

The performance and potential of protected areas

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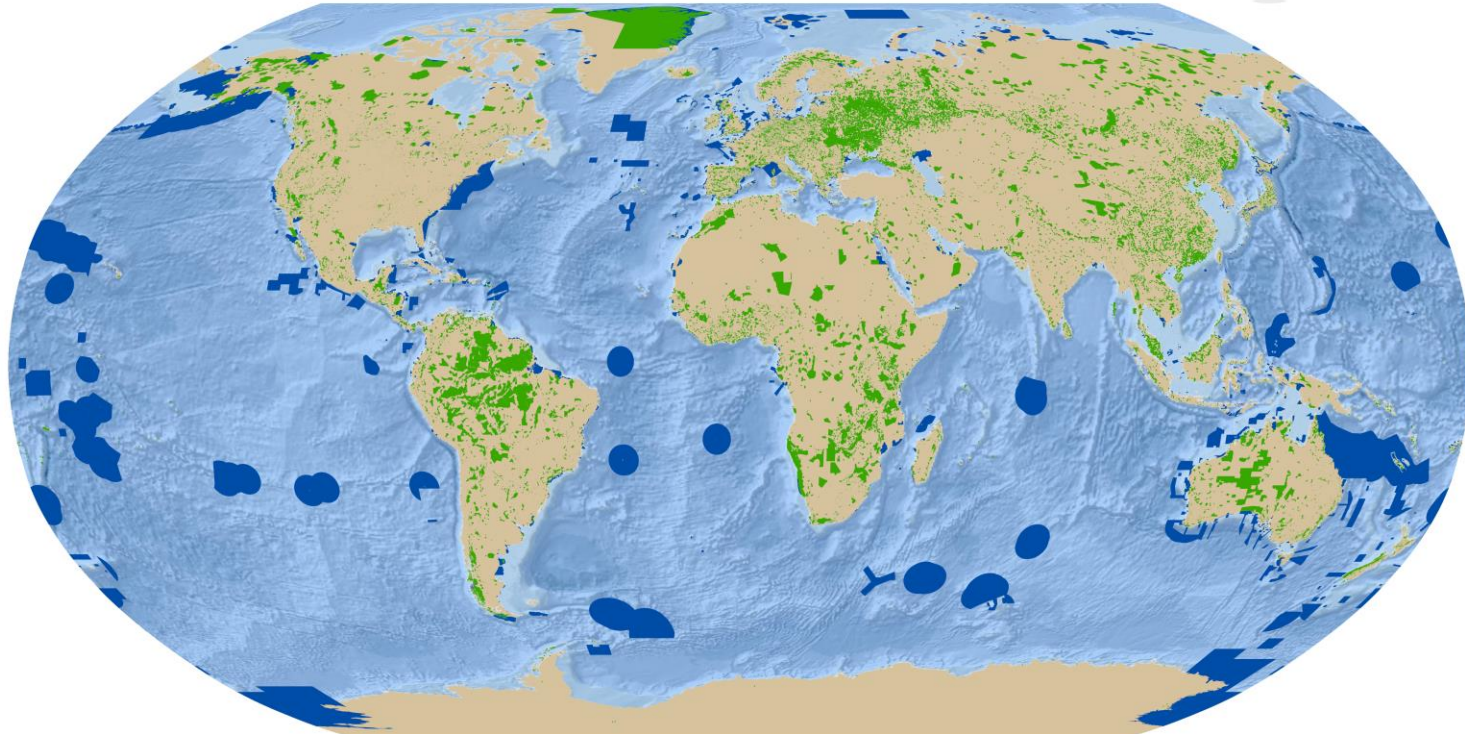
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Protected Areas of the world



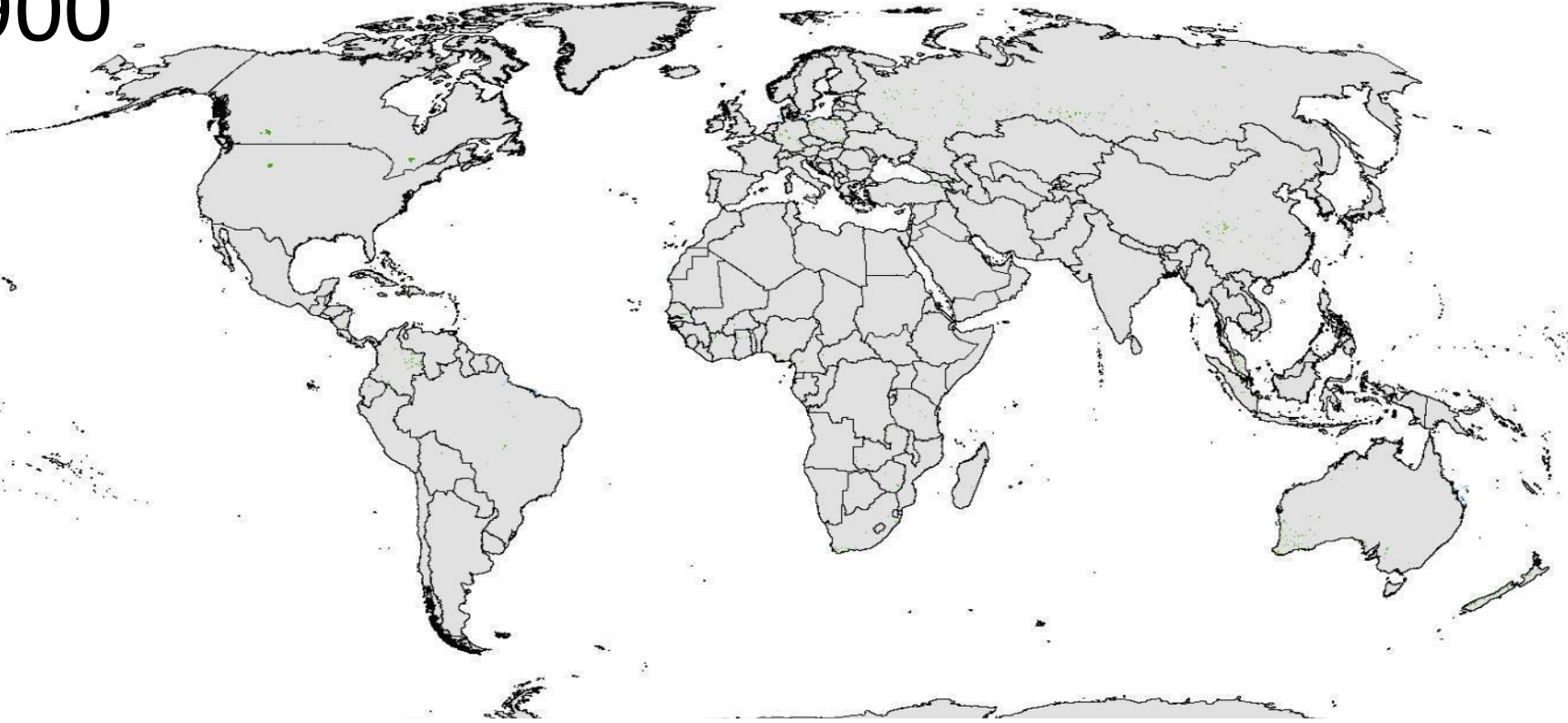
Source: UNEP-WCMC AND IUCN (2018). Protected Planet: The World Database on Protected Areas (WDPA) [On-line], November 2018, Cambridge, UK: UNEP-WCMC. Available at www.protectedplanet.net



