

Short Reports

CHANGES OF CARBON STOKS IN CRYOARID SOILS OF TUVA UNDER THE GRAZING

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Carbon Stocks and the storage of the soil organic matter have been determined by 3 principal factors: values of vegetable matter, entering to soil, the rate of the mineralization of the vegetable leavings and the mechanical structure of soil. The entrance of the Carbon have been conditioned by values the net primary production.

The paper has been considered the peculiarity of the accumulation phytomass and the entering to soil

the vegetable leavings on the different sites of the dry steppes.

Grazing on the steppes of Tuva by domestic animals has occurred since the first centuries A.D. and this has contributed to maintain the characteristic openness of the landscape.

In this study we were particularly interested in comparing Carbon Stocks of the dry steppes, at different intensities of human impact, with those of true steppe vegetation. True steppes are characterized by small brunch grasses. The main part of the green phytomass is made up of species which are resistant to trampling and able to regenerate rapidly after being grazed.

We established that the above-ground and below-ground plant material (the total biomass) in moderately grazed site (MG) are 30 t/he and in overgrazed site (OG) – 17 t/he (table 1).

Table 1. The storage of the soil organic matter and Carbon Stocks in Cryoarid soils of Tuva

Components	MG – 2008 y	OG – 2008 y
Above-ground biomass, t/he	250	180
Below-ground biomass, g/m²	2800	1600
Entering of the vegetable leavings, t/he	11,5	4,3
Humus, % in the depth 0-10 cm	1,4	1,1
Carbon , t/he in the depth 0-50 cm	45	29

The table presents that the green biomass values of vascular plants were highest on the moderately grazed site and lowest on the overgrazed site. The amount of graminoid biomass decreased with increasing grazing intensity.

Differences of total green biomass values between the UG and OG sites were not statistically different but the value for the OG site was much lower. Below-ground plant material consists of stem-bases and tubers? As well as roots of different length.

Total below-ground increases considerably from the moderately grazed site to overgrazed site. The average from the season entering to soil of the vegetable leavings on the moderately grazed site - 11,5 t/he and on the overgrazed – 4,5 t/he.

The Cryoarid soils this sites differ by content humus. The humus horizon in the soil moderately grazed site contents 1,4% and 1,1%- in overgrazed site. Accordingly the storage of the carbon in this sites differ. In the moderately grazed site the storage of the Carbon in the depth 0-50 cm is 45 t/he. Therefore in this soil various intensity of the humus accumulation. It being known that the soils of the moderately grazed site approximate to the muchhumus types.

Thus, grazing has contributed to maintain the openness of the Ubsunur depression's landscape. Difference between moderately grazed and overgrazed sites may arise mainly from the different factors that

originate their xerophytic character: soil and climatic characteristics, respectively. Summers are very cool and the winters are hot and the soil with a low water storage capacity in the Central Asia.

Moderately grazing of Tuvian dry steppes is resulted in higher biomass values for the above- and below-ground phytomass, entering of the vegetable leavings to the soil, the storage of the humus, Carbon.

GRAZING PRESSURE INFLUENCE ON THE DRY STEPPES OF TUVA

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Introduction

In this study we were particularly interested in comparing some phytomass properties of different intensities of grazing impact of Tuva dry steppe vegetation.

In Tuva winter pastures were supplied with pump-houses to provide a livestock with water. After collective farm disruption these pump-houses were demolished and pastures were left without water. Many winter pastures were abandoned and herdsman