

Protected areas, synergies & trade-offs







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REVIEW

 Global Change Biology 

Making protected areas effective for biodiversity, climate and food

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The Convention on Biological Diversity (CBD)

29 December 1993

3 main objectives:

- The conservation of biological diversity
 - The sustainable use of the components of biological diversity
 - The fair and equitable sharing of the benefits arising out of the utilization of genetic resources
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- “Aichi targets” – to be reached by 2020, not ever so successful...

None of 20 targets reached fully
4 of 20: reached partially
5 of 20: things get worse



‘post-Aichi’: Kunming-Montréal Biodiversity Framework (2022)

“By 2050, biodiversity is **valued, conserved, restored and wisely used**, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people.”

→ by 2030, to take “**urgent action to halt and reverse biodiversity loss**”

23 targets


Target no. 3 “**30 X 30**”:

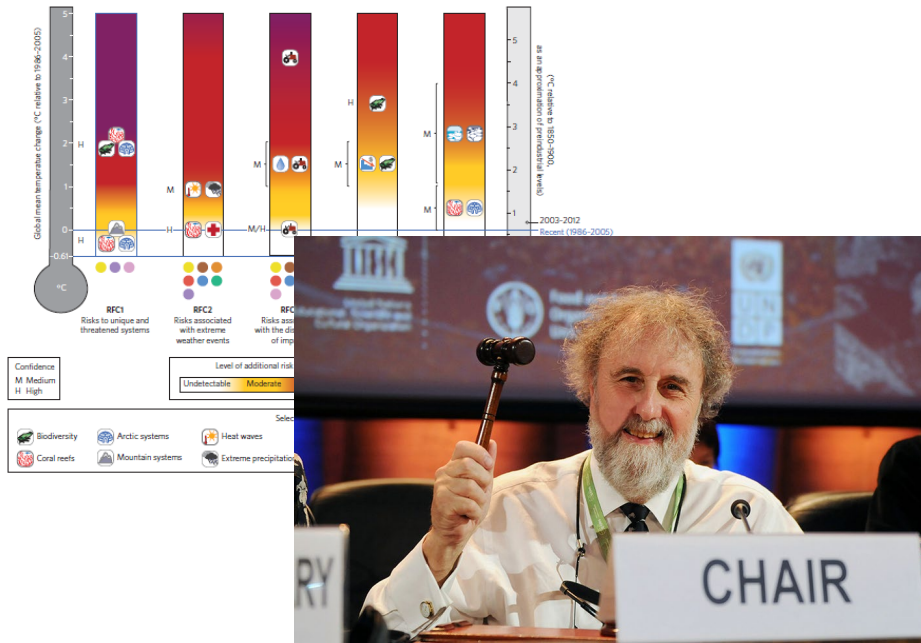
Ensure and enable that **by 2030 at least 30 % of terrestrial, inland water, and of coastal and marine areas,** are **effectively conserved and managed through** protected areas and other effective area-based conservation measures,

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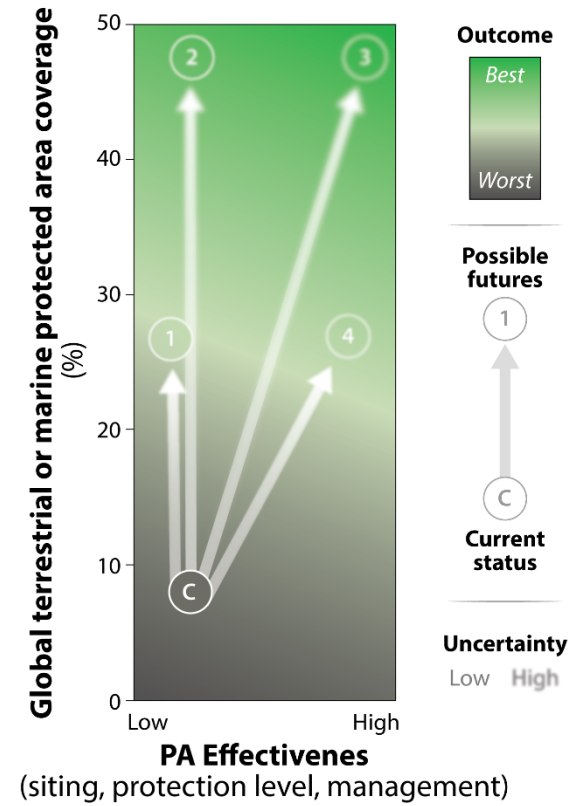


Nature's Green Shoots: visualise solutions to dangerous interferences in socio-ecological systems

