the potential of this target to exacerbate negative impacts of conservation measures for communities (**Tauli-Corpuz et al., 2020**) and further entrench inequalities within the global conservation regime. The proposed "30x30" target (**CBD, 2020**) and related area-based conservation proposals such as "Half Earth" (**Locke, 2014**; **Wilson, 2016**) have been the subject of debates and critiques in academic literature and media commentaries in recent years (e.g., **Büscher et al., 2016**; **Ellis & Mahrabi, 2019**). Although most of the academic debates have been around the scientific basis of such proposals, a growing chorus of critics are concerned about the potential human rights implications of Target 2 if its language is not improved, and if it is implemented in a top-down and exclusionary manner (e.g., **Jonas & Dixon, 2020**; **Kothari, 2021**). This is of particular concern for Indigenous peoples and local communities who could be subjected to eviction, dispossession or exclusion from their customary and collective lands and territories, and criminalisation for their ways of life and cultural practices, among other human rights violations.

The proposed Target 2 could also place a disproportionately heavy burden on rural people in low and middle-income countries, raising issues with geographical, class and economic inequality and implications for the international law principle of common but differentiated responsibilities[16]. An estimated 1.65 billion - 1.87 billion Indigenous peoples and local communities live in important biodiversity conservation areas[17], of which 363 million inhabit existing protected areas. Furthermore, people in high-income countries comprise just 9% of the total population who inhabit important biodiversity conservation areas globally (**RRI, 2020c**). The same report estimates that the financial cost of resettling 1% of the people in a country's important biodiversity conservation areas is more than the cost of recognising all tenure rights in that jurisdiction.[18] Human rights and equity are therefore urgent and critical areas for improvement in the zero draft of the post-2020 framework, with recognition of Indigenous peoples' and local communities' collective lands and territories as a clear and effective way forward (**RRI, 2020c**).

Although Indigenous peoples and local communities arguably have a crucial role to play in the development and implementation of the entire post-2020 framework, this analysis focuses on their potential contributions to area-based conservation, specifically, ecological representation and coverage of important areas for biodiversity as some of the key elements of Target 2. Both ecological representation and areas of importance for biodiversity can be measured using global datasets that are commonly used in analyses on protected and conserved areas.

2.1. Terrestrial protected and conserved area coverage

Protected and conserved areas are a major component of national and international efforts to conserve nature (**Dudley et al., 2018**). Given that the conservation of nature is one of the defining characteristics of ICCAs, they can also meet the definition of a protected or conserved area if the custodian Indigenous peoples and local communities choose to assign one of these terms (**Jonas et al., 2017**; **UNEP-WCMC, 2020**).

Global protected and conserved areas coverage is tracked by the **Protected Planet Initiative** (see Box 6), which provides the basis for monitoring and reporting on progress towards international targets such as the **Aichi Biodiversity Target 11** and the 2030 **Sustainable Development Goals 14 and 15**. However, only approximately 1% of the data has been reported as under the governance of Indigenous peoples or local communities. Given this lack of information, there is a need to support Indigenous peoples and local communities to document and map their ICCAs on their own terms (**Louis et al., 2012**; **Bryan & Wood, 2015**), and to self-report them (see Boxes 2 and 6), so that the Protected Planet Initiative can better reflect the governance diversity that exists in reality. Progress had been made through the Global Support Initiative on ICCAs, and the documentation of ICCAs in the global **ICCA Registry** (see Box 6).

[16] The principle of common but differentiated responsibilities was recognised in Principle 23 of the Stockholm Declaration (1972) and enshrined in the UN Framework Convention on Climate Change (UNFCCC) in 1992. It stipulates that all states have a shared obligation to address environmental destruction but denies equal responsibility of all states with regard to environmental protection (**UNFCCC, 1992**), i.e., placing more responsibility on states that have contributed more to environmental harm.

[17] These areas include existing protected areas, KBAs, Wilderness areas, and the prioritization scenarios. Existing protected areas are also important biodiversity conservation areas and continue to require conservation attention as formal protection is not enough to guarantee continued conservation effectiveness (**RRI 2020c**).

[18] A conservative calculation of "notional compensation cost" was used only as a "thought exercise" to convey to the conservation community the huge costs in trying to expand protected areas through resettlement and exclusionary conservation (**RRI 2020c**).

Box 6.

The ICCA Registry and Protected Planet Initiative

***The UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC)** collaborates with ICCA custodians and their supporting organisations to **document ICCAs** as part of a broader global effort to highlight the vital contributions that Indigenous peoples and local communities have made to conservation throughout history, and continue to make today. Supporting communities to submit their data to the ICCA Registry and Protected Planet Initiative provides an avenue for greater awareness of their contributions to conservation at the local and international levels and documentation to assist in seeking legal and other forms of recognition and support within their countries. Both the ICCA Registry and Protected Planet Initiative are managed by UNEP-WCMC.*

***The ICCA Registry:** The global **ICCA Registry** was established in 2008 to raise awareness of the significance of Indigenous peoples' and community-led conservation practices. It is a global registry of territories and areas that are self-identified and conserved by Indigenous peoples and local communities. The data in the ICCA Registry is voluntarily provided by ICCA custodians, or through their supporting organisations with their free, prior and informed consent. At the time of writing, it included approximately 250 ICCAs, but it continues to grow each year, providing a much-needed evidence base to promote recognition and support for ICCAs worldwide.*

***The Protected Planet Initiative:** The ICCA Registry is closely linked to the **Protected Planet Initiative**, the online platform of the World Database on Protected Areas (WDPA) and the World Database on Other Effective Area-Based Conservation Measures (WD-OECM). The Protected Planet Initiative is used to track progress towards the Sustainable Development Goals, Aichi Biodiversity Targets and other international targets. It is also used by scientists, decision-makers and companies that want to minimise their impact on the environment. It stores information on both protected and conserved areas, some of which are ICCAs.*

2.1.1. Main findings and their implications

As described in the previous section, the world's state and privately governed protected and conserved areas currently cover approximately 14% of the world's land. This analysis finds that more than one-quarter (26%) of that network overlaps with potential ICCAs (see Figure 3).

On the one hand, this underscores the key role of Indigenous peoples and local communities in sustaining the biodiversity and nature within the existing protected and conserved area network, despite not necessarily being formally recognised for doing so. On the other hand, the extent of overlap also highlights the potential historical and continuing human rights violations associated with the designation, governance and management of protected and conserved areas by state and private entities in Indigenous peoples' and local communities' lands and territories.

If potential ICCAs outside of state and privately governed protected and conserved areas (covering 17% of the world's land) were recognised for their contributions to conservation alongside the existing terrestrial state and privately governed protected and conserved areas (covering 14% of the world's land), it would equate to 31% (over 41 million km^2) of the world's land. This is a significant finding that means that nearly one-third of the world's land may already be covered by areas that are dedicated to conservation and/or maintaining the land and nature in good ecological condition through a mixture of legal, governance and management systems, implemented through state, private and community entities. However, the Indigenous peoples and local communities who are governing, managing and conserving more than half of this area are not currently recognised or supported for their contributions to nature conservation. Furthermore, in some cases, they are actually criminalised for doing so under the imposed laws and institutional arrangements of overlapping state and privately governed protected and conserved areas (**Tauli-Corpuz et al., 2020**).

Therefore, there is a clear opportunity within the post-2020 global biodiversity framework to not only recognise the conservation contributions of Indigenous peoples and local communities but also to proactively safeguard against human rights violations. The finding above adds to a growing evidence base that legal recognition of human rights in general and of collective lands, territories and governance systems specifically is a central component of any global area-based conservation target that could even help exceed the 30% target (**RRI, 2020c**).

In this light, scientific and political concerns about how to achieve an area-based conservation target under Target 2 – whether 30% or otherwise – could be redirected from debates about where and how to designate new protected and conserved areas to a concerted and collective focus on appropriately recognising and supporting Indigenous peoples' and local communities' existing conservation efforts – primarily through legal recognition of their rights, especially to their collective lands and territories and governance systems. Thus, this analysis illustrates both the need and the opportunity to explicitly incorporate human rights, governance diversity and equity into Target 2, and ensure that its implementation respects Indigenous peoples and local communities as rights-holders and ensures the accountability of governments, conservation organisations and private actors as duty-bearers. Supporting Indigenous peoples and local communities to document and map their territories and areas on their own terms (see Box 2) is a practical step with which conservation organisations and others could usefully offer assistance.

