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Leveraging the World Heritage Convention
for wilderness & large landscape conservation

I. Wilderness defined:

- “intact, or mainly intact wild natural areas without industrial infrastructure”.
- Wilderness includes people and communities: many areas remain intact *because of* indigenous or community governance and management.
- Wilderness must be understood as a wild place where people have a relationship with wild nature (home, spiritual, religious, recreational, livelihoods, research/knowledge etc.).



II. Why is wilderness important?

1. Because wilderness is essential to deliver – and maximize – the ecosystem services we all depend on.
 - Undisturbed ecosystems have the highest biodiversity and the highest carbon stocks relative to disturbed ecosystems of the same type, and are the more resistant / resilient.
2. Because wilderness includes sacred landscapes and lands of great cultural significance.
3. Because the planet's remaining wild areas are being fragmented, degraded and cleared at very high rates.

1. Wilderness is critically important because ecosystems with high ecosystem integrity maximize ecosystem services.

- Carbon stocks – far more carbon in terrestrial ecosystems than is currently in atmosphere. More carbon in forests alone than in oil and coal reserves *combined*!
- Wilderness areas have highest carbon stocks *because* they still retain all of their biodiversity.
- Undisturbed forests have highest biodiversity – Gibson et al. 2011.
- Because wilderness areas have all or nearly all their biodiversity they have the highest adaptive capacity and are most resilient to climate change.
- Highest freshwater quality – Ellison et al. 2017, Sheil 2014
- Erosion control.
- Freshwater regulation.
- Cultural / linguistic – Maffi 2002.
- Livelihoods / well being – Cardinale et al. 2012.



Photo: Tilman Jaeger

The Okavango Delta and its upstream ecosystem likely protects very large carbon stocks.

- Roughly 2m hectares of permanent and seasonal wetlands, and also a lot of peatlands, and carbon stocks per hectare in wetlands and peatlands can be extremely high 1,000 tons or more per hectare.
- Keeping these peatlands undisturbed – and wet – is critically important.
- Grasslands and forests also protect a lot of carbon.



Photo: Gertrude Matswiri

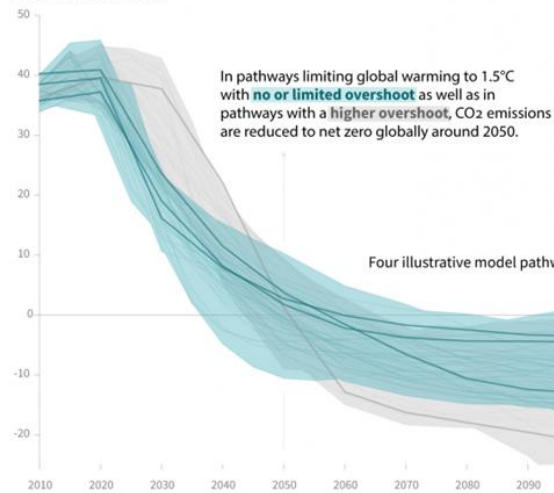
And we urgently need ecosystems / Nature-based solutions to address climate change.

Global emissions pathway characteristics

General characteristics of the evolution of anthropogenic net emissions of CO₂, and total emissions of methane, black carbon, and nitrous oxide in model pathways that limit global warming to 1.5°C with no or limited overshoot. Net emissions are defined as anthropogenic emissions reduced by anthropogenic removals. Reductions in net emissions can be achieved through different portfolios of mitigation measures illustrated in Figure SPM.3b.

Global total net CO₂ emissions

Billion tonnes of CO₂/yr



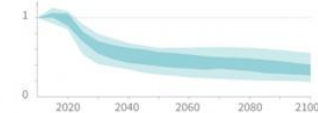
Timing of net zero CO₂
Line widths depict the 5-95th percentile and the 25-75th percentile of scenarios

— Pathways limiting global warming to 1.5°C with no or limited overshoot
— Pathways with higher overshoot
— Pathways limiting global warming below 2°C (Not shown above)

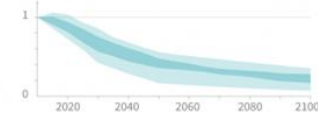
Non-CO₂ emissions relative to 2010

Emissions of non-CO₂ forcers are also reduced or limited in pathways limiting global warming to 1.5°C with no or limited overshoot, but they do not reach zero globally.

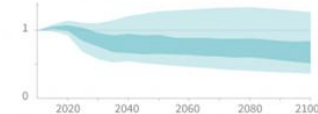
Methane emissions



Black carbon emissions



Nitrous oxide emissions



Source: IPCC Special Report on Global Warming of 1.5°C



And biodiversity is in steep decline...

- **Ceballos et al. 2017**
 - In a study looking at 1/2 of known vertebrates, 32% are decreasing.
 - For 177 mammals on which detailed data were available, all have lost 30% or more of their geographic ranges, 40% have experienced severe population declines.
 - 200 extinctions over last century – 100x faster than background rate.
- **Living Planet Report 2018** - Abundance of wildlife populations globally has fallen by an average of 60% over 40 years.
- **IPBES Global Assessment Report 2019** – 1 million species threatened with extinction, “unprecedented” and “dangerous” decline in species globally.



Okavango Delta ecosystem is unique.

- IPBES Global Assessment report specifically noted continuing threat to wetlands globally: 85% of wetlands globally have been destroyed.
- Grill et al. 2019, only about 1/3 of world's rivers are still free flowing.
- Okavango Delta is increasingly unique as a healthy functioning wilderness ecosystem with all of its biodiversity!



Photo: Gertrude Matswiri

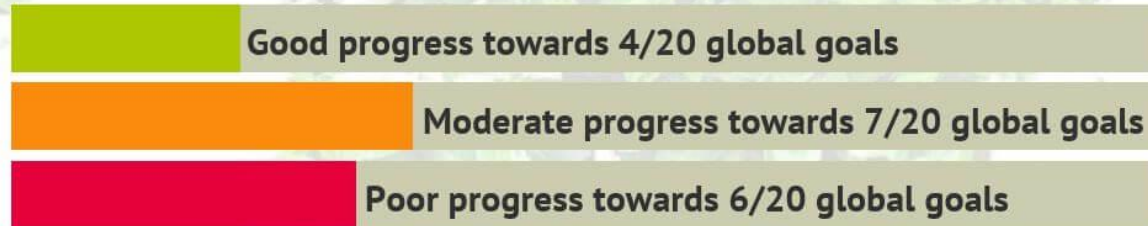
IPBES: we need to do more to protect the planet.