 Terrestrial protected areas  Marine and coastal protected areas

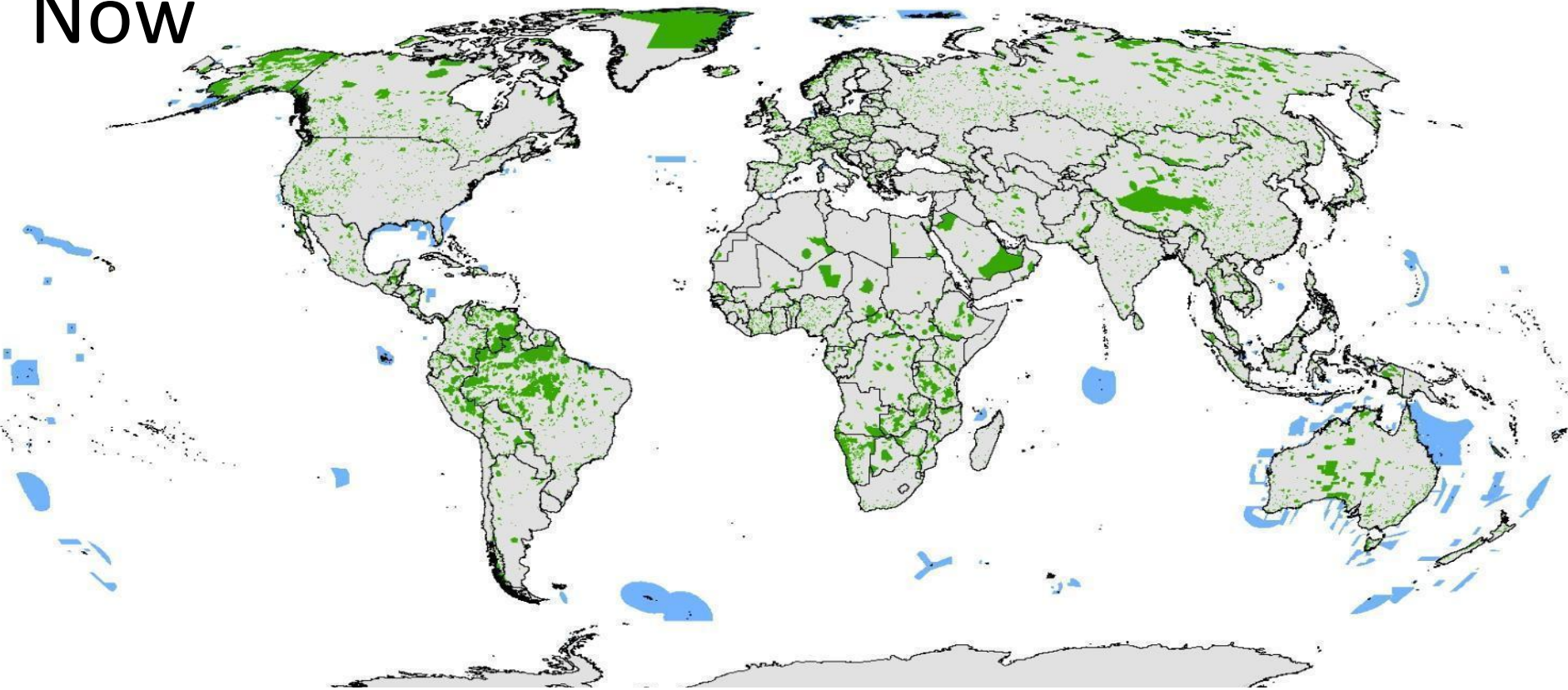


1900

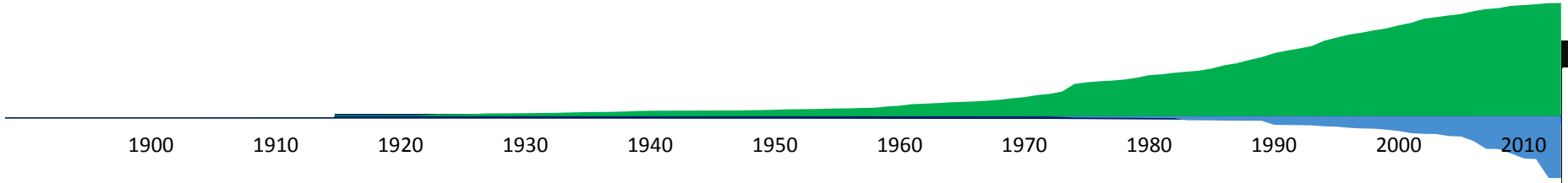


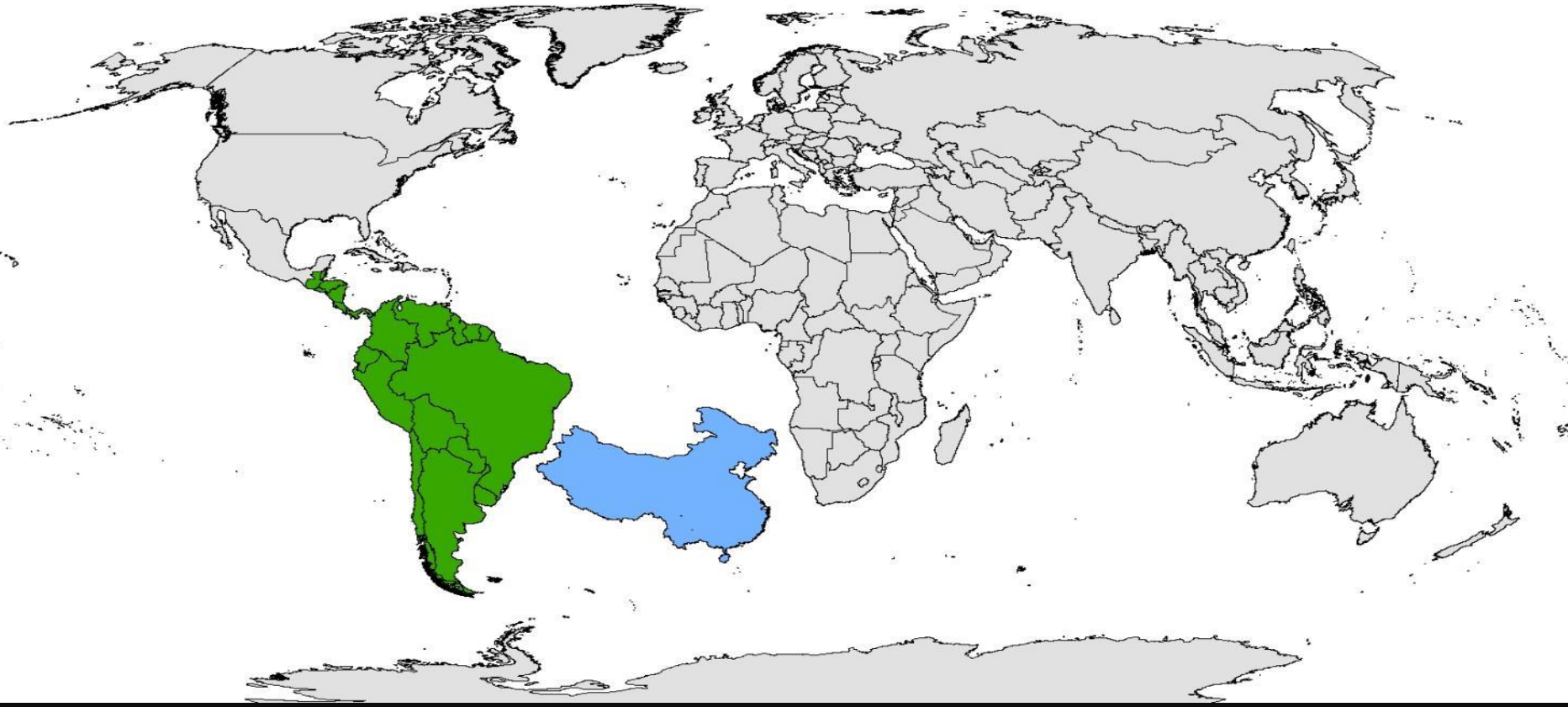
1900

Now



1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010





*“conserve the composition,
structure, function and
evolutionary potential of
biodiversity”*

