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Author: Ms. Megan Ewert
Charles University, Czech Republic, megan.ewert@natur.cuni.cz

EVALUATING THE RELATIONSHIP BETWEEN FOREST DEGRADATION, RECOVERY, AND
CONSERVATION EFFORTS WITH LANDSAT IMAGERY IN SOUTHEASTERN BRAZIL

Abstract

This study looks at forest cover in the Minas Gerais region of Brazil from 1973 to 2014 to explain the dynamic of forest cover change in relation to land use, identifying land cover in multiple categories (i.e; forest, pastureland/farmland, water bodies, etc.) in the Atlantic Rainforest in southeastern Brazil on Landsat imagery. Change between categories was tracked over the study period of 1973 to 2012 using software packages for IDRISI Selva, ArcGIS 10.1, Quantum GIS, and GRASS GIS. The Atlantic rainforest has experienced significant degradation and fragmentation over the last 50 years, with approximately 11-12 percent of its original extent existing in 2005, much of which is fragmented. A major contributor to deforestation is the process of conversion to pasturelands and farmland, and as well as mining throughout the region. Major crops include coffee and eucalyptus, of which planting practices contribute to erosion and land degradation in the region. Throughout the study, forest fragments were identified and evaluated through a GIS-based fragmentation analysis, comparing proximity to farmland and pastureland development. Conservation efforts, such as development laws, protected areas, and private land ownership, were also evaluated for their preservation capabilities.