

CHRONOLOGICAL STUDY OF THE VEGETATION OF FOREST MASSIF OF SDAMAS

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The massif of Sdamas to which our contribution relates is located in West Algeria, it is an integral part of the mountains of Tiaret.

The main objective of this work is to quantify the plant diversity of existing plant groups, and to understand the architecture and the structure of the various groups of vegetation by the method of floristic analysis and statistical analysis.

The bioclimatic study revealed a drier bioclimatic environment and shows that our region belongs to the semi-arid stage with cool winter.

About vegetation diversity, we have been able to describe a list of characteristic species of the maquis of Western Algeria. The main dominant species in the floristic composition are *Tetraclinis articulata*, *Pinus halepensis* and *Quercus coccifera* for forest species and *Pistacia lentiscus* and *Phillyrea ssp* for pre-forest species.

The factorial analysis of the correspondences (FAC) allowed us to treat the floristic and ecological variables jointly. This overall treatment allowed us to have a view on certain aspects of plant groups and plant formations in the study area, and to verify that there are indeed original floristic groups characteristic of the area of Sdamas.

Factorial correspondence analysis, performed on species inventoried in the region of Sdamas, shows that the acting ecological factors are the bioclimate, the nature of the substrate and human action. They explain the great part of the information provided by the different axes. Indeed, the bioclimate, through the atmospheric drought, is the main factor of the diversity of the formations of the Sdamas mountains. For its part, human action (overgrazing, fires and deforestation) contributes to the drying up of environments. Finally, the nature of the limestone substrate (calcium carbonate) can cause pressure on vegetation in the same direction as human action, as the two preceding factors affect plant performance and geographical distribution of species.

For further analysis of dynamics, the aim is to analyze the land cover of the Sdamas region over a 43-year interval grouped into 9 thematic classes: Mineral Surfaces (Urban Planning), Wetland, Thuja stand, mixed stand, maquis, grounds of alf-alfa, bare soils and fallow, maquis of Pine. The spatial and temporal dynamics of land use require regular monitoring of vegetation cover from remote sensing imagery. It is for this reason that we relied on field data to perform the diachronic analysis with three well-defined scenes 1972, 1998 and 2015, using Landsat satellite images (MSS, TM and ETM +). The analysis of these maps allows us to observe the different changes that take place at ground level. We found that the natural plant cover has undergone a strong degradation, disruption and regression from maquis with a dense cover to degraded (garrigue) because of the different human activities, namely: fires, overgrazing, clearing, urbanization, (a remarkable increase of population in the communes of the study area).

Moreover, inadequate and ineffective forestry interventions and work, and the lack of continued protection. has aggravated pressures due to human activities. Indeed, the degradation and the regressive changes of plant communities in this region and in the whole of the Mediterranean area are man-made, and it remains the main cause of the fragmentation of natural ecosystems.

Key words: Dynamics, Cartography, Remote Sensing, Sdamas, Tiaret