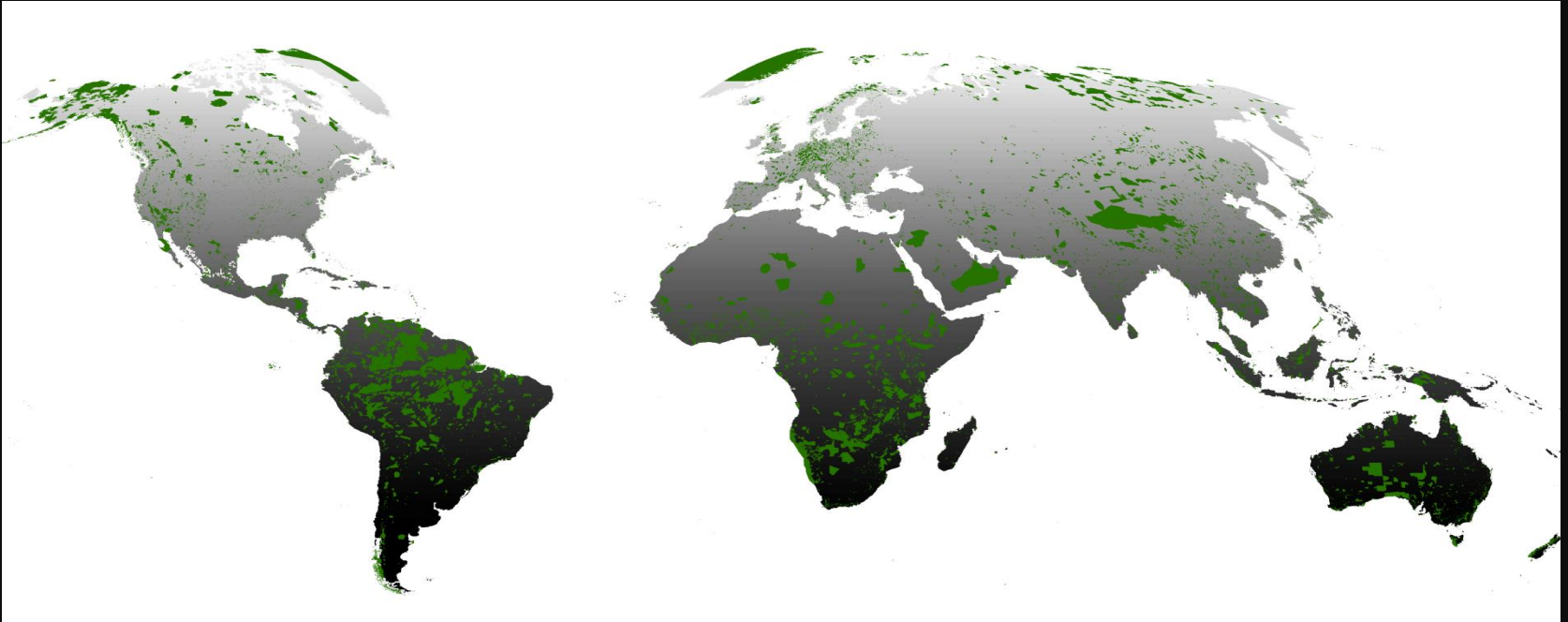
Dudley et al. 2008

For protected areas to conserve biodiversity, they must..

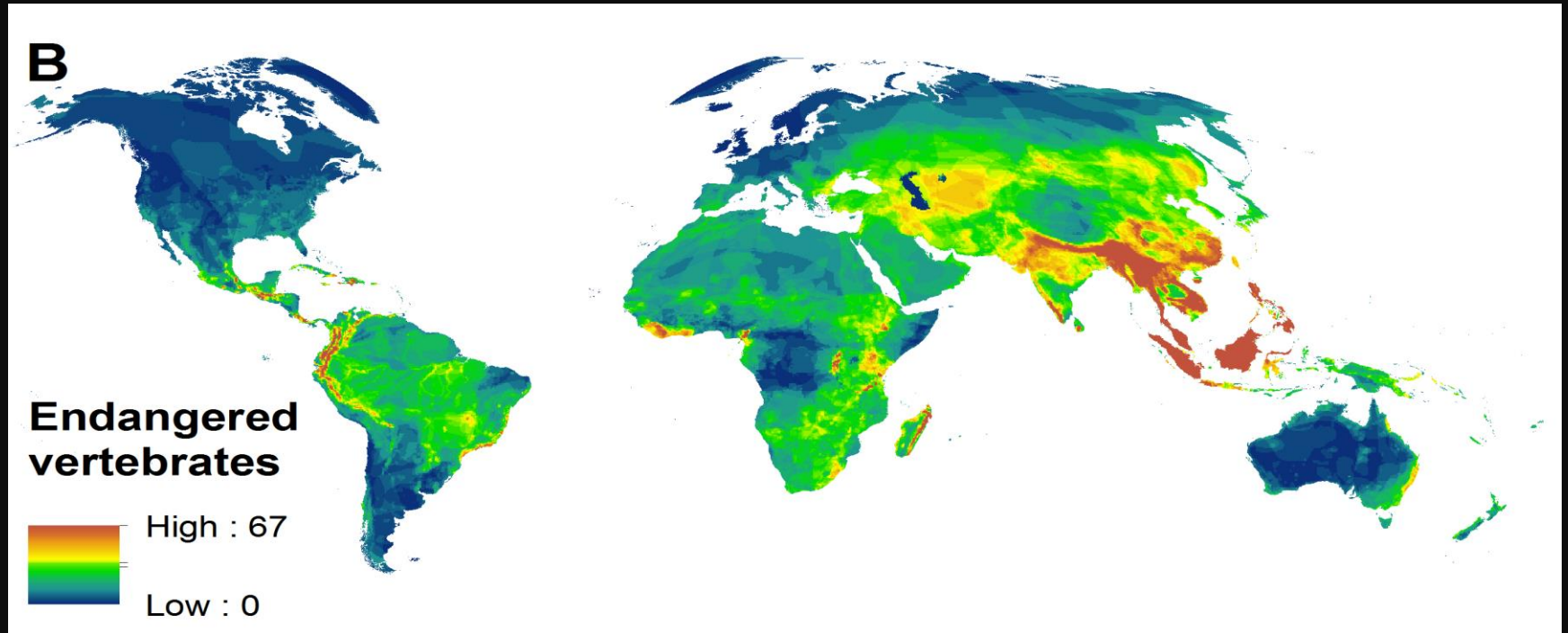
1) Be located in the right places

2) Be effectively managed for biodiversity

Where do we tend to locate protected areas?



