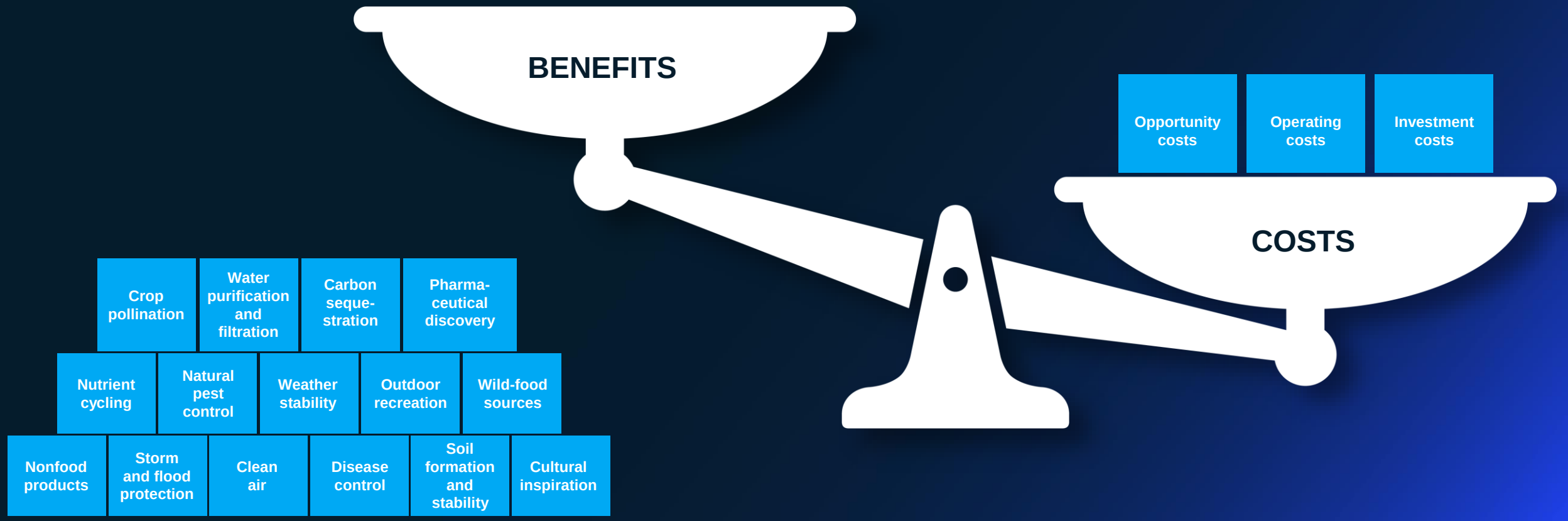
McKinsey & Company

Valuing nature conservation

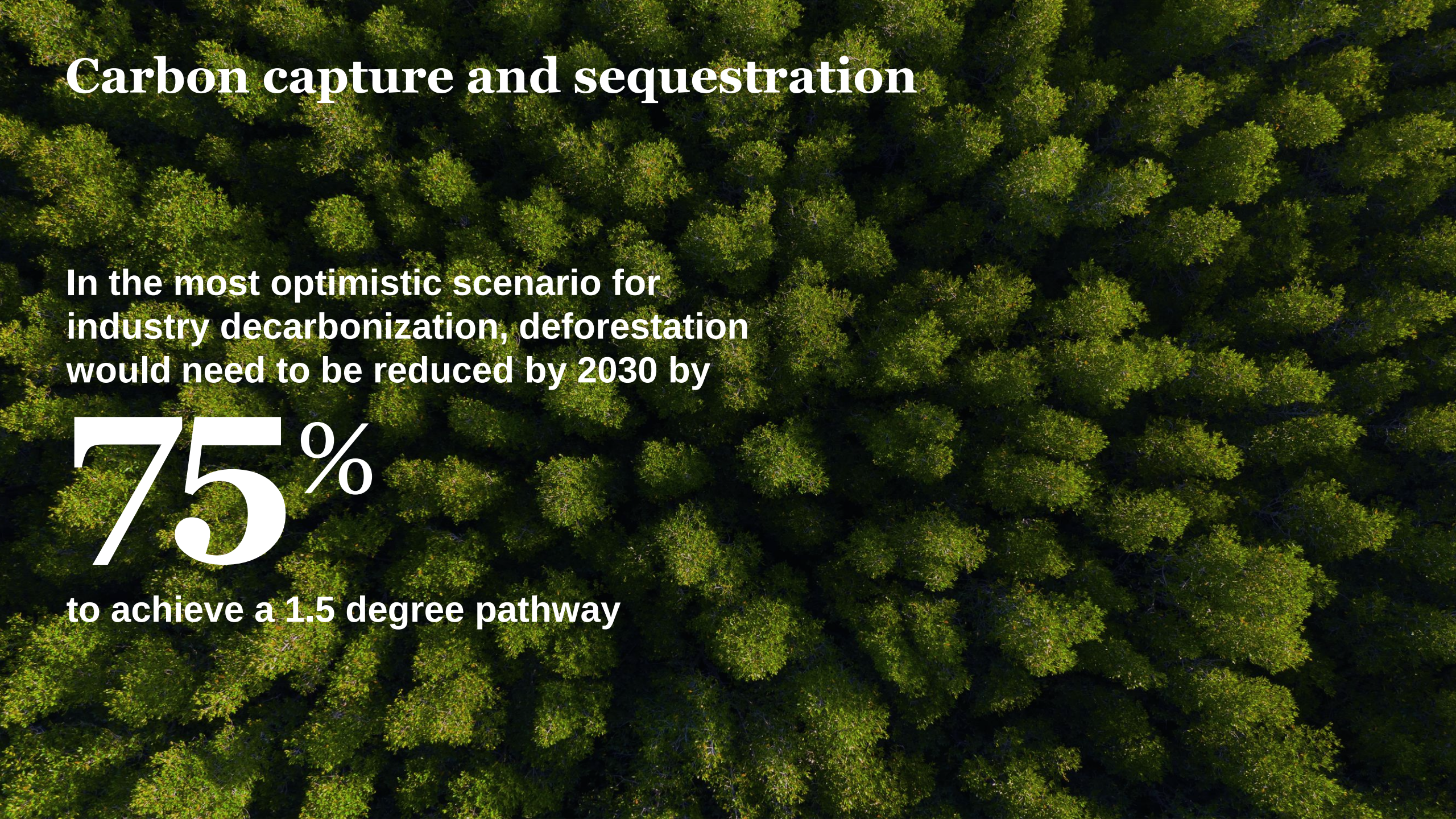
A methodology for quantifying the benefits of protecting the planet's natural capital

