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$\Delta 1^{\circ} 32'$   
 $36^{\circ} 4' 35''$

$\Delta 2^{\circ} 4'$   
 $35^{\circ} 41' 4''$

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<sup>v</sup> - Menezes, *et al.*  
<sup>^</sup> - Reference area  
<sup>q</sup> - Exclosuer

<sup>1</sup> - Johnston, *et al.*  
<sup>r</sup> - Alberta  
<sup>z</sup> - Smoliak, *et al.*  
<sup>f</sup> - Dormmar, *et al.*  
<sup>h</sup> - Bouer  
<sup>g</sup> - Frank, *et al.*

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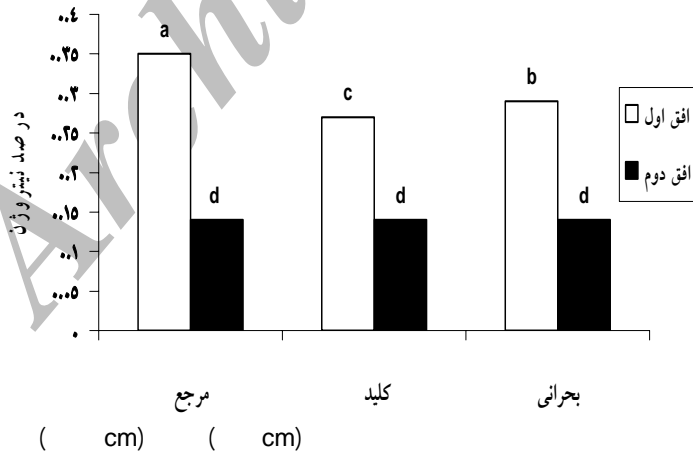
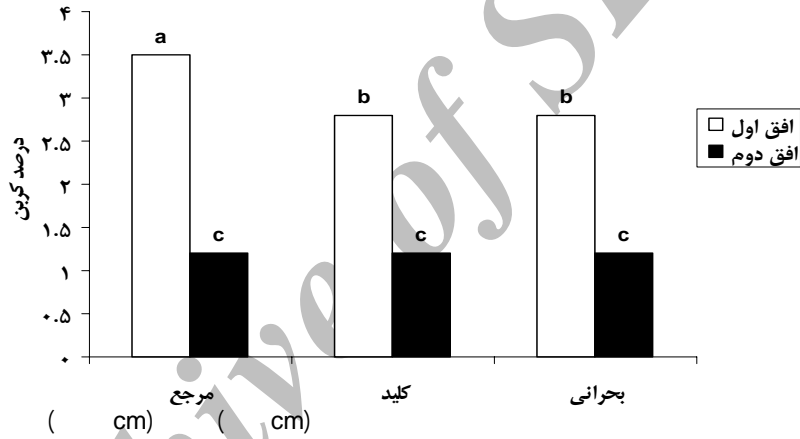
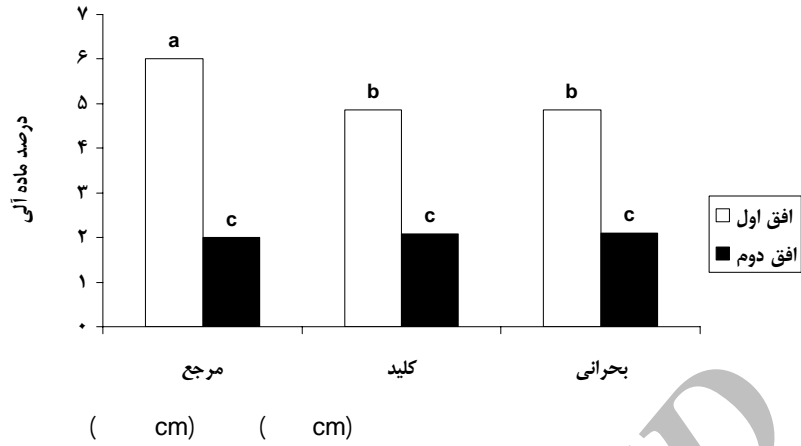
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- ♠ - Key area
  - ♣ - Critical area
  - ♣ - Walkley and black
  - ♣ - Kjeldhal
  - ♠ - Split – split plot design



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$l a$	$l a$	$l a$	( cm)
$l b$	$l b$	$l b$	( cm)

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<i>Ag. Repens</i>	<i>Agropyron trichophorum</i>	<i>Agropyron trichophorum</i>
<i>Poa bulbosa</i>	<i>Ag. Repens</i>	<i>Ag. repens</i>
<i>Alyssum sp</i>	<i>Bromus tectorum</i>	<i>Ag.elongatum</i>
<i>Achillea sp</i>	<i>Poa bulbosa</i>	<i>Ag.pectiniformis</i>
<i>Astragalus sp</i>	<i>Alyssum sp</i>	<i>Bromus tomentillus</i>
<i>Artemisia aucheri</i>	<i>Achillea sp</i>	<i>Dactylis glumerata</i>
<i>Thymus sp</i>	<i>Astragalus sp</i>	<i>Alyssum sp</i>
<i>Acantholimon sp</i>	<i>Artemisia aucheri</i>	<i>Achillea sp</i>
<i>Eryngium sp</i>	<i>Thymus sp</i>	<i>Astragalus sp</i>
<i>Cosinia sp</i>	<i>Acantholimon sp</i>	<i>Artemisia aucheri</i>
<i>Sphora alopecuroides</i>	<i>Eryngium sp</i>	<i>Thymus sp</i>

*Bromus tomentellus*

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## An Investigation of the Grazing Intensity Effects on Variations of Soil Organic Matter and Nitrogen in Lar Rangeland

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### Abstract

This research was carried out to find the effect of grazing intensity on soil organic matter, carbon and nitrogen. For the purpose, Lar region in North West of Haraz road, 84km from Tehran, was selected. By field inspection, three different areas of Reference, Key, and Critical were identified. Information on soil was collected as per random-systematic method. Soil samples were obtained from two horizons (0-10cm, 10-30cm), in any soil profile and for three times during the grazing season. Twenty soil samples were obtained from each horizon during the three study periods. Data analysis was carried out using a split – split plot design. First, data were tested for normal distribution. Analysis of variance was used to test the treatment effects. Duncan test was employed to separate the means. Results indicated that carbon, total nitrogen and organic matter decreased with increase in grazing intensity, but no significant difference was observed in C/N ratio in the three study areas. Values in these factors were higher for surface layers. This research revealed the fact that heavy grazing jeopardizes the sustainability of the ecosystem by creating unfavorable changes in soil chemical characteristics as well as in vegetation vigor and endurance.

**Keywords:** Lar dam, Reference area, Key area, Critical area, Grazing, Organic matter, Nitrogen.

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