



World Agroforestry Centre
TRANSFORMING LIVES AND LANDSCAPES

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Floods, Forests and People: dissecting the triangle

The debate: forester/conservationist versus hydrologist paradigms

1A. Forests regulate water flows and reduce flood incidence

1B. Forests don't help during big, devastating floods; reforestation does not reduce risk

2A. Flood prevention is a major argument for forest conservation

2B. Other arguments (biodiversity, intrinsic value) prevail

3A. Reforestation is among the best options for flood prevention

3B. Moving people out of harms way is more effective



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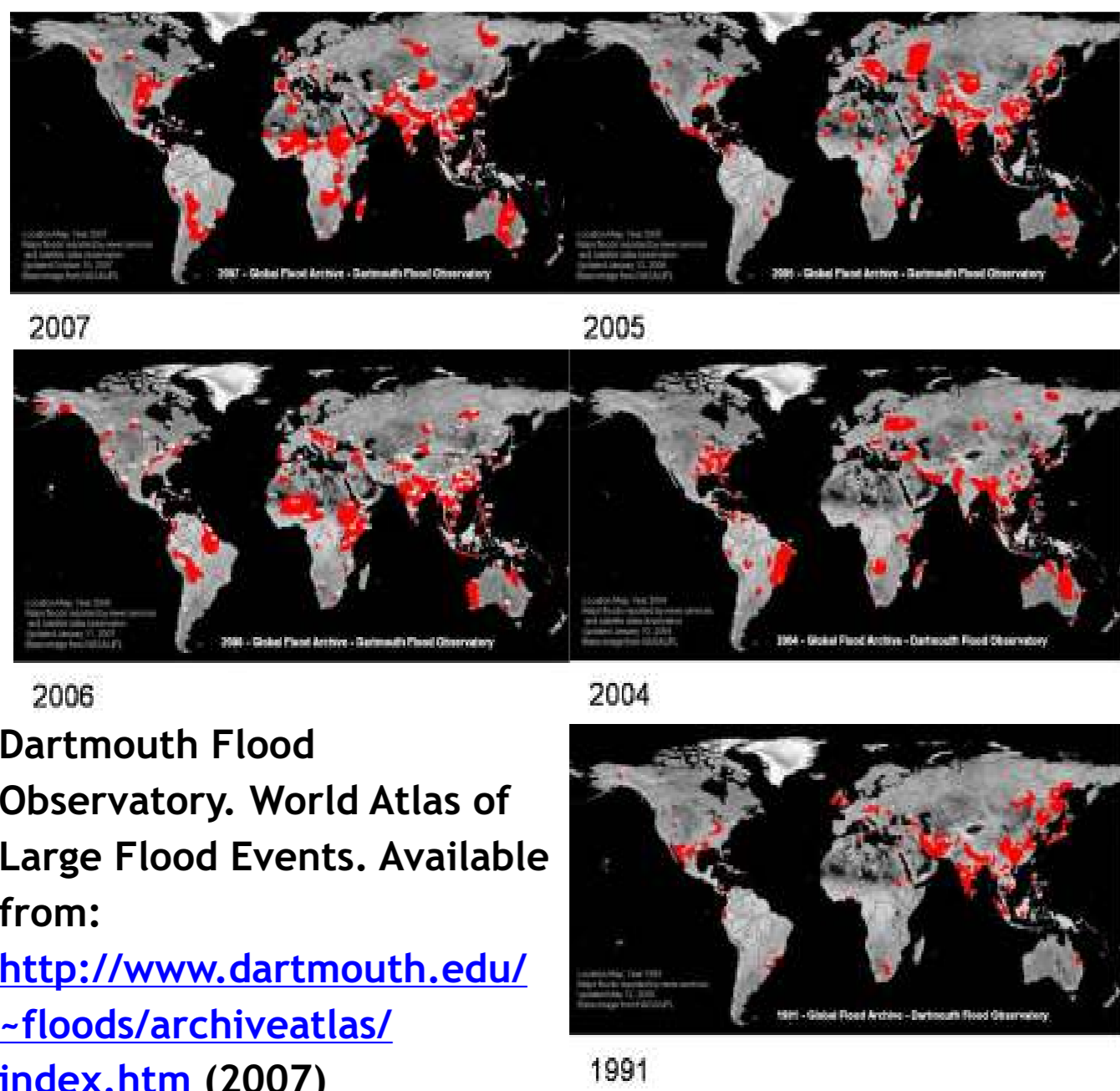
Global evidence that deforestation amplifies flood risk and severity in the developing world