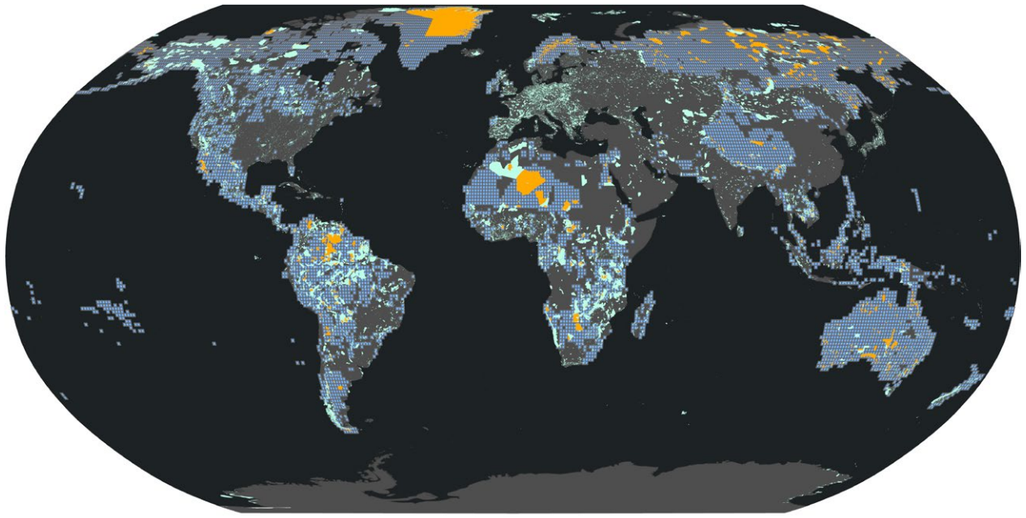


Figure 3. The estimated extent of potential ICCAs, illustrating those that do, and do not overlap with state and privately governed protected and conserved areas. Although the extent of potential ICCAs has been scaled up to 1-degree grid cells to obscure boundaries, the protected and conserved areas have their true boundaries shown.

2.2. Ecologically representative

In the 2011-2020 Strategic Plan for Biodiversity, Aichi Target 11 called for an ecologically representative protected and conserved area network, which is often interpreted to mean that the 17% coverage target should be applied to each of the world's terrestrial ecoregions[19] (and 10% of each marine ecoregion). Achieving this aim would help to provide some protection to the full diversity of life on Earth. Although the world's network of protected and conserved areas covers a more representative sample of ecoregions than it did 10 years ago, over half of terrestrial ecoregions do not yet have 17% coverage, and some have no coverage at all (**UNEP-WCMC, IUCN & NGS, 2021**). The present spatial analysis is a first step in understanding how ICCAs might be contributing to ecological representation outside the current protected and conserved area network.

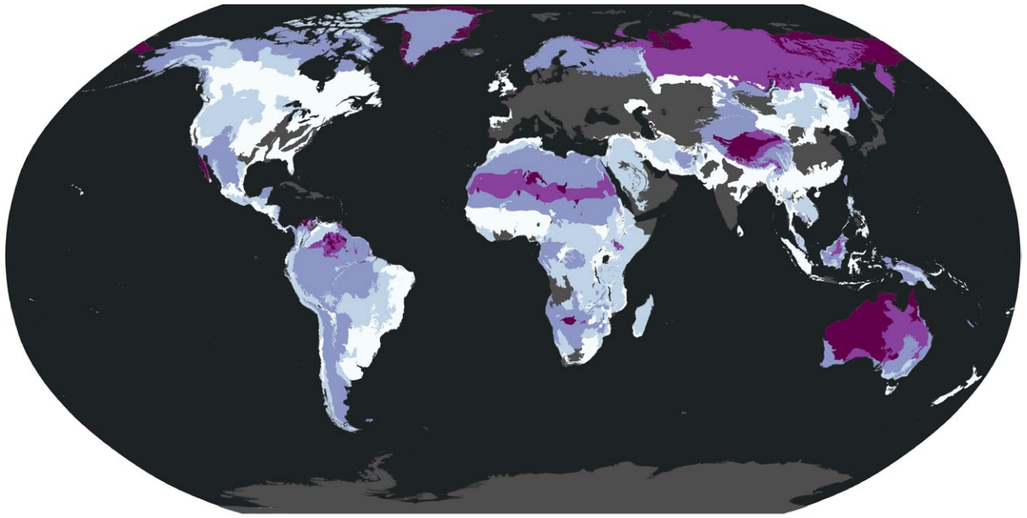
Photo: Roshni Lodhia

2.2.1. Main findings and their implications

Potential ICCAs overlap to some extent with 561 (66%) of the 847 existing global terrestrial ecoregions (including rock and ice). Within this, almost one-fifth of ecoregions meet the target of 17% coverage applied to protected and conserved areas, 70 are more than 50% covered, and 38 are more than 75% covered (see Figure 4).

Although some of this area is already covered by state and privately governed protected and conserved areas, in many cases potential ICCAs are providing coverage outside of such areas. For example, the estimated coverage of potential ICCAs in 94 of the ecoregions does not overlap at all with state and privately governed protected and conserved areas. This indicates that potential ICCAs may play an important part in ensuring representation of ecoregions by conserving parts of these particular ecoregions that are currently (according to available data) not covered by state and privately governed protected and conserved areas.

[19] The most common classification for biogeographical regions is ecoregions, which are units of land, ocean or freshwater that share the same biological characteristics (Olson et al., 2001; Dinerstein et al., 2017).



Percent coverage of global terrestrial ecoregions by potential ICCAs

>0 - 1% >1 - 10% >10 - 50% >50 - 75% >75 - 100%

Figure 4. The percentage coverage of global terrestrial ecoregions by potential ICCAs. The higher the percentage, the higher the coverage of that ecoregion by potential ICCAs. Areas not covered should not be assumed to lack ICCAs.

2.3. Areas of importance for biodiversity

The most comprehensive and commonly used global dataset for measuring the coverage of areas of importance for biodiversity is the World Database of Key Biodiversity Areas (**BirdLife International, 2020**). These are sites of significance for the global persistence of biodiversity[20] (**IUCN, 2016**), and over 16,000 of them have been identified in terrestrial, marine and freshwater environments, with coverage in all countries worldwide (**BirdLife International, 2020**). They encompass Alliance for Zero Extinction sites and Important Bird and Biodiversity Areas (**IUCN, 2016**). At present, only one-fifth (19.9%) of terrestrial and inland water Key Biodiversity Areas are completely covered by protected and conserved areas (of all governance types), and one-third (33.6%) of sites are not covered at all (**UNEP-WCMC, IUCN & NGS, 2021**). Key Biodiversity Areas falling outside of networks of protected and conserved areas should be safeguarded to ensure the persistence of the biodiversity elements for which they are important, for example, through the designation of new or expanded protected areas, recognition of new or existing protected and conserved areas, or appropriate broad-scale policy mechanisms. ICCAs may be relevant to all three of these options.

2.3.1 Main findings and their implications

This analysis finds that potential ICCAs cover at least one-fifth (22%) of the extent[21] of currently identified Key Biodiversity Areas on land (see Figure 5). If ICCAs are managed in ways that benefit the species, ecosystems and other aspects of biodiversity for which the Key Biodiversity Areas have been identified (**IUCN, 2016**), they could play an important role in conserving the biodiversity in a significant number of sites. ICCAs are by definition governed in ways that achieve positive conservation outcomes at the site-level, so this finding shows that these site-level actions could in fact contribute to the global persistence of biodiversity far beyond the local boundaries of their ICCA.

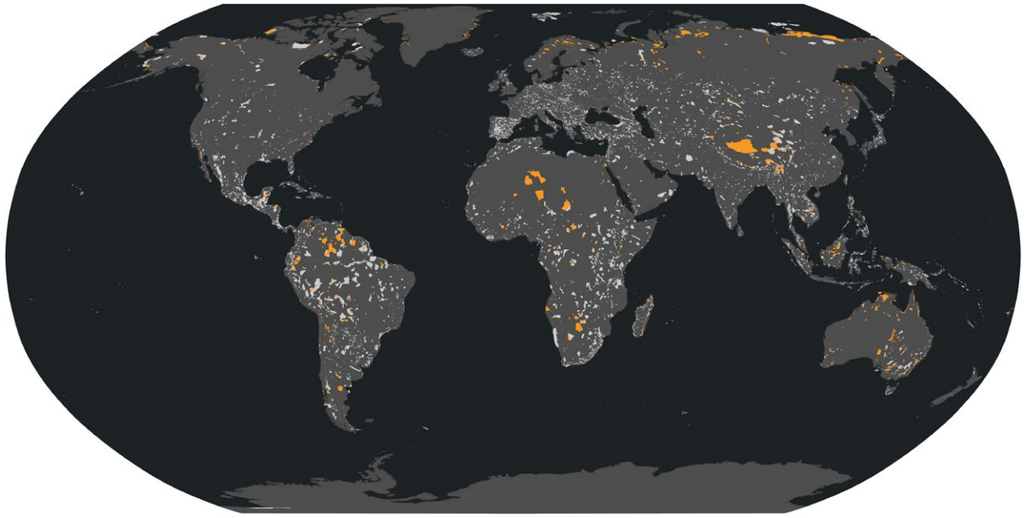
Furthermore, over half (52%) of the extent of terrestrial Key Biodiversity Areas is not currently covered by state and privately governed protected and conserved areas. Potential ICCAs are found to cover one-fifth (20%) of this area. This means that potential ICCAs already *de facto* contribute significantly to the protection and conservation of Key Biodiversity Areas outside of the state and privately governed protected and conserved area network, further underscoring their globally significant role in conservation.

