

SPATIAL AND TEMPORAL ANALYSIS OF DECLINE IN DJELFA PINE FOREST (ALGERIA)

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ABSTRACT

Remote sensing data have allowed us to analyze the state of the forest cover and its evolution in the Djelfa area over a period from 1972 to 2009. Analysis method based on the use of satellite images Landsat MMS 1972, TM 1987 and Landsat ETM 2001 and 2009 has been used. Based on supervised classification coupled with field surveys, forest areas and ecological balance were determined for the years 1972, 1987, 2001 and 2009. Results obtained show that the canopy occupied 54524 hectares in 1972, 70391 hectares in 1987 to 59014 hectares in 2001. In 2009 the pine fell to 53283 hectares, the degree of degradation has detected a variable changes in the forests of the semi -arid area surveyed. The ecological balance of the forest cover is generally positive in 1987 with a rate of 21.8 %, while in 2001 and 2009, the regression is estimated at 16.5%. The increase in forest cover appearing on the 1987 satellite image shows an extension of reforestation made in the eighties under the Green Dam project, and suitable climatic conditions during these years. Classified sequences satellite images were used to estimate the loss of surface area over time, a total of approximately 24.30 % of the forest has disappeared.

The degradation causes of forest are multiple 2001 and 2009, the most important being the frequency of recorded droughts. The methodology introduced in this research has set up a base map that can be a management tool to consider a better protection of this fragile ecosystem.

KEYWORDS: Pine Forests, Decline, Djelfa, Algeria