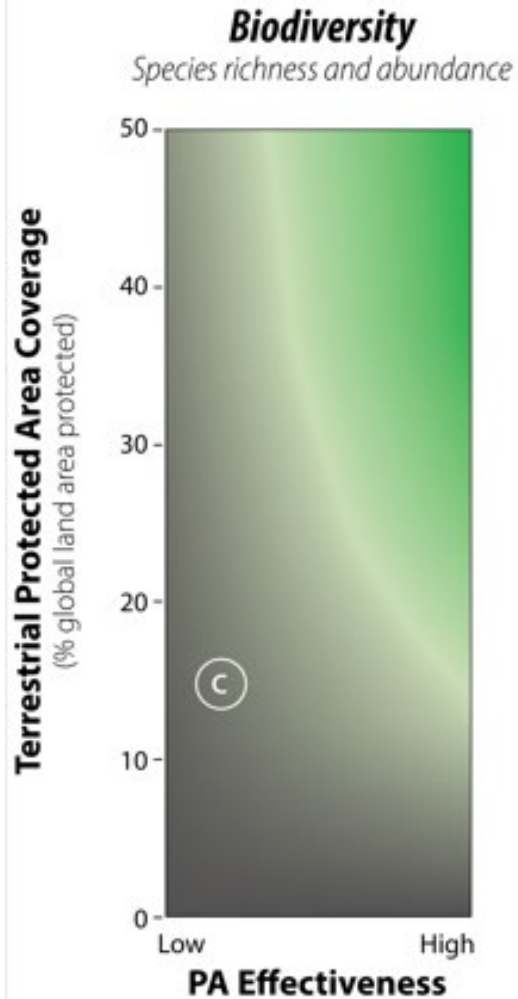
Risks  Solutions?