Importantly, the current data on Key Biodiversity Areas may significantly underestimate their extent, as areas have not been comprehensively identified across all taxonomic groups, ecosystems and sites of ecological integrity. In particular, sites that qualify under Key Biodiversity Area 'criterion C' for ecological integrity may be more likely to overlap with ICCAs, although guidelines for identifying sites under this criterion are still being developed. This means that ICCAs could be making an even greater contribution to the conservation of Key Biodiversity Areas in reality than this analysis suggests.

The focus of the next section of this analysis moves away from global area-based conservation targets to instead focuses on the role of Indigenous peoples and local communities in the management and conservation of Intact Forest Landscapes and forests more broadly, including how their historic and traditional management actions can reduce instances of wildfire. It highlights the value that the protection of forests and their custodians has in preventing further deforestation and associated climate breakdown, and looks at the overlap between potential ICCAs and areas that could help to prevent further biodiversity loss, prevent CO_2 emissions from land conversion, and enhance natural carbon removal.

[20] Wherever possible, the process of applying the Key Biodiversity Area Standard should be led nationally with the involvement of relevant local stakeholders. Some countries/regions may also want to apply the criteria with less stringent thresholds to identify sites of national/regional significance (**IUCN, 2016**)

[21] This analysis looked at the total extent (area) of overlap rather than the overlap per individual site, which was the method used in other cited analyses



Extent of terrestrial KBAs that overlap with potential ICCAs

Extent of terrestrial KBAs that do not overlap with potential ICCAs

Figure 5. The extent of overlap between Key Biodiversity Areas (KBAs) and potential ICCAs. Precise boundaries of the overlap are shown since the original boundaries of potential ICCAs are not discernible. Areas not covered should not be assumed to lack ICCAs.

Section 3: Potential ICCAs, forests and climate stabilisation

There is growing international recognition of the role that forest-dependent communities play in conserving the world's most important forests (e.g., **FAO & FILAC, 2021**, in the context of Latin America). At the Global Climate Action Summit at the end of 2018, a group of 17 philanthropic foundations committed over $US 459 million until 2022 in support of land-based solutions to climate change, including forest conservation and restoration, as well as the recognition of Indigenous peoples' and traditional communities' collective land rights (**Mongabay, 2018**). However, many communities are actively resisting external threats to their forests and are seeking to secure land rights, funding and respect for their Indigenous and local knowledge systems (**Guardians of the Forest, 2021**).

Many of the forests found within Indigenous peoples' lands are considered intact expanses of forest, important for biodiversity and carbon storage. A study covering 50 countries has shown that at least one-third (36%) of Intact Forest Landscapes are within Indigenous peoples' lands and territories, and only 12% of the extent of Intact Forest Landscapes is currently covered by protected areas (of all governance types) (**Fa et al., 2020**). The same study showed that rates of loss of Intact Forest Landscapes (largely due to industrial logging, agricultural expansion, fire, and mining/resource extraction) are considerably lower on Indigenous lands, although these forests are still vulnerable to clearing and other threats.

3.1. Intact Forest Landscapes

Potapov et al., 2017 define an Intact Forest Landscape as a seamless mosaic of forest and naturally treeless ecosystems with no remotely detected signs of human activity, and a minimum area of 500 km^2. They are large enough to maintain all native biodiversity and are considered crucial for carbon storage and regulating hydrological regimes, as well as other ecosystem functions (**Potapov et al., 2017**).

Subsistence and small-scale livelihoods of Indigenous peoples and local communities might not be "detectable" remotely but nonetheless exist in reality. Modification of some sort by Indigenous peoples and local communities can change the environment for the better, protecting biodiversity and providing environmental services (**IPBES, 2019**). Furthermore there are questions around how "intact" or "natural" any areas of land can be considered, when even 12,000 years ago, almost three quarters of the world's land was inhabited and altered by humans, including over 95% of temperate and 90% of tropical woodlands (**Ellis et al., 2021**). With these considerations in mind, the present analysis looks at the spatial overlap between potential ICCAs and the dataset of Intact Forest Landscapes.

3.1.1. Main findings and their implications

This analysis found that potential ICCAs cover at least one-third (33%) of the global extent of Intact Forest Landscapes (Figure 6), 79% of which is outside state and privately governed protected and conserved areas. The way in which Indigenous peoples live in and utilise the Intact Forest Landscape with limited negative impact is evidenced through the fact that the rate of loss of this landscape is lower on areas of Indigenous peoples' lands than in other areas. This is further illustrated at the national scale by **Schleicher et al. (2017)** who found that in the Peruvian Amazon Indigenous territories avoided forest degradation more effectively than protected areas (**FAO & FILAC, 2021**). In addition to reducing forest degradation, Indigenous land management is also found to reduce the risk of wildfires, with studies of Brazil and the Latin American regions finding fewer forest fires in Indigenous areas than protected areas (**Nelson & Chomitz, 2011**).

Forests are also major carbon sinks, and their continued

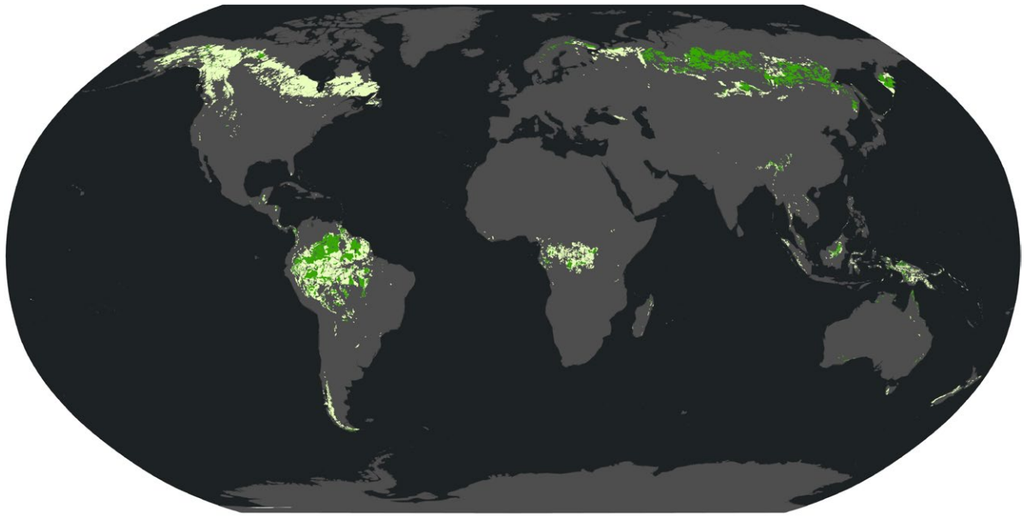


Figure 6. Extent of overlap between Intact Forest Landscapes and potential ICCAs. Precise boundaries of the overlap are shown since the original boundaries of potential ICCAs are not discernible. Areas not covered should not be assumed to lack ICCAs.

existence is critical in mitigating the impact of climate breakdown (**Diele-Viegas & Rocha, 2020**; **Lyons et al., 2020**). In **Walker et al., (2020)**, Indigenous territories in almost all countries studied account for a higher carbon density compared to all other land uses, and deforestation and consequential carbon losses were visibly lower in the countries with some form of Indigenous rights recognition. This shows that Indigenous governance of territories can potentially be a major mechanism for achieving global goals for reducing carbon emissions. For example, Indigenous governance of the Amazon forest in Ecuador, Brazil, Colombia and Bolivia is correlated with reduced deforestation and consequentially reduced carbon emission from forests (**Blackman & Veit, 2018**). Conversely, a lack of recognition of Indigenous peoples' rights, governance and land tenure systems, and persistent industrial threats such as mining, agroforestry and cattle ranching, are contributing factors in the loss of forests in Indigenous territories (**Constantino et al., 2018**; **Diele-Viegas & Rocha, 2020**).

3.2. Fire and Forest Governance

Bushfires are not a new phenomenon in many forest ecosystems and various biomes (e.g. **Durigan & Ratter, 2015**; **Archibald, 2016**). For instance, research shows that the Aboriginal peoples of Australia purposefully modified landscapes with fire, as part of their land management regime (**Smith et al., 2021**). Indigenous fire governance in Australia has been constant and ongoing in some territories, despite wider government policies that contravene their practices. Reviving fire governance through cultural burning practices of Aboriginal communities has been highly recommended as an effective method to control bushfires, yet it has been difficult to implement in reality (**Smith et al., 2021**). Policies that suppress fire are still dominant despite mounting evidence that controlled burning reduces the flammability of wildlands and therefore the risk of wildfire (e.g. **Eloy et al., 2019**; **Parisien et al., 2020**). Recognition of land rights may increase the possibility for Indigenous knowledge to guide land management that can lead to less severe bushfires (**Mistry et al., 2016**; **Smith et al., 2021**).

Indigenous peoples and local communities therefore play a critical role in the global management (including fire) and conservation of forests and as demonstrated here, potentially a large proportion of Intact Forest Landscapes. Without appropriate recognition and

tenure security, these forests are vulnerable to being destroyed (**FAO & FILAC, 2021**), which could further exacerbate the climate and biodiversity crisis beyond the Earth's limits. Furthermore, strengthening Indigenous peoples' and local communities' rights to their lands and forests is seen as a crucial solution to the climate crisis (**IPCC, 2019**). Over the last 15 years, legally recognised community forests have increased by 40%, and in many places, the legal infrastructure is already present to recognise these rights but remains unimplemented (**RRI, 2019**). Given the existing and projected severity of the climate crisis and the outsized role that Indigenous peoples and local communities and forests play in mitigating it, continuing to fail to recognise their rights and support their contributions to conservation could be globally catastrophic.

