

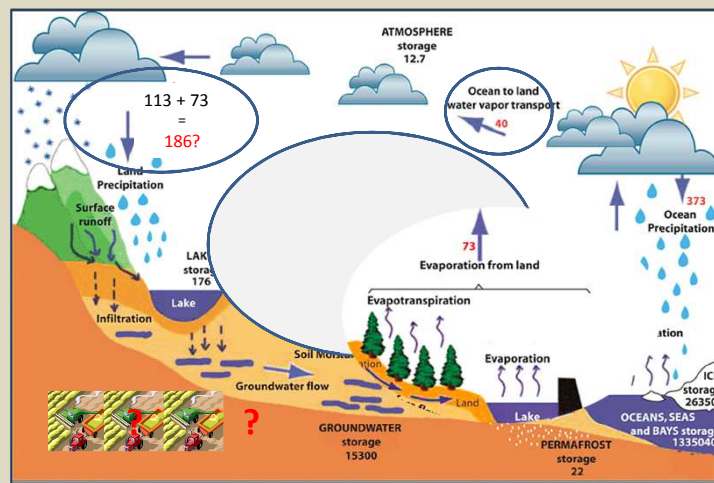
From Myth 2 Concept and Beyond – The BioGeoPhysical Revolution and the Forest-Water Paradigm

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MAY. 7TH – 11TH, 2018

UNFF Background Analytical Study on Forests and Water
IUFRO GFEP Report on Forests and Water
GEC Publication – Cool Insights

P-recycling and Water Availability



More Forests = More Water?

RESEARCH ARTICLE
Impacts of forest restoration on water yield: A systematic review
 Solange Filoso^{1*}, Maira Onetto Bezerra^{1,2,3}, Katherine C. B. Weiss², Margaret A. Palmer^{1,2,3}

Abstract
 Enhancing water provision services is a common target in forest restoration projects worldwide due to growing concerns over freshwater scarcity. However, whether or not forest cover expansion or restoration can improve water provision services is still unclear and highly disputed.

Background
 The goal of this review is to provide a balanced and impartial assessment of the impacts of forest restoration and forest cover expansion on water yields as informed by the scientific literature. Potential sources of bias on the results of papers published are also examined.