NATURE'S DECLINE & THE GLOBAL GOALS. WE ARE NOT ON TRACK.

Protecting nature, solving the climate crisis and achieving sustainability cannot be reached by current business as usual. We need a radical transformation of our society if we are to stand a chance in front of ecological breakdown. Governments and businesses are not doing enough.



AICHI BIODIVERSITY TARGETS



SUSTAINABLE DEVELOPMENT GOALS

8/17 SDGs are undermined by nature's decline - related to poverty, hunger, health, water, cities, climate, ocean, and land.

35/44 80% of the SDG targets related to nature have seen insufficient or negative progress.



PARIS CLIMATE AGREEMENT



Our current climate policy means 4°C of global warming, with catastrophic climate impacts.



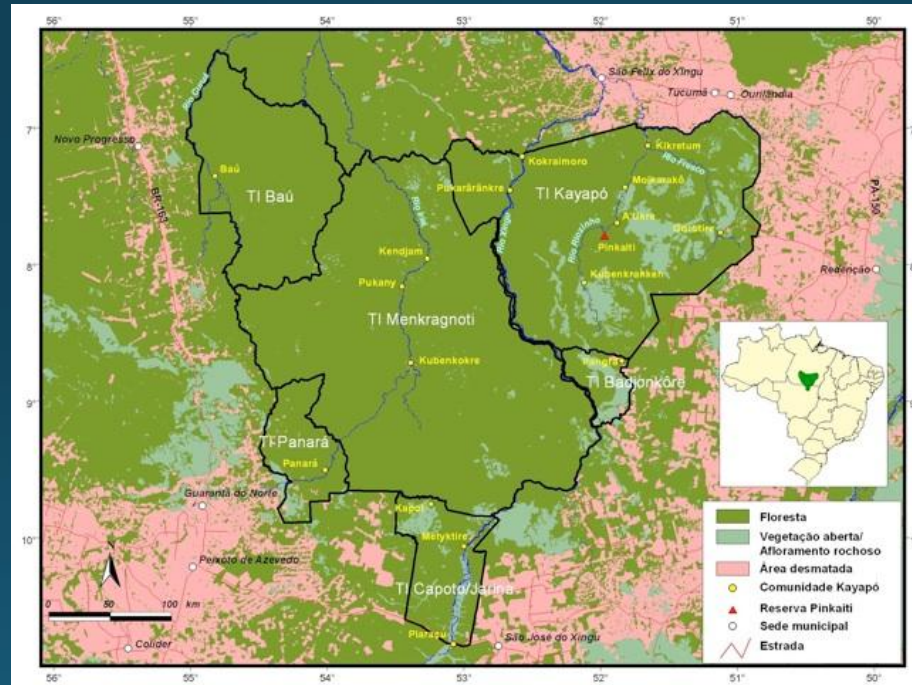
Our pledges and targets only bring us to 3°C of warming.



The Paris Agreement - limiting global temperature rise to well below 2°C and pursuing efforts towards 1.5°C.

2. Cultural values and indigenous and community governance and management is essential in wilderness.

Kayapo territory,
SE Brazil Xingu
River basin (Mato
Grosso/Para):
11m ha!



We are making progress on community and indigenous values and management: Chiribiquete, Central Sikhote Alin, Pimachiowin Aki



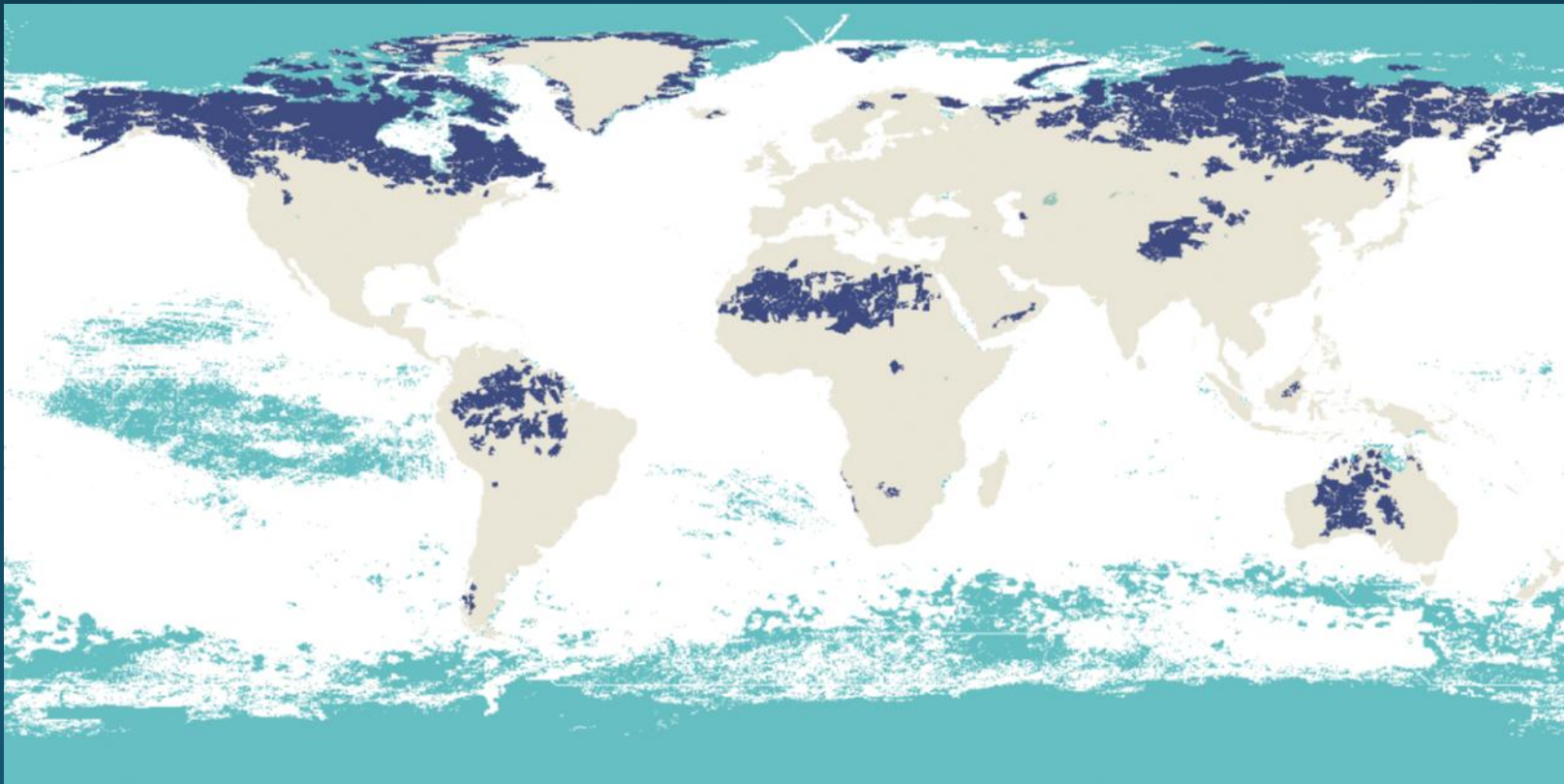
And obviously the Okavango Delta World Heritage site also has profoundly important cultural values.