Threatened vertebrates



Agricultural opportunity cost

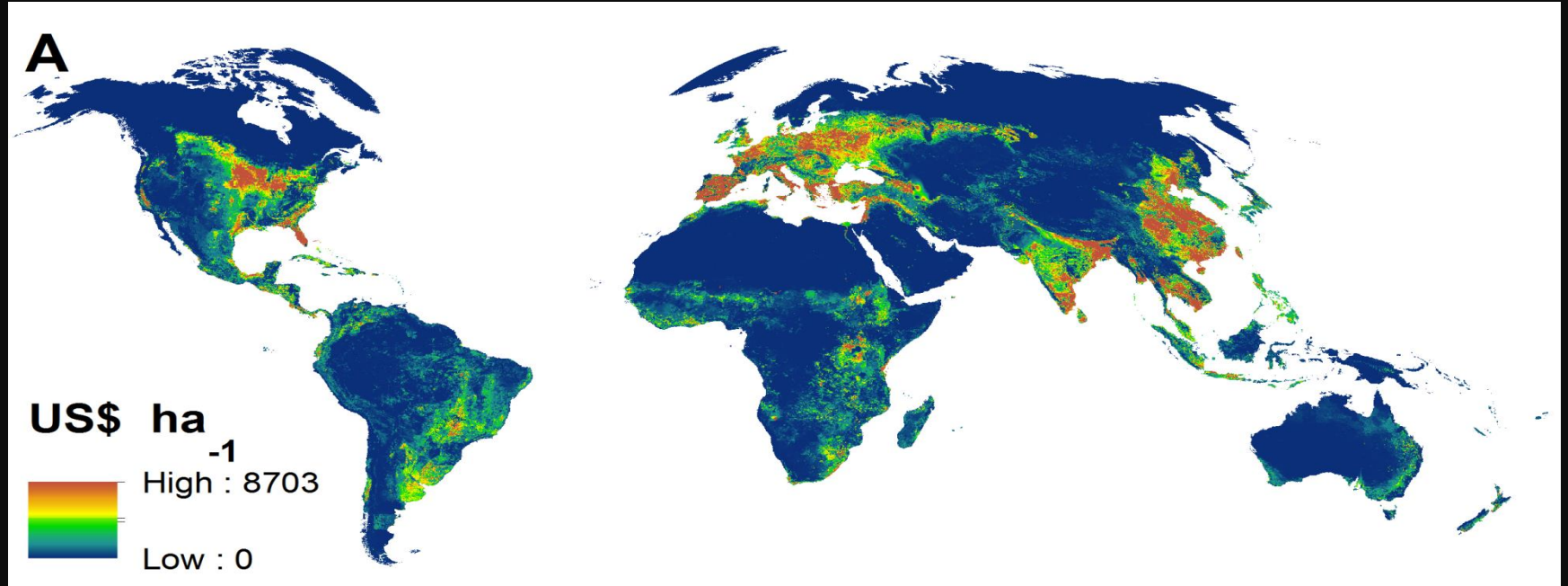
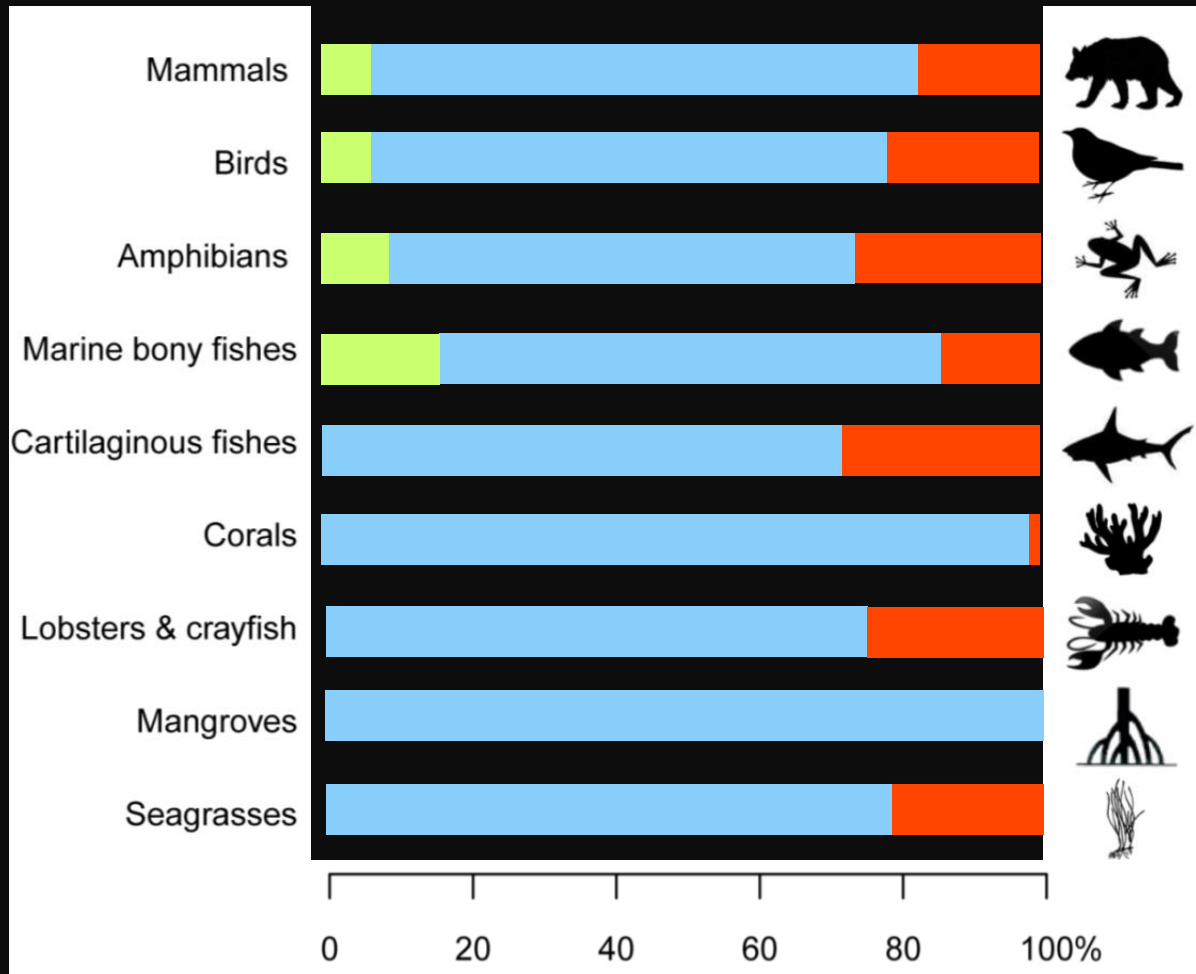


Table 1. Summary statistics for all land areas and for protected areas established over the three time periods analysed in this study.

Category	PA Count	Total PA (km²)	Mean cost (2012 US\$ per ha)	Mean species richness
All land	<u>na</u>	127,331,523	61.54	6.81
pre-2004	157,964	16,108,966	37.77	7.37
2004-2009	30,894	2,029,430	35.14	7.53
2010-2014	13,663	1,110,729	16.13	6.31

