

*Effects of afforestation on rural livelihoods
and landcover: Evidence from 40 years' tree
plantations in northern India*

Harry W. Fischer

Associate Senior Lecturer

Swedish University of Agricultural Sciences, Uppsala

..... with Forrest Fleischman (PI), Eric Coleman, William Schultz, Pushpendra Rana, Vijay Ramprasad, Claudia Rodriguez-Solorzano, Ashwini Chhatre, Anthony Filippi, Burak Güneralp

Tree plantations, restoration, and ‘nature based solutions’ for climate change

Now a global discourse, with far reaching consequences for policy

Many plantation/restoration programs are premised on the ability to advance human & livelihood benefits in tandem

But will these programs necessarily generate positive outcomes for people and the planet?

Viewpoint

Pitfalls of Tree Planting Show Why We Need People-Centered Natural Climate Solutions

FORREST FLEISCHMAN, SHISHIR BASANT, ASHWINI CHHATRE, ERIC A. COLEMAN, HARRY W. FISCHER, DIVYA GUPTA, BURAK GÜNERALP, PRAKASH KASHWAN, DIL KHATRI, ROBERT MUSCARELLA, JENNIFER S. POWERS, VIJAY RAMPRASAD, PUSHPENDRA RANA, CLAUDIA RODRIGUEZ SOLORZANO, AND JOSEPH W. VELDMAN

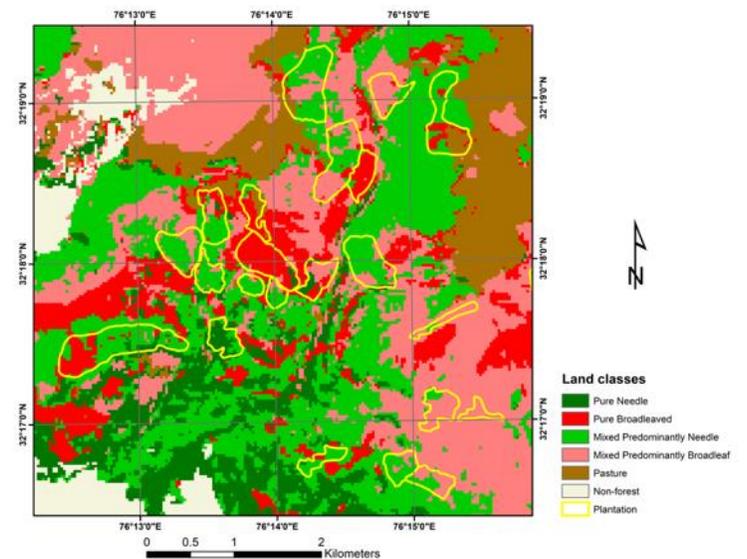
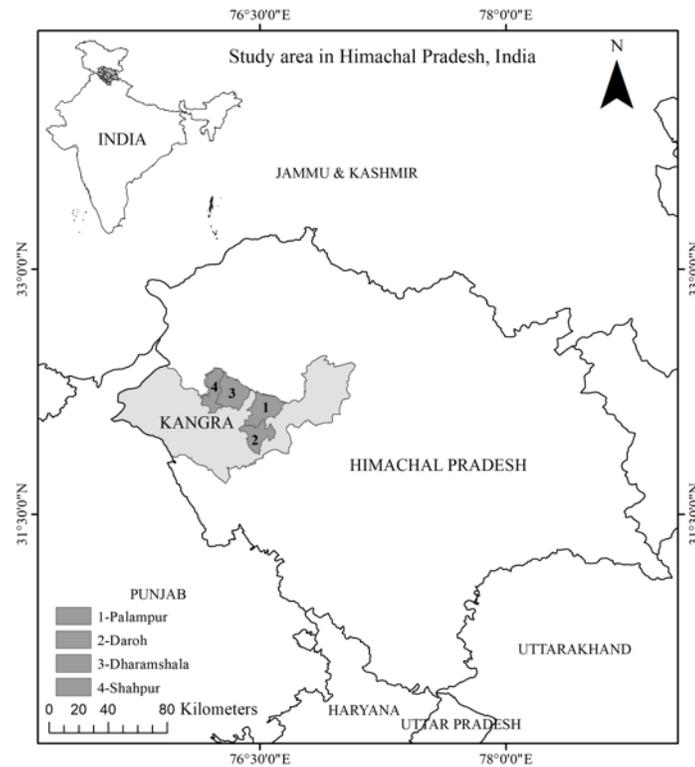
Published in Bioscience, 2020