3.3. Global Safety Net

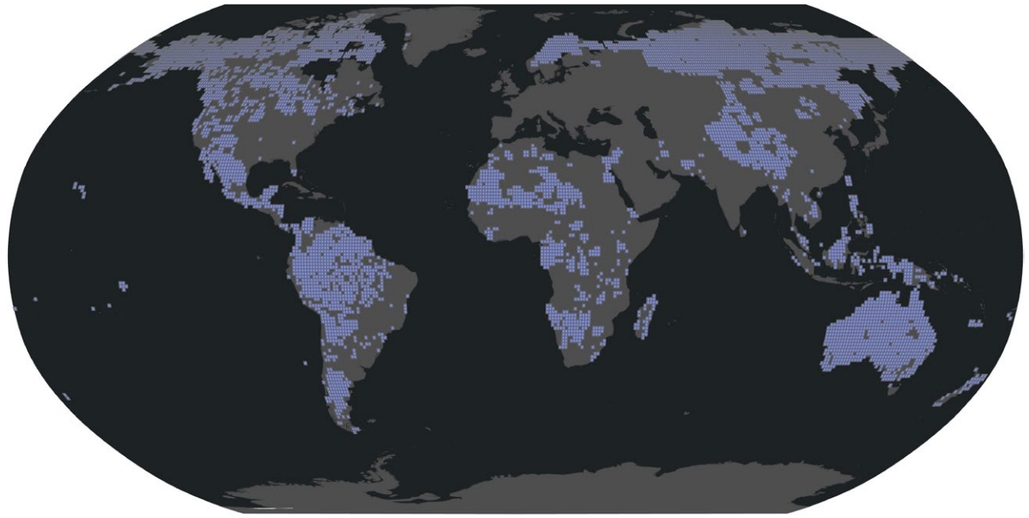
To tackle conservation issues with limited resources worldwide, some have called for a prioritisation of certain areas that, if conserved, could help to ensure a habitable planet in the future. The Global Safety Net is one such global-scale analysis of terrestrial areas, providing a partial view of what is a complex reality[22]. Although it only focuses on the terrestrial realm and relies on global datasets (which always have some limitations), this analysis provides a starting point for discussions on where the most important areas for planetary health might be. Further analyses undertaken at the national and local level (with nationally relevant datasets and with the inclusion of rights-holders and relevant stakeholders) would help to collectively decide the importance of the areas identified and agree on how best to ensure they are cared for in the long term by rights-holders and relevant stakeholders.

The Global Safety Net covers 50% of the global land surface and, according to the authors, if given conservation attention, could help to prevent further biodiversity loss, prevent CO_2 emissions from land conversion, and enhance natural carbon removal (**Dinerstein et al., 2020**). It is underpinned by the existing protected area network, in addition to targeting elements of biodiversity and carbon storage that need further conservation attention outside of that network. The study suggests that the whole protected area network[23] (under all governance types) made up about 30% of the Global Safety Net area.

The authors also found that approximately 34% of the Global Safety Net area outside of the protected area network is covered by Indigenous land. They suggest that addressing Indigenous land claims, upholding existing land tenure[24] rights, and resourcing programs on Indigenous-managed lands could help achieve biodiversity objectives on as much as one-third of the area required by the Global Safety Net. The authors make it clear that the formulation of the Global Safety Net is not based on and does not advocate removing Indigenous or other people from their lands and in no way intends to contribute to the same.

The present analysis uses up-to-date and additional data[25] to look specifically at the role that potential ICCAs (not just Indigenous lands) might be playing in the Global Safety Net, inside and outside of state and privately governed protected and conserved areas.

A Madagascar's small-scale fisher in a boat. Photo: MIHARI



Potential ICCAs that overlap with the Global Safety Net, scaled up to 1-degree grid cells to obscure boundaries

Overlap between potential ICCAs and the Global Safety Net

Figure 7. The extent of potential ICCAs overlapping with the area of the Global Safety Net that is outside of state and privately governed protected and conserved areas. The data are scaled up to 1-degree grid cell to obscure specific boundaries of potential ICCAs. Areas not covered should not be assumed to lack ICCAs.

3.3.1. Main findings and their implications

Potential ICCAs cover almost one-third (32%) of the Global Safety Net area outside of the existing state and privately governed protected and conserved area network (Figure 7), which is a very similar finding to **Dinerstein et al.,'s (2020)** analysis of Indigenous lands only.

The high overlap of potential ICCAs with the Global Safety Net area highlights further the outsized role of Indigenous peoples and local communities in mitigating the biodiversity and climate crisis. Furthermore, as illustrated in previous sections, potential ICCAs already overlap with over one-quarter of the existing state and privately governed protected and conserved area network. Given this network already covers approximately 30% of the Global Safety Net, this suggests that potential ICCAs overlap with over one-third of the total Global Safety Net area.

The next section draws on a range of literature to explore the co-occurrence of biological and cultural and linguistic diversity, and the importance of fostering these connections in future conservation efforts. Using a study on the overlap of potential ICCAs and Natural and Mixed UNESCO World Heritage sites, the section shines a light on the role that Indigenous peoples and local communities play in natural areas of outstanding universal value, giving rise to the question of why people (with their diverse cultural and linguistic values) are so often be considered separately to nature and its values in mainstream conservation narratives and policies.

[22] The framing of 'nature' that underpins most such global spatial analyses has been critiqued for overall conceptualisation and processes underlying their design, implementation and evaluation. E.g., in **Woroniecki et al., 2020**.

[23] **Dinerstein et al., (2020)** used a 2018 version of the Protected Planet Initiative's World Database on Protected Areas (WDPA)

[24] Land tenure is the relationship among people (as individuals or groups) with respect to land and associated natural resources; it may be categorised as customary, communal, private, state or otherwise. Land tenure systems regulate behaviour through rights and associated responsibilities to use, control, and transfer of land (**FAO, 2002**). Customary land tenure remains the dominant form of *de facto* land ownership around the world, with a mixture of individual, family and communal tenures. These tenure systems have uneven degrees of recognition under state legal systems (**RRI, 2020a**).

[25] An updated version of the Protected Planet Initiative's World Database on Protected Areas (WDPA) and World Database on Other Effective Area-Based Conservation Measures (WD-OECM). Furthermore, this study included non-Indigenous local communities in addition to Indigenous peoples, which Dinerstein et al., 2020 did not do.

Section 4: Conserving biological and cultural diversity together

Indigenous peoples and local communities have unique relationships with the environments on which they depend, and which are fundamental to their social, cultural and spiritual lives. ICCAs are not only crucially important for climate, biodiversity and planetary health, but they are also strongholds of cultural and biocultural diversity (**IUCN, 2019**) as well as linguistic diversity, which has been declining rapidly in recent years (**Harmon & Loh 2010**). Even in areas recognised primarily for their natural features, cultural and linguistic diversity are intertwined with the diversity of nature. For instance, 80% of all Natural and Mixed UNESCO World Heritage sites (designated for their natural features) intersect with at least one Indigenous language (**Romaine & Gorenflo, 2020**). In Africa alone, 147 Indigenous languages share at least part of their geographic extent with Natural and Mixed UNESCO World Heritage sites (**Gorenflo & Romaine, 2021**). Furthermore, this analysis finds that almost one-third (32%) of the extent of Natural and Mixed UNESCO World Heritage sites overlap to some extent with potential ICCAs (see Figure 8), indicating further that natural and cultural values are more connected than these particular designations may suggest.

Indigenous languages are developed in territories and thus their survival is inherently tied to them. Recognition of Indigenous languages is integral for Indigenous peoples' resurgence, continuity of inter-generational knowledge transmission and sustainable governance of biodiversity. It is widely accepted that areas of high biodiversity overlap with areas of high language diversity (**Gafner-Rojas, 2020**; **McIvor, 2020**). Language diversity also plays a key role in self-determination, maintenance of Indigenous knowledge, cultural affiliation, identity, cultural continuity and governance of territorial resources (**Duff & Li, 2009**; **Gafner-Rojas, 2020**; **McIvor, 2020**). There is arguably a need for more and more appropriate legal recognition and protection of Indigenous languages, including in the context of environmental law and standards (**Gafner-Rojas, 2020**). One opportunity on the immediate horizon is to consider Indigenous languages more explicitly in the post-2020 global biodiversity framework.

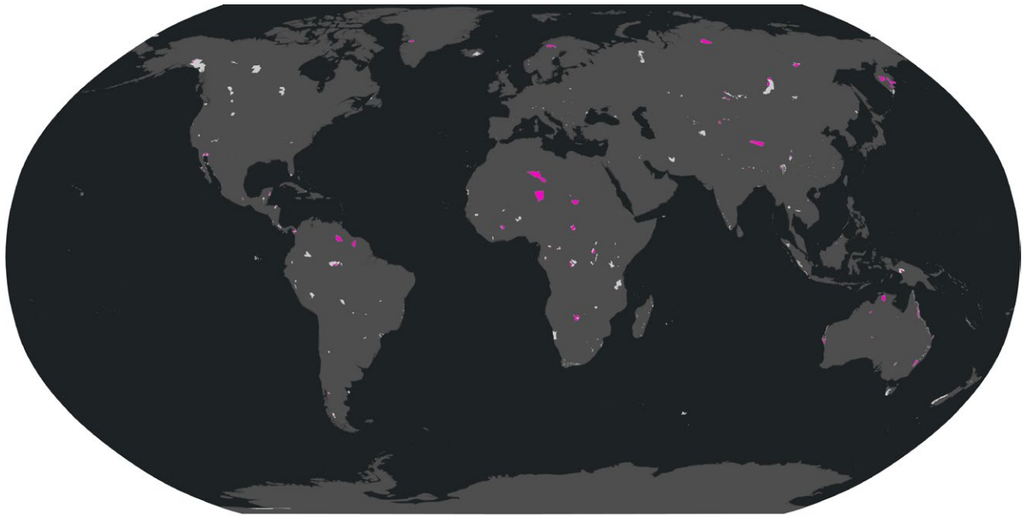


Figure 8. The extent of overlap between Natural and Mixed UNESCO World Heritage sites potential ICCAs. Precise boundaries of the overlap are shown since the original boundaries of potential ICCAs are not discernible. Areas not covered should not be assumed to lack ICCAs.

Cultural and biological diversity are deeply integrated, and the maintenance of Indigenous and local knowledge systems is essential for biodiversity conservation, climate mitigation and effective environmental governance (**RRI, 2019**). A high co-occurrence and correlation between linguistic and biological diversity points strongly toward the inherent links between them and could provide the basis to argue for coordinated conservation of nature and culture in Natural and Mixed UNESCO World Heritage sites (**Gorenflo & Romaine, 2021**).

Although not all of the studies discussed above are specific to ICCAs, they shine a light on the fundamental importance of reforming policies, laws, institutions and practices around worldviews that are rooted in the deep relationships between people and cultures and the nature on which all humans depend, rather than in a flawed ideology that people and nature should be considered separately, and that nature can only thrive without people. **Ellis et al. (2021)** suggests that (with rare exceptions), current biodiversity losses are not caused by human conversion or degradation of "untouched" habitats, but instead by the appropriation, colonisation and intensification of use in lands that have been long inhabited, shaped and sustained by prior societies. Lands now characterised as "natural," "intact," and "wild" generally exhibit long histories of use, as do protected areas and Indigenous lands. Looking at the history of how land has been used over the last 12,000 years, the study argues that global land use history confirms that empowering Indigenous peoples and local communities through rights will be critical to conserving biodiversity across the planet (**Ellis et al., 2021**).

*The next section looks at some of the extractive and commodity-driven development pressures that Indigenous peoples and local communities may face in the future. These developments pose huge risks for Indigenous peoples and local communities if they are not supported to lead proactive, self-determined and desired development pathways (**IPBES, 2019**).*

Section 5: Future development pressures on potential ICCAs

In many places, ICCAs and their custodians must confront a range of industries seeking to exploit resources in their territories. Energy and extractive industries, large-scale monoculture agriculture and infrastructure projects can destroy habitats and traditional ways of life (**ICCA Consortium, 2019**). Communities are further at risk where there is inadequate recognition of their governance rights and systems, and a lack of political and legal support (**IPBES, 2019**). Furthermore, communities are often violently removed or displaced from their territories. In 2019, 212 environmental defenders were killed for taking a stand against environmental destruction, the highest number ever to be killed in a single year (**Global Witness, 2020**). Of these defenders, 40% were Indigenous. In 2020, of all human-rights defenders, those defending environmental and Indigenous rights were the most at risk of attacks and killings (**Front Line Defenders, 2020**). Addressing these issues should be at the forefront of the world's efforts to address human rights abuses and the climate and biodiversity crises as interlinked struggles.

In some countries, an increase in deforestation can be linked to "development" policies such as legalizing mining in the Amazonian forests. Ranching and industrial agriculture resulted in fires engulfing vast areas of the Amazon forests in the summer of 2019 (**Bartel et al., 2020**). The increase of industrial projects in the name of economic growth is likely to have catastrophic consequences not only for Indigenous peoples and their ways of life, but also for biodiversity and halting carbon emissions (**Diele-Viegas & Rocha, 2020**). During the COVID-19 pandemic, land invasions intensified in Indigenous territories and communities responded with blockades and restricted access to their territories (**Mentone et al. 2021**). In many countries around the world, Indigenous peoples and communities faced an increase in violence and direct threats to their lands and territories from industrial activities during the pandemic (**Dil et al., 2021**).

As well as understanding current threats, it is important to look to the future to understand the potential for further pressure, and where that is likely to occur. As the **IPBES (2019)** report suggests, Indigenous peoples and local communities feel threatened by external pressures, so this analysis takes a proactive look at where that pressure is likely to be greatest. This analysis used the global Development Potential Index (DPI) to identify the extent of potential ICCAs that could be susceptible to "high development pressure" in the future (see Figure 9). The Global Development Potential Index (DPI) is

a cumulative development pressure map created by combining previously published Development Potential Indices (DPIs) (**Oakleaf et al., 2019**) for renewable energy (concentrated solar power, photovoltaic solar, wind, hydropower), fossil fuels (coal, conventional and unconventional oil and gas), mining (metallic, non-metallic), agriculture (crop, biofuels expansion) and urban pressure map based on global urban growth projections from 2020 to 2050 (Zhou et al. 2019).

Areas of high development pressure indicate "highly suitable" areas for expansion based on the presence of large reserves of unexploited resources and the infrastructure to support their extraction and transportation. As such, development pressure maps may not adequately capture frontier expansion made possible by investments in new infrastructure by sectors like extractive mining and oil and gas (**Oakleaf et al., 2019**). These maps consider the biophysical and economic suitability of commodity-based and extractive development expansion and were used to highlight areas where such industries could impact Indigenous peoples and local communities and their collective lands and territories.

Box 7.

Rethinking the relationships between people and nature

Indigenous cultures, aspirations, stewardship and governance of their territories, lands and seas are also influencing innovations in state legal systems. For example, Ecuador has "incorporated" Indigenous law into its constitution by giving rights to 'Pachamama' (Mother Earth) as well as recognizing "buen vivir" ("living well") as a holistic measure to protect marginalized members of society, support Indigenous principles of responsibility, reciprocity and interconnectedness (Sajeva, 2017). The constitution of Bolivia also recognizes the rights of Mother Earth. In 2017, the government of New Zealand/Aotearoa granted personhood to Whanganui River (Te Awa Tupua) as a result of nation-to-nation negotiations with the Māori of the Whanganui Iwi (Macpherson & Ospina, 2020). These are exciting innovations within state legal systems that could have positive impacts on shaping future economies and societies.

It's important to note that these types of extractive and commodity-based development pathways can be challenged and reframed by more sustainable human-resource relationships espoused by Indigenous peoples and local communities (see Box 7). The emergence of rights and protections for nature aligned with Indigenous worldviews can be a path forward in preventing and avoiding the negative impacts of external development pressures.

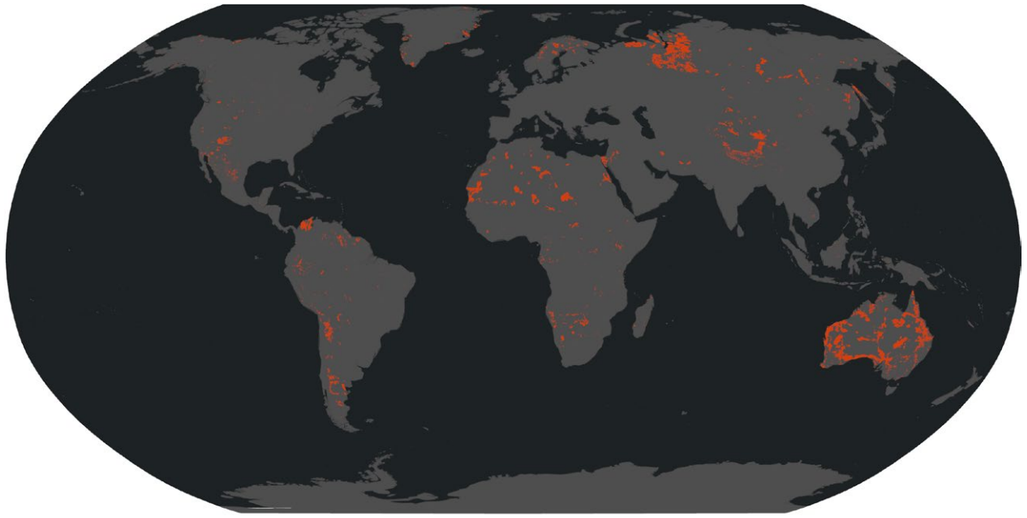
5.1. Main findings and their implications

At least 16% of the extent of potential ICCAs has high exposure to potential future development pressure from commodity-based and extractive industries (see Figure 9). This finding only includes areas under high pressure, due to lower certainty with regards to the medium and low pressure areas (see Annex 2 for methods) . Therefore the other 84% of the area of potential ICCAs should not be considered free from potential pressure from commodity-based and extractive industries.

