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Proceedings

Spatial-temporal analysis of the forest fragments surrounding a conservation unit in the southern region of Brazil

Bianca Fernandes ^{1,†,‡} , **Ligia Batista** ^{2,‡} 

¹ Mapa SA; bianca@mapa.sa.com

² Federal University of Technology of Parana State; ligia@utfpr.edu.br

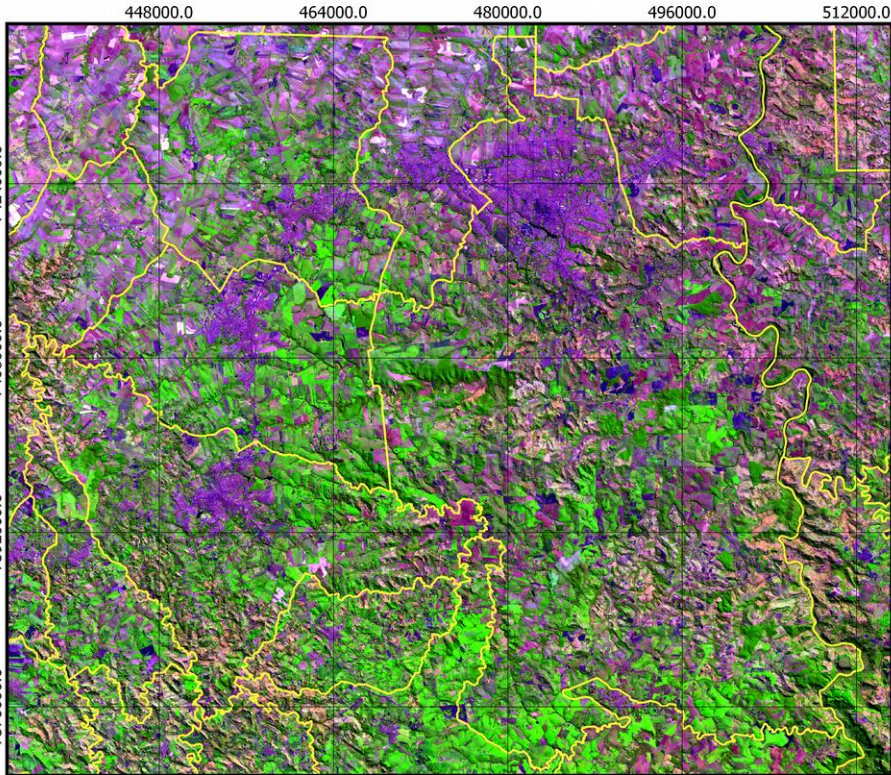
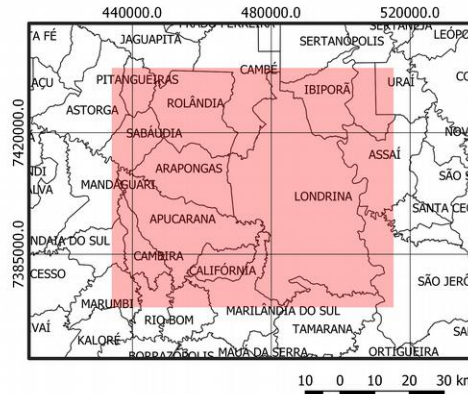
Introduction

- Analysis of forest fragmentation dynamics based on landscape ecology metrics and remote sensing imagery
- This study aims to contribute to characterize landscape dynamics, focused in forest patches, for the buffer zone of state park Mata dos Godoy and its influence area, during the period from 1998 to 2018.



Study area

- Brazil, state of Paraná



SIRGAS 2000 - UTM - Fuso 22 Sul
Landsat - 8 OLI - R5G4B3
Source: Earth Explorer (USGS)
Elaboration: FERNANDES, B. A. Q. and BATISTA, L. F. A. (2018)



