Erosion is one of the important problems in degradation of agricultural lands and other natural lands. The most dynamic factor in controlling erosion is land cover, and this factor has been anthropogenically manipulated for ages. This study investigates the effect of land use and land cover changes (LULCC) on erosion at Kuseyr Plateau, which is situated in the southernmost part of the eastern Mediterranean basin, Turkey. A geographical information systems-based method using the revised universal soil loss equation (3D) was employed to identify the amount of annual soil loss, erosion risk classes, and distribution generated by LULCC. Landsat satellite images were used to analyze LULCC from 1987 to 2010. The implementations of both land cover and management factors were made possible by satellite image analysis performed throughout the years. The results obtained from the study show that there is a rather severe erosion risk covering as much as 30% of the land within the scope of the study for 1987; this rate corresponds to 22% in 2010. Maximum annual soil loss in the plateau was as high as 59.81 t ha⁻¹ per year in 1987 and 48.33 t ha⁻¹ per year in 2010. The average soil losses in the plateau were 6.19 and 5.00 t ha⁻¹ per year for 1987 and 2010, respectively. The related processes causing erosion from the past to present have slowed down, and reclamation of the land cover (with the intended purpose of decreasing erosion sensitivity) has always been the key factor in this regard. Despite a considerable decrease in severe erosion, as much as 22% of the study area still requires immediate measures in order to reduce soil loss.