Turning science policy into policy science

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The need for conservation science

- After a decade of biodiversity not a single Aichi target was reached
- As the Post-2020 biodiversity framework is developed we should identify **why** it failed and **what** we need to develop effective targets and milestones, and **how** we can implement them
- Here I will review how our work aims to bridge some of those gaps and help develop sensible science based approaches to improve global frameworks and conservation targets

Understanding the issues

- We are now in the midst of the Anthropocene, with almost unparalleled levels of species loss
- Understanding the drivers of losses requires an consistent data to enable us to monitor species distributions and how they may have changed over time
- So do we have the data?

Bridging the gap

- Where are species distributed?
- What quality and how reliable is the data?
- How can we develop better data?
- What are the major threats to biodiversity?
- How have species responded to past climate changes, and what implications does this have?
- How can we integrate different forms of data to develop meaningful and practical solutions?

Setting targets-do we have the data?



d0 d1000

3

d5000

- Understanding^A
- Does the data No, data is full c where data does developed areas
- Is there an alternative source of reliable data?

Not really, range maps are not always representative, and have demonstrable biases

• We need to collate better and more representative data to understand where species are



75% Unprotected 50% Protected 75% Protected

0% Protected

Plants

Reptiles



Birds

50% Unprotected

75% Unprotected

50% Protected

5% Protected





Yang., B., Zhou., F., Hughes., A.C* (2021) Ecological Redlines provide a mechanism to maximize conservation gains in Mainland Southeast Asia. OneEarth

Bats and CoVs

- In a sample of 441 bats we found 24 CoVs
- This included some of the most similar to SARS-COV2 (94.5%)
- Including four novel SARS-CoV-2 related and three SARS-CoV related genomes
- Bat CoVs are not rare!
- However-spillover is still rare
- High diversity with at least 24 species projected to co-exist in some regions
- Understanding risks of when and why spillovers may occur is important

Building on Synergies

- Kunming CBD-COP15 was in the shadow of the Glasgow climate cop26, yet biodiversity is our life-support system
- If we do not integrate targets we may fail at both, and lose critical services we rely on
- Biodiversity must be part of the solution, and rather than Billion-tree tsunamis, and great-green walls we must prioritize protecting, then restoring native systems
- Conventions must work in synergy to maximise benefits



Mapping richness

- Richness patterns could be reconstructed based on inventory data
- However insufficient data was available for most of the oldworld due to data-sharing policies
- Better data is needed to better map old-world richness patterns