November 2020

Conservation decisions are typically made in the absence of robust data



Carbon capture and sequestration



In the most optimistic scenario for industry decarbonization, deforestation would need to be reduced by 2030 by

75%

to achieve a 1.5 degree pathway

Reduce the risk of future pandemics

Ecosystem fragmentation can increase the likelihood of zoonotic diseases – such as COVID-19 – passing from animals to humans. Half of the global risk of zoonotic disease transmission exists in currently unprotected nature

Climate change resilience

200 million

people are protected by coral reefs. Coral reefs reduce wave energy, helping to protect from extreme storm damage, a risk that will continue to become more frequent as the climate changes

Crop pollination

Pollination is estimated to support

$240 to $580 billion

of the world's annual crop output

Reliable rainfall generation

40-70%

of rainfall on which agriculture depends originates from forest and vegetation evapotranspiration

Ecotourism

1 in 10

people globally were employed in travel and tourism last year, while tourism linked to Protected Areas – a subset of the overall ecotourism market – was worth

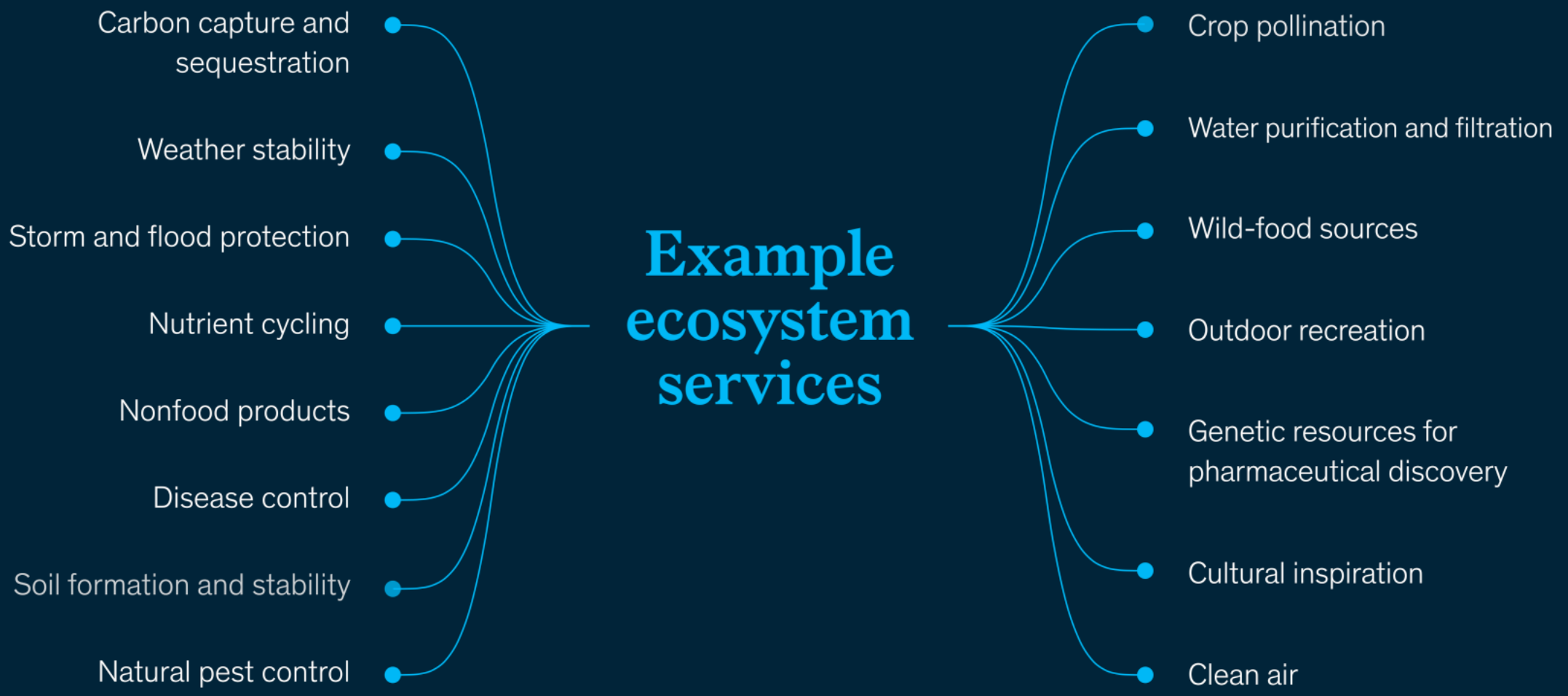
$300

billion in revenues

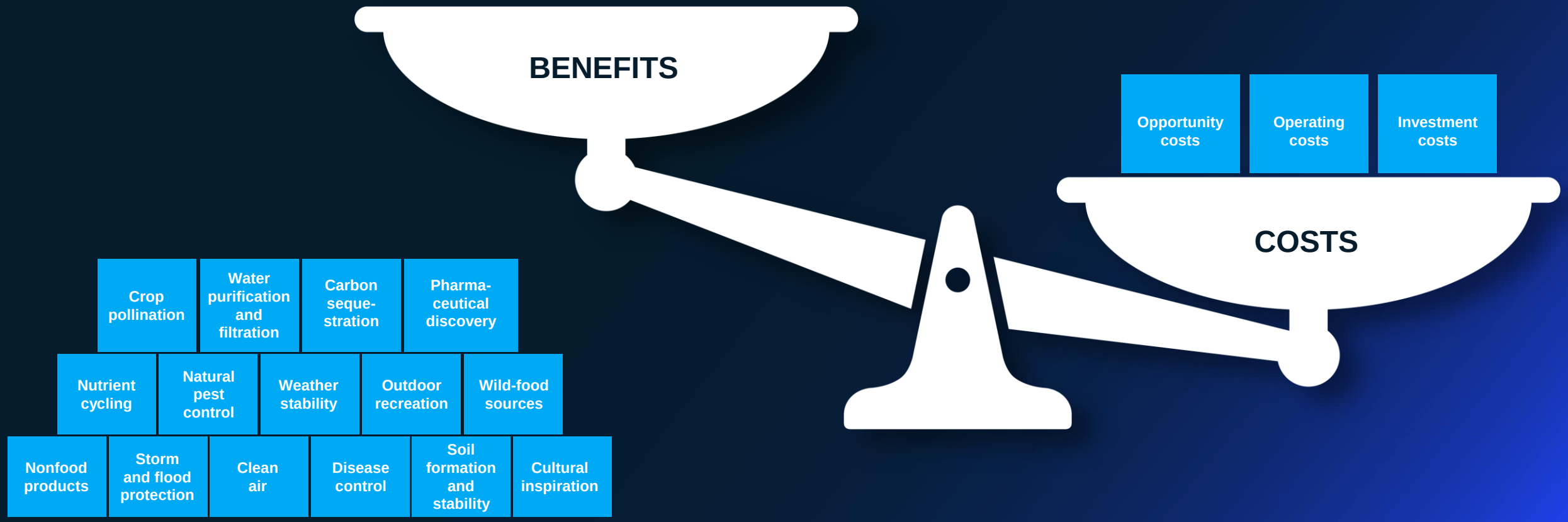
Wild-food sources

Annual fish catch is worth approximately

$150 billion


Example ecosystem services
Carbon capture and sequestration
Weather stability
Storm and flood protection
Nutrient cycling
Nonfood products
