Quantifying Regrowth and Recovery from Deforestation and Degradation

Summary from the R2D2 workshop

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The R2D2 workshop

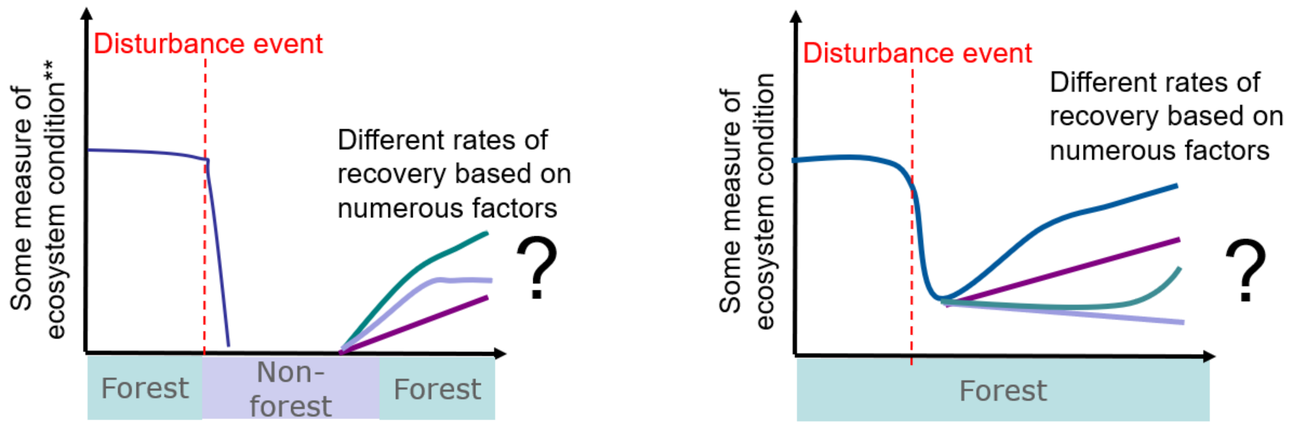
Who? 45 scientists in-person; 20 to 30 online

When? 4th to 6th March 2024

Where? GFZ Potsdam, Germany

Why was the workshop held?

Regrowth from Deforestation (R1D1) & Recovery from Degradation (R1D1)



**e.g. Carbon storage, Structure, Species composition Biodiversity, Perceived human value, Biophysical processes

- Degradation and Recovery remains an overlooked component to fully representing the forest carbon sink.
- Increasing need for countries to fully represent R2D2 in their National Greenhouse Gas Inventories (NGHGIs) in a post-Paris era
- Need to increase the accuracy, spatial precision and reduce uncertainty

Preliminary Table for review paper 1:
Policies at global to national scale that include R2D2, and the current scientific gaps to help address these needs

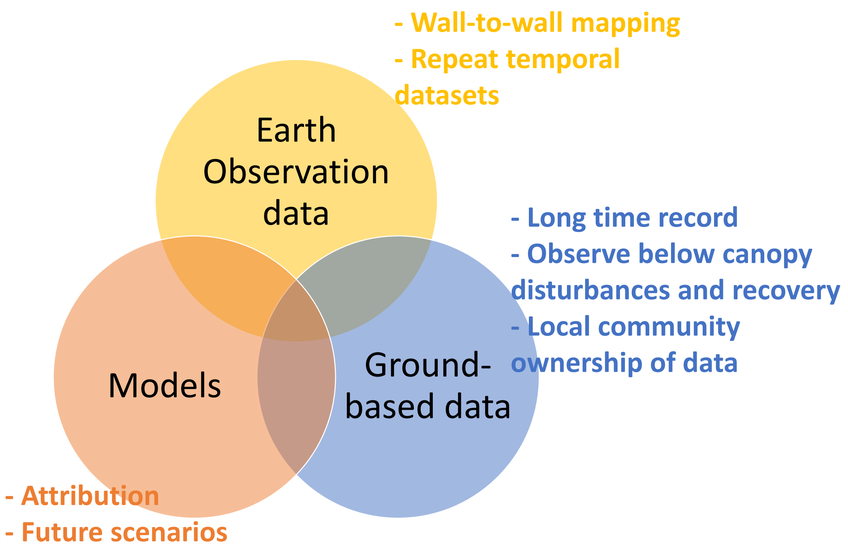
Example Policy	Level	R2D2 Needs?	Gaps?
Paris Agreement	Global	Report on mitigation, REDD+ etc.	- Gaps in definition of R2D2. -Global map of naturally regenerating forests and their ages and regrowing from what (pasture vs cropland) - Data on carbon losses due to degradation - Data on carbon gains due to regrowth and recovery.
European Union Deforestation Regulation (EUDR)	Regional	No deforestation and degradation of … naturally regenerating forests…	
Brazil: ENREDD+	National	Recovering native vegetation	

What was discussed?