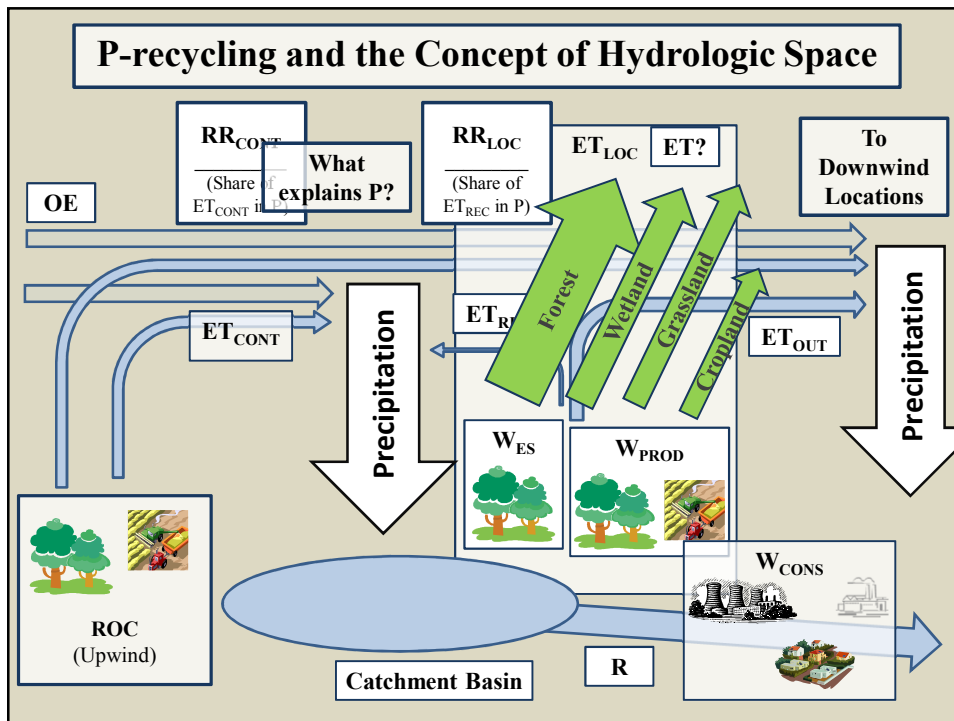
Purpose
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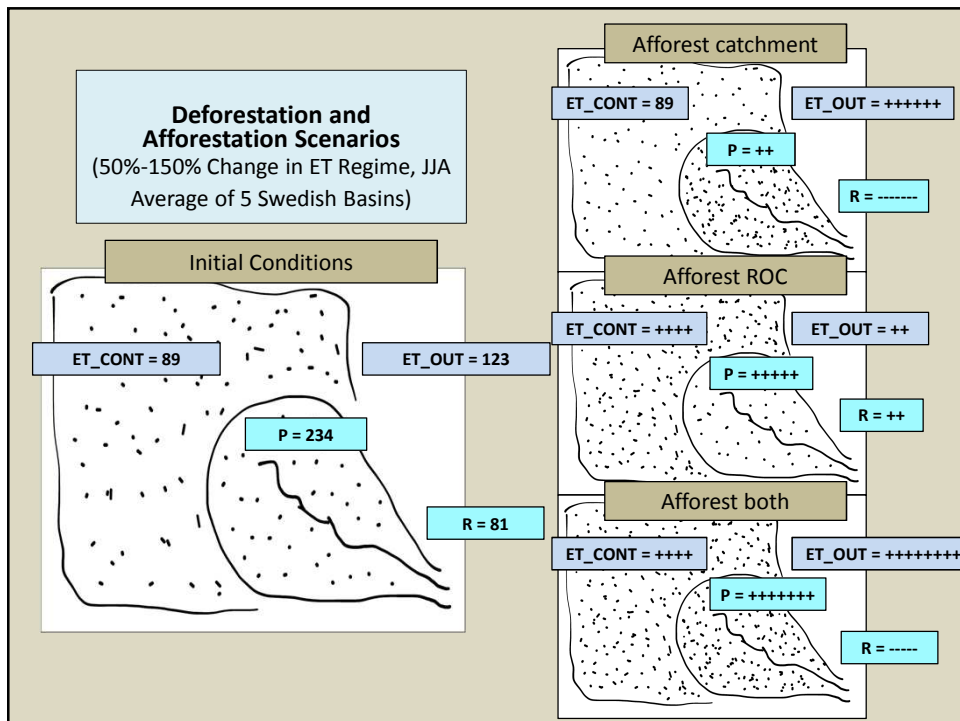
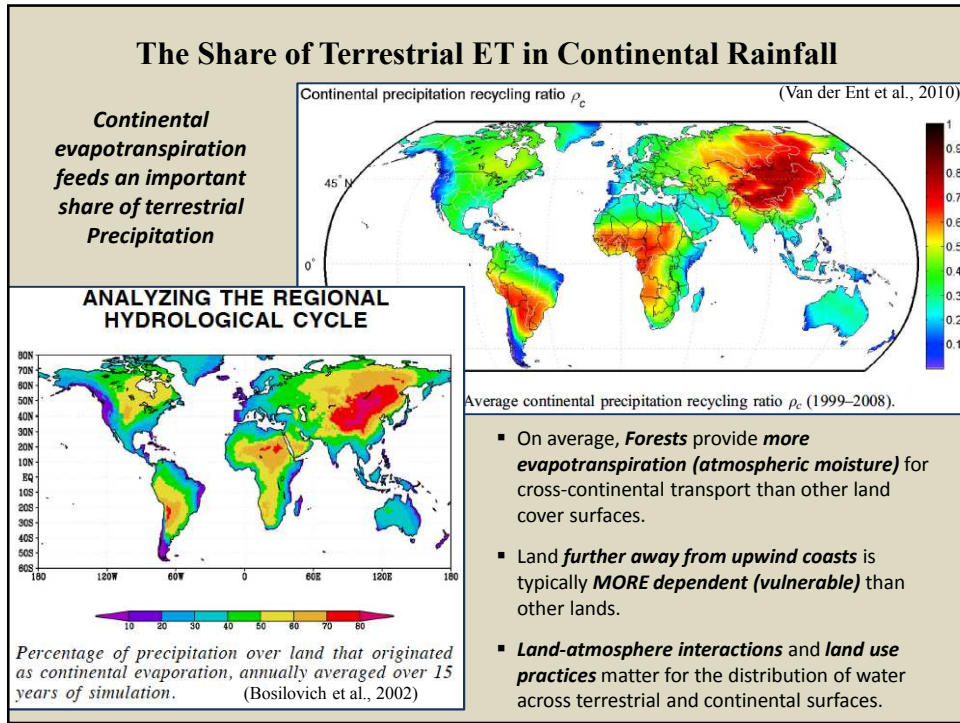
Data sources
 English, Spanish and Portuguese peer-review articles in Agricola, CAB Abstracts, ISI Web of Science, JSTOR, Google Scholar, and SciELO. Databases were searched through 2015.