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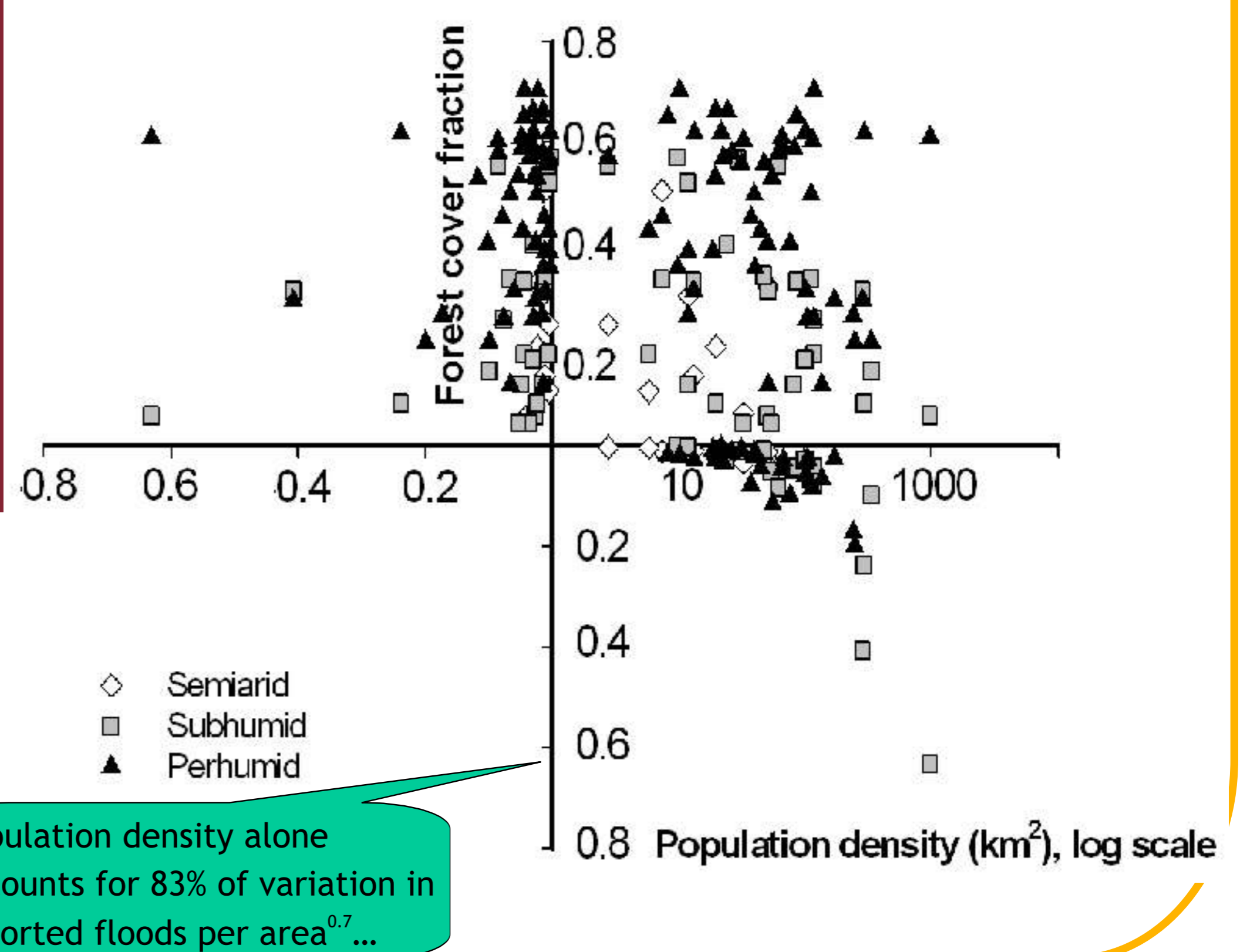
Abstract
With the wide acceptance of forest-protection policies in the developing world, requirements for clear demonstrations of how deforestation may affect hydrological and economic systems. For centuries, it has been believed that forests act as a buffer against flooding. However, such claims have given rise to a large number of narrow and broad-scale quantitative evidence of the possible role of forests in flood protection has not been forthcoming. Using data collected from 1990 to 2000 from 56 developing countries, we show using generalized linear and mixed-effects models contrasted with information-theoretic model selection that flood frequency is negatively correlated with the amount of remaining natural forest and positively correlated with natural forest area loss controlling for rainfall, slope and degraded landscape area. The most parsimonious models accounted for over 65% of the variation in flood frequency, of which nearly 14% was due to forest cover variables alone. During the decade investigated, nearly

A closer look at the Bradshaw et al. Evidence



- The Bradshaw data set suffers from:
- Absent of indicators of x-border causation
 - In-country differences between watershed
 - People+ and forest cover- reporting bias
 - Inconsistencies and errors in 'non-forest' land use data

Human population density in this data set accounts for a much larger share of the variation than any model presented by Bradshaw et al. Their 'forest cover effects' may well be indirect...



Challenges Ahead

- Communication:
- Polarized views (authors and GCB editors don't appreciate to be critiqued)
 - NGO's and government agencies (and ICRAF??) are slow to abandon quoting wrong reasons for right things...