

Soil Cover of Hovsgol Lake Area (In case study of Eastern Hovsgol lake area)

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In surrounding of Hovsgol lake areas dominated mountain soils. Top part of mountains, above forest line (2200 meter a.s.l. south slopes, 2100 meter a.s.l. in north slopes) distributed *Mountain tundra* and *Mountain meadow* soils. This soils formed under dryad-lichen, kobresia-lichen-dryad and sedge-lichen associations. Characterized by stony short profiles, accumulation of decomposed plant residues and peat's. Very clear cryoturbation process and cryogenic sorting of materials. Forest soils distributed between 1800 – 2200 meter in south slopes, 1900 – 2100 meter in north slopes under larch (*Larix sibirica*) forests with moss and moss-bush associations. In south slopes under forb-grass vegetations formed *Mountain Dark Kastanozem* soil. In eastern Hovsgol areas distributed non-carbonated *Kastanozem soil* on the sandy sediments. In north lower slopes occurred *Chernozem* or *Cryomorphic boggy* soils. Valley bottoms distributed Meadow and Boggy cryomorphic soils.

Soil cover of Western and Eastern part of Hovsgol lake areas differed. In Western parts more wide spread out high mountain soils: *Mountain tundra*, *Mountain meadow*. Soils of this part especially Hordil Sardag mountain areas characterized by high carbonate contents result of calcite, dolomite rocks. Even, forest soil has carbonate content. Soil cover of Eastern part of Hovsgol lake area complicated due of mountainous feature, exposition differences, permafrost influence, taiga-forest and rock sediments. Comparing with Western parts in Eastern parts not very much High mountain soils, due of domination of low mountains. Soils of eastern parts of Hovsgol lake characterized by loamy-sandy texture content due of wide distribution of sandy sediment. Light texture

content defined soils, more fragile or sensitive for erosion and deflation.

In case study of eastern Hovsgol region we are aimed to identify overgrazing influence in soil cover, soil properties. We are used comparative research method for the overgrazing impact to the soil cover. Comparing soil morphological, chemical-physical properties of non-grazing - Borsog, Dalbay, medium grazing – Sevsuul, Noyon, overgrazing – Turag and Shagnuul valleys Eastern Hovsgol. The natural-geographical condition of the study valleys is relatively similar. The valleys have a similar latitudinal direction, forested north facing slopes and non-forested south facing slopes. South slopes of the study valleys are similar, with non-carbonated Dark Kastanozem soils, sandy lamy textured. Also, basic pasture area is south slope steppe.

In the south-facing steppe slopes distributed Non-carbonated Dark Kastanozem soils. This soil characterized by 20-30 cm thick "A" humus horizons, low organic contents – (humus-1.57 %), soil reaction slightly acid or neutral, exchangeable Calcium is-9.58 cmol/kg, Magnesium is – 4.96cmol/kg, nutrient elements Potassium low (12.78 mg/100g) and Phosphorus (2.47 mg/100g) ranges normal. By fertility levels this soils belong to the normal or low ranks.

Texture content is sandy loam, dominated sand fraction up to 70-80 %. Sandy texture content is main reason of comparatively low fertile level and Calcium carbonate leaching of Dark Kastanozem soils.

As a result of overgrazing and pasture degradation, soil fertility is decreasing and soil chemical properties changed. Soil humus content decreased by 30-50%

($p=0.012$), exchangeable Calcium decreased by 40-60% and nitrate nitrogen content has decreased in the northern overgrazed valleys.

Decline of soil organic content and fertility in the overgrazed territories is caused by a decrease of vegetation biomass and canopy cover appear to be a consequence of overgrazing.

Livestock dung and manure have a direct increasing impact of soil Ammonium Nitrogen content. In the non grazing south slope soils of Dalbay valleys Ammonium content ranges 2,24-2,41 mg/100g, but in the heavy grazing Turag valleys soil Ammonium content ranges up to 3,80 - 4,58 mg/100g or increasing 50-80%. Soil water physical properties are changed due to overgrazing. Top soil temperature increases and moisture content decreases as a result of overgrazing.

Topsoil is becoming more dense and compact as

a result of animal pressure on the soil surface. Topsoil bulk density, particle density has increased and soil texture becoming heavier. Specially bulk density show comparatively direct relation ($r^2=0.51$, $p=0.091$) with overgrazing.

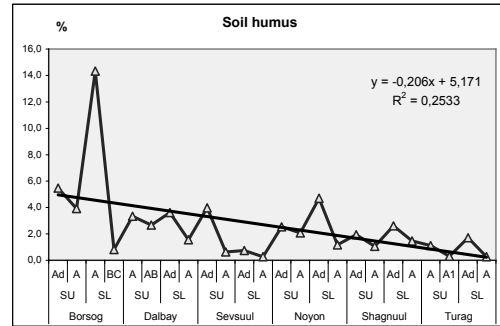


Fig. 1. Topsoil humus content in the South upper and South lower slopes of study