Photo: IUCN

3. Unfortunately wilderness is in rapid decline globally IPBES – 75% of terrestrial ecosystems significantly altered

Watson et al. 2018 Protect the Last of the Wild.

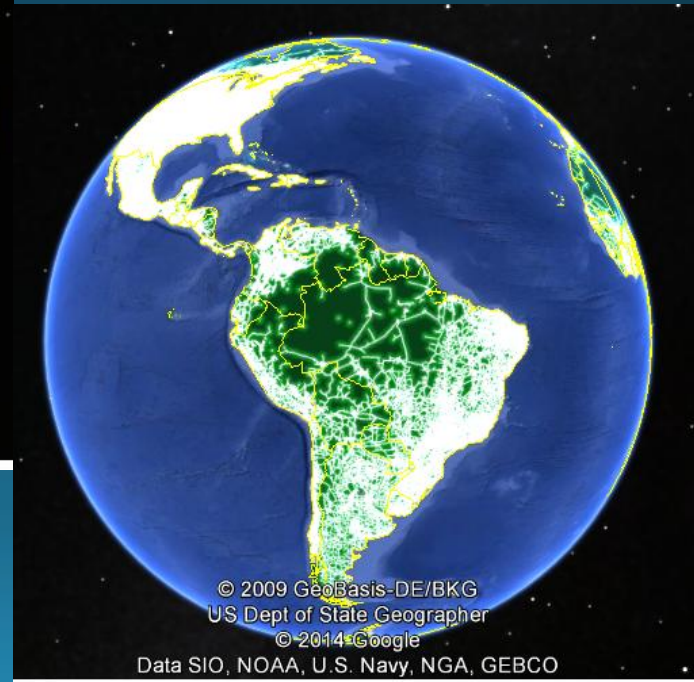
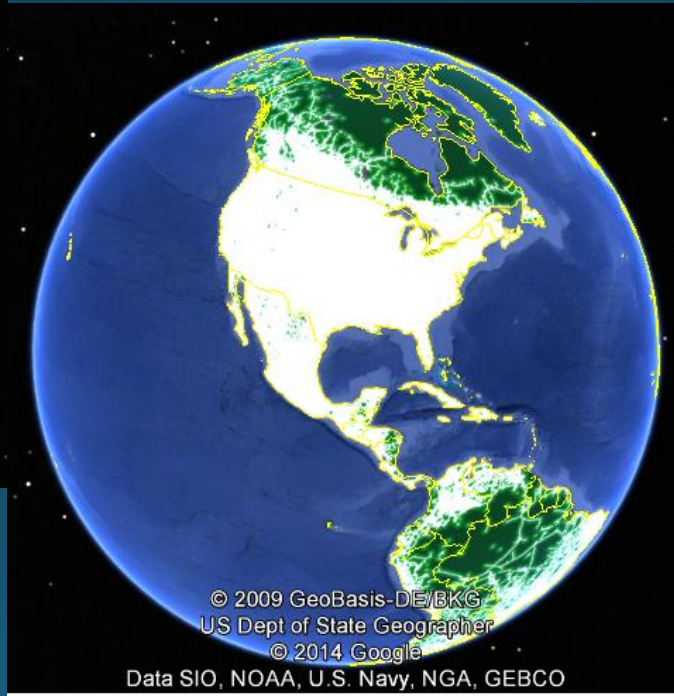


Two ways to understand loss of wilderness globally:

