International Scientific Conference

ABSTRACT BOOK

7-10 July 2015 • Paris, France

from Deforestation and forest Degradation plus the conservation, sustainable management and enhancement of forest carbon stocks (REDD+) in order to mitigate climate change. Policies aimed at achieving REDD+ objectives will have major impacts on future land use and resulting land cover, both inside and outside forest areas, which in turn affect biodiversity. Countries in both regions have committed both to supporting the the achievement of the goals of the Convention on Biological Diversity (CBD), including the Aichi Biodiversity Targets in its Strategic Plan, and to addressing and respecting the safeguards developed by the UNFCCC to minimise social and environmental risks and enhance the benefits of REDD+ . Therefore, understanding how different policies may influence land use and biodiversity is essential to informed decision-making and identifying REDD+ policies that can help safeguard biodiversity.

We are assessing the potential impacts of REDD+ policies on biodiversity in Brazil and the Congo Basin by using an economic land use model (GLOBIOM), to project future land use and changes in land cover under different scenarios. The biodiversity impact of the different scenarios is then explored by assessing the locations of projected land use change in relation to ecological regions, nationally and regionally identified priority areas for biodiversity conservation and species ranges. The effect of potential differences between ecoregions in land use policies and their application are explored. The impacts on species depend on both their habitat requirements and their distributions relative to different types of land use change.

The different assessments of impacts on biodiversity can in combination inform both REDD+ and biodiversity policies. In Brazil, both the implementation, and the impacts, of the Forest Code differ between Amazonia and other biomes. This therefore has implications for the species living in the different biomes. Analysis of the impacts on threatened species of different assumptions regarding the implementation of the forest code can inform the classification of species threat status. It also allows an assessment of the compatibility of these different scenarios with achievement of Aichi Biodiversity Target 12 on reducing extinction of threatened species. In the Congo Basin two important future scenarios relate to the contribution of protected areas and forest concessions to reducing deforestation. The assessment results highlight that not only is the current network of protected areas unevenly distributed across the different ecological regions, but also the impact of their enforcement on deforestation varies between ecological regions. Expanding the network and strengthening the effectiveness of existing protected areas to support REDD+ objectives would also contribute to achieving Aichi Biodiversity Target 11.

P-2214-15

Multi-Temporal cover patterns using Landsat TM in the Tapajós National Forest and its surroundings: a case study

L. Martorano (1) ; L. Lisboa, (2) ; C. Vettorazzi, (2) ; R. Muniz, (2) ; NES. Beltrão (3)

(1) s/nº, Agrometeorology, Belem, Brazil; (2) ESALQ, Piracicaba, Brazil; (3) UEPA, Belém, Brazil