Disease control
Soil formation and stability
Natural pest control
Crop pollination
Water purification and filtration
Wild-food sources
Outdoor recreation
Genetic resources for pharmaceutical discovery
Cultural inspiration
Clean air

And yet, none of these services are routinely considered



Natural capital is declining at unprecedented rates

1 million

species currently at risk of extinction

68%

decline in wildlife populations in the past 50 years

5 million km²

of tropical deforestation by 2050 under a BAU scenario, equivalent to 1.5x India's total land area

50%

of mangroves lost since 1950

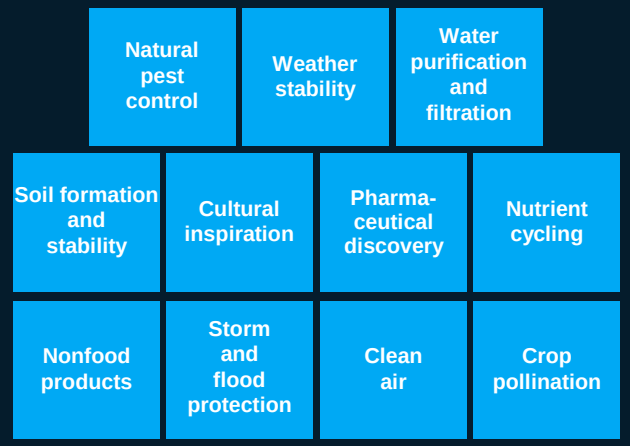
50%

of great barrier reef coral died in two years between 2016 and 2017

50%

of the world's fish stocks are in a state of collapse, rebuilding, or overexploited

When the value of intact nature can be quantified a more robust business case can be considered



To conduct this work, we focused on three principles

- Highly granular analytics
- Stakeholder relevance
- Pragmatic suggestions

We have assessed the impact of doubling nature protection, in sufficient detail to support decision making

We **analyzed every 5x5km pixel on the planet** to understand the potential of nature conservation to impact climate, economics, human health and biodiversity…

CO_2 reduction from avoided deforestation and natural regrowth

Direct jobs created by conservation activities

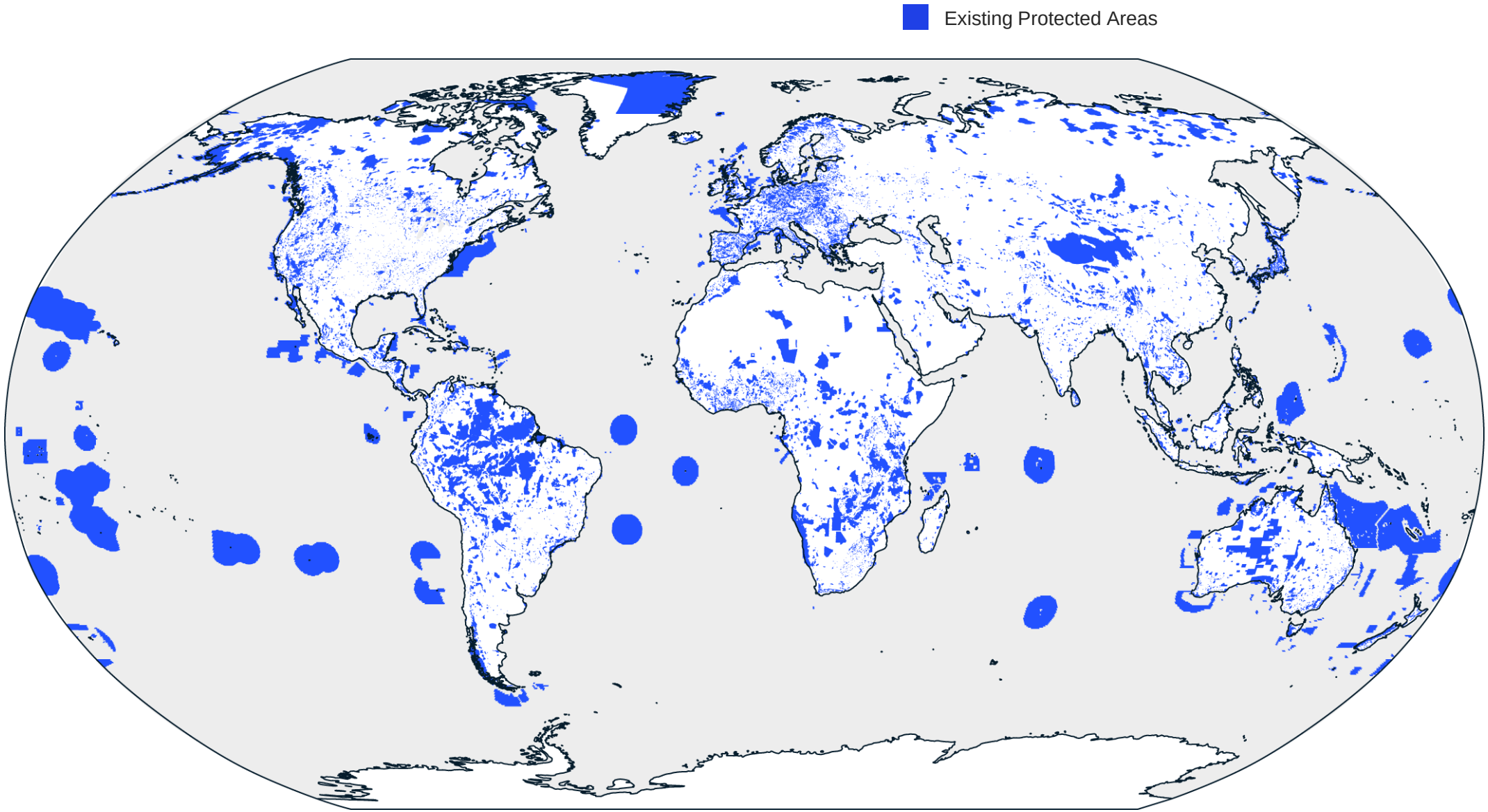
GDP and jobs created and safeguarded in nature dependent markets