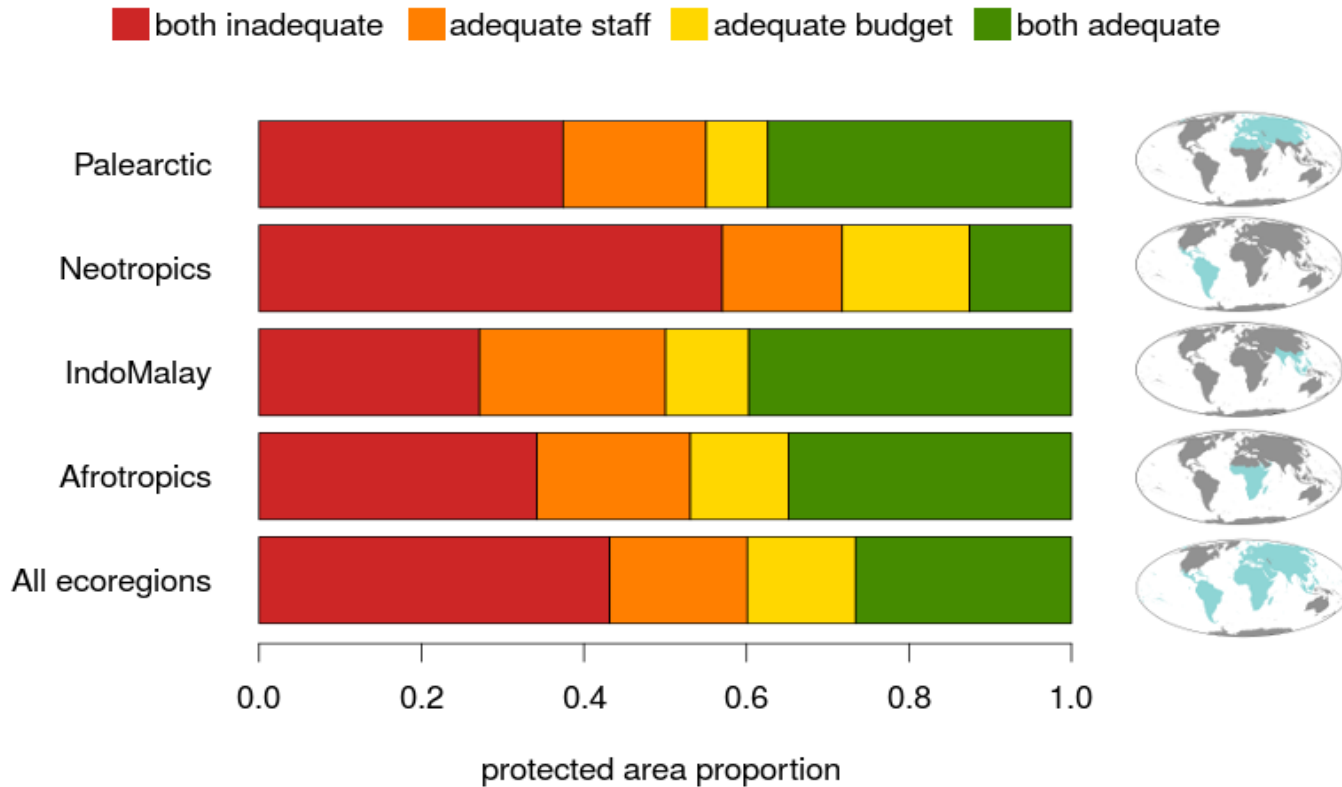
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Butchart et al. 2015, Conservation Letters

