

Nicaragua Honduras Sentinel Landscape

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PLATFORM FOR LONG TERM MONITORING AND RESEARCH FOR FORESTS AND AGROFORESTRY IN NICARAGUA AND HONDURAS



The Nicaragua Honduras sentinel landscape (NHSL) is one of the 8 landscapes that form the long term research network set up by the CGIAR Program on forests trees and agroforestry (FTA).

The NHSL is located at the Heart of the Central American Biological Corridor and involves two countries with contrasting socio-political structures but a common set of ecological zones, forest and farming systems. Exemplary of the main land use conflict in Latin America: i.e., agricultural expansion and livestock encroachment into wet lowland tropical forest.



“ 67,992 km² which include 4 Biosphere Reserves in Nicaragua and Honduras: the largest remaining forest area in Central America surrounded by diverse traditional agroforestry (coffee, cacao) and silvopastoral systems ”

The main objectives of the NHSL are to develop and apply new frameworks and methods to generate indicators, share information and foster exchange among local and international organizations that work on understanding the factors that drive changes on tree cover and diversity over time and quantify the impacts of such changes on livelihoods and ecosystem services.

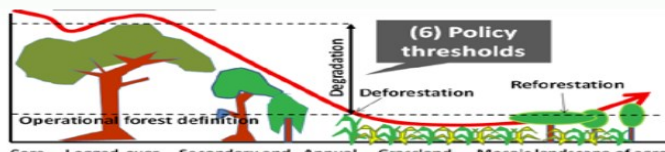
Key partners



Base line: Trees in the landscape

How the presence of trees in forests and outside forest change along a land use intensification gradient.

What drivers and process are involved in this change?



Tree cover transition

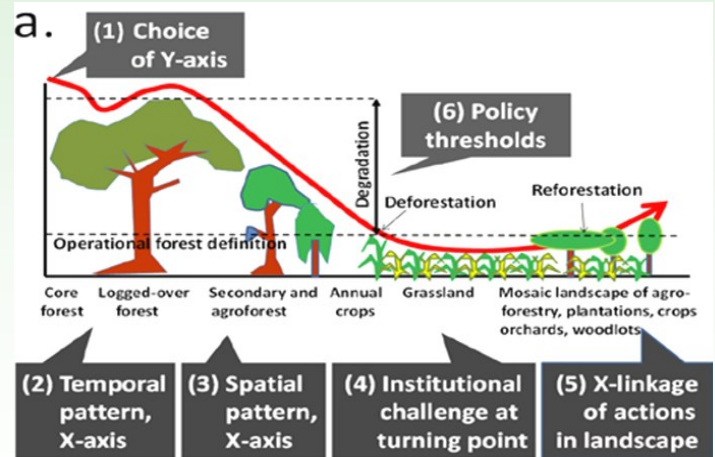


Agroecological intensification

Nicaragua -Honduras Sentinel Landscape Site

National and international participants, agreed in the boundary of the NH sentinel landscape The Nicaragua-Honduras Sentinel Landscape is a long transect from the highly agricultural area in highland Matagalpa, down the road to Waslala, Siuna, Waspán in Northern Nicaragua, crossing the border into the Rio Platano Reserve in Honduras.