Although these industrial and economic growth pressures are not inevitable, it is important to be prepared for the possibility that they will occur, including by proactively and urgently supporting Indigenous peoples and local communities to secure their land, tenure and other rights. Deciding whether or not to allow an investor in community lands is one of the most important decisions that a community can make. If an investment project is undertaken in a precautionary, respectful and inclusive way, it could potentially contribute to community development and prosperity (**Heiner et al. 2018**) and minimise harm. Yet when an investment is implemented in bad faith, or without proper community consultation and consent, it could have innumerable negative impacts, including claiming land that community members rely on for their livelihoods, polluting local rivers, lakes, air and soils, blocking access to cultural sites and violating human rights (**Bernauer & Roth, 2021**; **Colchester, 2004**; **O'Bonsawin, 2010**).

This report shows how crucial Indigenous peoples and local communities are in conserving areas of importance for biodiversity, climate and overall planetary health. Economic incentives have often favoured expanding economic activity (including extractive and commodity-driven development) over conservation or restoration, which has often resulted in harm (**IPBES, 2019**). Therefore, global environmental commitments should include halting destructive industries (and their financing streams such as perverse incentives) as the primary drivers of biodiversity loss and prioritising the multiple values of nature and ecosystems over short-term financial gain in economic activities to allow for better ecological, economic and social outcomes (**IPBES, 2019**). Furthermore, protection of Indigenous peoples and local communities against violence and harm, and appropriate and adequate support to defend their territories and themselves against destructive industries and other threats is essential so they can continue to practice their ways of life and pursue their self-determined futures.

Photo: Darwin Pizarro, Fundación ALDEA, 2019



Overlap between potential ICCAs and areas of potential high future development pressure

Figure 9. The extent of potential ICCAs that overlap with areas of potential high development pressure, as defined by the global Development Potential Index (DPI). Precise boundaries of the overlap are shown since the original boundaries of potential ICCAs are not discernible. Areas not covered should not be assumed to lack ICCAs.

Part III
Conclusions

Recognising and fulfilling the rights of Indigenous peoples and local communities who are governing, managing and conserving their collective lands and territories is crucial for a healthy planet. This analysis highlights that Indigenous peoples and local communities are effectively sustaining areas of importance for biodiversity, areas of intact forest and areas considered globally important for carbon storage and climate resilience, often without any legal recognition or protection. Furthermore, much of this area is not covered by state and privately governed protected and conserved areas. This not only shows that the formal network of protected and conserved areas has significant gaps in coverage and effectiveness but also shows that Indigenous peoples and local communities are central to sustaining nature outside of formal state systems.

These findings underscore how essential it is to appropriately recognise and support Indigenous peoples' and local communities' rights and ways of life in both the development and implementation of the post-2020 global biodiversity framework. In negotiating the post-2020 framework, including any area-based targets (whether for 30% or otherwise), Parties to the CBD should use this global analysis as evidence of the central importance of protecting human rights in general. Of particular importance are the rights of Indigenous peoples and local communities, who are the heart and soul of equitable and effective conservation but remain largely unrecognised as such and excluded from decision-making processes that affect them. The risks of not doing so are undeniable for both people and the planet and time is of the essence.

Indigenous peoples and local communities are facing growing threats to themselves and to their lands and territories, particularly from industrial pressures such as commodities and extractive industries, which are also among the main drivers of biodiversity loss. Communities are actively resisting and challenging these threats, drawing on deep reserves of collective strength and resolve, but they may not be able to do so forever.

Supporting Indigenous peoples and local communities to secure their rights, particularly to their collective lands and territories and self-determined governance systems and cultural practices, is arguably the biggest opportunity in the post-2020 framework and fundamental to the diversity and wellbeing of all life on Earth. The time is now for state governments, conservation organisations, private actors and all citizens to take responsibility and be held accountable for their roles in the interlinked global crises we are all facing, and to come together at this critical juncture in our history – for the future of life on Earth.

Photo: Fatma Zolfaghari

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Annex 1
Data and limitations

Datasets used

Table 1. Datasets used in this analysis. Those in the grey cells were used to make the potential ICCAs layer, those in the green were intersected with the potential ICCAs layer to obtain the results

Dataset name	Description	Citation and version used	Purpose of analysis	Dataset limitations
Indigenous peoples' and local communities' lands baselayer	A global base layer of Indigenous peoples' and local communities' lands covering 132 countries was generated by combining datasets containing lands where Indigenous peoples and local communities have ownership and/or governance authority (regardless of legal recognition). These datasets were sourced from existing efforts that have greatly contributed to the understanding of the extent of Indigenous peoples and local community lands and territories. Datasets included Indigenous Peoples' lands dataset (Garnett et al., 2018); LandMark (2020); World Database on Protected Areas (UNEP-WCMC & IUCN, 2020a); World Database on Other Effective Area-Based Conservation Measures (UNEP-WCMC & IUCN, 2020b); Indigenous and Local communities (IPLC) governance of lands and waters dataset (Conservation International, 2020). Full details of this layer in WWF et al., forthcoming (2021)	(WWF et al., 2021, forthcoming)	To form part of the potential ICCAs layer (those areas owned/governed by Indigenous peoples and local communities)	This layer only covers land. Datasets with a marine component were clipped so only the terrestrial areas remained, since only limited data were available on coastal and marine areas under IPLC ownership or governance. Furthermore, it does not include all countries (it includes 132); however, by combining these datasets, it provides the most globally comprehensive dataset of Indigenous peoples' and local communities' lands to date.
World Database on Protected Areas (WDPA)	The WDPA is the most comprehensive global database of marine and terrestrial protected areas, updated on a monthly basis. The compilation and management of the WDPA is carried out by the UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC). For this analysis we used points and polygons: GOV_TYPE = 'Indigenous Peoples' or 'Local communities' (minus STATUS = 'Proposed' or 'Not Reported' or DESIG = 'UNESCO Man and Biosphere Reserve'. These sites were excluded following the usual method for deriving coverage statistics from the WDPA)	(UNEP-WCMC & IUCN, 2021a) Version: January 2021	Protected Areas under IPLC governance were included in the layer of potential ICCAs. ICCAs can also meet the definition of a protected area, if one of the primary objectives of the ICCA is biodiversity conservation, and if the ICCA custodians decide to adopt this term.	In the case of the WDPA and WD-OECM, sites with shared governance were not included in the base layer. Although many shared governance arrangements involve Indigenous peoples and local communities, it is not possible to identify these based on the level of detail in the WDPA and WD-OECM. Since it excludes protected areas where Indigenous peoples and local communities participate in governance but are not the sole governance authority, this report is likely to underestimate the extent of Indigenous peoples and local community governed protected areas.
World Database on Other Effective Area-based Conservation Measures (WD-OECM)	The WD-OECM is a new, and incomplete, global database of marine and terrestrial OECMs, updated on a monthly basis.	(UNEP-WCMC & IUCN, 2021b) Version: January 2021	OECMs under IPLC governance were included in the layer of potential ICCAs.	In the case of the WDPA and WD-OECM, sites with shared governance were not included in the base layer. Although many shared governance arrangements involve Indigenous peoples and local communities, it is not possible to identify these based on the level of detail in the WD-OECM.

Dataset name	Description	Citation and version used	Purpose of analysis	Dataset limitations
	The compilation and management of the WD-OECM is carried out by UNEP-WCMC. For this analysis we used polygons: GOV_TYPE = 'Indigenous Peoples' or 'Local communities'		ICCAs can also meet the definition of an OECM, if the ICCA has conservation outcomes (regardless of its objectives), and if the ICCA custodians decide to adopt this term.	Since it excludes OECMs where Indigenous peoples and local communities participate in governance but are not the sole governance authority, this report is likely to underestimate the extent of IPLC governed OECMs. The WD-OECM is a relatively new database and does not yet contain data for the vast majority of countries.
Global Human Modification	The Global Human Modification (GHM) layer provides a measure of the ecological condition of terrestrial lands globally (at a 1-km resolution circa ~2016) based on the extent of human modification by activities, ranging from human settlement, agriculture, transportation, mining, and energy production (Kennedy et al. 2018). Low GHM were selected following Kennedy et al. (2018).	(Kennedy et al., 2018) Data is for ~2016	To form part of the potential ICCAs layer (those areas with low human modification as a proxy for good ecological condition)	The GHM dataset maps current land condition (circa 2016) based on the spatial extent and magnitude of impacts from human settlement, agriculture, transportation, mining, energy production, and electrical infrastructure globally (excluding Antarctica) (Kennedy et al. 2018). GHM ranges from 0 (no modification) to 1 (fully modified) and reflects the proportion of a landscape modified by mapped cumulative human impacts. While the GHM captures many of the significant human stressors, it does not capture them all, including timber production or selective logging, pastureland, recreational use, hunting, spread of invasive species, or climate change. The GHM focuses on mapping human activities known to negatively impact terrestrial natural systems and does not capture some human activities, especially in the context of lands customarily governed by Indigenous peoples and local communities , that may modify the environment for the better through the building of landesque capital that can protect biodiversity and provide critical environmental services (IPBES 2019).
ICCA Registry	The global ICCA Registry was established in 2008 to raise awareness of the significance of Indigenous peoples' and community-led conservation practices. It is a global registry of territories and areas that are self-identified and conserved by Indigenous peoples and local communities. The data in the ICCA Registry is voluntarily provided by ICCA custodians, or through their supporting organisations. It is not yet comprehensive but continues to grow each year, providing a much-needed evidence base to promote the recognition and support of ICCAs worldwide.	(UNEP-WCMC, 2021b) -	Known ICCAs from the ICCA Registry were included in potential ICCAs layer. ICCAs in the ICCA Registry were submitted by ICCA custodians themselves, or their supporting organisations.	This ICCA Registry database was not originally a spatial dataset. For the purpose of this analysis the data were converted into a spatial dataset of points, using the latitude and longitude values, which were buffered by their reported area. Therefore, they will not represent the true shape of the ICCA. Sites that did not have a reported area, had errors in their latitude and longitude, or had certain restrictions on their use were excluded from this analysis.
	Data submitted by ICCA Consortium and partners of the Global Support Initiative to ICCAs	N/A		These data have not been submitted into the ICCA Registry but were submitted for the purposes of this report. For the purpose of this analysis the data were converted into a spatial dataset of points, using the latitude and longitude values, which were buffered by their reported area. Therefore, they will not represent the true shape of the ICCA. Sites that did not have a reported area, had errors in their latitude and longitude, or had certain restrictions on their use were excluded from this analysis.