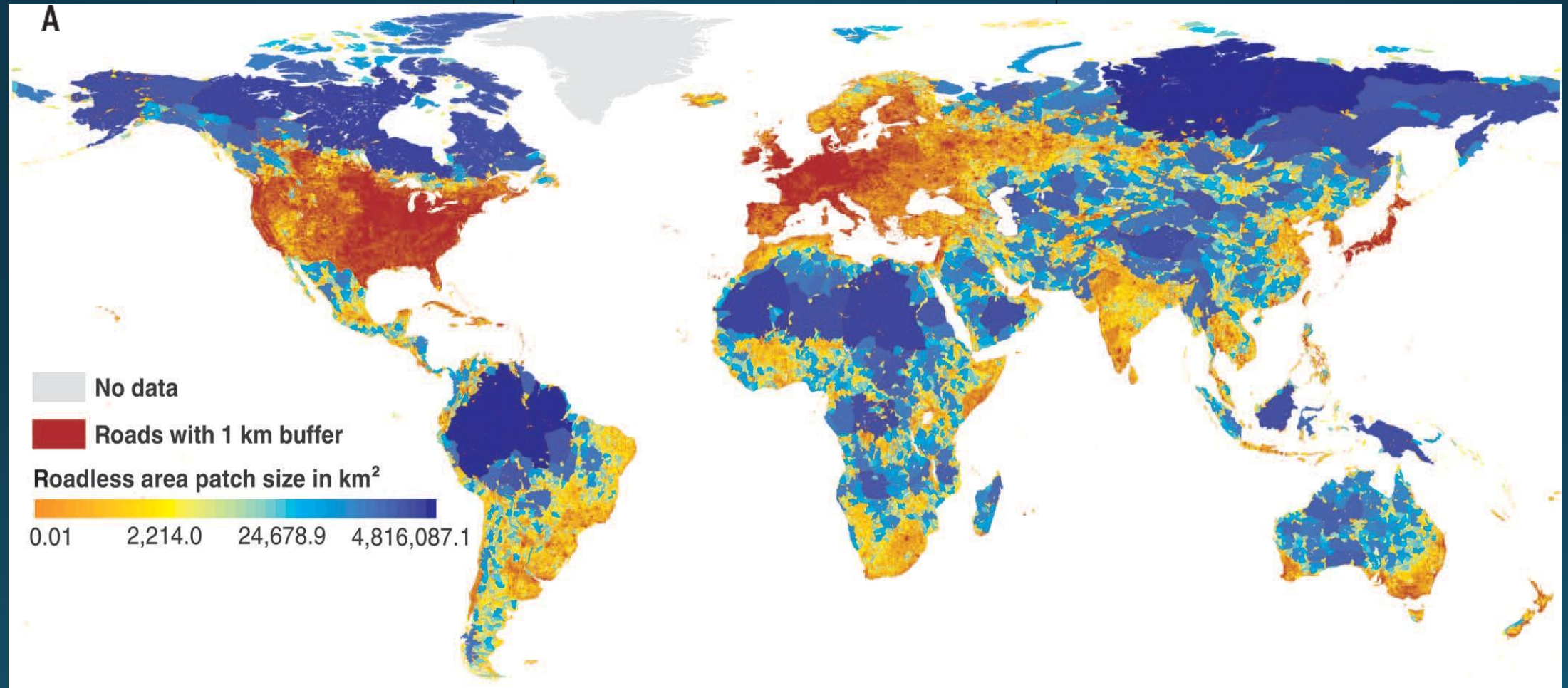
- Roads.
- Forest loss.

1. Roads.

Areas at least 10km from a road:



Ibisch et al. 2017: About 80% of Earth's terrestrial surface remains roadless, but this area is fragmented into ~600,000 patches, more than half of which are <1 square kilometer and only 7% of which are larger than 100 square kilometers.



And more roads are planned...

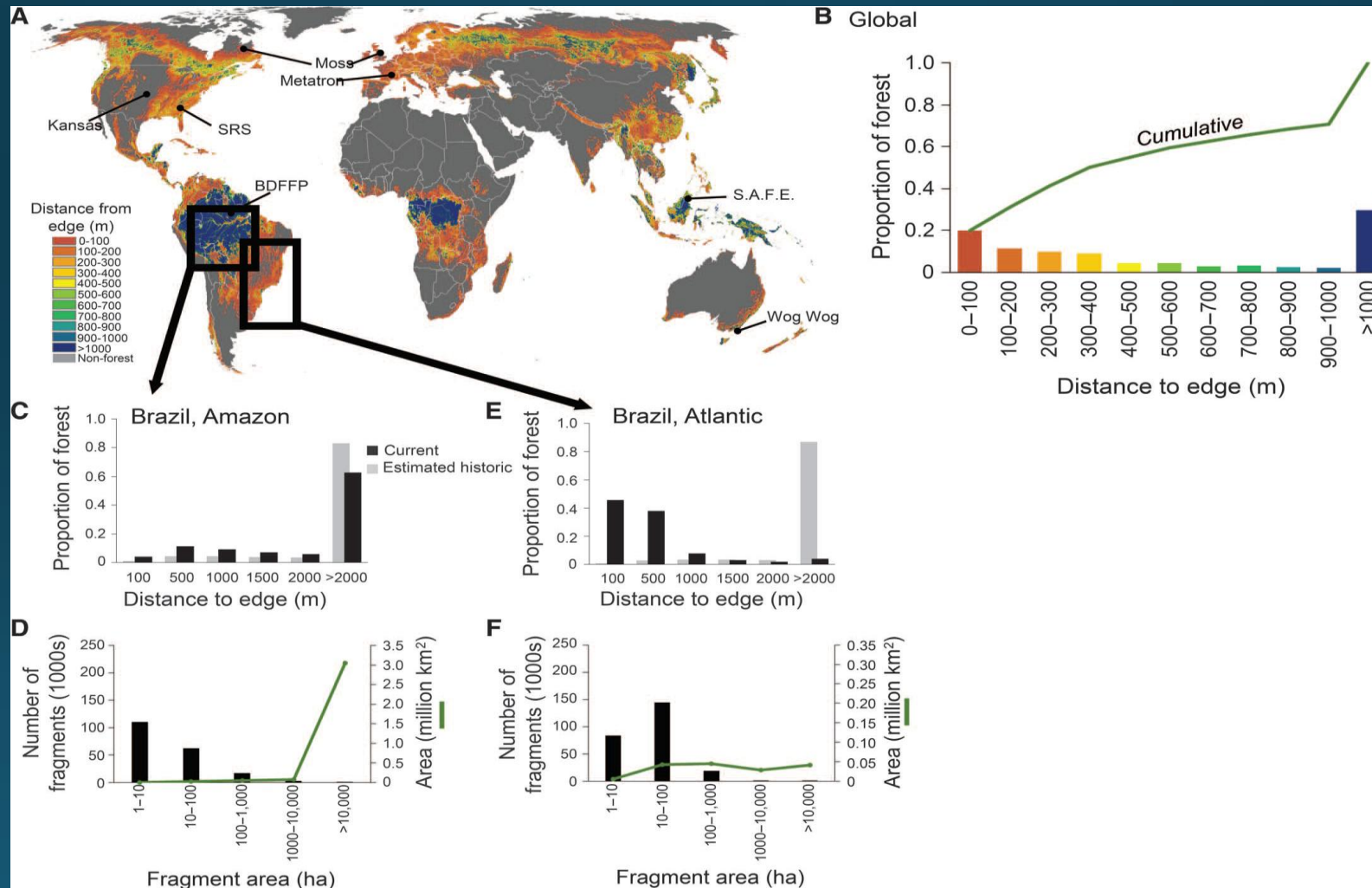
“The length of legally sanctioned roads has increased by 12 million km worldwide since 2000, **with a further 25 million km of additional paved roads expected by 2050.** To support this dramatic expansion, the G20 industrial nations have asserted that US\$70 trillion in funding will be needed by 2030 for new roads and other infrastructure, which would more than double global investments in infrastructure to date.”