PAME data on protected areas being effectively managed



Activity

1. Human population density

2. Nightlights

3. Urban areas

4. Cropland

5. Pasture land

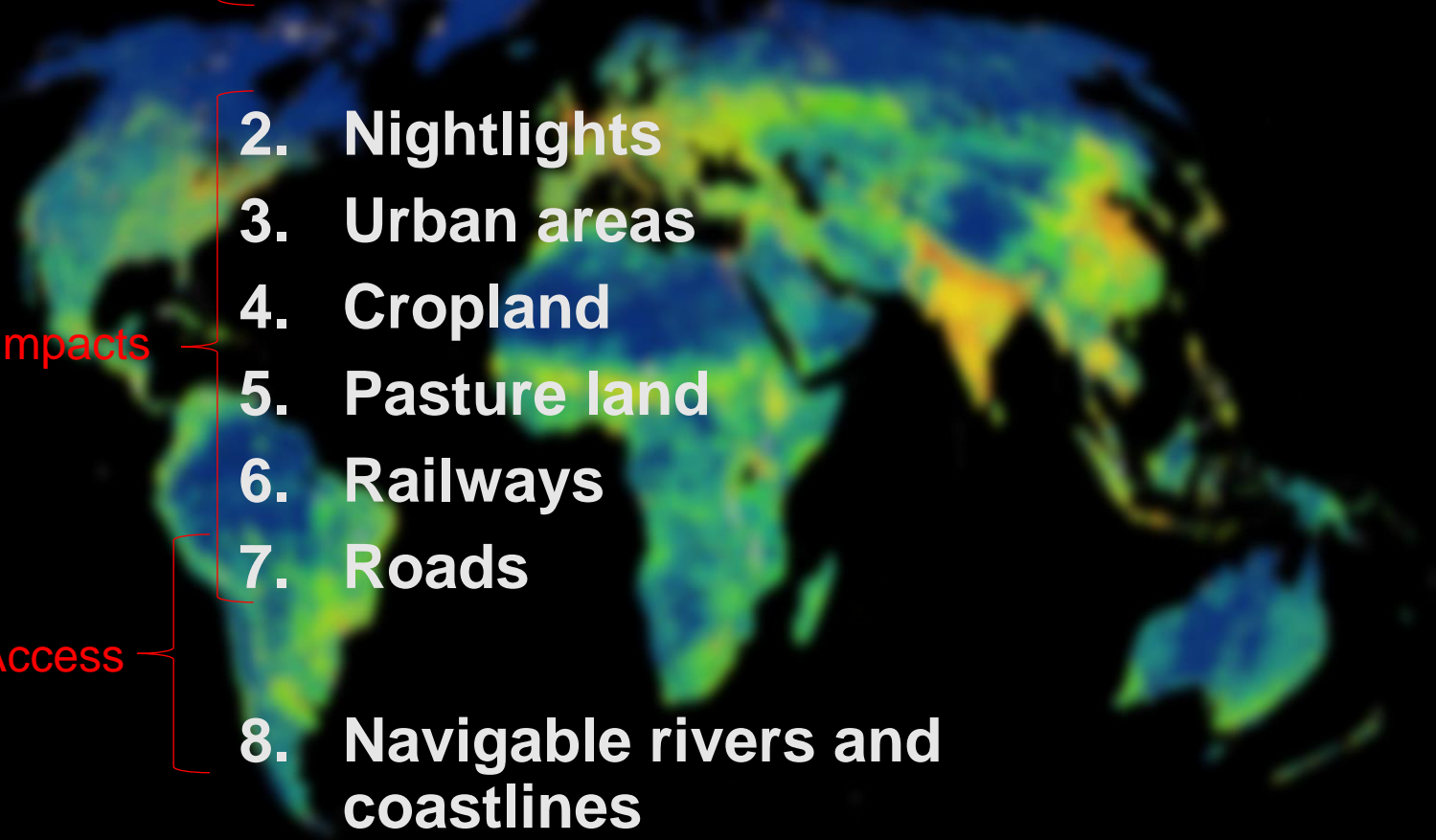
6. Railways

7. Roads

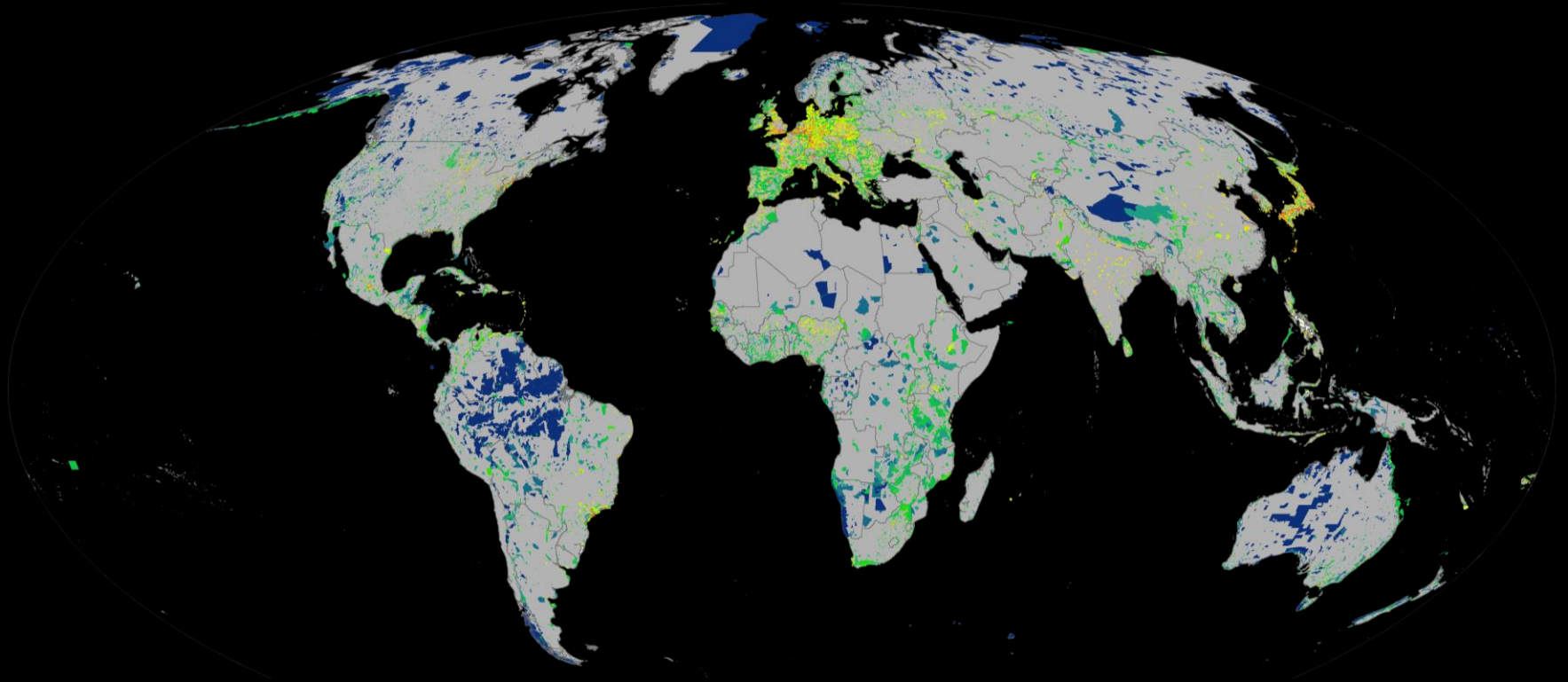
8. Navigable rivers and coastlines

Direct impacts

Access



Human Footprint in protected areas

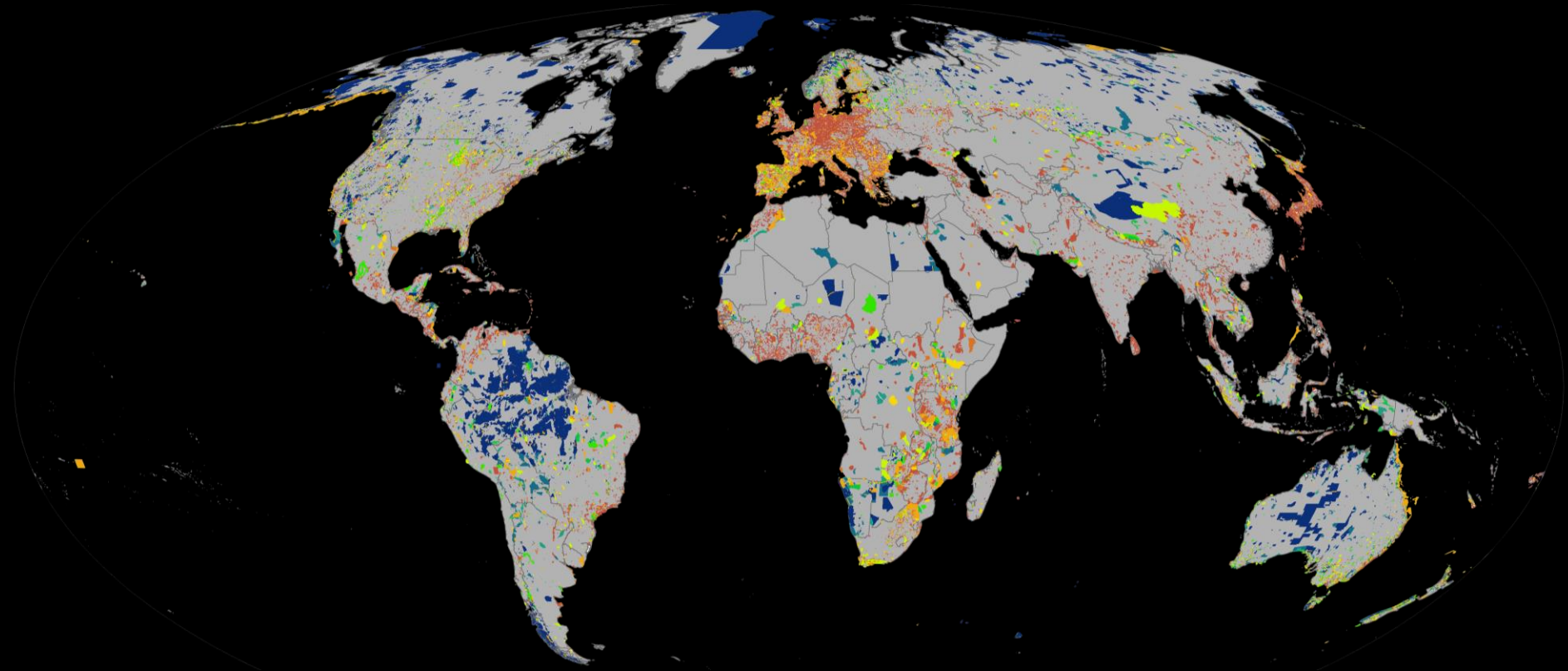


Low (0)

High (50)

Jones et al 2018 *Science*

Area under intense human pressure



Low (0%)

High (100%)