“Impacts of Afforestation on Sustainable Rural Livelihoods in India”

We address the lack of evidence about long-term impacts of plantation project

- Satellite imagery analysis
- Forest Department plantations records (since 1980s)
- Large scale data collection (2400 households, 1250 plantations)
- In-depth qualitative enquiry

Funded by NASA, Land Cover Land Use Change grant

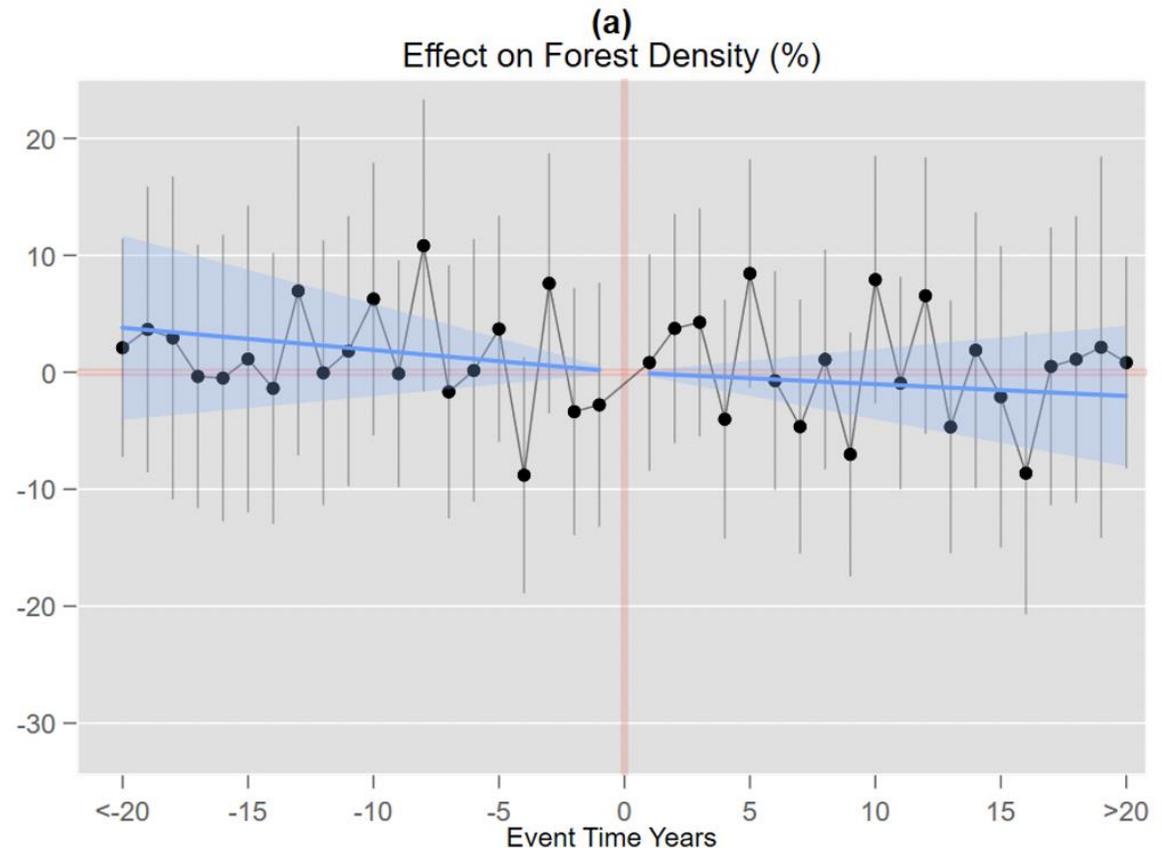


Tree cover: we find no impact on forest cover overall

Controlling for timing of intervention and other factors, we find **no evidence that forest cover improves** as a result of plantation events

Why?

The political economy of plantations...

