

# Environmental and Climate Change:

## Research on Political Ecology and Migration on the Yucatán Peninsula

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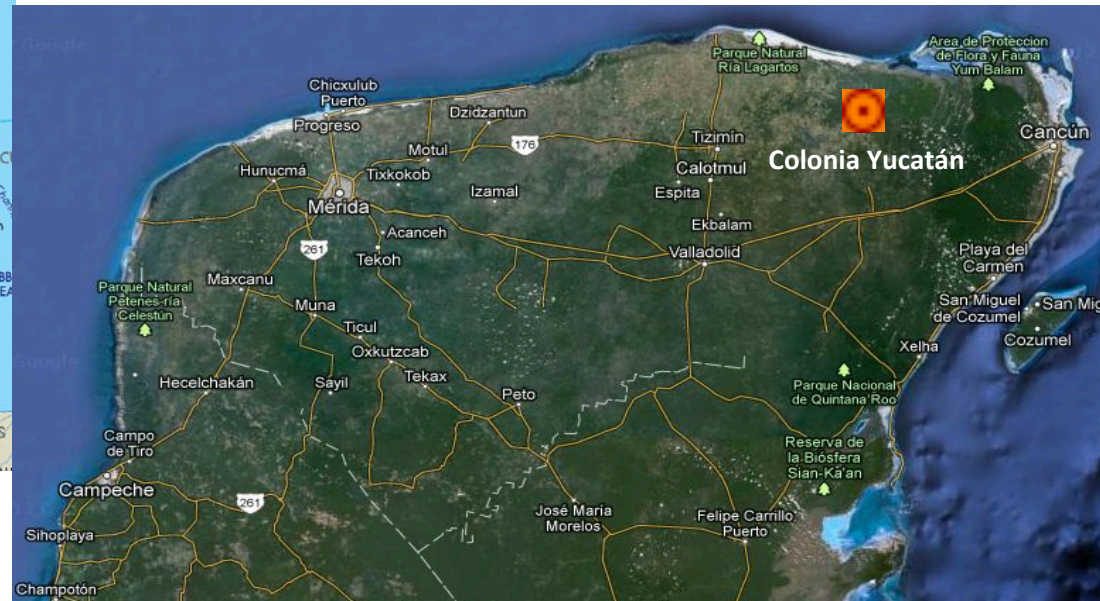
# Geographical Settings



Source: <http://www.ezilon.com/maps/north-america/mexico-road-maps.html>

## Peninsula Yucatán

- Tropical climate
- Vegetation: tropical forests
- Hurricane-threatened



Yucatán Peninsula with research area

# Environmental and Climate Change

## Environmental Problems

- Deforestation, soil erosion, inadequate supplies of surface water, desertification
- Wild fires through agriculture

## Climate Change

- Most vulnerable zone to the effects of climate change in Mexico (El Universal, 2015)
  - Increasing climate variability
  - Main threats are irregular rainfall, droughts and tropical storms
- > These conditions affect the livelihood of local population insidiously, forcing them to adjust in new ways



# Theoretical Framework

- Theory of Institutional Change; institutional approach (Ensminger, 1992, further developed in Haller 2010)
- Institutions are human-made and shared rules, that help people coordinating interactions with others
- Institutions include formal (written) rules and informal rules
- Analysis of interactions between resource users, the system of governance, cultural and historical features



# Methodological Approach

- Anthropologic empirical and ethnographic research methods
- Continuous and participant observation
- Guided conversations, problem-oriented and subject-oriented interviews with local farmer and experts
- Interdisciplinary approach combining social and cultural anthropology with natural sciences



# Institutional Change – Historical Background



- Timber industry and Colonia Yucatán was founded in 1940
- The major economic resources were tropical tree species
- Boom of the timber industry in the 1960s
- Decline of the timber industry in the 1975s
- Outmigration of the colonists
- Implementation of the agrarian reform in 1978
- Inmigration of farmers
- **The economic regime, land use and property rights changed**

Source: [www.coloniayucatan.com.mx](http://www.coloniayucatan.com.mx)