Threats are widespread



Not just developing nations



Alpine NP, VIC



Nahanni, Canada

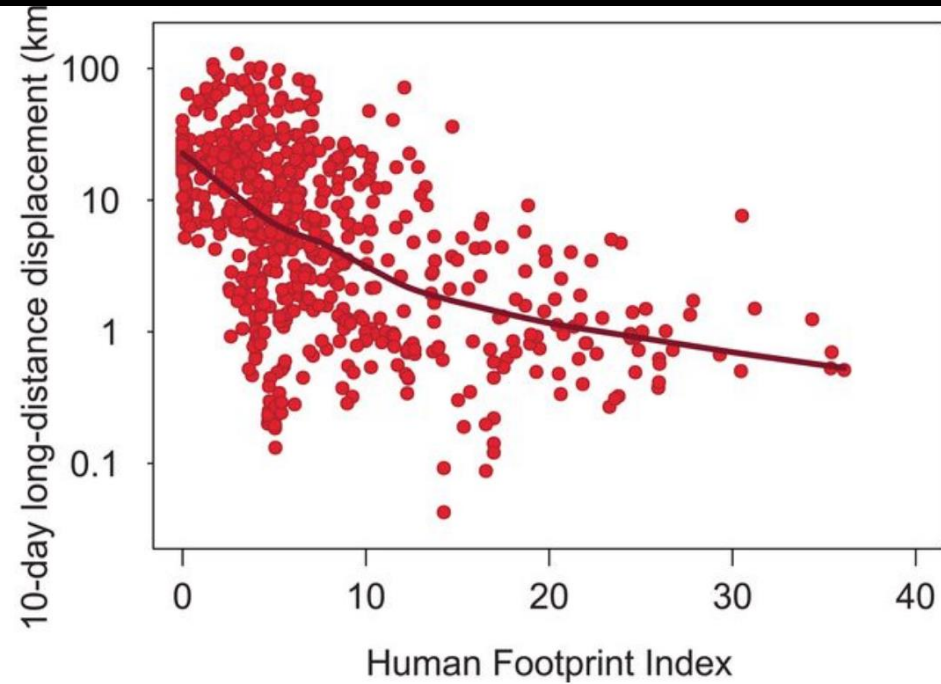
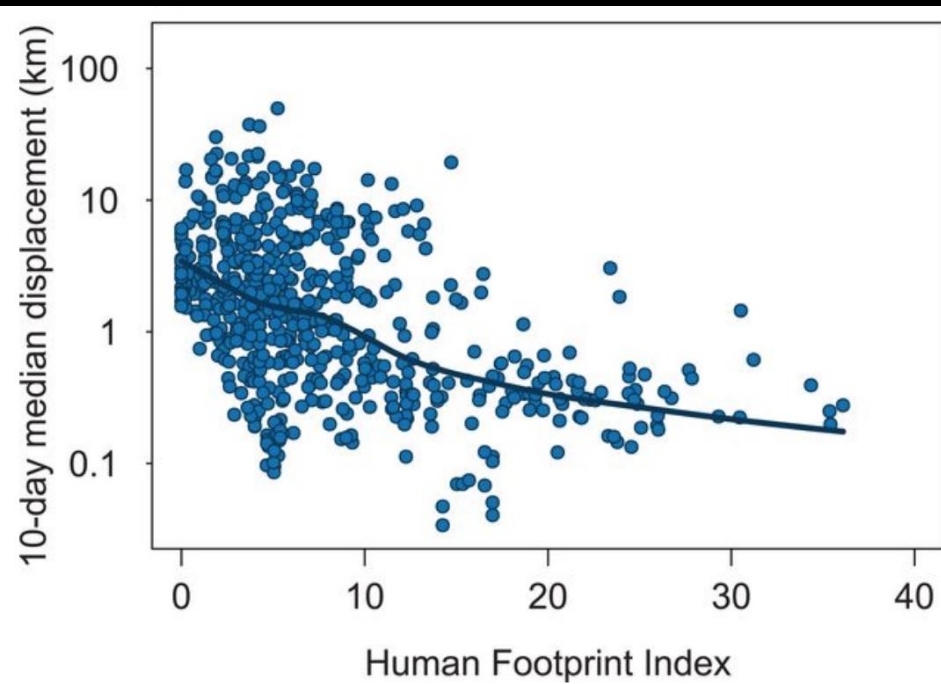


Barrow Island, WA



Point Reyes, USA

Significant human activity within PAs will reduce their conservation benefit



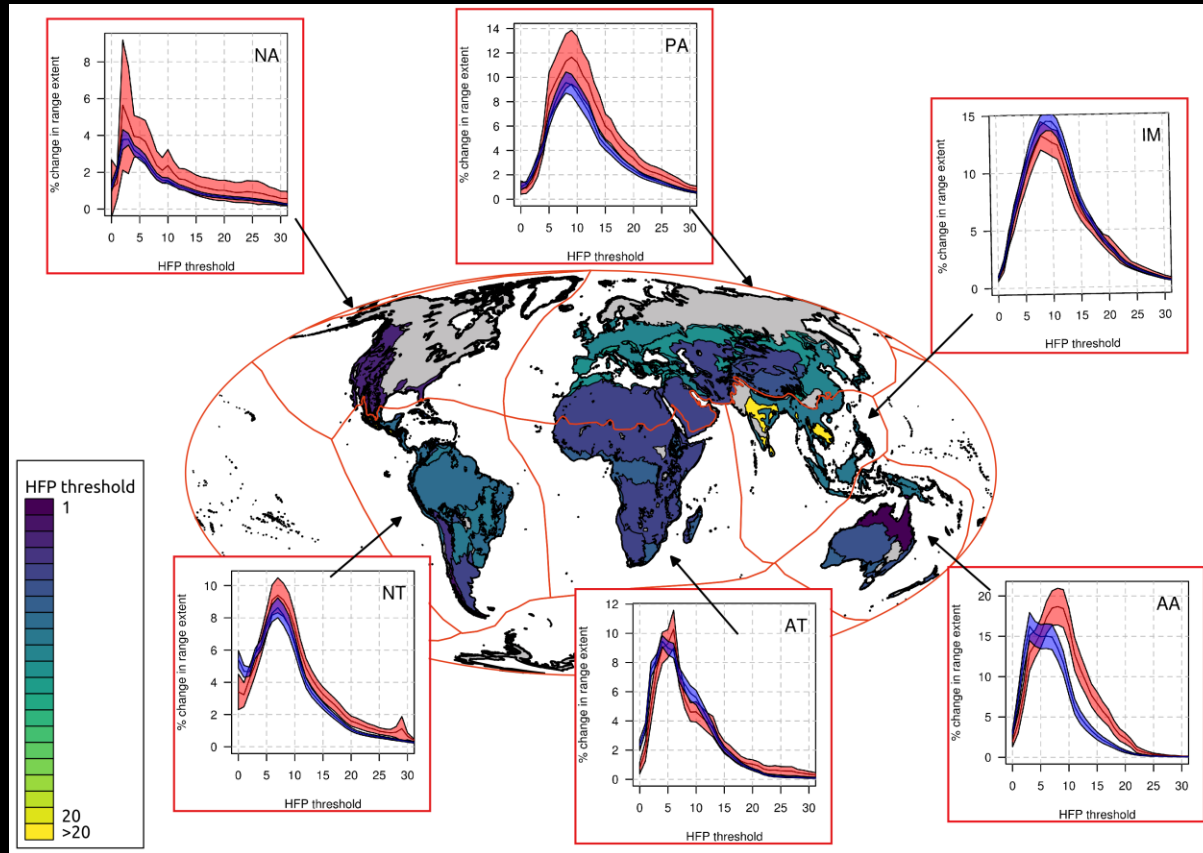
Tucker et al. 2018 Science

Aichi target 11

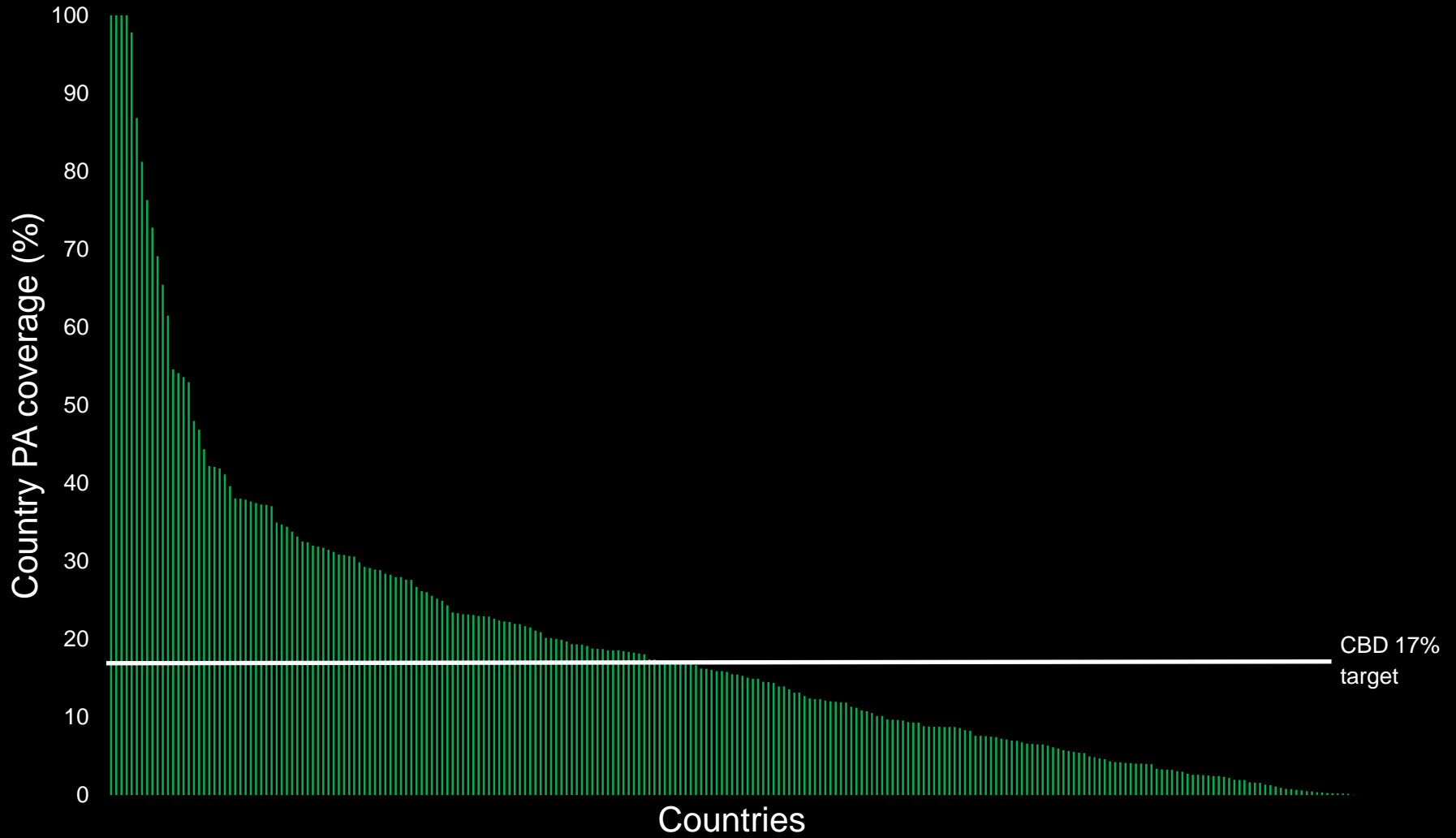
“17% of terrestrial areas are conserved through effectively managed and ecologically representative PAs by 2020”

