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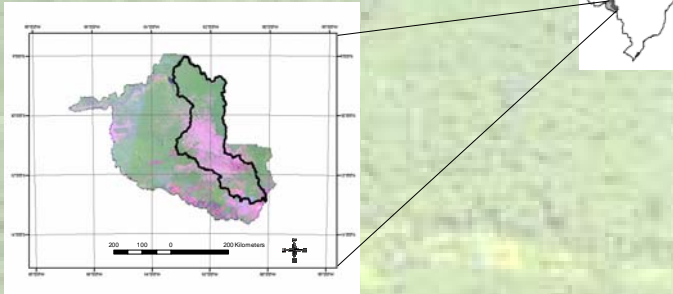
Introduction

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.

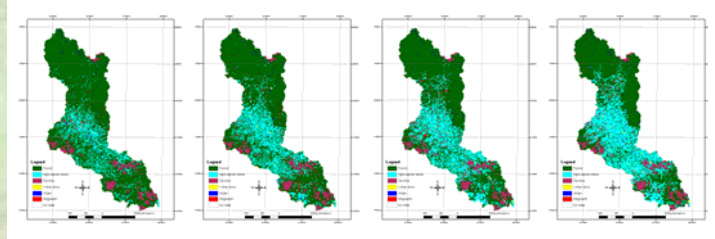
Study area



Legend
 Rondônia State
 Mosaic: Landsat - 7/ ETM+
 Color composite
 J-Paraná basin

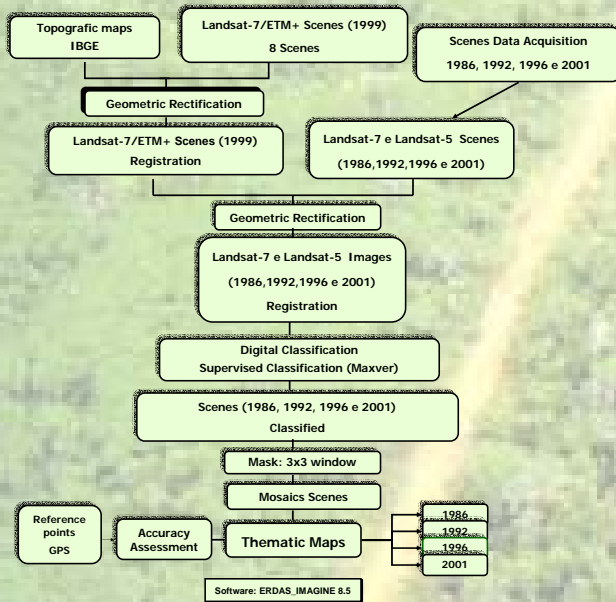
Results

Our results show that the basin lost 20% (15,313 km²) of the original forest cover (without savanna class) in 15 years. In 2001 the forest class represented 41,100 km² (55%) of the basin area. The results also indicate that regrowth areas are reuse, mainly in 1996 to 2001 period.

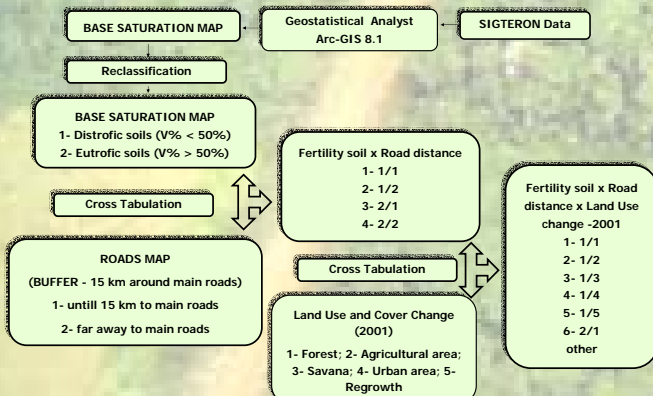


Methods

1º STAGE



2º STAGE

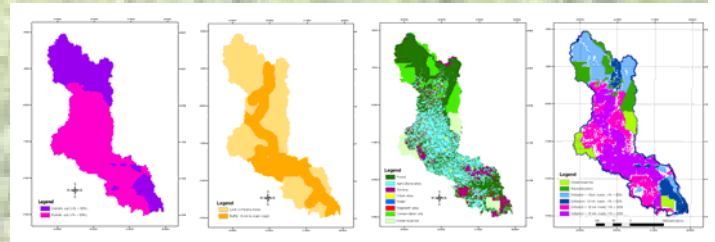


The overall accuracy of the six classes was 86,34% with a kappa of 0,73.



The larger forest patches are located in flat, poor fertile (base saturation lower than 50%) and scarce road area, corresponding to 17.563 km² (23,30%), where 5056 km² (6,7%) are located in conservation units. The forest patches on rich soils are located at the central part of Ji-Paraná basin (5,500 km²) and in areas with scarce roads and near conservation units (6550 km²).

Agricultural areas comprise only 732 km² (1%) located in dystrophic soil with scarce roads and 1481 km² (2%) in dystrophic soil and near the main roads.



Multiple Regression: Distance to the main road and Soil fertility are significant influences to deforestation processes in all data studied ($p < 0,0002$) and ($p < 0,8 \cdot 10^{-20}$) 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.