Dataset name	Description	Citation and version used	Purpose of analysis	Dataset limitations
World Database of Key Biodiversity Areas (KBAs)	Sites of significance for the global persistence of biodiversity, defined using criteria in the *Global Standard for the Identification of Key Biodiversity Areas* (IUCN 2016). Data on KBAs are held in the World Database of Key Biodiversity Areas, which is managed by BirdLife International on behalf of the KBA Partnership, comprising 13 of the world's leading conservation organizations.	(IUCN, 2016; BirdLife International, 2020) Version used: September 2020	To identify the extent to which potential ICCAs overlap with areas identified as important for biodiversity.	This dataset consists of areas identified as important for biodiversity. The dataset is only updated 2-4 times a year, so there may have been changes on the ground that are not yet reflected in the database. Key Biodiversity Areas have been identified most comprehensively for birds (Important Bird and Biodiversity Areas; IBAs) and for highly threatened species restricted to single sites (Alliance for Zero Extinction sites). Birds comprise <50% of species for which KBAs have been identified, and more comprehensive application of the Global Standard (to identify sites of importance in particular for other taxonomic groups, ecosystems, ecological integrity and irreplaceability) is needed in most countries. Many areas that do not meet the Key Biodiversity Areas standard may be important for biodiversity at a national scale. It's important to recognise that many Key Biodiversity Areas have not been identified yet. It is likely that sites that meet criterion C for ecological integrity will overlap with ICCAs. As yet there are no Criterion C sites in the World Database of Key Biodiversity Areas, although 4 have been recently proposed for Mongolia (at the time of writing).
Terrestrial Ecoregions	A biogeographic regionalization of the Earth's terrestrial biodiversity. The biogeographic units are ecoregions, defined as relatively large units of land or water containing a distinct assemblage of natural communities sharing a large majority of species, dynamics, and environmental conditions. Ecoregions are classified into 14 biomes.	(Dinerstein et al., 2017)	To identify the extent to which potential ICCAs might contribute to representative coverage of geographically distinct species assemblages and ecosystems.	This dataset is a biogeographic regionalisation of the Earth's terrestrial biodiversity. It has been refined with a major review in 2017 and is considered accurate, with well-established classifications. The dataset is likely to require revision in the future as based on more accurate information and climate change impacts. This dataset does not include freshwater biota.
Cumulative Development Potential Index (DPI)	The Global Development Potential Index (DPI) is a cumulative development pressure map created by combining previously published Development Potential Indices (DPIs) (Oakleaf et al. 2019) for renewable energy (concentrated solar power, photovoltaic solar, wind, hydropower), fossil fuels (coal, conventional and unconventional oil and gas), mining (metallic, non-metallic), agriculture (crop, biofuels expansion) and urban pressure map based on global urban growth projections from 2020 to 2050 (Zhou et al. 2019). The DPI for each sector represents land suitability that accounts for both resource potential and development feasibility. Each DPI is a 1-km spatially explicit, global land suitability map that has been validated using locations of current and planned development and examined for uncertainty and sensitivity. The DPIs can be used to identify lands with current favorable economic and physical conditions for individual sector expansion and assist in planning for sector and cumulative development across the globe.	(Oakleaf et al., 2019)	To identify the extent of potential ICCAs that could be susceptible to high development pressure in the future.	Areas of high development pressure indicate highly suitable areas for expansion based on the presence of large reserves of unexploited resources and the infrastructure to support their extraction and transportation. As such, development pressure maps may not adequately capture frontier expansion made possible by investments in new infrastructure by sectors like extractive mining and oil and gas. The high development potential maps also does not capture other aspects of feasibility, such as property type or regulatory quality; nor do they account for production demands due to uncertainties, lack of data, and ever-changing policies and incentives that affect it. Thus, the development pressure map should be interpreted as the relative suitability for expansion by different commodity-based sectors and not the exact location of development siting or the total land area that will be converted.

Dataset name	Description	Citation and version used	Purpose of analysis	Dataset limitations
	Each DPI was categorized per country based on standardized z-score ranges following Oakleaf et al. 2019, as low (≤25th percentile), moderate (>25th – 75th percentile), or high (>75th percentile). Then a cumulative development index was created by combining all sectors, maintaining the highest development pressure category per cell. When combined with the potential ICCAs dataset, the cumulative DPI score indicates the relative suitability or "readiness" of Indigenous peoples and local communities' lands to be developed by commodity-based economic sectors. However, the DPIs should not be used to denote the exact location of development siting, given that it does not account for national- or regional-level production demands due to uncertainties or lack of data on per-sector projections.			
Intact Forest Landscapes (IFL)	Intact Forest Landscapes are defined as an unbroken expanse of natural ecosystems within areas of current forest extent, without signs of significant human activity, and having an area of at least 500 km^2 (Potapov et al., 2008).	(Potapov et al., 2008)	To identify the extent to which potential ICCAs overlap with Intact Forest Landscapes	Intact Forest Landscapes are detected using remote sensing techniques, meaning they may not be completely accurate in all areas due to misclassification of computer algorithms and issues with satellite imagery. This analysis used the 2016 version of the data, so the results might change if re-done when a more up to date data layer is created.
Natural and Mixed World Heritage Sites	The World Heritage List comprises 1,121 properties of Outstanding Universal Value. To be included on the World Heritage List, sites must be of outstanding universal value and meet at least one out of ten selection criteria. Natural and Mixed Sites World Heritage sites (249) were pulled from the January 2021 version of the WDPA for use in this analysis.	(UNEP-WCMC & IUCN, 2021a; IUCN, 2021)	To identify which World Heritage Sites overlapped to some extent with potential ICCAs.	There is a lag time between a World Heritage site being inscribed, and the data being made public through the WDPA.
Global Safety Net	The Global Safety Net was proposed as a set of terrestrial areas of the world that are of particular importance for biodiversity and climate stabilisation. It is a combination of 12 datasets which are used to identify areas that are important to conserve to meet biodiversity and carbon targets (Dinerstein et al., 2020)	(Dinerstein et al., 2020)	To identify the extent to which potential ICCAs overlap with the Global Safety Net	The Global Safety Net is a partial combination of 12 datasets, all of which will have their caveats. See Dinerstein et al. (2020) for more details on each of them. The analysis undertaken in the paper is now a little out of date (for instance it used a 2018 version of the WDPA). The authors' estimate of the area of 'unprotected' Key Biodiversity Areas (including Alliance for Zero Extinction sites) + buffers + hotspots, + locations for range rarity and threatened species together comprise only 2.4% of land. The extent of 'unprotected' Key Biodiversity Areas alone, without buffers and the other locations is actually 4.5%. The authors excluded all areas that did not meet their definition of natural/semi-natural habitat. The result is that a number of Alliance for Zero Extinction sites (and many Key Biodiversity Areas – or parts of) were excluded.

Limitations of the Potential ICCAs layer

This report estimates the extent of potential ICCAs globally by combining a dataset of Indigenous peoples' and local communities' lands ((from WWF et al., 2021, forthcoming) with a dataset of areas in good ecological condition (i.e., with low human modification). In taking this approach, significant assumptions were made that will not always hold up in reality – notably that all ICCAs have low levels of human modification, and that the custodians of these lands would identify with the 'ICCA' concept. This method therefore has inherent limitations, and this potential ICCAs layer should only be considered an estimation of where ICCAs might be on land.

