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## The Examination of Grazing Intensity Effects on Capability of Water Influence in Rangelands Soil—A Case Study: Alpine Rangelands in North of Iran (Alborz Mountains)

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The 21st International Grassland Congress / 8th International Rangeland Congress took place in Hohhot, China from June 29 through July 5, 2008.

Proceedings edited by Organizing Committee of 2008 IGC/IRC Conference

Published by Guangdong People's Publishing House

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**The examination of grazing intensity effects on capability of water influence in rangelands soil —a case study : alpine rangelands in north of Iran(Alborz mountains)**

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**Key words :** range permeability ,watercycle

**Introduction** The goal of this research’s is knowing the mechanical impacts of livestock trampling under it’s weight pressure on reduction of the water influence on rangelands soil and giving an application coefficient which indicate the quantitative relation between the intensity of livestock grazing and the amount of water influence in rangelands soil .

**Materials and methods** In regions with different intensity of grazing but homogenous and completely resemble in another aspects like : slop ,soil ,vegetation type ,height ,aspect and etc .Three area separated as follow : 1- Reference area 2- Key area 3- Critical area .The vegetation inventory and sampling performed accidentally by especial plots and then the amount of water influence in soil ,measured by double rings method ,with suitable frequency .The comparisons in second ,ninth ,20<sup>th</sup> ,50<sup>th</sup> and 90<sup>th</sup> minutes after beginning of soil permeability experiment were realized and results recorded .

**Results** In all of mentioned times the speed of instant and extreme soil permeability in reference area is more than key and critical areas for example in 9<sup>th</sup> minute in reference area the speed of water influence in compare with key area is more than 35 .2% and in compare with critical area it’s more than 67 .7% .The other comparisons has shown in lower tables .

**Table 1** The influence comparison in key reference and critical regions .

Minutes of influencing	Reference		Key		Critical	
	D	I	D	I	D	I
2	3 .59	5 .9	2 .1	3 .6	0 .78	1 .6
9	8 .2	3	5	1 .9	2 .28	0 .97
20	12 .7	2 .09	7 .9	1 .4	3 .8	0 .73
50	21 .1	1 .38	13 .6	0 .96	6 .8	0 .58
90	29 .1	1 .06	19 .3	0 .75	9 .9	0 .42

**Table 2** The percent of reduction of coefficients in Momentary And accumulative equations .

	Critical to key	59% reduction
A	Critical to reference	77 .3% reduction
	Key to reference	43 .9% reduction
	Critical to key	55 .7% reduction
B	Critical to reference	73 .5% reduction
	Key to reference	40 .1% reduction

$$RE\% = \left| \frac{I_{x_i} - I_{y_i}}{I_{x_i}} \right| 100 * RE = \text{Rational error (y range in compare with x range) ,} I_x = \text{Instant permeability in considered time in x range ,} I_y = \text{Instant permeability in considered time in y range}$$

**Conclusion** the amount of coefficients of the equations of momentary and accumulative influencing shows a reduction in changing the rangelands from reference to the key and critical situation for the type of plant and the same soil texture by using the received data and formulas for three under experiment regions (reference ,key and critical) .At the result the amount of momentary and accumulative influencing has had a noticeable rational reduction that have been shown in Table 2 .The (A) coefficients undoubtedly have been effected in vegetation that the other factors can focus that such as soil compacting .What is certain is that the factor of vegetation had been the cause of the changing of effecting characteristics alone ,but several factors effect in relation with the vegetation and soil’s environment and at the all these factors can effect on the speed of momentary , accumulative and extreme influence .

**Reference**

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