## Large-scale properties are increasing



**Local farmer on his privat property**





1974

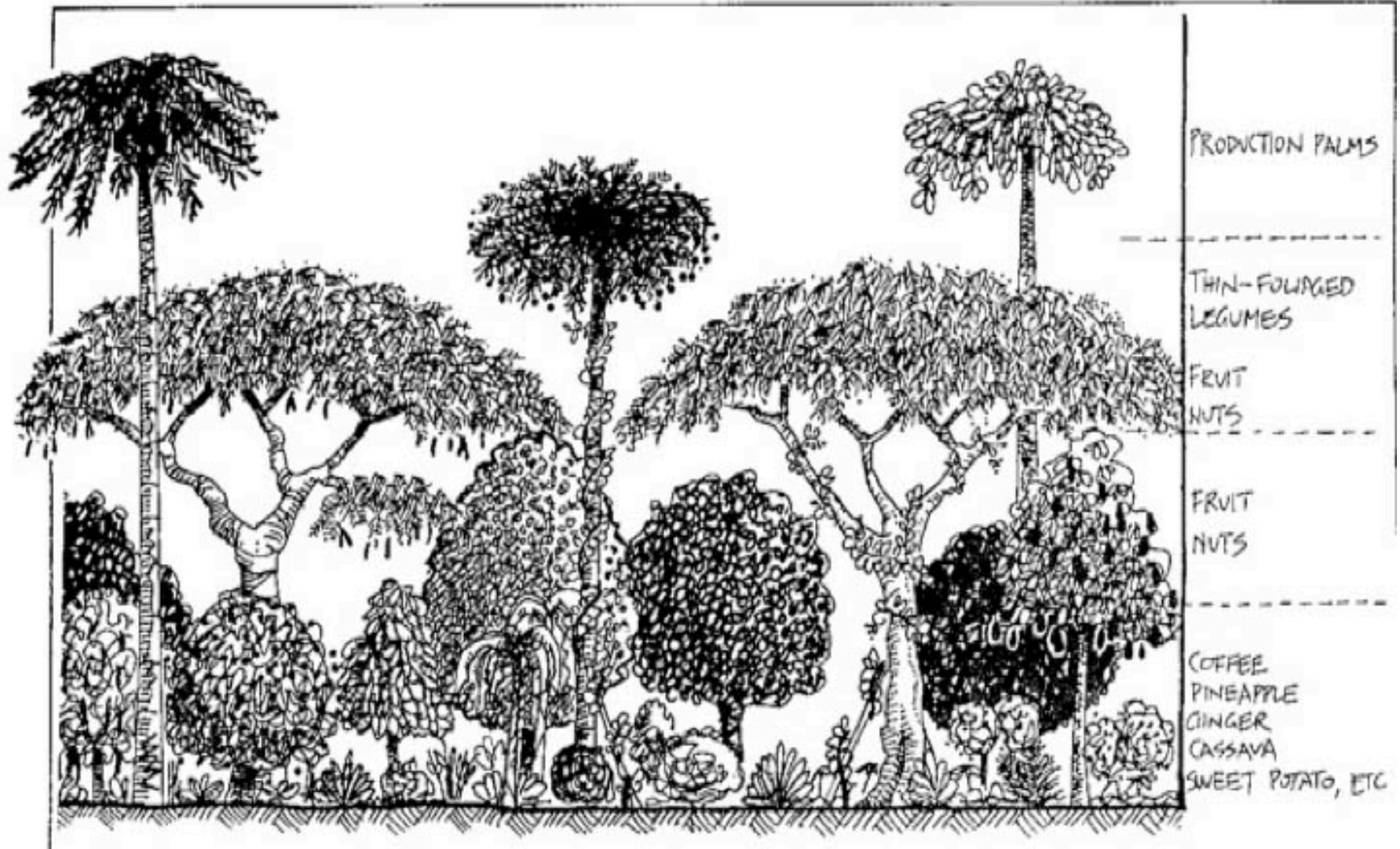


2010



## Development of the Mexican Caribbean Coast

# Agroforestry



Complex and multi-storied plant systems combining trees and field crops

# Maya Forest Garden

- Highly productive and sustainable system of resource management (Ford; Nigh 2009)
- Developed by ancient Maya and based on collective land management
- The goal is to manage forest areas so that they provide food, raw materials and animals
- Current investigations concluded that the traditional ecosystem management of the Maya can be a way for sustainable environmental protection and restoration of forests and other ecosystems (Diemont et al. 2011)



# Maya Forest Garden



**Creating a milpa field in a Maya community with expert support**

# Why Reforestation Fails?

- Mexican state and local villagers want to reforest/restore the forest

## **Multiple reasons for failure of reforestation:**

- Farmers have only small plots
- Lack of economic alternatives
- Limited and unfavourable selection of tree species
- Lack of technology
- Bad relationship and little trust between farmers and governmental / non-governmental organizations
- Forest plantations often are deforested for commercial reasons
- Fire destroys young forest plantations

- **Government incentives for forest restoration are unattractive for landowners**

# Summary and Conclusion

- When the land was privately owned, the forest served as a elementary resource and its preservation was maintained
- With the implementation of the agrarian reform the property rights changed and with it the interest on forest
- Due to changes in land/resource use, the climate factor became a priority in the economy
- A stable population, a long-term economic interest in forests and robust forestry institutions would be the basis for a more resilient landscape towards climate change



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