Brazil's Tapajós National Forest (Flona Tapajós) — a designated Conservation Unit (CU) under the Sustainable Use Group created by Decree No. 73,684 (February 1974) — measures approximately 527,000 hectares (ICMBio, 2012). This CU has undergone constant changes in usage patterns and ground cover, especially in its surroundings, due to activities related to agriculture, livestock and timber harvesting. In June 2012, Federal Law No. 12,678 reduced the area of Tapajós Flona by approximately 4% of its original size. These areas began to be called buffer zones. According to Batista et al. (2013), this reduction may lead to possible threats in the maintenance of goods and services that Flona offers, provoking with the passing of years changes in the livelihoods of surrounding communities, thus increasing pressure on the protected area. Therefore, the aim of this work was to identify and map spatial distribution patterns of use and ground cover after the alterations in the landscape using data from spatio-temporal remote sensing sources. Satellite images from the TM sensor and the Landsat-5, from July and August of 1989, 2005 and 2009 were used. Digital processing was performed: atmospheric correction; geometric correction; mosaic; classification, post-classification and definition of use classes and land cover. We used the Geographic Information System (GIS) ArcGIS v.9.3 to construct thematic maps of the study-case, along with the following procedures: conversion of classified images to vector format for calculating the areas of thematic classes adopted this work; assembly and manipulation of geographic database and map algebra to detect changes between the years studied.In Flona Tapajós and its surroundings, between 1989 and 2005, the areas with Native Forest (NF), Regeneration (R), Recent Deforestation (RD) and Exposed soil (ES) that remained unchanged comprised respectively 62, 3, 2 and 2%. The altered areas (17%) underwent their most drastic changes in areas with NF (9%) and in 2005 were identified as R (2%), RD (3%) and ES (4%), while (2%) areas belonging to class RD had not been removed, reaching stage R 2005. The remaining 6% suffered conversion between ES and RD (Table 1). In the period 2005-2009, the areas with NF, R, RD and ES that remained unchanged comprised 61, 6, 3 and 6% (Table 2) respecitvely. It is noteworthy that 11% belonged to Water bodies in both periods. In the period 1989-2005 there was a 11% reduction in NF areas. In the second period, this reduction was approximately 1%. On the other hand, the area (R) made up only 4.4% in 1989 and grew to 7.6% in 2005, reaching about 11% of the area in 2009.Areas with RD represented 5% in 1989 and 7% in 2005 and 2009, indicating that the «Government Programme Zero Deforestation in the Amazon» shows evidence of consolidation in Flona Tapajós and its surroundings. This fits with the trend in ES, which went from 4% in 1989 to 19% in 2005 and 2009. It is noteworthy that, despite the reduced fragments located within Flona Tapajos, its environment, in particular its buffer zone, underwent a robust process of human disturbance. From the results, we concluded: Between 1989 and 2005 there was a higher percentage of loss patterns in the Native Forest than occurred from 2005 to 2009 and the patterns remained stable; the method of assessment of natural and non-natural landscapes can support the understanding of the observed dynamics of use and coverage. In addition, the assessment provides support for analysis of the effects of fragmentation in this landscape. The spatiotemporal dynamics in Flona Tapajós and its surroundings indicates the importance of legally protected areas for the conservation of goods and services offered by the people as part of the Amazon Forest Strategy. In integration with other information and analysis, these dynamics may uncover possible threats to the maintenance of goods and services that sustain the biodiversity of the region.

P-2214-16

Scenario analysis of the main drivers forces threatening the conservation of the Tapajós National Forest, Brazilian Amazon

N. Nascimento (1) ; L. Martorano, (2) ; NES. Beltrão (3)

(1) National Institute of Spatial Research, Terrestrial system sciences departament, São José dos Campos, SP, Brazil; (2) Embrapa, Agrometeorologia, Belém, Brazil; (3) State University of Pará, Applied Social Sciences, Belém, PA, Brazil

Several public policies were released in an attempt to integrate the Amazon to the other regions of Brazil in the 1960s. Amongst the main engagements on infrastructure, the government built ports, hydroelectric facilities, and opened highways such as the Transamazônica (BR 230), Cuiabá-Santarém (BR 163) and Belem-Brasilia (BR 316), triggering an aggressive process of landscape transformation and deforestation. At the same time, however, the government instituted legally protected areas in the region, such as the Tapajos National Forest (FLONA), in 1974. The road was extended in 2012 and is now part of a regional complex, between two major highways in the region. The Tapajós National Forest suffers influence of the Transamazônica highway (BR-230) in the South, and the Cuiabá- Santarém highway (BR-163) located in its Earsten side, which leads to Santarém and Itaituba. Despite all the pressures generated by its surroundings, the protected area has presented suitable conservation indicators. However, it is noteworthy that the west side of Pará concentrates the greatest number of projects, as the seven hydroelectric power plants, the Cargo Transhipment Stations (ETC), and also the paving of highways BR-163 and BR-230. Thus, the spatiotemporal analysis intends, not only to provide a description of changes over time, but also to point out future trends and identify higher-pressure areas. This study addresses efforts to investigate landscape changes in the Tapajós National Forest and its surroundings, which covers a total area of 19,627 km², including the municipalities of Belterra, Santarém, Aveiro, Rurópolis, and Placas. The