



University of zabol  
Graduate Management  
Faculty of Water and Soil  
Department of Range and Watershed Engineering

**Thesis for obtaining a master's degree  
In the field of rangeland management**

**Title:**

**Effect of grazing and grazing on physical, chemical and biological properties of  
soil in Sarbisheh plain rangelands**

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## Abstract

Utilization of livestock capacity and grazing is one of the main factors in rangeland degradation, and soil organic matter is one of the most important factors in assessing soil quality, which is closely related to the physical, chemical and biological properties of soil. Carbon sequestration in rangelands is one of the simplest and most economical ways to reduce the risks of carbon dioxide in rangelands. In this study, to study the phenochemical and biological properties of soil with the help of tools, two enclosures and grazing areas in Sarbisheh plain located 60 km from Birjand city (South Khorasan province) were selected. In each area (enclosure and grazing), six transects of a certain length were established and soil sampling was done at three depths of 0-15, 15-30 and 30-45 along the transect (beginning, middle and end). 18 soil samples were collected from each area from three different depths and a total of 36 samples were collected from both sites and physicochemical parameters (Sand percentage, bulk density, carbon content (c), organic matter (om) Percentage of lime (CaCO<sub>3</sub>), nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), electrical conductivity (EC) and acidity) and biological parameters (soil carbon storage (oc)) Soil nitrogen storage (nt), microbial biomass carbon (mbc), soil base respiration (bs), microbial ratio (nm), microbial biomass nitrogen (nzm) and microbial carbon to nitrogen ratio (C2n) to laboratory Moved. To measure the bulk density parameter (lump method), soil carbon and organic carbon percentage (Walkie-black oxidation method), lime percentage (titration method), nitrogen (Kjeldahl method), phosphorus (Olsen method), sodium and potassium (film photomet method)) done. Data were analyzed using SPSS software and Kolmogorov-Smirnov test (ANOVA) and Duncan test (for Significance differences). The results showed the mean concentration of the parameters (oc, nt, bs, mbc, nzm, bulk density (c, om, CaCO<sub>3</sub>, K, Na, Ca, EC and pH) in the confined area was higher than grazing. The average concentration of parameters (nm, C2n, Sand, N, P, Mg) in the area There was a Significant difference in the concentration bits of all parameters in all three depths of the two regions (exclosure and grazing) and in both regions the first depth had better soil quality than the third depth.

**Keyword:** Chemical and physical properties, Lime, Microbial biomass nitrogen, Walkie black, Exclusive.