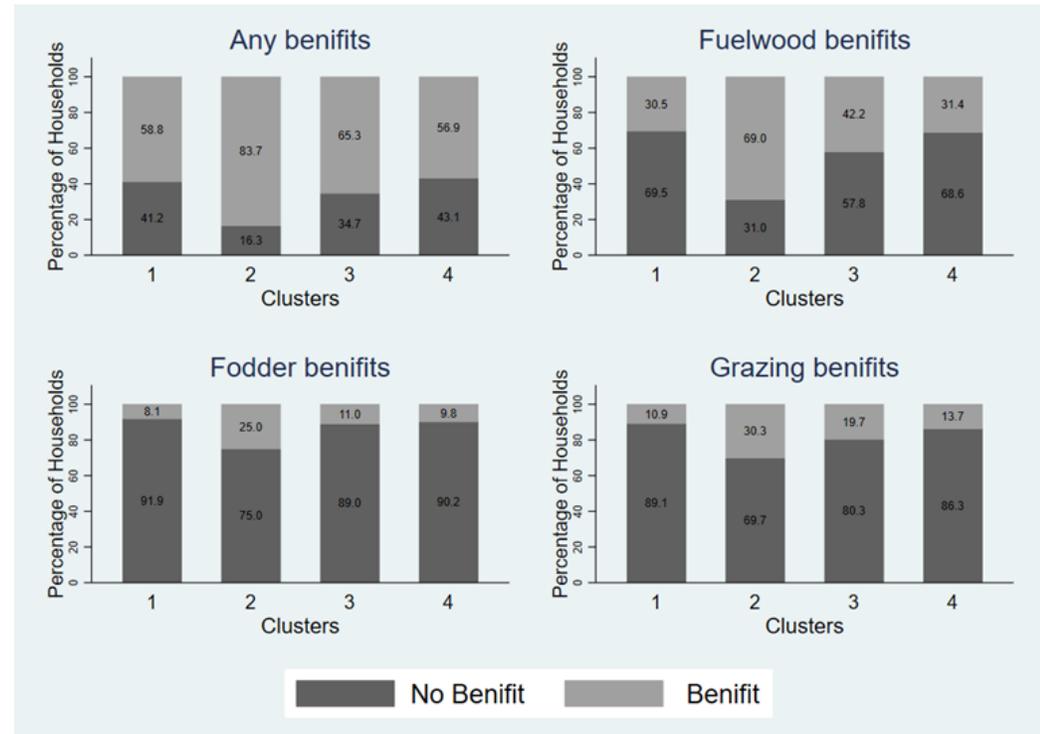
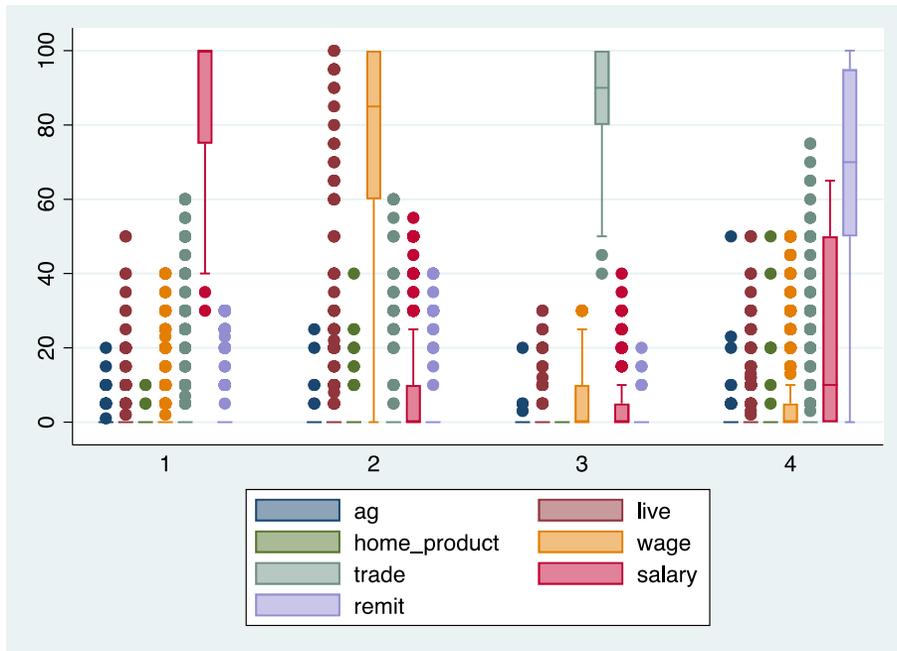


Note: analysis is still in development, findings are preliminary

Most people in our study area use plantations

8 major livelihood benefits derived from plantations:

fuelwood, fodder, grazing, timber, mulching, and others



Households cluster into four major groups based on income source (left);

All livelihood “profiles” derive benefits from plantations (top)

Especially wage laborers (i.e. the poor)

Importantly: we do not know possible negative effects from land conversion

Lessons for plantations

- Global analysis may vastly over-estimate 'restoration' potential
- Communities have much to gain, and much to lose – especially the poor
- Mixed species, broad-leaf plantations associated with more benefits overall (see right)
- Increased local participation may improve outcomes over the longer-term

Thanks, and input welcome!
– Harry Fischer
harry.fischer@slu.se