Zoonotic disease risk in areas conserved: an indicator of mitigation potential

Expanded conserved **habitat range** of at risk species

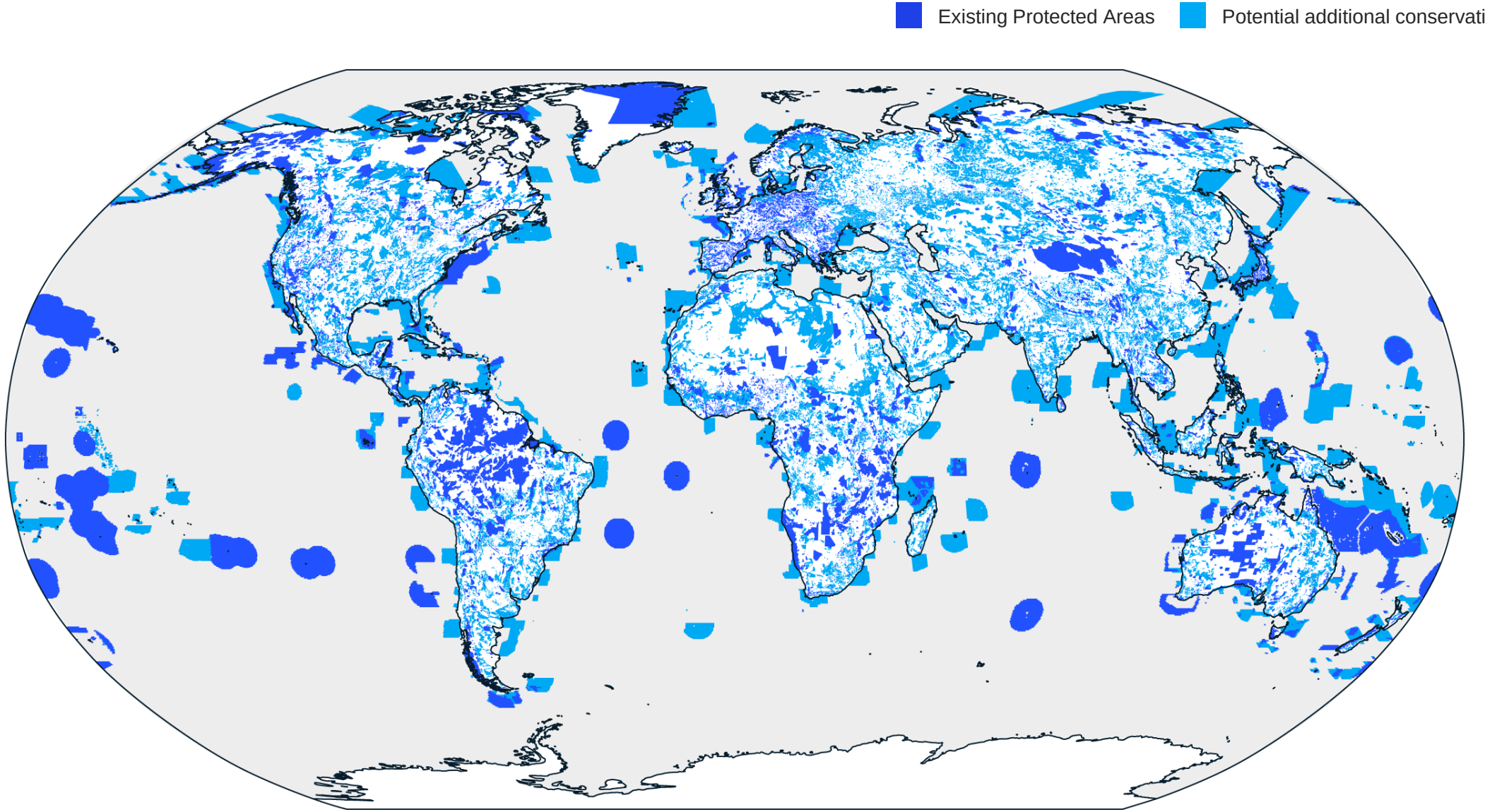
…and are able to compare that to the **cost of protection**

We established a baseline of existing Protected Areas…



…And then prioritized additional potential areas to conserve, together covering 30% of land and national waters