Sustainable Development Biodiversity, climate or food



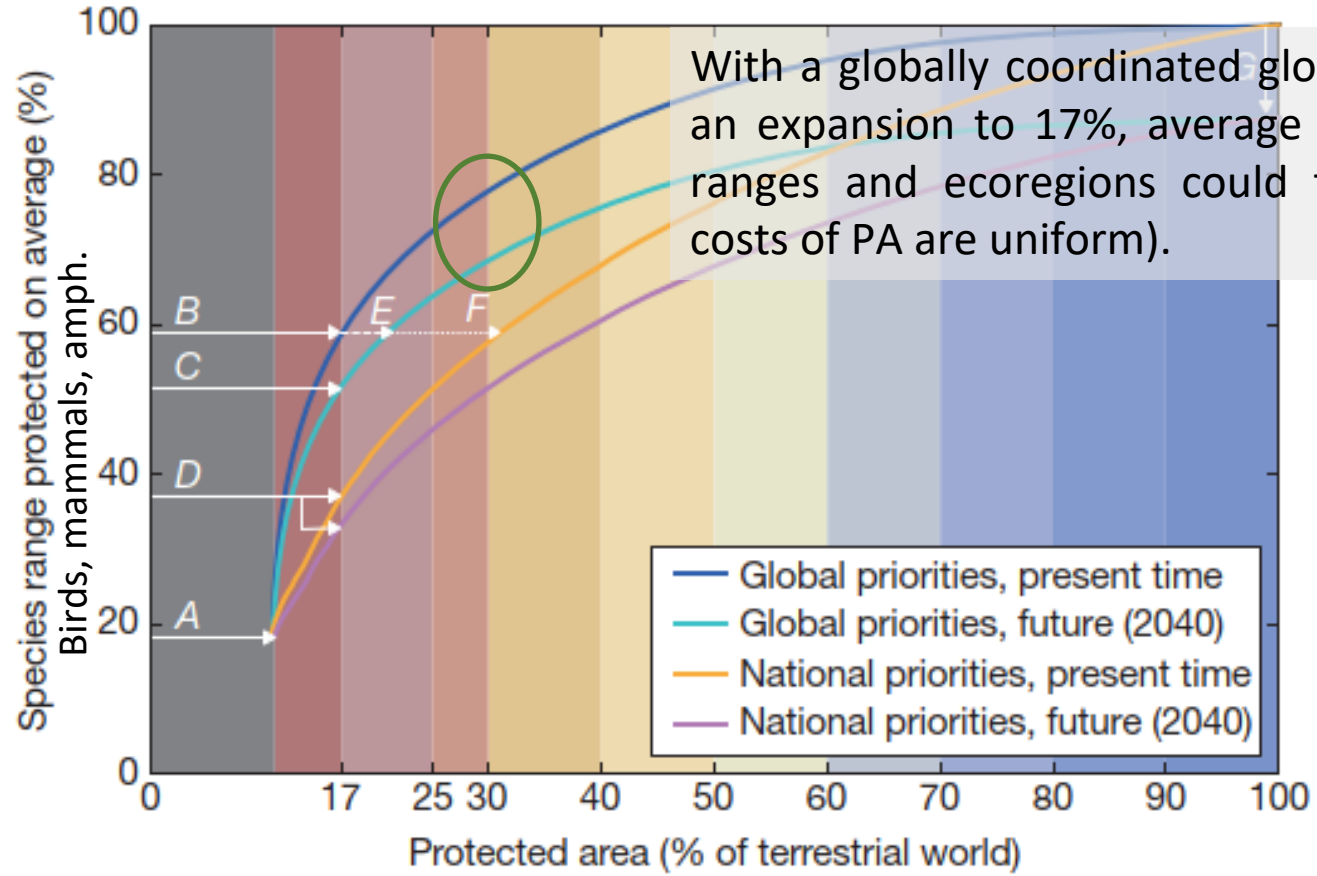
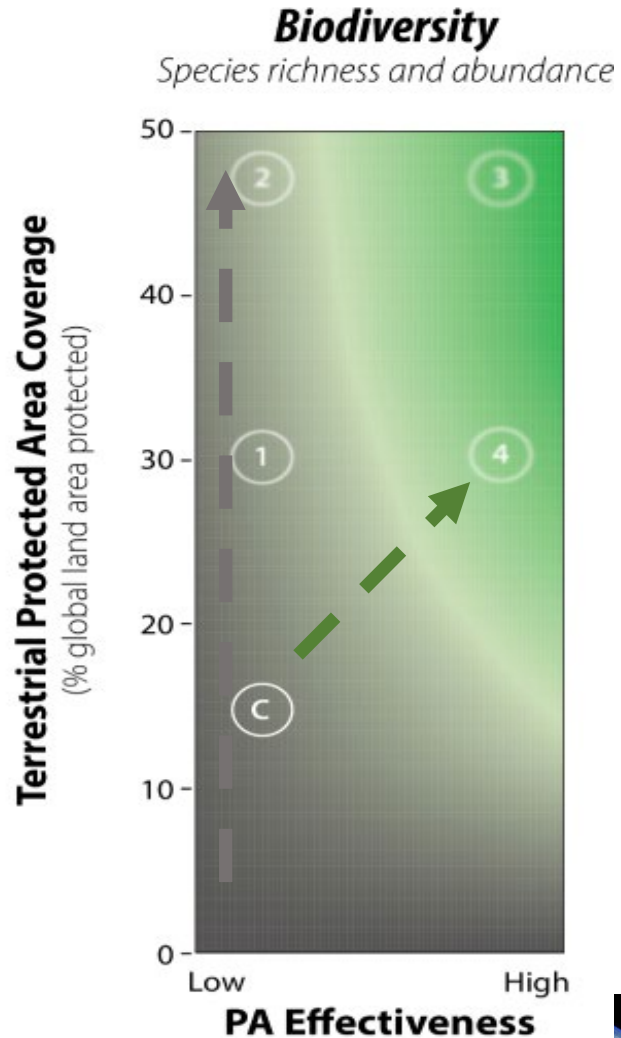
(Terrestrial) PAs: positive synergies and challenges from a global perspective



- Today's TPA: <70% of bird and mammal species, <35% of reptiles and amphibians adequately represented
- Vertebrates threatened with extinction - only 19% of their range represented
- Less than 25% of TPAs with adequate financial and staff capacity
- TPAs are biased towards areas of limited human-use potential, cheap to protect -- rather than areas of high biodiversity value



Can we do better?