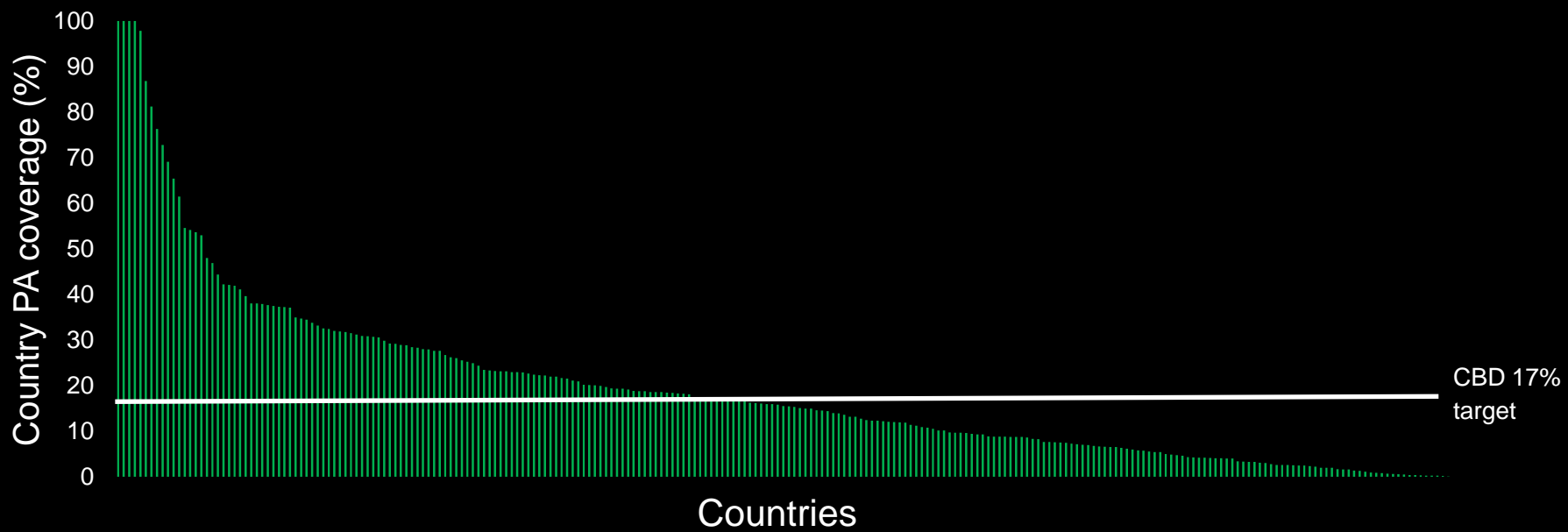
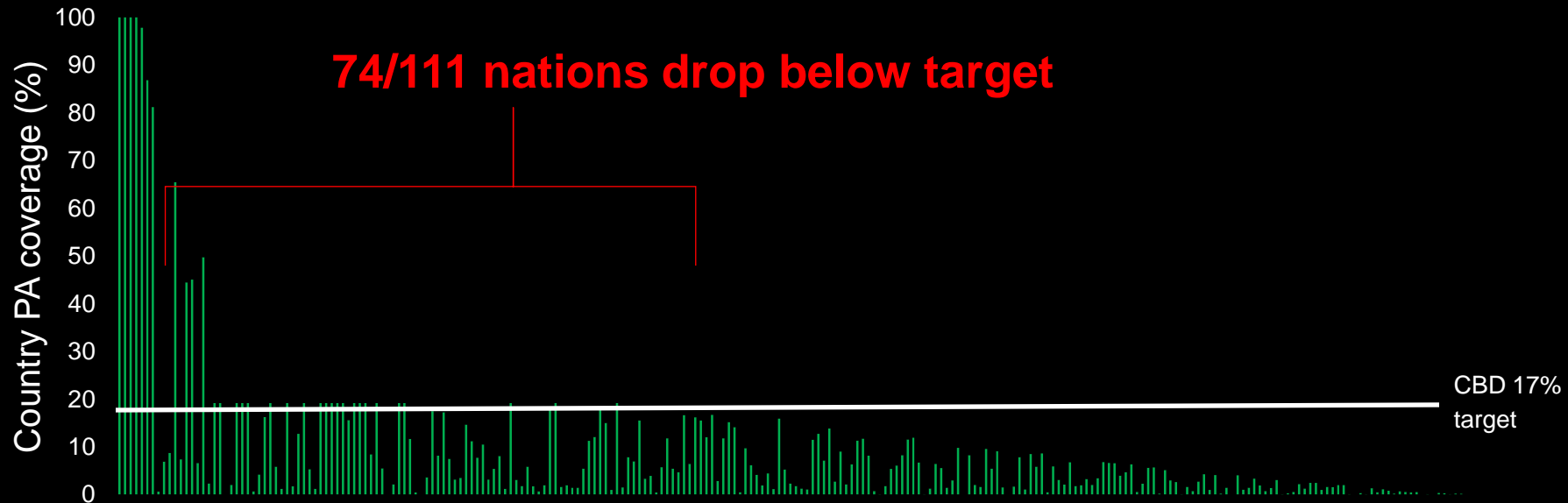
“ensure ecological integrity and the protection of species, habitats and ecosystem processes”

A change of human footprint of 4 is a disaster for mammals - Di Marco et al. 2018 Nat Comms



Progress towards Aichi target 11





We know PAs can work

BUT

By focusing on area we
aren't telling the full story



Photo: Google Earth



Photo: Andy Plumtre

What is needed?

- Reporting on actual coverage of biodiversity and measures of human pressure in protected areas
- Identify and address shortfalls in PA estates— this needs to be biodiversity based and needs based



Thank you

Oscar Venter, Richard A. Fuller, James R. Allan, Pablo Jose Negret, Sean L. Maxwell



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