ONE OF SIX SCENARIOS DEVELOPED



Climate, economic, health, and cultural benefits could be compelling

Annually reduce atmospheric CO_2 by up to

2.6

gigatons

Support around

30

million jobs

and up to

$500

billion

of GDP in ecotourism and sustainable fishing alone

Create up to

650K

jobs in nature conservation

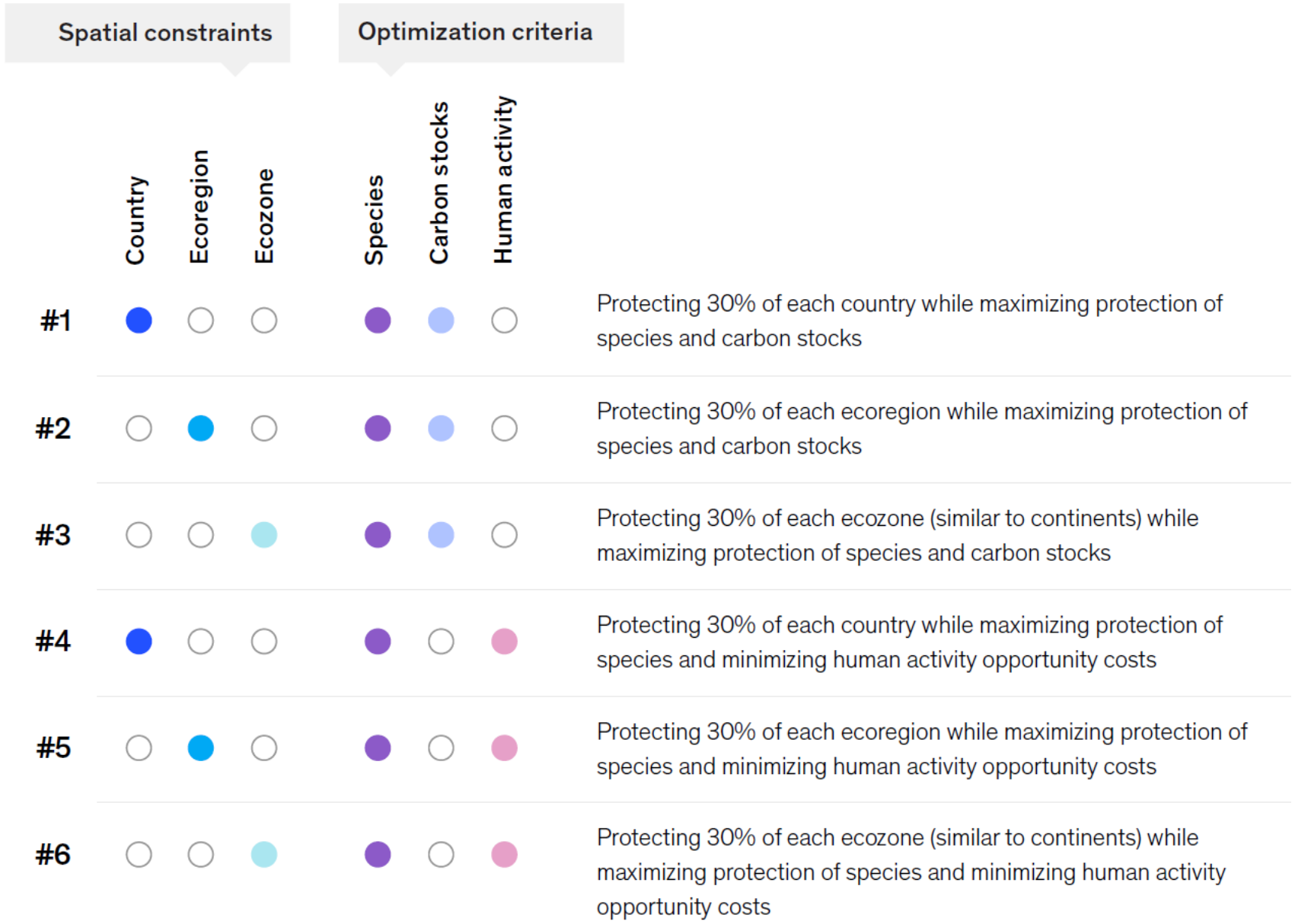
Expand the conserved habitat of threatened species by up to