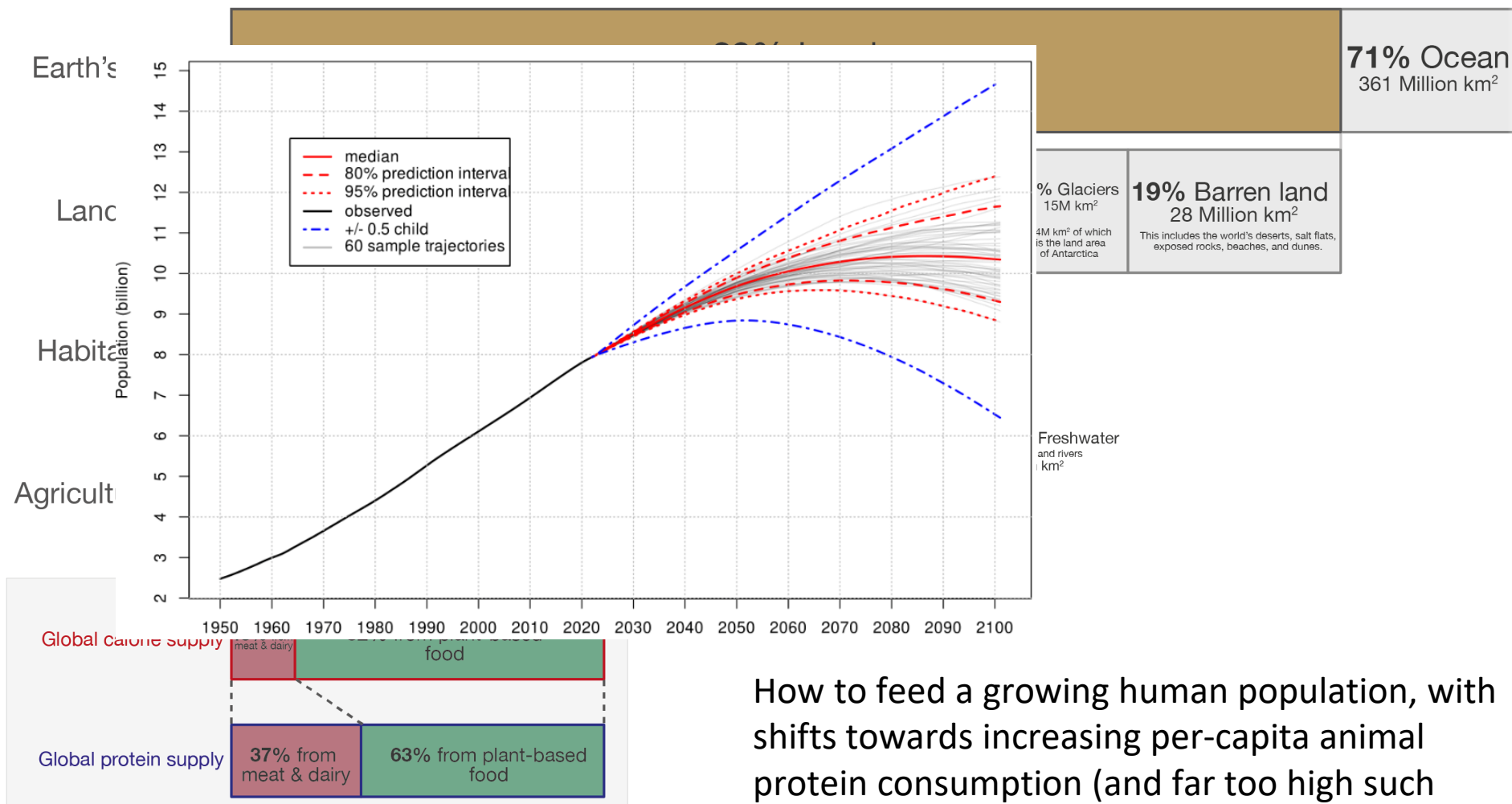


With a globally coordinated global PA network, even an expansion to 17%, average protection of species ranges and ecoregions could triple (assuming that costs of PA are uniform).

Better placement and money invested wisely can go along way!



30%, potential issues from competition for land?



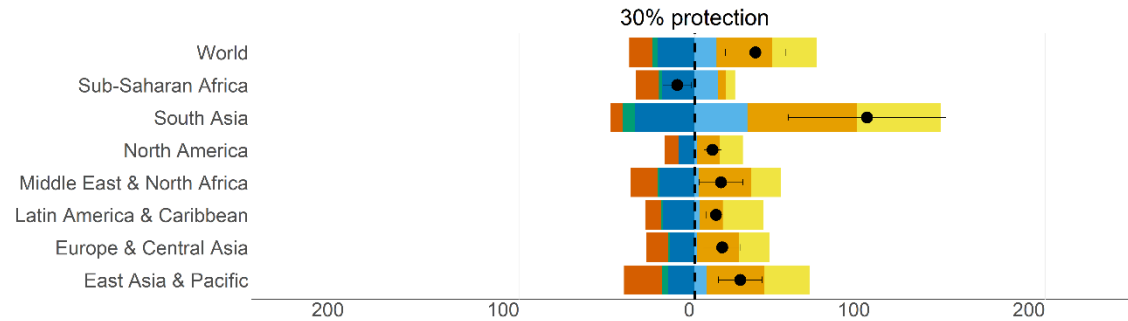
How to feed a growing human population, with shifts towards increasing per-capita animal protein consumption (and far too high such consumption in rich societies?)

Data source: UN Food and Agriculture Organization (FAO)
OurWorldinData.org - Research and data to make progress against the world's largest problems.

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Date published: November 2019.