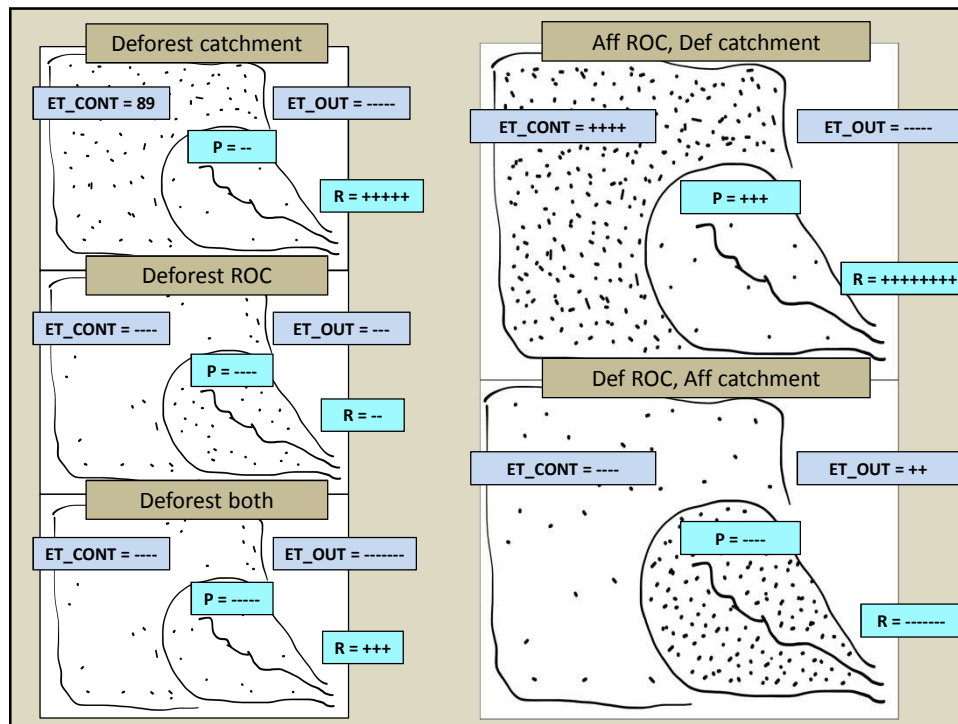
Search terms
 Intervention terms included forest restoration, regeneration/regrowth, forest second-growth, forestation/afforestation, and forestry. Target terms included water yield/quantity, stream-

Current Objections to the Supply-side Model?