2.8x

Help reduce the risk of zoonotic diseases such as

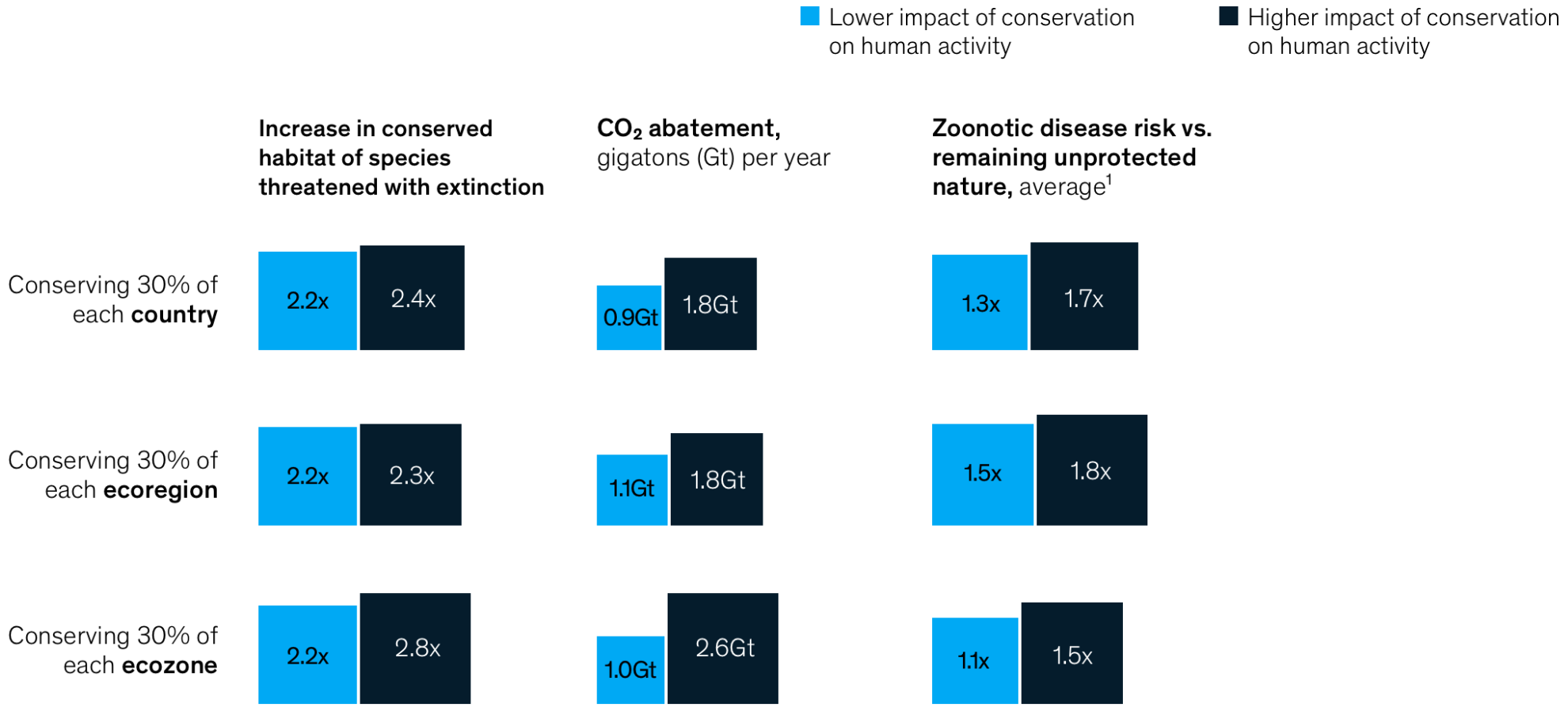
COVID-19

Six scenarios were developed to identify the range of potential benefits and costs of conserving 30% of the planet



Some of these trade-offs are predictable…

The lower the impact on existing human activity, the lower the impact on species protection, CO_2 reduction and zoonotic disease risk mitigation



[1]Average zoonotic disease transmission risk in potential new conservation areas, relative to the risk in remaining areas of unprotected nature. A higher risk increases the potential positive impact of conservation.

…others less so

Decision makes can face trade-offs between minimizing short-term opportunity costs and ongoing operating costs

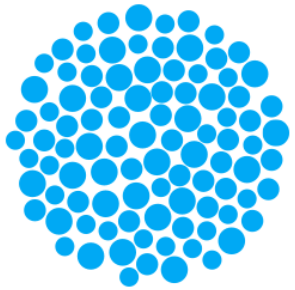
Annual operating costs of two scenarios for conserving 30 percent of each country
Degree of area fragmentation vs operating cost, $ billion annually

Maximized protection of species and carbon stocks

$28 billion

Less fragmentation

Maximized protection of species and minimized opportunity costs[1]



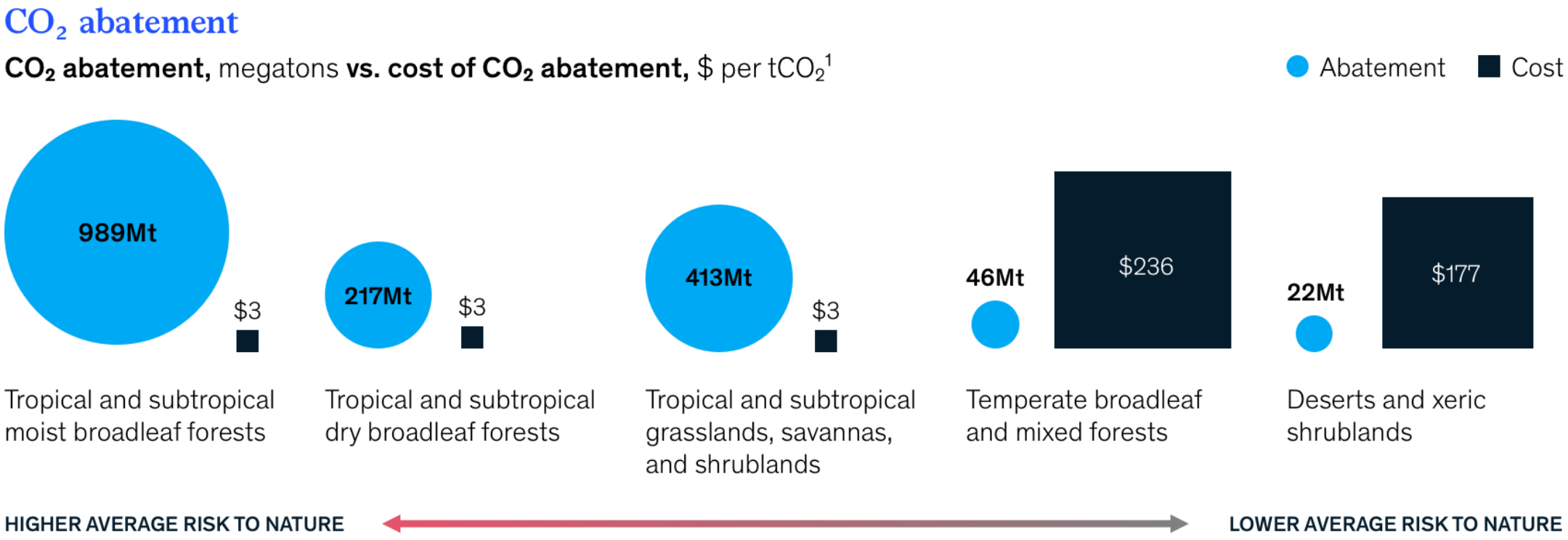
$35 billion

More fragmentation

[1]Opportunity costs from existing human activities.