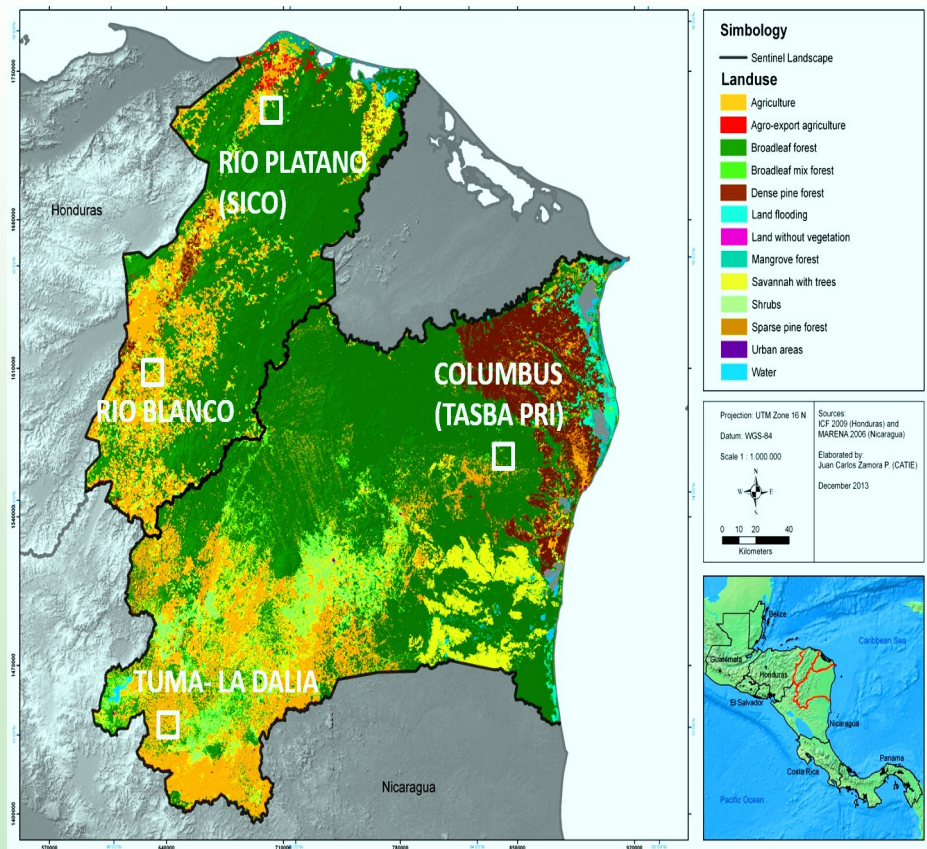
Transect is a perfect example of a forest transition curve, from the highly agricultural landscape and little cover of natural forests in the coffee producing areas (800-1000 m) of Tuma-LaDalia, Matagalpa; to Waslala at 400 m altitud, with small farms, double purpose cattle, slash-burn fallowed corn, beans, and cocoa as a cash crops; to the plains of Siuna with extensive cattle ranching and little forests; and finally, to the un-populated surroundings of the large massif of intact native forests in the Bosawás and Río Plátano Biosphere Reserves in Northern Nicaragua and Honduras



Main questions:

What are the consequences of changes in presence of trees on rural livelihoods and provision of other ecosystem services?

How can we avoid/mitigate/reverse these negative changes

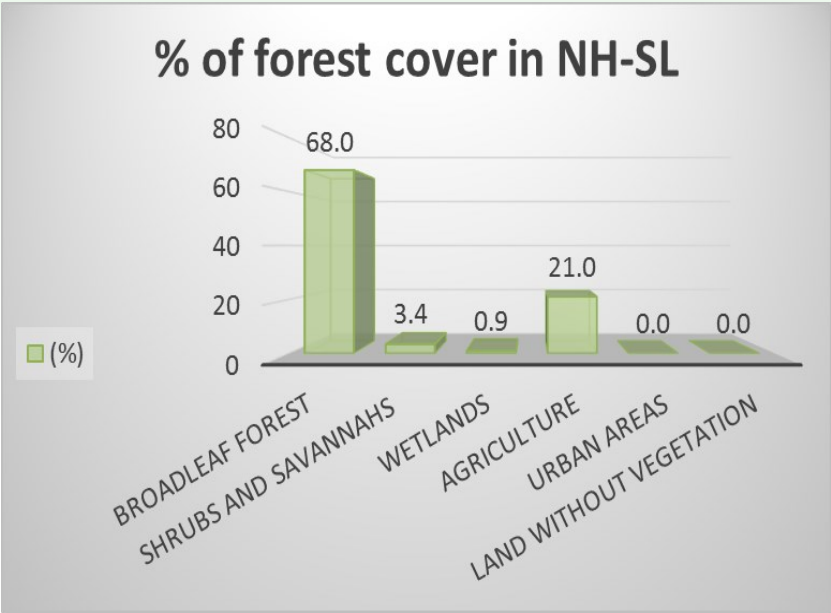




Main Activities Done

BIOPHYSICAL LINE BASE FINISHED

Biophysical baseline						
Country	Sites	Infiltration	soils (top and sub)	Soils Cum mas	Vegetation (plots)	Trees (subplots)
Nicaragua	Tuma-La Dalia	48	320	480	160	640
	Columbus	48	320	480	160	640
Honduras	Rio Platano	48	320	480	160	640
	Rio Blanco	48	320	480	160	640
Total	4	192	1280	1920	640	2560



Random selection of households based on lists provided by leaders, and snowball (methodology). IFRI survey: Mostly workshops ideally at least 30 participants. Focal groups smaller groups (particularly for user and products). Key informants leaders, teacher. Individual interviews (users and products). People chosen in coordination with the leaders of the villages. As much as possible 50% men and 50% women.