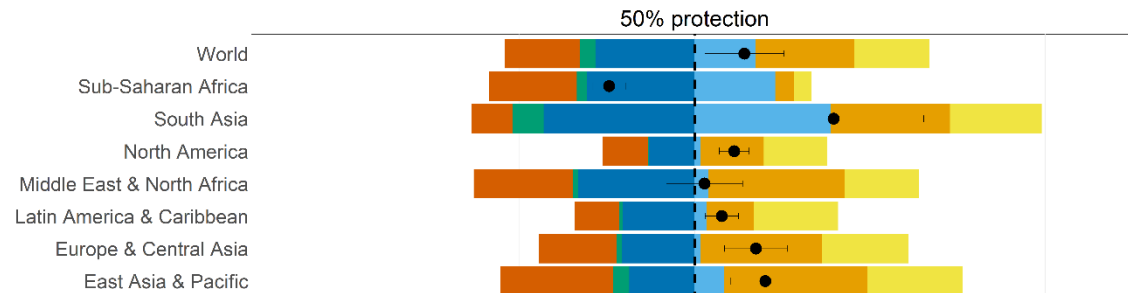


Strict protection, interfere with food security?



Globally, 30% and 50% protection, if strictly enforced, would cause an additional 30-50 million deaths in 2060.

PA can result in increased food price and enhanced expenditure rel. to GDP increase

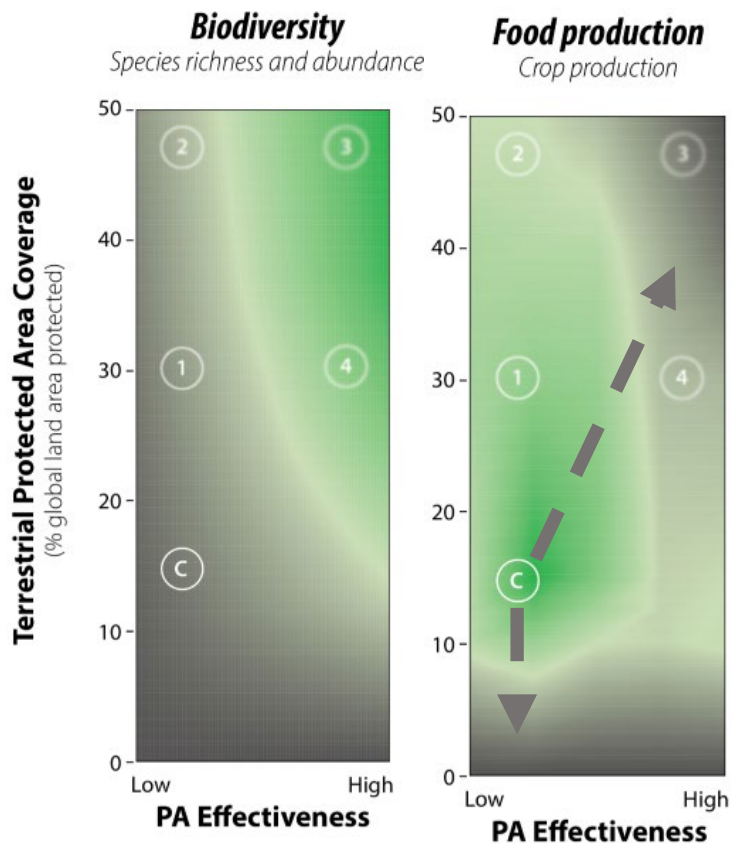


Radical measures to protect biodiversity may further jeopardise food security and health goals in the most vulnerable regions of the world.

■ ↓ Fruit consumption
 ■ ↓ Red meat consumption
 ■ ↓ Overweight fraction
 ● Total
■ ↓ Vegetable consumption
 ■ ↑ Underweight fraction
 ■ ↓ Obese fraction



