

Abstract :

Description of the subject. The struggle against desertification and the implementation of consecutive steppic ecosystem protection plans have become a priority in Algeria over the last four decades. Among the restoration techniques set up to manage or even restore sensitive steppic rangelands have been (i) fencing and (ii) fencing and the planting of exotic shrubs. Objectives. This study aims at describing the effect of these two restoration modes with control plots after four years on soil physico-chemical and surface state parameters and phyto-ecological properties. Method. Three hundred twelve phyto-ecological and pedological relevés were performed both on the restored plots and on controls four years after the initial implementation of management strategies. Phyto-ecological, soil surface and soil chemical parameters were measured for each modality. Results. Numerous parameters differed between the restored plots and the controls, including levels of total nitrogen and soil organic matter. However, textural parameters did not differ between the restored and the control plots. Conclusions. Our study shows that the implementation of both the restoration techniques in an arid region led within a relatively short space of time (four years) to an improvement in soil physico-chemical properties. We recommend the measurement of the percentage of coarse elements on the soil surface as an indicator of the system restoration state, and the use of the results as an important decision-making tool in reopening restored areas to grazing.