Firstly, the data on Indigenous peoples' and local communities' lands (which formed part of the potential ICCAs base layer) cover land only, and are incomplete, meaning that areas outside the base layer should not be assumed to lack ICCAs. Furthermore, while the extent of Indigenous peoples' and local communities' lands may be underestimated for certain areas, it is likely to be overestimated for others, notably for areas where Garnett et al., (2018) modelled the extent of Indigenous peoples' and local communities' lands based on census data. For more information on the limitations of the Indigenous peoples' and local communities' lands base layer specifically, see WWF et al., forthcoming (2021).

Secondly, low human modification areas were used as proxy for areas good ecological condition. This approach has several limitations:

- Not all areas of low modification will have good ecological condition (i.e., high ecosystem integrity or species intactness).
- By selecting for those only in good ecological condition, it might exclude ICCAs that are **"disrupted", or "desired"**.
- This method may have excluded potential ICCAs with moderate or high modification of their landscape. Many ICCAs have modified landscapes, but the activities and the modification of the landscape is beneficial for biodiversity carbon sequestration and other ecosystem services (Kennedy et al., 2020), as well as being part of their cultural heritage.

In the case of the WDPA and WD-OECM, sites with shared governance were not included in the base layer. Although many shared governance arrangements involve Indigenous peoples and local communities, it is not possible to identify these based on the level of detail in the WDPA and WD-OECM. Since it excludes protected areas and other effective area-based conservation measures where Indigenous peoples and local communities participate in governance but are not the sole governance authority, this report is likely to underestimate the extent of potential ICCAs.

In addition, the potential ICCAs dataset is likely to include lands whose custodians are unfamiliar with the 'ICCA' concept or do not identify with it. It should therefore not be assumed that the custodians of all areas covered by the base layer would accept the characterisation of their lands as 'potential ICCAs'.

The statistics provided in this report are only estimates, but they add to the evidence that ICCAs are a vital component of global conservation efforts, and that Indigenous peoples and local communities should be supported to build this evidence base in a participatory way. This means that Indigenous peoples and local communities should be supported to map their ICCAs and share their data following a process of free, prior and informed consent. In this way, the estimated base layer presented here can gradually be replaced with an accurate dataset of self-identified and self-reported ICCAs.

Photo: Michael Ferguson

Annex 2
Detailed methods

i. Potential ICCAs layer

- The Indigenous peoples' and local communities' lands base layer [from WWF et al., 2021, forthcoming] was updated with the latest versions of the WDPA and WD-OECM (January 2021).
- Both points and polygons from the WDPA and WD-OECM were included, selecting only for GOV_TYPE = 'Indigenous Peoples' or 'Local communities', minus STATUS = 'Proposed' or 'Not Reported' or 'UNESCO Man and Biosphere Reserve'. These sites were excluded following the usual method for deriving coverage statistics from the WDPA and WD-OECM.
- This layer was intersected with low human modification (using the Global Human Modification Index) areas to identify potential ICCAs.
- Known ICCAs (n=119) were then added to this layer. Known ICCAs were sourced from the ICCA Registry database, the ICCA Consortium members, or partners from the Global Support Initiative to ICCAs.
- Only the data given without restrictions was included in the analysis. Furthermore, those that had missing reported areas, or errors in the latitudes and longitudes were also excluded.
- Some of the known ICCAs were point data, so they were buffered by their reported area and merged with the potential ICCAs.
- The potential ICCAs layer was then dissolved into a flat layer. This flat layer was intersected with a modified version of the Global Administrative Areas (GADM) country base layer to remove marine areas. The layer was also divided into countries (using their ISO3 code). 113 countries are present in this layer.
- An Identity (GIS tool) was then done between the potential ICCAs and the WDPA and WD-OECM to distinguish areas overlapping with state and privately governed protected and conserved areas.

ii. Coverage of potential ICCAs

- To understand the coverage of potential ICCAs globally, the area of potential ICCAs on land was divided by the total land area of the world excluding Antarctica (27,846,664 km^2 / 134,918,845 km^2) to give 21% (28 million km^2). To create the protected and conserved areas statistics (i.e. coverage of state and privately governed protected and conserved areas), using the January 2021 version of the Protected Planet Initiative data (WDPA and WD-OECM, point and polygons). The usual Protected Planet **method for calculating coverage statistics** was used, giving the result of 14% (18.5 million km^2).
- The area of potential ICCAs layer that lies outside of state and privately governed protected and conserved areas calculated in the above step was calculated by removing the areas of potential ICCAs that intersected with the protected and conserved area layer (28 million km^2) and resulted in 23 million km^2 (83% of the area).
- This area (23 million km^2) was then added to the area of state and privately governed protected and conserved areas (18.5 million km^2, calculated in an earlier step), making a total of (41.5 million km^2). This area was divided by the total land area of the world excluding Antarctica (134,918,845 km^2) to give 31%.

iii. High Development Pressure

- The Development Pressure Indices were reclassified to only include high development

pressure cells (5 and 6 - following Oakleaf et al., 2019). There were two main reasons: 1) simplification of the analysis and 2) lower certainty with regards to the medium and low pressure areas. This lower certainty is due to omission errors that are related to global infrastructure datasets. Other reasons are based on advancement in technologies of capturing resources. This dataset was then projected to WGS 1984 and converted to a polygon feature class (maintaining cell boundaries). An intersection was the done with the potential ICCAs layer and the area was calculated.

iii. Ecoregions and biomes

- The total area of each ecoregion was calculated. Ecoregions were intersected with the potential ICCAs layer. The area of each ecoregion covered by the potential ICCAs layer was calculated. Biome coverage was calculated by summing the coverage results for the ecoregions constituting each biome. The rock and ice ecoregion was included in the tundra biome.

iv. Key Biodiversity Areas (KBAs)

- KBAs (polygons only) were clipped to the GADM to select only terrestrial KBAs. The global terrestrial area of KBAs was calculated. These were then intersected with the potential ICCAs and the area was calculated.

v. Intact Forest Landscapes (IFL)

- The area of IFLs globally was calculated. IFLs were then intersected with the potential ICCAs and the area of intersection was calculated.

vi. Global Safety Net

- Each Global Safety Net Layer was dissolved to remove any overlaps. State and privately governed protected and conserved areas were erased form each Global Safety Net layer. The biodiversity components of the Global Safety Net (species rarity, distinct species assemblages, rare phenomena, intactness) were erased from the carbon layers. The area of each layer was calculated. Each layer was intersected with potential ICCAs and each intersection areas was calculated separately. All Global Safety Net layers were then merged and dissolved and the total Global Safety Net area (minus state and privately governed protected and conserved areas) calculated. The potential ICCAs were then intersected with this and the area was calculated.

vii. World Heritage sites

- Natural and Mixed World Heritage sites (n=249) were extracted from the WDPA (January 2021 version). The 249 sites were then intersected with potential ICCAs. The area of overlap was then calculated.

viii. Integrating literature into the spatial analysis

- Multiple combinations of various key words were used to search Web of Knowledge, SCOPUS and Google Scholar data bases. The combinations were targeted towards literature that explore Indigenous conservation governance in relation to biodiversity conservation, protected areas governance, conceptualisations of territories, rights to territories and recognition of Indigenous peoples' rights in general. Duplicate literature was removed. In the next step, titles and abstracts were reviewed and approximately 64 peer-reviewed articles were selected for this report.

Annex 3

The legal distinction between Indigenous peoples' rights and local communities' rights

There is no formal or universally agreed definition of Indigenous peoples, but the most cited description is in **Cobo (1981)** including the following excerpt: "Indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing on those territories, or parts of them. They form at present non-dominant sectors of society and are determined to preserve, develop and transmit to future generations their ancestral territories, and their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions, and legal system." The rights of Indigenous peoples (including tribal peoples) are relatively well defined in international law. This distinct category of rights is derived from their identity as Indigenous peoples (**UN Declaration on the Rights of Indigenous Peoples, 2017**).

In contrast, there is no clear description, definition or common understanding of "local communities" or the rights thereof in international law. A **2013 note by the UN CBD** explains: "Many communities may be considered local and may also be described as traditional communities... They are culturally diverse and occur on all inhabited continents." Although this term is used frequently in certain international fora such as the UN CBD, it is legally incorrect to conflate Indigenous peoples and local communities or to automatically transfer the Indigenous rights framework to non-Indigenous communities because the former have clear and distinct rights and the latter do not (see, for example: **Inuit Circumpolar Council, 2020**; **Forest Peoples Programme, 2013**).

At the same time, the legal landscape is shifting with growing recognition of the rights of non-Indigenous communities. These rights arise out of the deep relationships between their cultures, ways of life and collective lands and territories they have inhabited for generations (see, for example, the **2007 Saramaka case**), of the rights of peasants (see: UN Declaration on the Rights of Peasants and Other People Working in Rural Areas, 2018) and of the rights of minorities more generally (see: **UN Declaration on the Rights of Persons Belonging to National or Ethnic, Religious and Linguistic Minorities, 1992**).

Notwithstanding the above, anyone who is a member of a non-Indigenous local community is still entitled to all internationally recognised human rights enjoyed by all individuals, for example, under the Universal Declaration on Human Rights and human rights treaties. In international law, a "definition" is not a prerequisite for protection; groups such as minorities have been guaranteed rights under international law without establishing a definition.

Photo: Grazia Borrini-Feyerabend

The ICCA Consortium