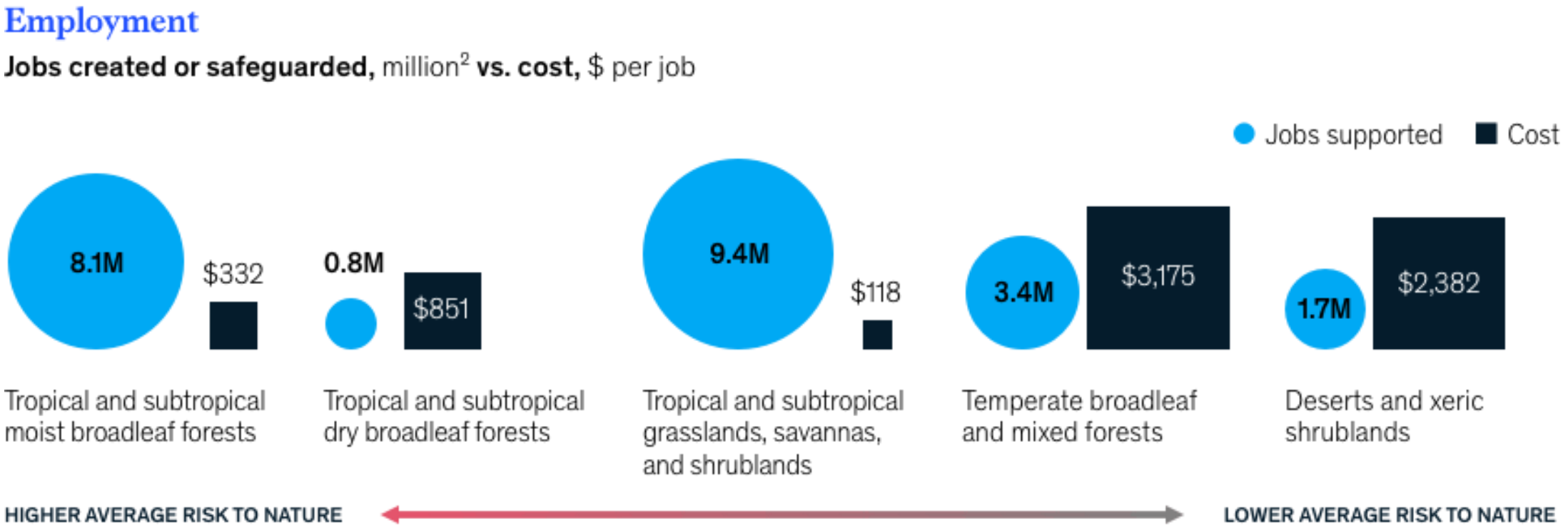
Across the board, we see that urgency, cost and benefit distribution of conservation is uneven

Biomes most at risk account for the majority of CO2 abatement potential and deliver this impact at a significantly lower cost…



[1]Land biomes shown that account for the top 97 percent of impact in each of CO_2 abatement, jobs, zoonotic disease risk, and species protection.

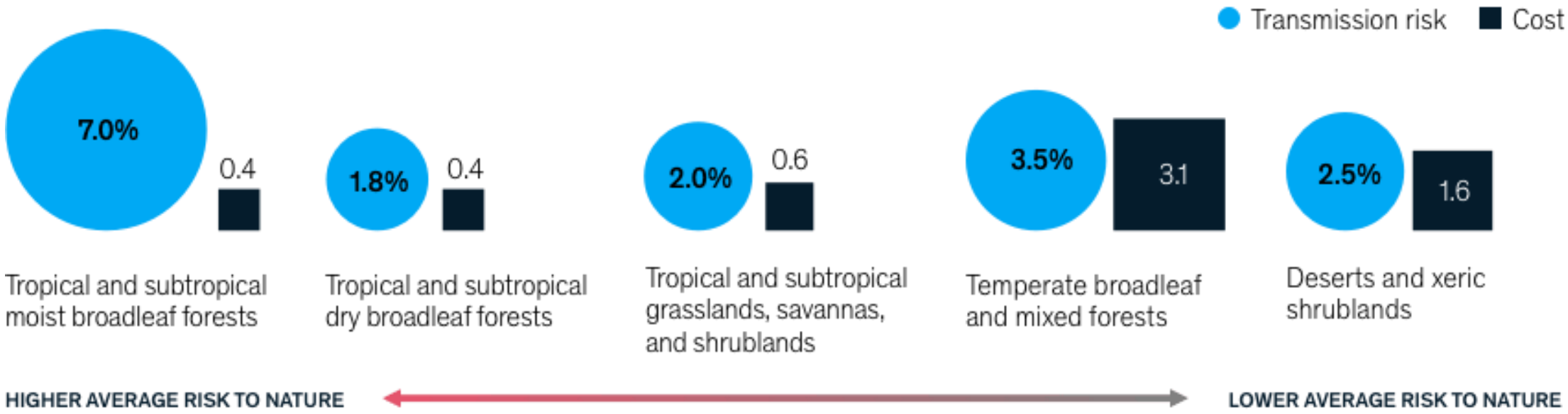
… and a similar theme can be seen across employment, zoonotic disease risk and species protection[1]



[1]Land biomes shown that account for the top 97 percent of impact in each of CO_2 abatement, jobs, zoonotic disease risk, and species protection.
[2]Covers ecotourism, sustainable fishing, and conservation management.

Zoonotic disease risk mitigation

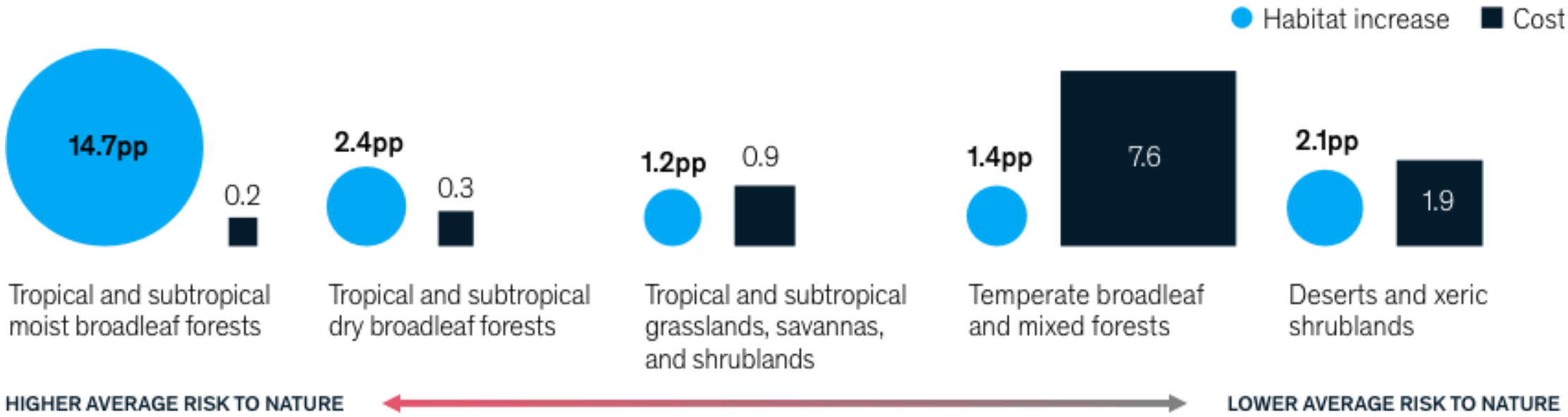
Transmission risk, % global total[3] **vs. cost,** $ billion per percentage point of transmission risk