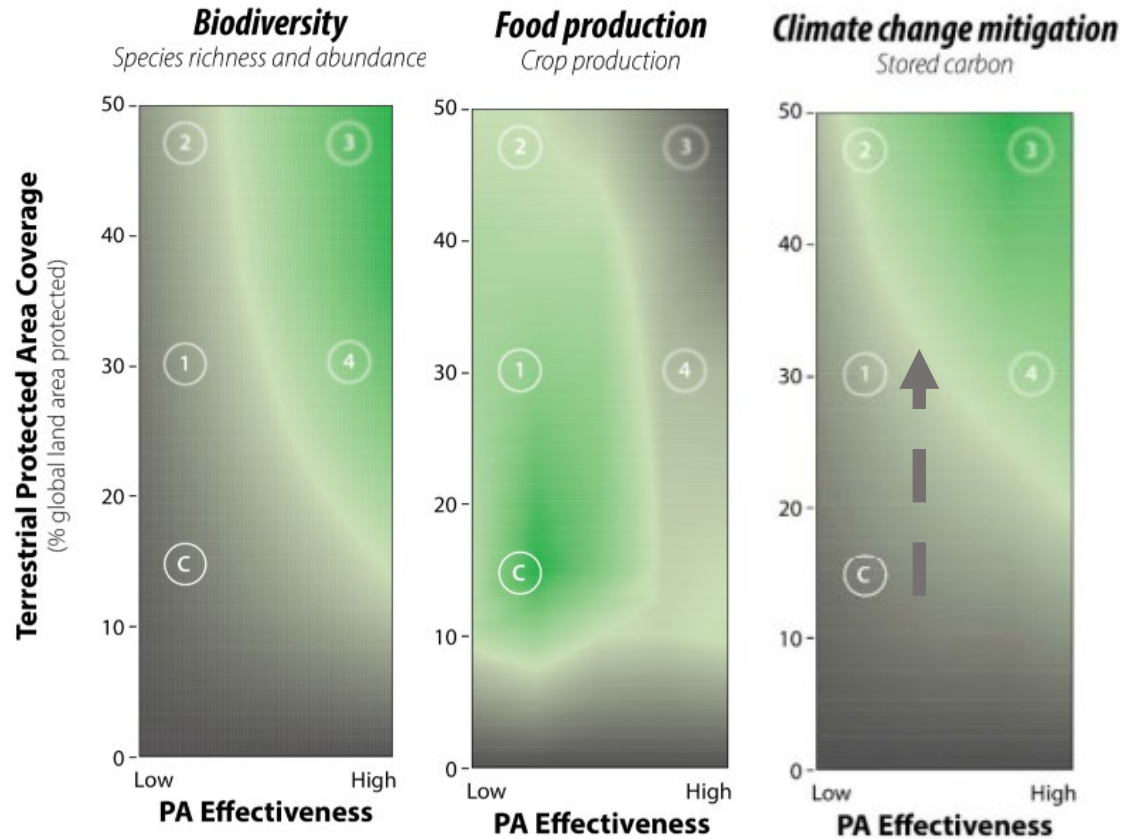
Terrestrial protected area and food



- Today's TPAs: do not limit production, and provide benefits to surrounding agricultural regions = represented as broadly beneficial
- >50%, of the ice-free land surface already used food, feed, fibre, timber) + millions of people still undernourished → conflict with expanding TPAs is inevitable, esp. if these are strictly protected
- Absence of PA: reduces habitat for pollinators, genetic resources, catchment protection



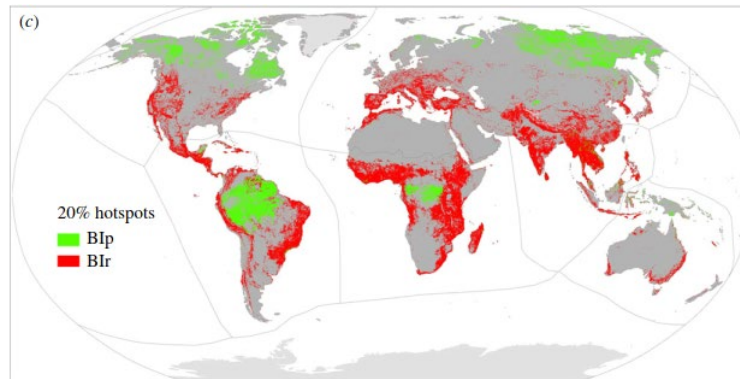
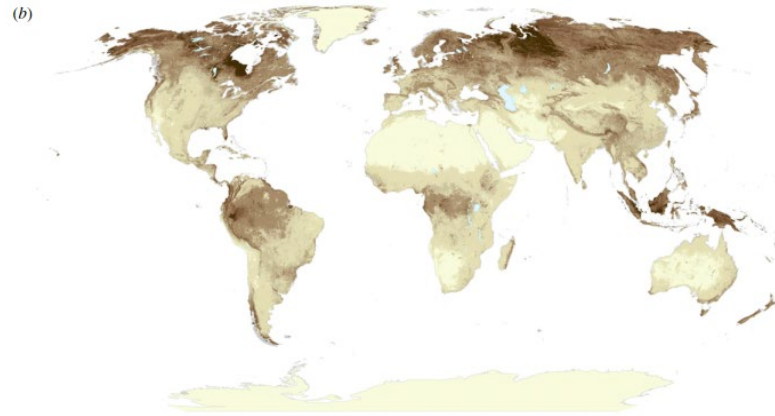
Terrestrial protected area and climate