City boundaries



forests

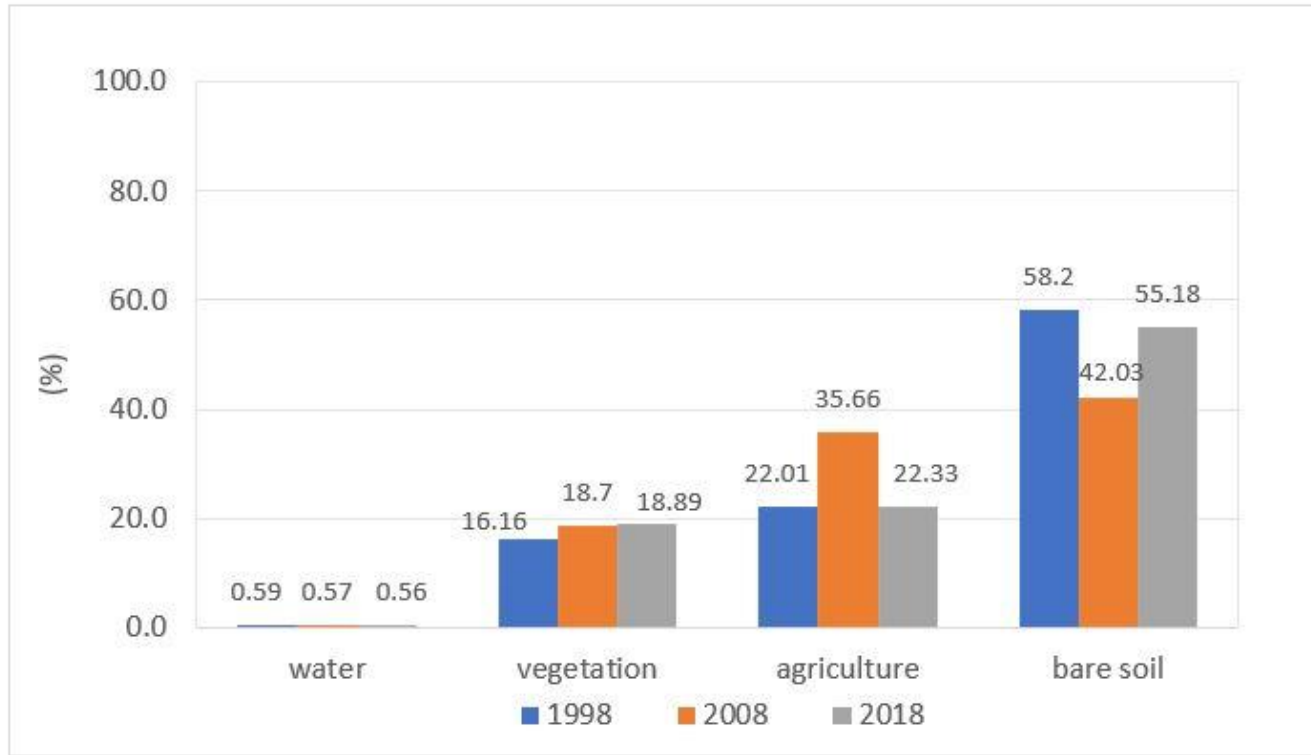


Materials and methods

- Landsat satellite images from 1998, 2008, and 2018
- Supervised classification methods and accuracy evaluation
- Landscape metrics related to area vegetation, edge density, distance between patches, shape



Results



- Areas by class



Results



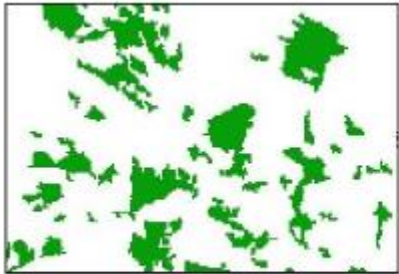
(a)



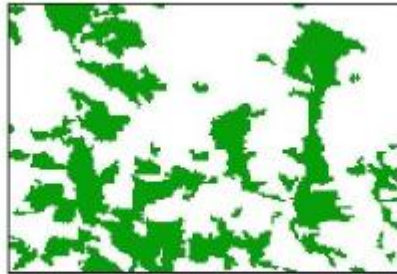
(b)



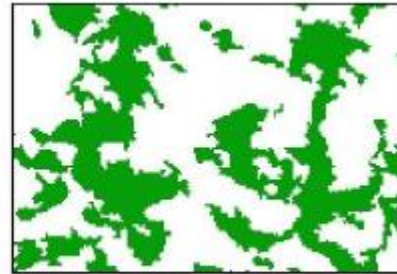
(c)



(a)



(b)