Alamgir et al. 2017 Economic, Socio-Political and Environmental Risks of Road Development in the Tropics *Current Biology Review*

2. Forests

Haddad et al. 2015: 70% of remaining forest is within 1 km of the forest's edge...

Habitat fragmentation reduces biodiversity by 13 to 75% and impairs key ecosystem functions by decreasing biomass and altering nutrient cycles.



From Potapov et al. 2017 The last frontiers of wilderness: Tracking loss of intact forest landscapes from 2000 to 2013 Sci. Adv. 2017;3: e1600821. **7.2% reduction in IFL between 2000-2013**

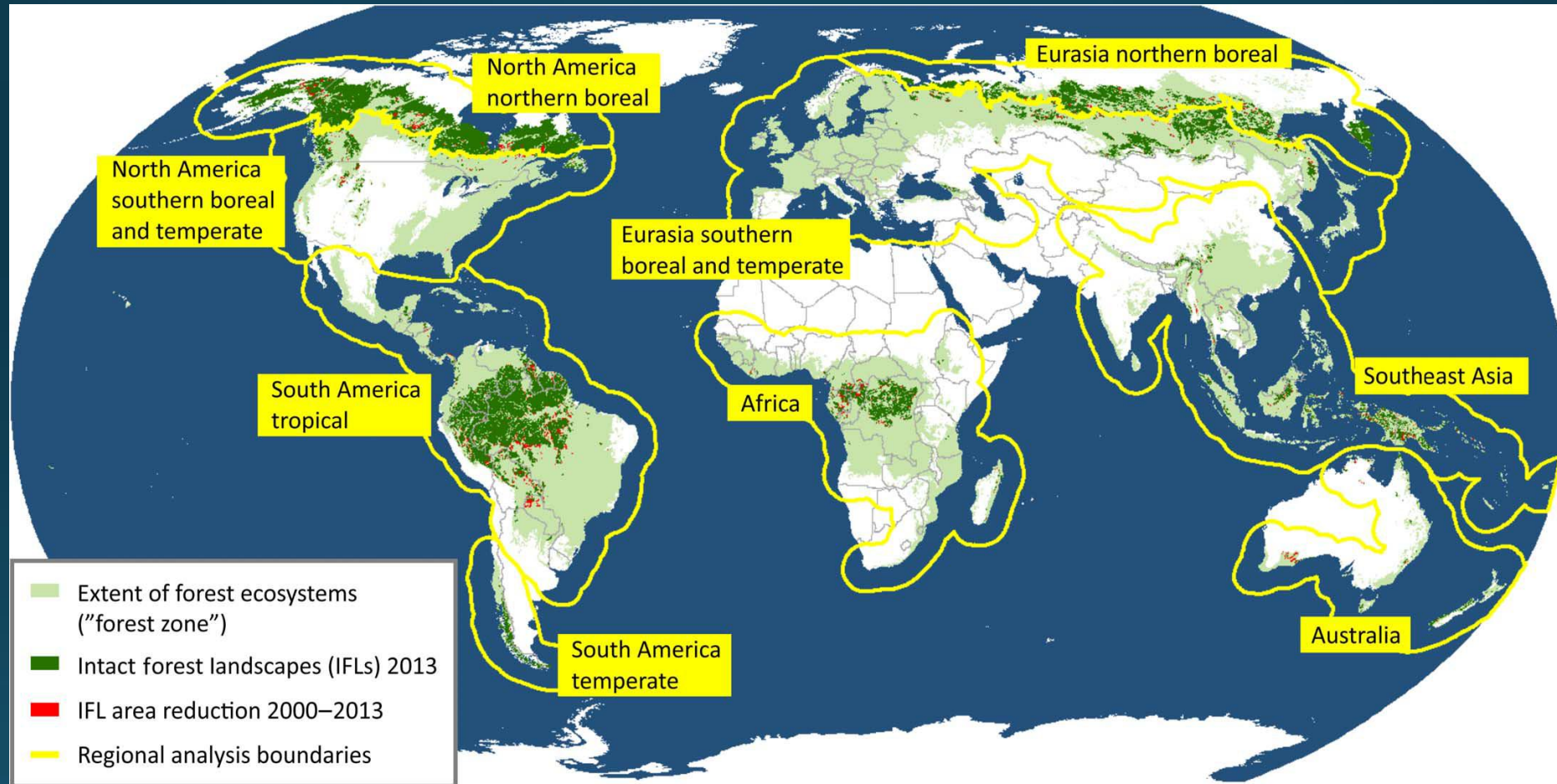


Fig. 1. The world's IFLs. IFL extent for the year 2013, IFL area reduction from 2000 to 2013, and boundaries of geographic regions used for the analysis.