- Today status is poor as continued deforestation/degradation even in PAs
- At current levels of effectiveness, an increase in TPAs may only provide modest climate change mitigation: little protection of carbon stocks and sinks would be provided



But: conservation actions can provide additional biodiversity-carbon co-benefits



→ Areas of high biodiversity and high carbon stocks can correspond, notably in many pristine forests, wetlands and savannahs

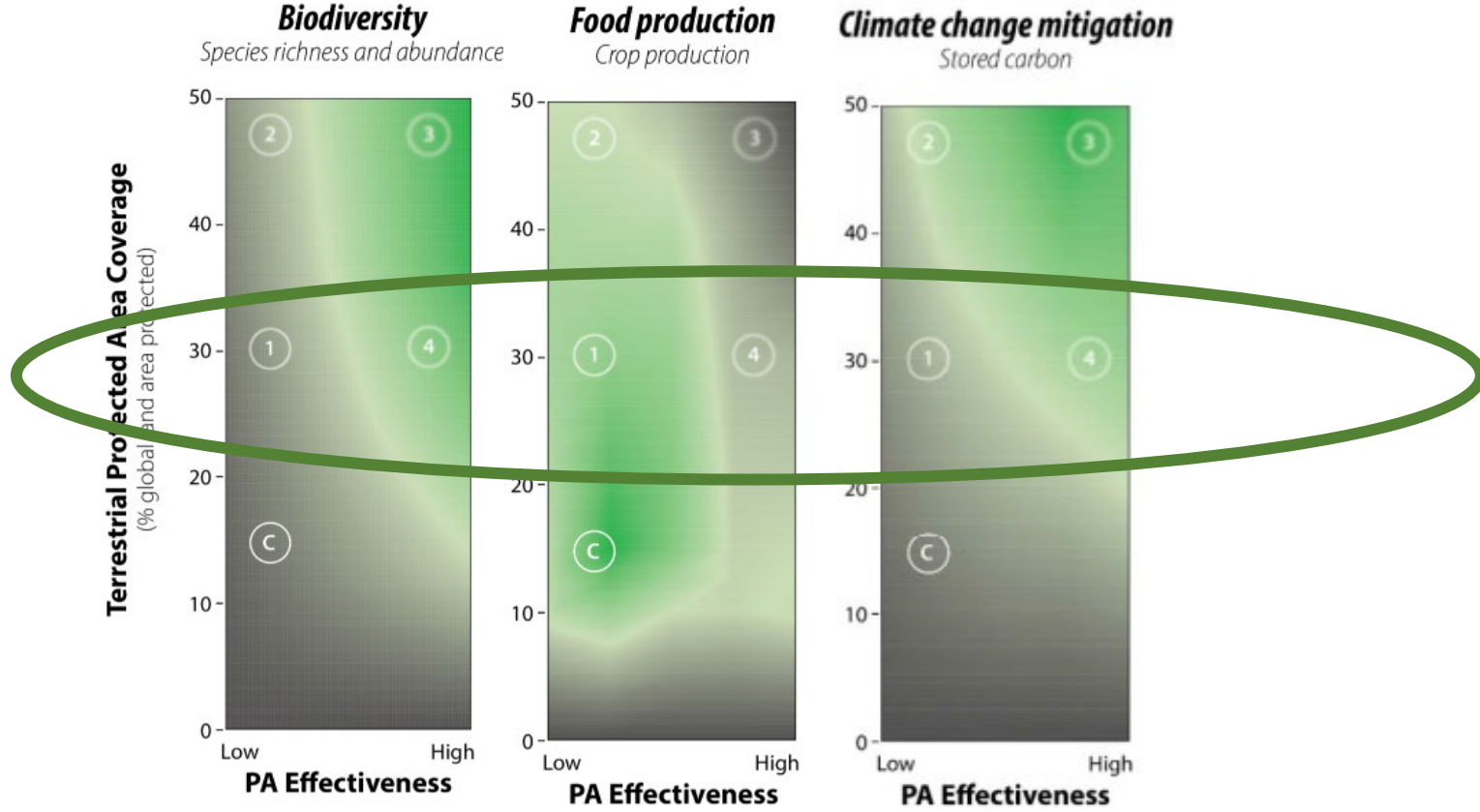


30 X 30: synergies & trade-offs

Challenging, especially competition of land for food vs. protection.