[3]Total zoonotic disease transmission risk in potential new conservation areas as a percentage of total global risk. A higher risk increases the potential positive impact of conservation.

Species protection

Increase in conserved habitat of threatened species, percentage points (pp) **vs. cost,** $ billion per pp increase

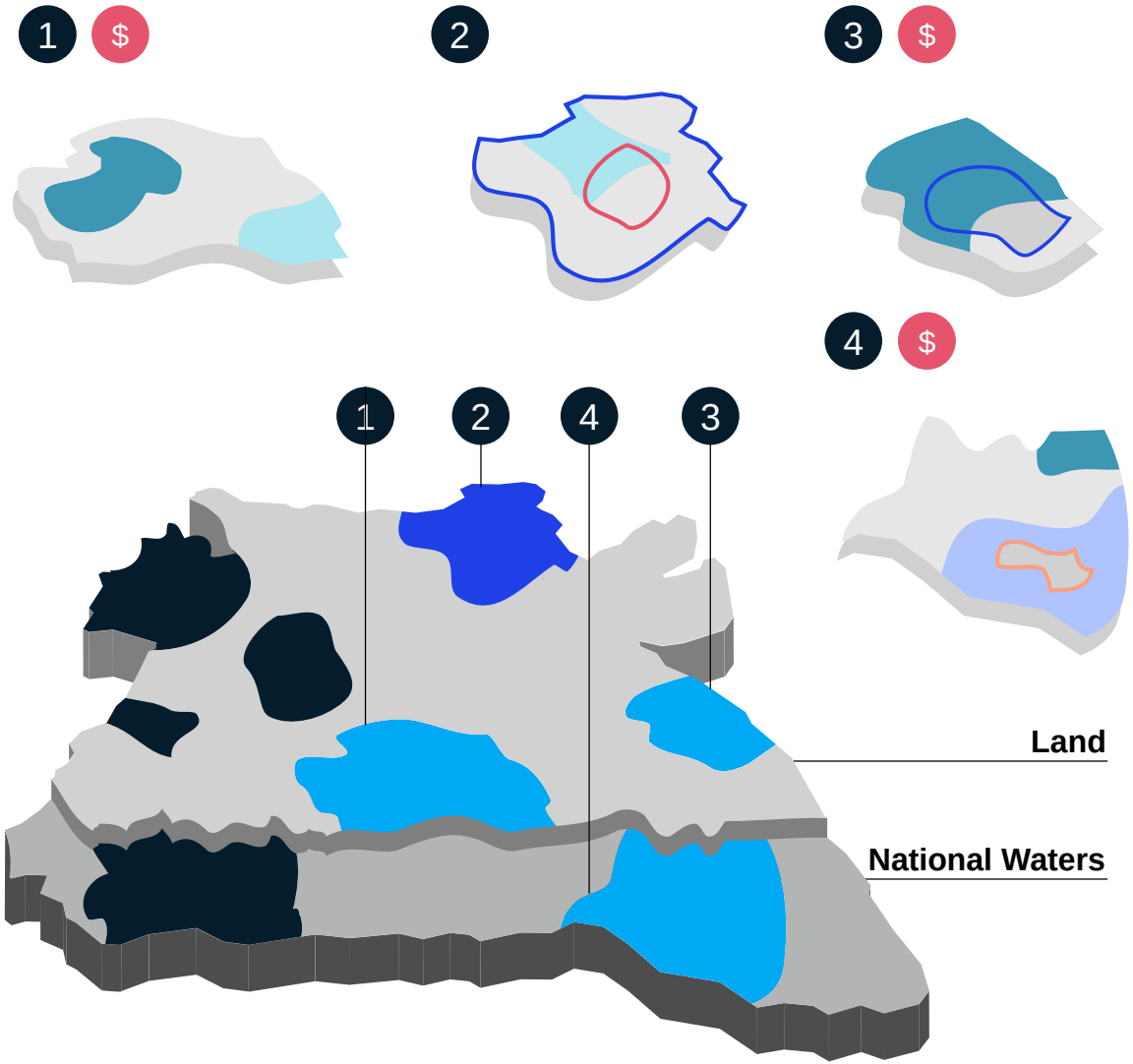


FICTITIOUS EXAMPLE; INPUT FOR DETAILED FEASIBILITY STUDIES ONLY

Geo-spatial analyses can inform local decision-making

Illustrative country snap-shot

- Current PA well-protected
- Current PA under increasing human pressure
- Proposed new protected area (due to species at risk and carbon stocks)
- High tourism potential
- High carbon offset potential
- High sustainable fishery applicability
- $ GDP potential exceeds run-rate costs
- Expected missing zoonotic disease
- Indigenous lands
- No take zone within marine protected area



New and enhanced conservation areas

Climate impact

2MtCO2 sequestered

9MtCO2 emissions prevented

Economic impact

7,000 direct jobs

190,000 adjacent jobs

$3.2B GDP

3/4 PAs – GDP exceeds run rate cost

Health and cultural impact

80% land containing missing zoonotic diseases conserved

260,000 km² Indigenous land conserved

Cost of protection

$1.4B set up costs

$300M run rate costs

1

What is the interplay between our environmental and social commitments?

2

Which nature-based solutions should we employ and where?

3

How should we track and communicate progress?

Thank you