III. So...given a rapidly changing global landscape,
the WHC should adopt more of a
wilderness / large landscapes focus.



Photo: Boyd Norton

1. Of course, the WH List already includes many wilderness sites – the WHC has always been a key mechanism for wilderness protection:

Terrestrial

Site	Country	Criteria	Wilderness area (hectares)
Kluane / Wrangell-St Elias / Glacier Bay / Tatshenshini-Alsek	USA and Canada	(vii)(viii)(ix)(x)	9,839,121
Lake Baikal	Russian Federation	(vii)(viii)(ix)(x)	8,800,000
Air and Ténéré Natural Reserves	Niger	(vii)(ix)(x)	7,736,000
Tassili n'Ajjer	Algeria	(i)(iii)(vii)(viii)	7,200,000
Central Amazon Conservation Complex	Brazil	(ix)(x)	5,323,018
Selous Game Reserve	Tanzania	(ix)(x)	5,120,000
Wood Buffalo National Park	Canada	(vii)(ix)(x)	4,480,000
Volcanoes of Kamchatka	Russian Federation	(vii)(viii)(ix)(x)	3,830,200

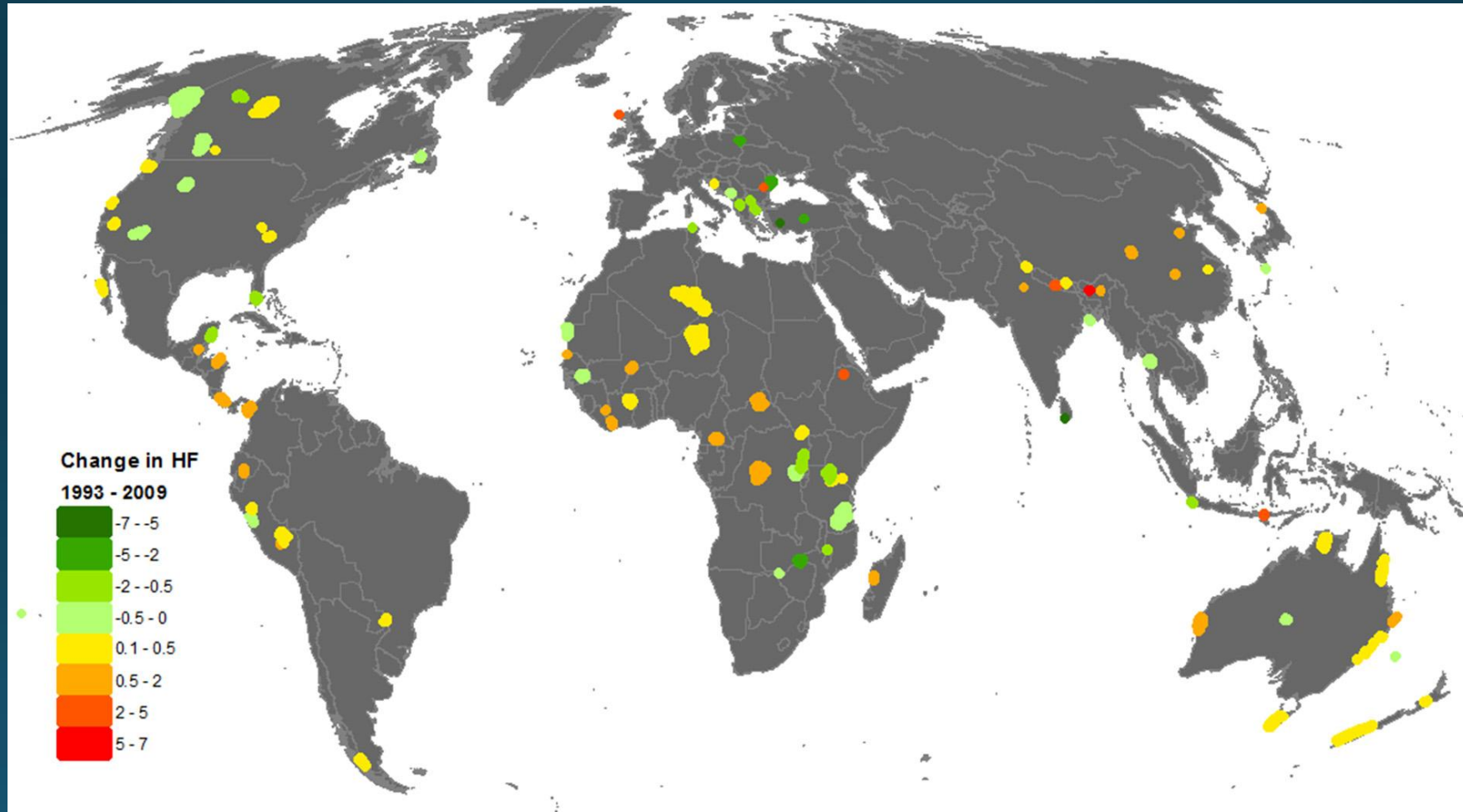
Marine

Site	Country	Criteria	Wilderness area (hectares)
Phoenix Islands Protected Areas	Kiribati	(vii)(ix)	40+ million
Papahānaumokuākea Marine National Monument	USA	(iii)(vi)(viii)(ix)(x)	36+ million (150m in Natl. Mon.)
Great Barrier Reef	Australia	(vii)(x)(ix)(x)	34+ million

2. Many large NWHS are inscribed specifically for their wilderness attributes

- As of 2017, 105 sites (out of 238) natural and mixed World Heritage sites are inscribed on the World Heritage list because of their wilderness attributes.
- i.e. either explicitly described as “wilderness” or “wild” or listed for attributes that can reasonably act as proxies for wilderness – e.g. ecological intactness, remoteness, inaccessibility etc.

Unfortunately World Heritage sites are not immune to the trend: human pressure increased by 63% in Natural World Heritage Sites since 1993. Allan et al.2017



So we need a more systematic and catalytic approach to wilderness and large landscapes conservation under the WHC.

The World Heritage Convention has been a very important tool for leveraging wilderness conservation globally, but this has been a very *ad hoc* process – not a systematic approach. E.g. we had to wait several decades for several key Himalayan nominations, the Okavango Delta just got inscribed a few years ago in 2014 etc.

Wilderness is growing in importance to the WHC because:

- As wilderness becomes an increasingly rare resource globally the case for its Outstanding Universal Value gets stronger. The Convention has always had an emphasis on wilderness, it just hasn't focused on wilderness very systematically to fill key gaps on the WH List.
- The WHC is also in a unique position to help recognize cultural values in wilderness areas.
- WHC can play a key role in transboundary conservation.
- The WHC is in a unique position to contribute to Aichi Targets, to the post-2020 framework under the Convention on Biological Diversity, and to climate change mitigation and adaptation objectives.
- The WHC was specifically established to respond to threat to our planet's universal heritage.

So what more should the WHC do for wilderness conservation? What does a more systematic approach look like?

What would a systematic wilderness approach entail?

