SIMULATION OF VEGETATION COVER TRENDS OF THE WARI-MARO PROTECTED FOREST (BENIN) AND ITS PERIPHERY FROM LANDSAT IMAGES

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ABSTRACT

Simulation of vegetation cover trends of the Wari-Maro protected forest (Benin) and its periphery from Landsat images.

The forest reserve of Wari-Maro (Benin) has been managed by the Agoua, Monts Kouffé and Wari-Maro Forests management Project (PAMF). It is therefore opportune to assess the impact of this project's intervention on the forest cover. The objective of this research is to simulate the evolution of the vegetation cover of the forest reserve of Wari-Maro using satellite imagery. The material used is composed of Landsat satellite images of 1990, 2005 and 2020. Two methods, digital image processing and predictive modelling were used. The 2020 image being the most recent, it was the subject of a first test simulation, calibrated with 1990 and 2005 data. The evaluation of the accuracy of the class purity index and the mapping validity index revealed values above 80%, attesting to the good accuracy of the maps produced. Analysis of the vegetation types maps of 1990, 2005 and 2020 show the conversion of dry dense forests and woodlands into tree and shrub savannas in the forest reserve and the conversion of natural vegetation types into mosaics of fields and fallow land in the periphery. The simulation of the evolutionary trend of vegetation types in the Wari-Maro forest reserve by 2035 confirmed a savannization of the forest reserve and an anthropization of its periphery. These results clearly show that the PAMF's intervention did not make it possible to conserve the forest cover of the forest reserve of Wari-Maro.

KEYWORDS

forest cover, satellite imagery, savannization, anthropization, forest reserve, Wari-Maro, Benin.

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