- This is a demand-side, c-basin centric approach and looks only at evidence based on larger catchment scales!
- Despite being a “Meta-Analysis”, this study fails to consider any of the supply-side literature on this topic!
- There are NOT many published criticisms of the supply-side approach that address its merits.
- The Filoso et al findings are not surprising and are similar to what the supply-side literature would also predict.



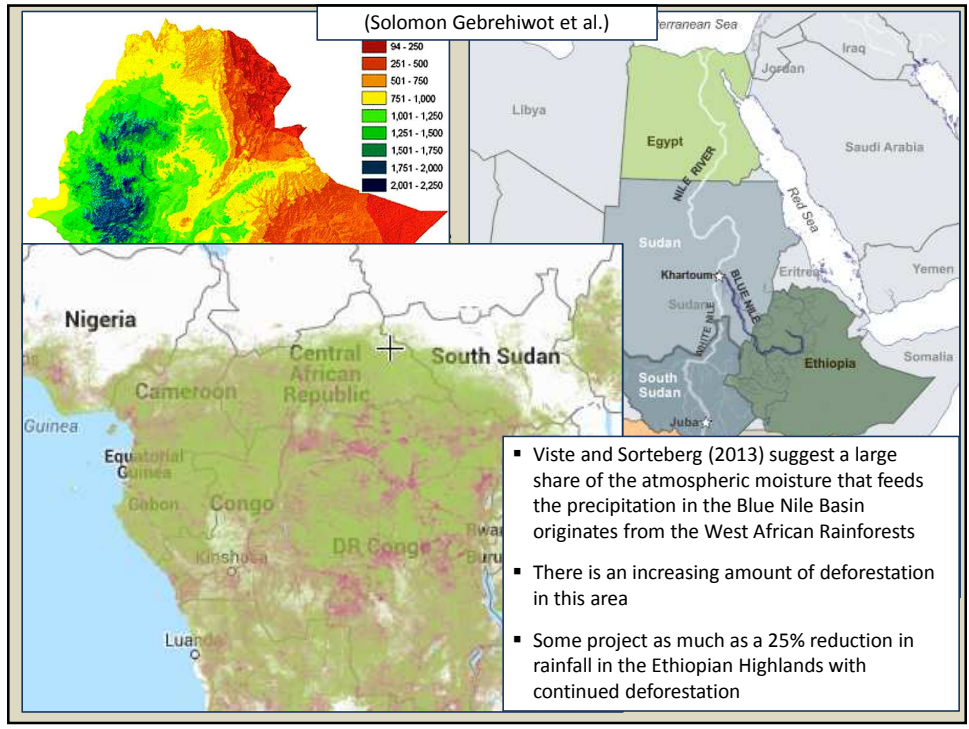




When are More Forests Potentially a Good Thing?

Alternative HydroSpace Management Scenarios:

- Add forest and vegetation cover, for example, to upwind coasts where evapotranspiration is likely to primarily affect water that would otherwise flow into the ocean
- Add additional forest in locations where the water supply is relatively abundant, or where moderate tradeoffs are acceptable. Not all locations are water stressed! (E.g. flood management, etc.)
- Protecting and restoring "water towers". High altitude, montane and cloud forest regions are of particular importance. Situated at the "receiving end" of forest-water hydrologic cycle, with the potential to directly extract moisture out of the atmosphere, many montane and cloud forests contribute disproportionately to downstream runoff.
- Are there limits to the degree to which one can indiscriminately remove forest and tree cover from terrestrial surfaces? Ilstedt et al (2016) in fact argue there is some as yet not clearly defined level of "optimal tree density/cover" that maximizes groundwater recharge, while minimizing the potential for producing evapotranspiration.
- Not all places in the world are experiencing increasing temperatures and declining rainfall. Some, e.g. the Boreal region, are experiencing rising rainfall. This ultimately makes trees and forests more attractive.
- Take advantage, where possible, of local, unique conditions.



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Future Forests
Sustainable strategies under changing conditions

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GLOBAL FOREST GOALS
United Nations Strategic Plan for Forests 2030

Thanks for Listening!
Comments Welcome
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