- Nominations of large, mainly intact sites in gap areas.
- Expanding existing sites to buffer against climate change, better protect biodiversity etc.
- Serial sites.
- Transboundary approaches.
- Connecting World Heritage sites to other World Heritage sites or other protected areas (or both) to form “World Heritage Wilderness Complexes”?
- Identifying sites where natural and cultural values are inextricably linked and have co-evolved over time. “Bio-cultural landscapes”
- Applying rights-based approaches in all cases, and seeking to integrate Indigenous Peoples and communities into governance and management. See case studies in new thematic study.
- A more systems-oriented approach.

Leveraging the World Heritage Convention for Wilderness Conservation

In Focus World Heritage and wilderness

World Heritage and wilderness

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A journal of the Society for Conservation Biology

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POLICY PERSPECTIVES

A Wilderness Approach under the World Heritage Convention

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Abstract

The World Heritage Convention could make a bigger and more systematic contribution to global wilderness conservation by: (1) ensuring the World Heritage List includes full coverage of Earth's wilderness areas with outstanding universal value and (2) more effectively protecting the ecological integrity of existing World Heritage sites. Here, we assess current coverage of global-scale



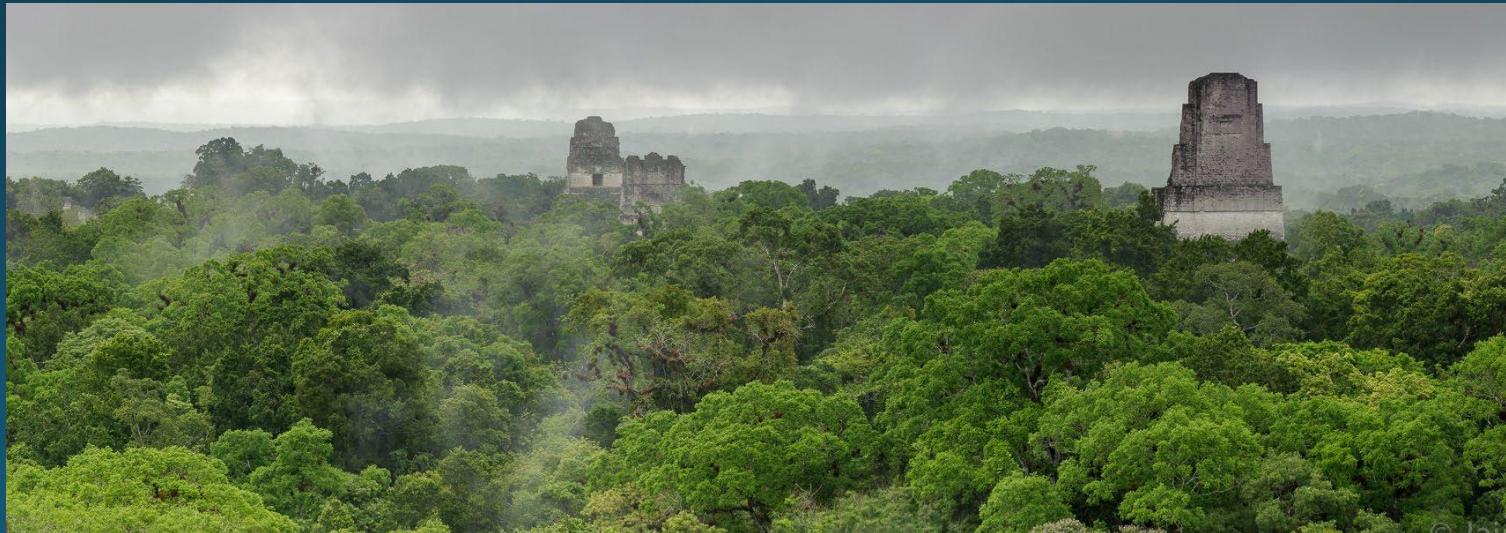
World Heritage, Wilderness and Large Landscapes and Seascapes

Cyril F. Kormos, Tim Badman, Tilman Jaeger, Bastian Bertzky, Remco van Merm, Elena Osipova, Yichuan Shi, Peter Bille Larsen



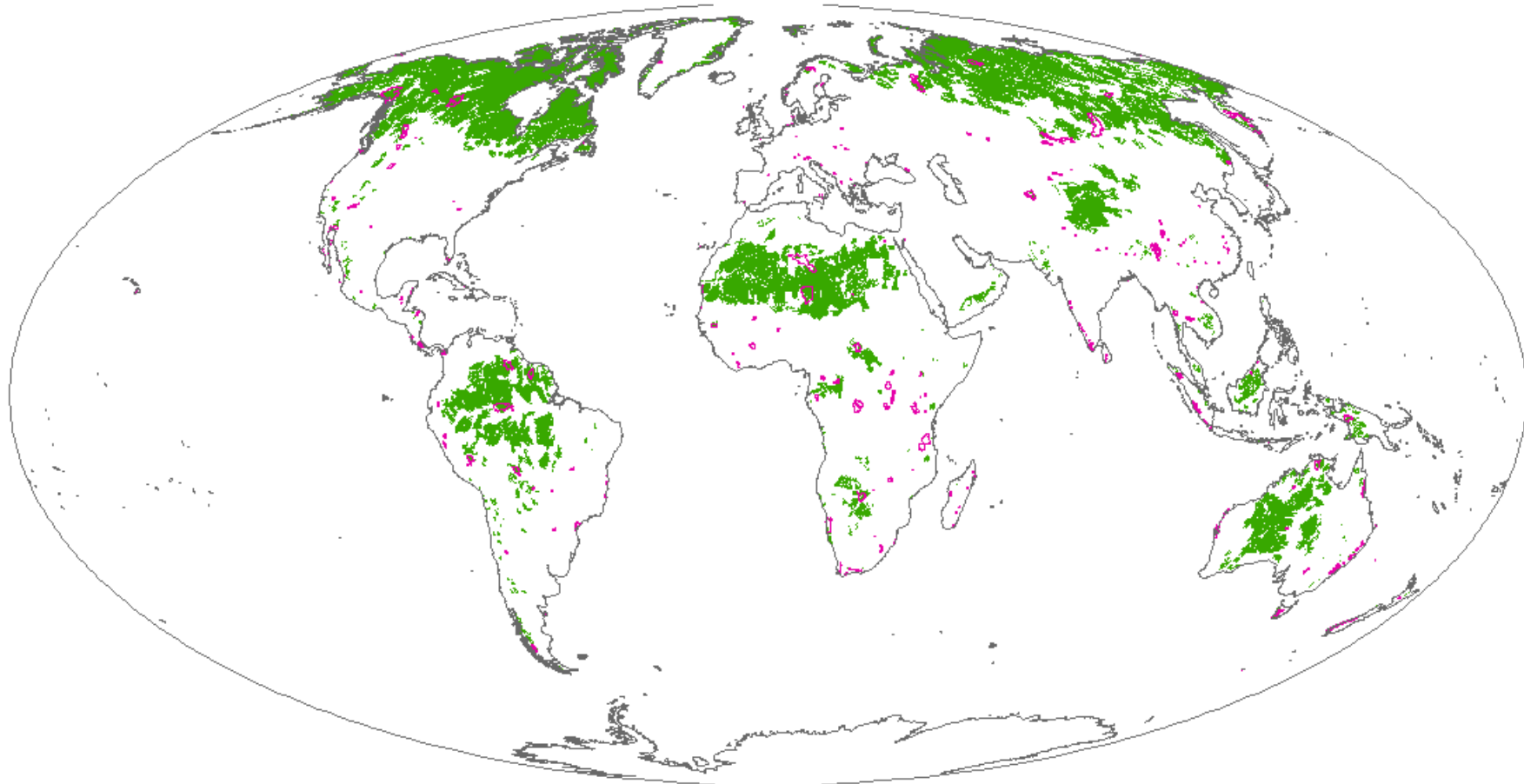
Filling the gaps: building a credible, balanced and representative World Heritage List