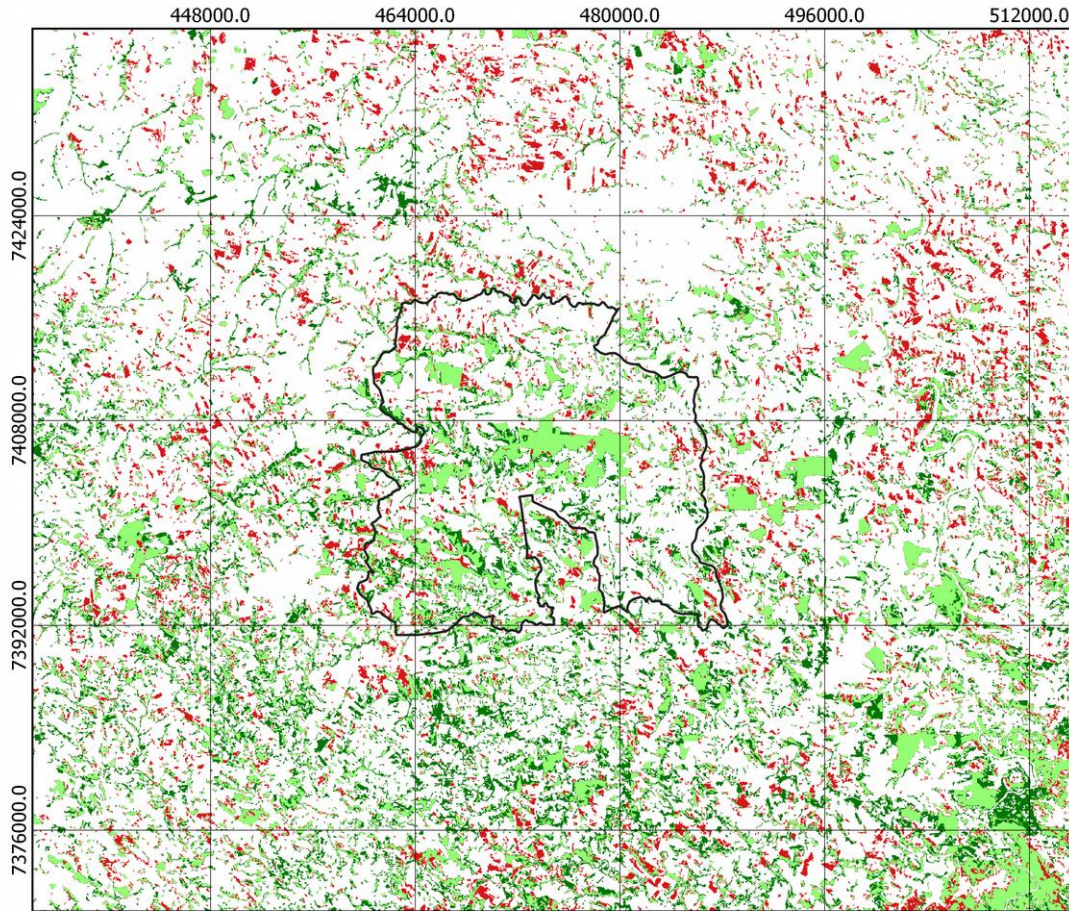
(c)

- Detail of vegetation increment
- Reduction of fragmentation

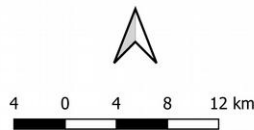


Results

- Change vegetation map from 1998 to 2018
-



SIRGAS 2000 - UTM - Fuso 22 Sul
Source: Earth Explorer (USGS)
Elaboration: FERNANDES, B. A. Q. and BATISTA, L. F. A (2018)



□ Buffer Zone of Mata dos Godoy
■ Regeneration
■ Loss
■ Unchanged

Results

Metrics	1998	2008	2018
CA (ha)	91,016.73	105,298.02	106,384.14
PLAND (%)	16.16	18.70	18.89
AREA_MN (ha)	9.99	12.74	15.39
ED (m/ha)	34.1	38.45	35.96
TCA (ha)	54,460.71	63,160.65	66,908.34
SHAPE_MN	1.76	1.83	1.86
NP	9,170	8,267	6,913
PD (n ^o /100 ha)	1,617	1,468	1,228
ENN_MN (m)	155.41	144.61	149.72

- Results of calculated metrics by year



Discussion

- Increment of:
 - percentage of fragments in landscape
 - average area patches
 - total core area
- Decrement of:
 - Number of patches (union)
 - Density of patches
 - distance to the nearest patch (isolation degree)



Discussion

- Good ecological scenario
- But it is below the minimum established by Brazilian legislation
- It is important to emphasize that most forests in Brazil are under degradation



Acknowledgments

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Thanks!

bianca@mapa.sa.com

ligia@utfpr.edu.br