But options exist:

- Dietary change (in rich societies lower globally more equitable animal protein consumption)
- ‘Other effective area based conservation’
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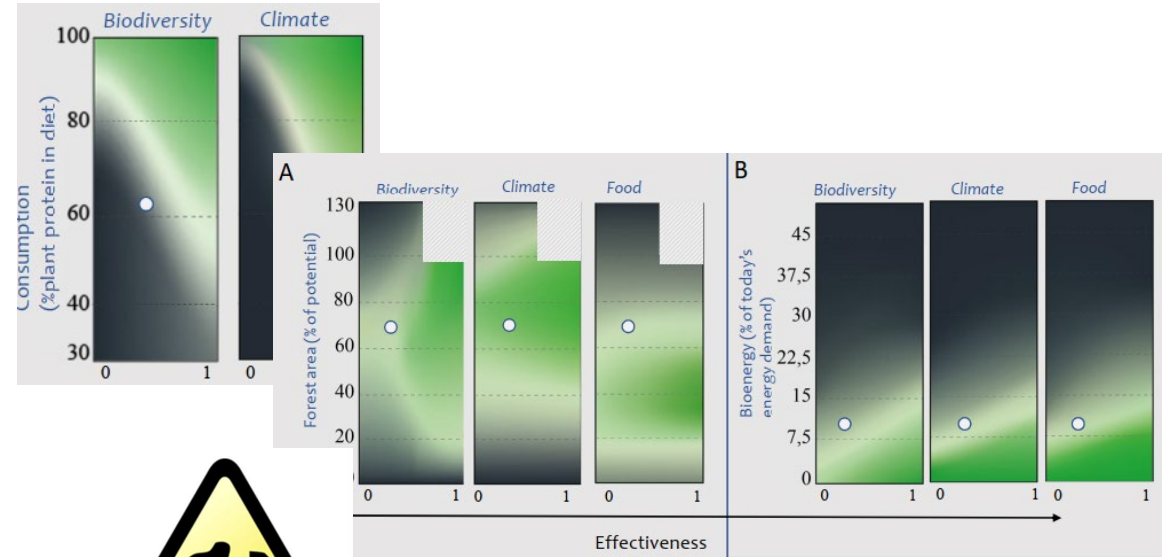
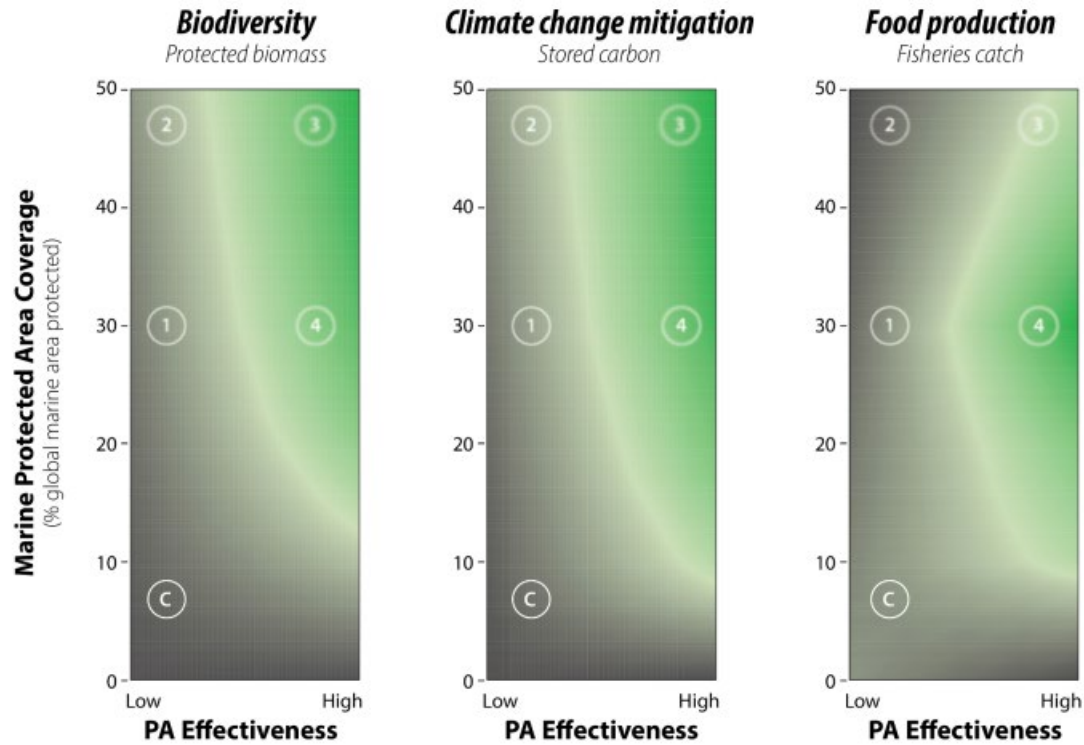


More Green Shoots?

Also available for marine PA!

Other solutions: under development...

Marine Protected Areas



Questions?