How are we doing in terms of ensuring wilderness
coverage on the World Heritage List?



Last of the Wild 2009 and NWHS

Venter et al. 2016



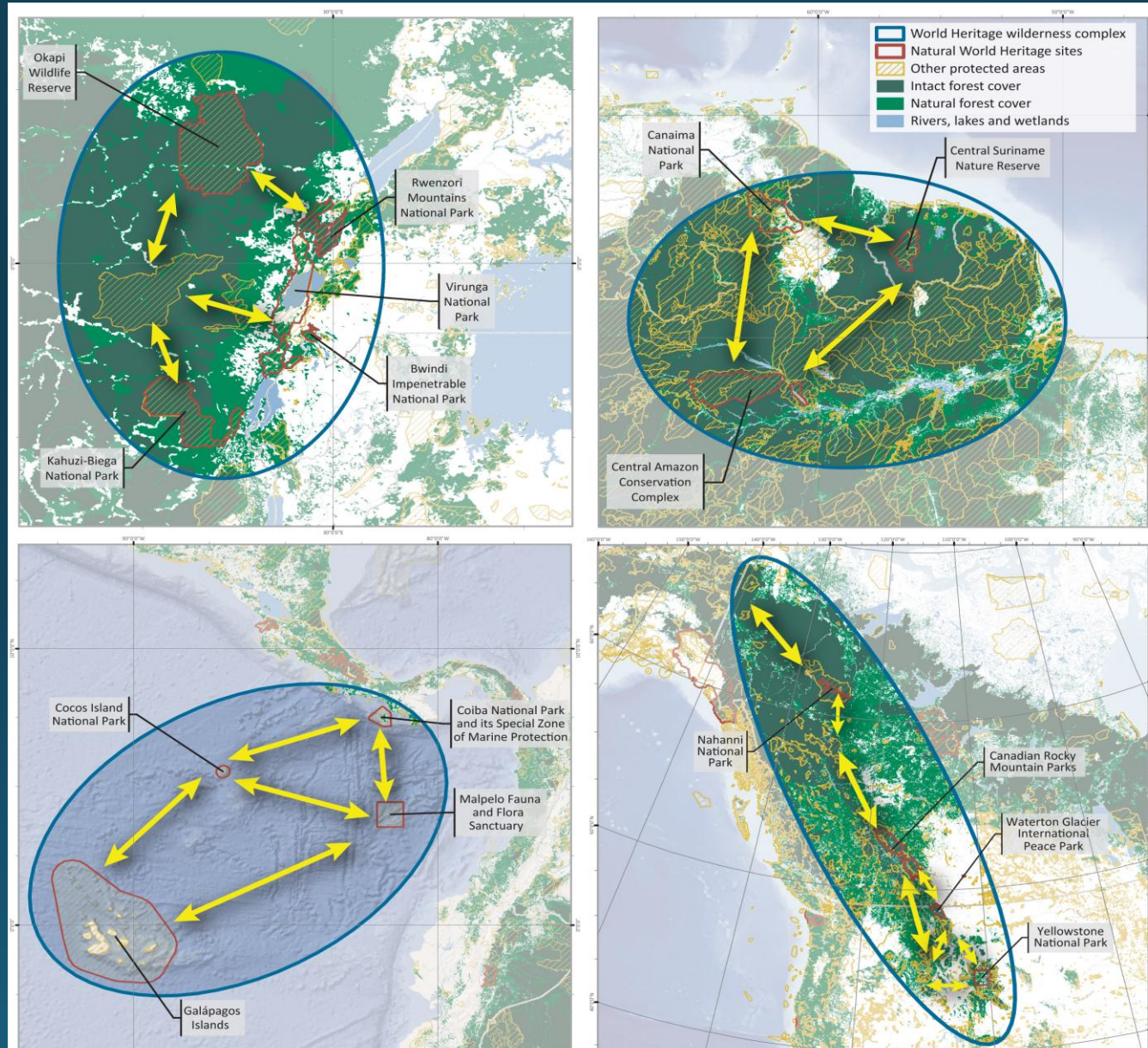
We need to be thinking in terms of protecting systems.

- simply applying a World Heritage label to an existing protected area may not be sufficient in a rapidly changing global landscape!



Photo: UNESCO

Serial / transboundary /connectivity approaches are emerging.



THANK YOU!