Definitions

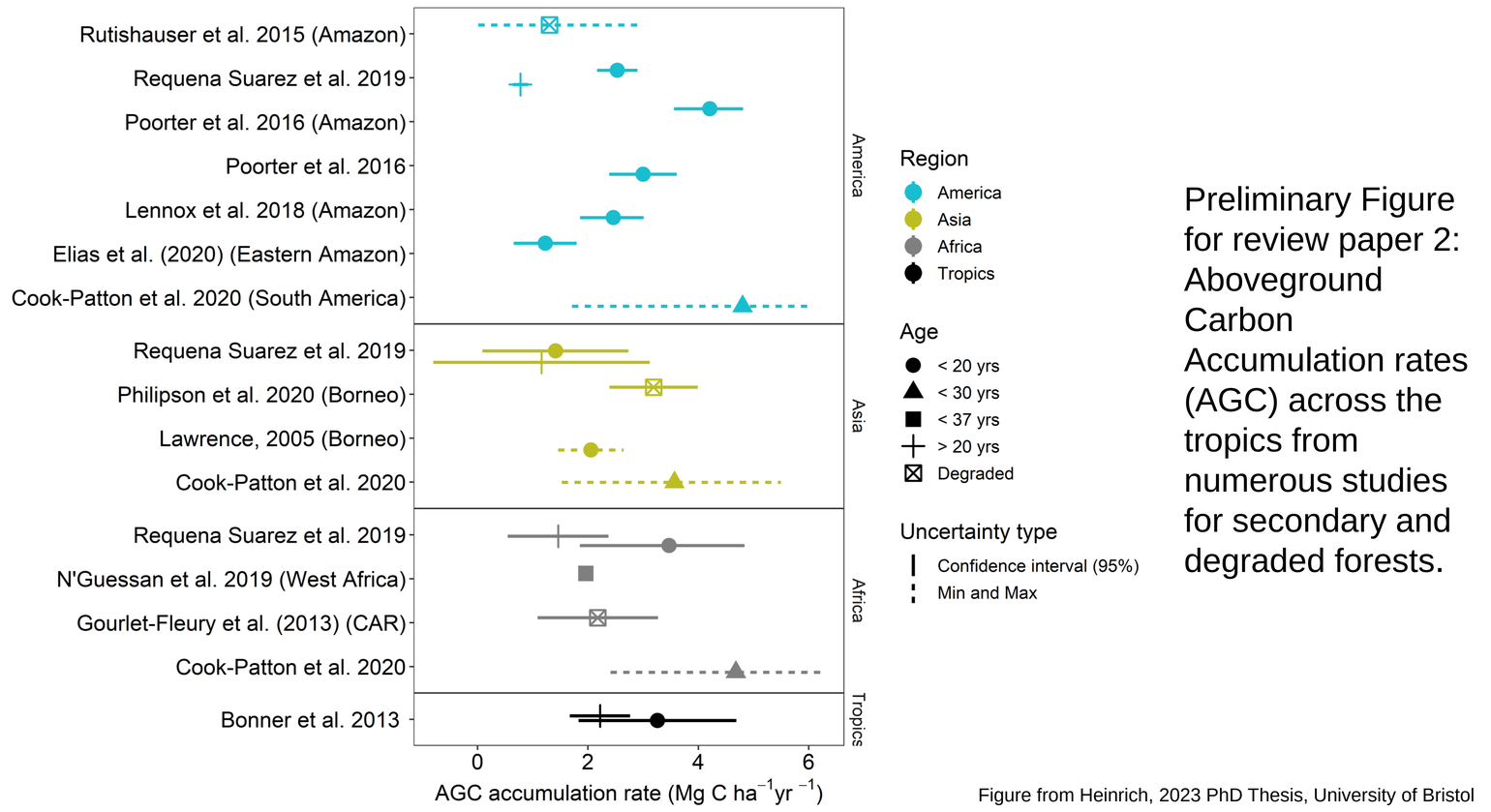
- How is disturbance defined & so measured?
- Towards operational, user-oriented definitions
- Aligning definitions where possible
- Not all disturbances are bad.
- Transparency in definitions used

Connecting approaches



Knowledge gaps

- Is recovery of forest to a previous state possible with ongoing climate change? What steady state are forests recovering towards?
- Validity of the “space-for-time substation” approach that is often used
- Do published regrowth rates align and can we understand why there are differences between rates, providing guidance on which rates to use for which purpose?



Preliminary Figure for review paper 2: Aboveground Carbon Accumulation rates (AGC) across the tropics from numerous studies for secondary and degraded forests.

Figure from Heinrich, 2023 PhD Thesis, University of Bristol

Next steps: two review papers & upcoming meetings

1. What methods address **policy needs** for capturing R2D2 forest areas and carbon, and what are the remaining gaps? (Paper 1)
2. What are the **various carbon emission/removal factors** for measuring degradation and regrowth in the Amazon/Tropics, why do estimates differ? (Paper 2).
3. R2D2 discussions at next GFOI meeting and integration with IPCC AR7, as well as sessions at AGU 2024