

# Sustainable grazing in Cleistogenes community in the steppe of Mongolia.

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**Abstract.** During 2001-2003, we conducted vegetation surveys on grassland sites in steppe zone that were subjected to livestock intensive grazing on Cleistogenes community in eastern Mongolia. In this paper representing degradation process in Cleistogenes community under influence of heavy grazing and its transformation to the degraded area were Cleistogenes -less, Artemisia steppe. The heavy grazing in combination with strong dryland winds, led to pronounced reduction in vegetation cover and an increase in soil erosion

**Key words:** Grassland, overgrazing, productivity, community, cleistogenes.

## Introduction

Grasslands are estimated to cover 80% of the total land area of Mongolia., 28% of which lying in the steppe zone. The climate on the regional arid and semiarid steppes is distinctly continental with a strong influence from the East Asia summer monsoon. Precipitation is highly variable both in time and space. Nomadic herding makes grazing the dominant anthropogenic factor that affects steppe vegetation. Moreover, the arid and semiarid steppes are ecologically fragile and sensitive to seasonal and decadal changes in climate. Mongolian grasslands are partly overstocked, particularly in semiarid region of Mongolia. In order to prevent further degradation and rehabilitate degraded areas, it is necessary to study the impact of grazing on this grassland.

The present work (monitoring study) was done on the territory of Bayantumen sum in East Aimag, Mongolia in 2001-2003 and were compared the dynamics of productivity, species composition and vertical structure in vegetation with different levels of grazing pressure.

## Materials and methods

We chose two grasslands in the Kherlen river valley for our monitoring study. Main criterions by which distinguished the vegetation into levels are: cover of dominated species in vegetation, mean height of plant, productivity and quality (ratio between the biomasses of palatable and unpalatable species).

a. *Artemisia adamsii* overgrazed grassland is situated within the 5 km range from the Kherlen river at N 48<sup>00</sup>'89" E 114<sup>027</sup>'671" were altitude is 764 m, soil is dark chestnut. Plants are exposed to overgrazing and plant mean height is very low, vegetation cover is 10.2% and very sparse, species richness is poor. Because there sheep and cattle concentrated during the growing season or year. There dominated by woody or unpalatable by livestock or steady to grazing species such as *Artemisia adamsii*, *A. frigida*, *A. scoparia*, and also annual and biennial species of *Chenopodiaceae* families.

b. *Cleistogenes heavy* grazed grassland is situated at N 45<sup>054</sup>'739", E 114<sup>028</sup>'365" within 10 km range from the Kherlen river, (on 5 km from Cleistogenes community) were plant mean height is 17 cm, vegetation cover 42%, species richness is not high and in vegetation are dominated by *Cleistogenes squarrosa*, and grasses with grazed by livestock shoots. There biomass of unpalatable species occupies 78.3% of total biomass in it.

## Study results.

Under influence of heavy grazing Cleistogenes community transformed to the degraded Artemisia community were reduction in species richness and diversity, decrease in productivity of perennial palatable species and increase in unpalatable, annual and biennial, wood plants.

## Conclusion.

- Under overgazing of livestock the *Stipa* steppe community was replaced by *Artemisia adamsii* dominated community.
- Overgrazing leads to the reduction of productivity and its quality