•Base line field studies (biophysical and socioeconomical)and production of clean data bases completed in 4 sites : Tuma –La Dalia, Columbus, Rio Blanco and Rio

SOCIOECONOMICAL LINE BASE FINISHED

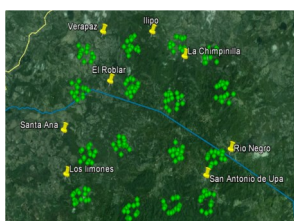
Socioeconomics baseline							
Country	Sites	Settlement	Association	Forest	Product	Household	Poverty Stages
Nicaragua	Tuma-La Dalia	8	10	28	104	297	8
	Columbus	8	7	9	76	302	8
Honduras	Rio Platano	9	11	14	27	146	9
	Rio Blanco	8	0	18	54	104	8
Total	4	33	28	69	261	849	33

Baseline: Sites Description

Tuma - La Dalia - Nicaragua



Fragmented landscape with low forest cover
Land use: basic grains production, coffee agroforestry and cattle ranching. Part of the CATIE key territory Very high population density >250 persons/km². Good accessibility. Dimensions of land ownership is 0-52 ha, with a higher proportion of small and medium farmers who own land of 0-1 acres with 53%.



There are families in small proportion, with over 20 hectares of land that could be defined as wealthy families, referring to the category of being the same, which are represented by 3% of the population.

Columbus - Nicaragua



Part of the Tasba-Pry indigenous territory . High percentage of non indigenous settlers 50% in the area = source of conflicts. Forest in recovery phase from a large event disturbance: Felix Hurricane in 2007.



The level of land ownership in this site is in the range of 0-1445 ha. 46% of the farmers own more than 20ha. Families who have 0-1 ha, representing a percentage of 18%, although a small percentage, is a higher level in relation to other levels of tenure.

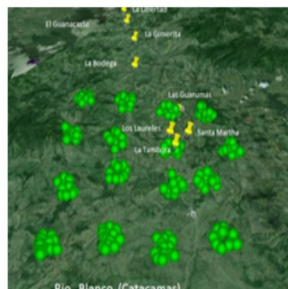
Migratory agriculture and livestock encroachment in tropical forest – particularly after Felix. Very low population densities 1-5 persons/km².

Baseline: Sites Description

Rio Blanco - Honduras

Main land use: pasture - cattle ranching and basic grains production. Small pockets of forest remnants (mostly along rivers). A massive conversion from forest to cattle ranching started in 80's. Located between three protected areas (e.g. Patuca, Sierra de Agalta and Tawahka National Park). Low population density, 5-25 persons/km².

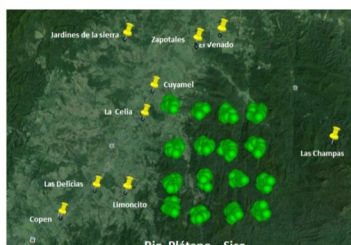
The land tenure in this region is classified in the range of 0-352 hectares. 44% of the Family possess more than 20 hectares of land, being 21% for People with between 0-1 ha.



Rio Platano - Honduras

Still largely covered by primary forests (in the mountainous areas within the reserves) Reserves land belong to the government Cattle ranching in fertile valleys, where population settle, managed as private land tenure (even within national territories). People share agricultural activities and forest management (concessions) as sources of livelihood.

The range of tenure on this site is 0-250 ha. The most influential percentage of land tenure is the people who own more than twenty hectares with a statistic of 42%, 17% for the level of 0-1 ha; Therefore, the standard of living of these people is very comfortable due to the degree of tenure.



Home to several indigenous groups, within the reserve. Rights over land not recognized by government. Low population density, 5-25 persons/km². Security issues drug traffic, land grabbing

Other Activities

As a part of the activities to support to others landscape teams, the Sentinel Landscape Nicaragua-Honduras field coordinator Norvin Sepúlveda traveled to Peru, in order to share not only the methodology, but also the experiences and lesson learned about potential problems and alternatives to how to solve



Animation of a "Science and Development Platform" to help set up relevant research agenda and secure an impact pathways of science-based innovations to development processes in Climate Smart Territories in Nicaragua (Nicacentral)



More than 120 representatives , from 12 NGOs, 8 Governmental organizations, 8 Universities, 6 international centers, and 4 International Cooperation. organizations

12 participants (5 from Madre de Dios, 3 from Pando, 2 from Ucayalli, 1 from ICRAF, 1 from IIAP) were trained in navigation with the GPS units to locate the randomly generated LDSF plots (160 per site); all aspects of the LDSF, including soil sample collection (including texture), tree and shrub measurements, erosion observations, infiltration among other variables; and electronic data entry. Preliminary data analysis was conducted on the newly collected data, including infiltration capacity curves. All the participants were able to use the materials and equipment, so that they are able to train other member of the local teams

