Linking livelihood indicators with a landscape mosaic to explore trade-offs along the forest frontier in northeastern Madagascar
Inferring land use from land cover: a landscape mosaic approach

1: Spatial land cover pattern (moving window)
2: Contextual interpretation of pattern

FD = forest dominated
HTC = high-intensity tree crop
LTC = low-intensity tree crop
NC = no staple crop
S = shifting
MS = mixed shifting
MP = mixed paddy
P = paddy

Zaehringer et al. In revision.
From land cover to a landscape mosaic in northeastern Madagascar

Current landscapes:

- Only 7% of study region do not show signs of agricultural use
- Landscapes with rice produced ONLY through shifting cultivation are almost inexistant
- Mixed landscapes (shifting cultivation AND irrigated paddy rice) are predominant
- Landscapes with rice produced ONLY in irrigated paddies are limited to the large plains
Land use change 1995-2011: Trade-offs between staple crop intensification and tree cover?

No! Staple crop intensification and loss of tree cover occurred in different locations.

Zaehringer et al. In revision.
Linking remotely sensed with survey data to characterize landscape types

- Stratified sampling
- Three main landscape types
- 45 villages
- 1,287 household surveys
Take home messages

In northeastern Madagascar:

> shifting cultivation is still a very widespread livelihood strategy

> trade-offs between staple crop intensification and tree cover were limited between 1995 and 2011

> intensification of staple crop production correlates with:
  - cash crop diversification
  - lower dependence on forest products
  - improved perception of well-being (more zebus and income)

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