LAND USE AND LAND COVER CHANGE IN AMAZONIA FRONTIER, JI-PARANÁ BASIN – RONDÔNIA

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Introduction
A massive land use change has occurred in the Amazon basin in the last 3 decades, resulting from a complex product of economic and social factors, infrastructure development, soil characteristics and cultural factors that are reflected in the deforestation process. The Ji-Paraná basin is located in the State of Rondônia and comprises an area of 75,400 km², encompassing 31% of the State. Most of the colonization projects occurred here. Today, more than 60% of the state population lives in the Ji-Paraná basin.

Objects
The main objective of this study is to better understand the land use and cover changes in Ji-Paraná basin in the last 15 years and to analyze some drives of tropical deforestation like soil fertility, roads distance and settlements.

Study area

Methods

1º STAGE

Topographic maps

Scenes Data Acquisition 1992, 1996 e 2001

Landsat-7 ETM+ Scenes (1999)

Geometric Rectification

Landsat-7 ETM+ Scenes (1999)

Landsat-7 e Landsat-5 Scenes (1999)


Landsat-7/ETM+ Scenes (1996)

Digital Classification


Supervised Classification (Maxver)

Classified

Reference points GPS

Accuracy Assessment

Thematic Maps

GIS/ERDAS Imagine 8.5

BASE SATURATION MAP

Reclassification

2º STAGE

BASE SATURATION MAP

1- Distrofic soils (V% < 50%)
2- Eutrofic soils (V% > 50%)

Fertility soil x Road distance 1-2/1 2-2/2 3-3/3 4-4/4

Fertility soil x Road distance x Land Use change -2001 1-1/1 2-2/2 3-3/3 4-4/4 5-5/5 6-6/6

Cross Tabulation

ROADS MAP
(BUFFER - 15 km around main roads)
1- until 15 km to main roads
2- far away to main roads

Land Use and Cover Change (2001)
1- Forest; 2- Agricultural area; 3- Savanna; 4- Urban area; 5- Regrowth

Multiple Regression: Distance to the main road and Soil fertility are significant influences to deforestation processes in all data studied (p<0,0002) and (p<0,8 10-20) respectively (Software: STATISTICA)

Conclusions
The Amazon basin has a big extension, almost 7 million km². It has distinct land characteristics (soil quality, topography), economic, social. Examination of land and cover changes leads to a more comprehensive understanding of ecological processes and can be used in land use planning. Our results show how the influence of soil fertility and road distance can be used to explain the deforestation process in Ji-Paraná basin.

Support: