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( $p < 1$ )

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*Artemisia sieberi* *Crucianella glauca*  
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(Bagheri *et al.*, 2009)

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(Mousavi,1991)

(Kohandel, .

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(Moghaddam,1998

2006)

Heitschmidt *et al.* ) (Pitts & Bryant, 1987)

N, P, K

(*al.*,1987

(Yorks *et al.*, 1992 )

Reessi *et al.* ) .

( *al.*, 2005

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- Thymus kotschyianus* (Clay)  
*Noaea mucronata*  
*Acanthophylom microcephalum*  
*Dendrostellera lessertii* (Clay loam)  
*Eurotia ceratoides*  
*Lagochilus aucheri* *Artemisia sieberi – procera*  
*Salsola rigida* *Ephedra*  
*Agropyron trichophorum*  
*Centaurea behen*  
*Crucianella glauca*  
*Eremurus persicus*  
*Hedysarum papillosum*  
*Atraphaxis spinosa*  
*Tanacetum pinnatum*  
*Stipa hohenackeriana*  
*Teucrium polium*  
*Helichrysum ocephalum*  
*Eremurus spectabilis*  
*Festuca ovina*  
*Bromus tomentellus*  
*Hypericum helianthemoides*  
*Astragalus candollenus*  
*Rosa persica*  
*Salvia hydrangea*  
*Astragalus ebenoides*

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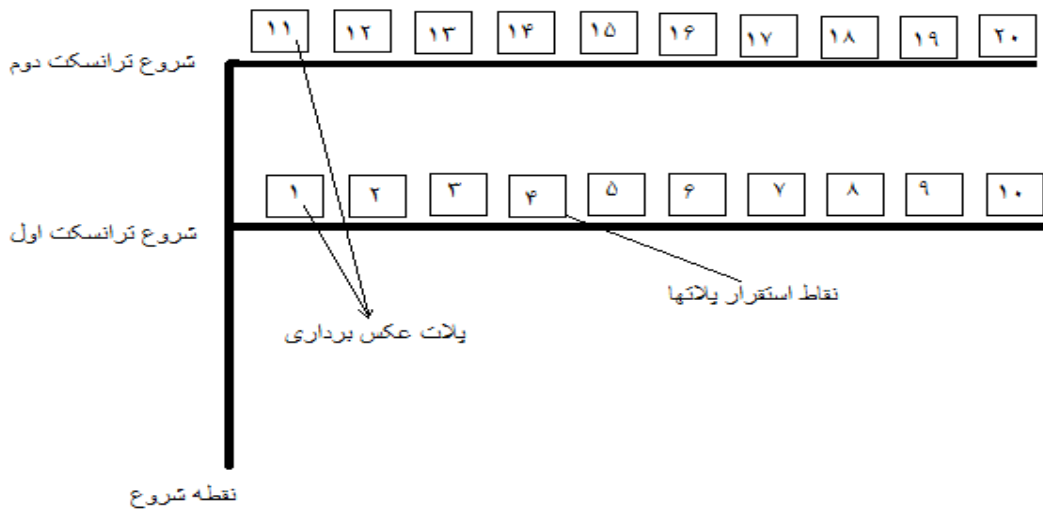
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( $P < /$  )

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P- value	(%)	(%)	
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/ **	/	/	
/ **	/	/	
/ **	/	/	<i>Artemisia sieberi</i>
/ ns	/	/	<i>Ephedra procera</i>
/ *		/	<i>Crucianella glauca</i>
/ **	/	/	

. ns % \* % \*\*

*Ephedra procera*

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*Artemisia sieberi*

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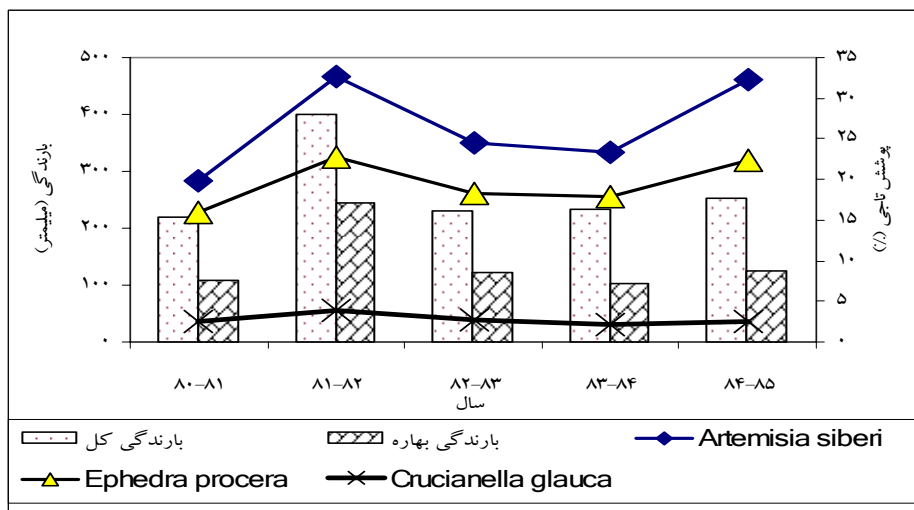
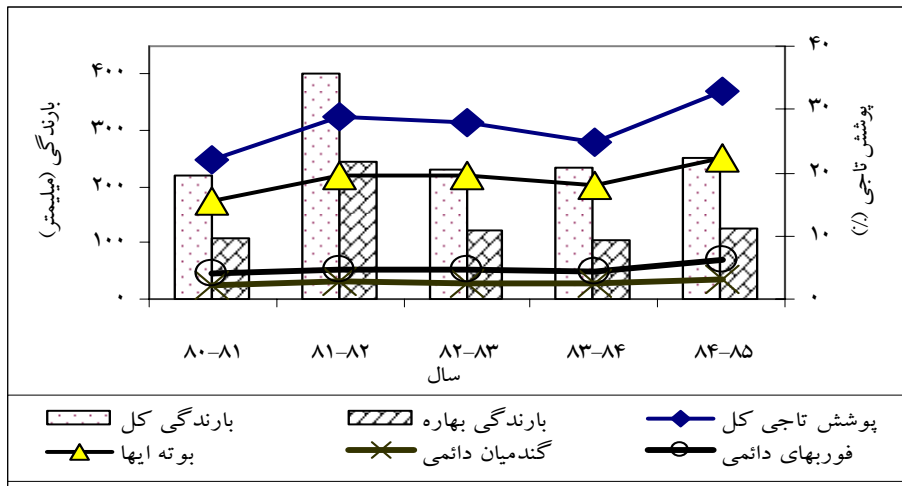
(r = / ) *Artemisia sieberi* (r = /

.(p < / )

*Crucianella glauca*

.(p < / )

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$p < /$  )

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p-value

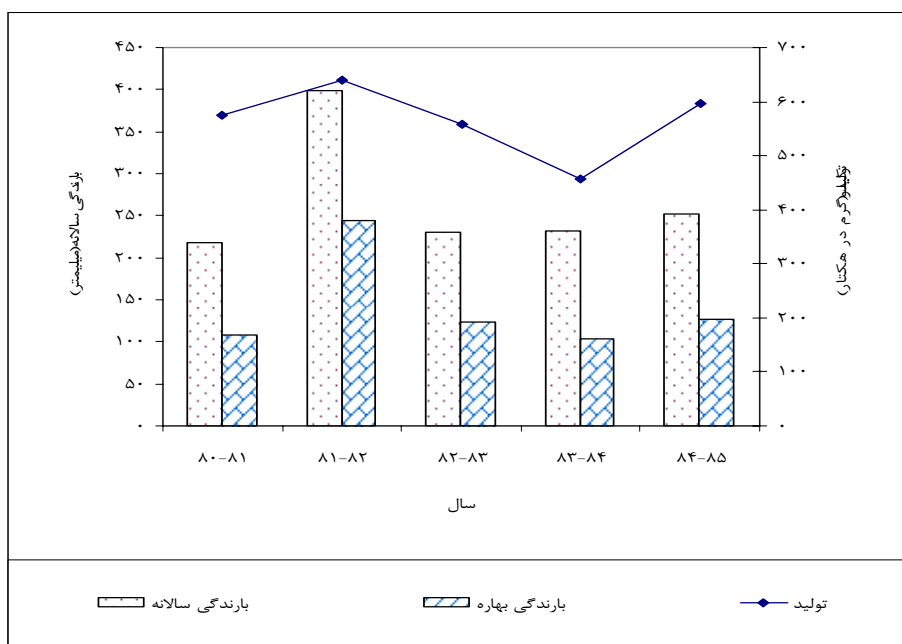
p-value

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*Stipa hohenackeriana* *Atemisia sieberi*:

(*Hedysarum papillosum* *Crucianella glauca*

*Lagochillus aucheri*: ) III

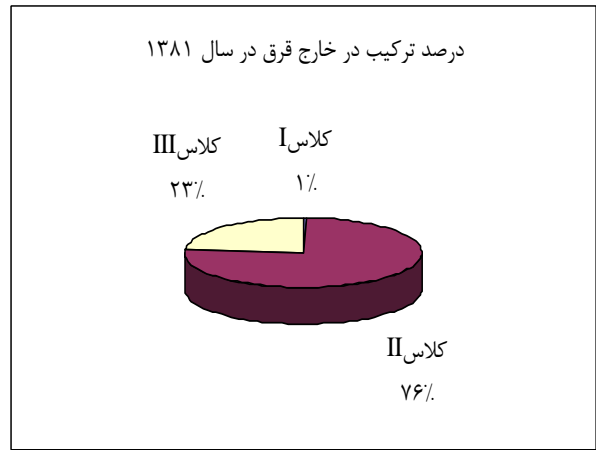
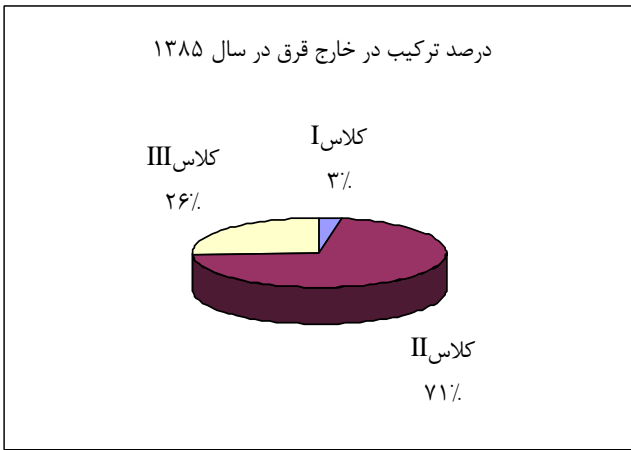
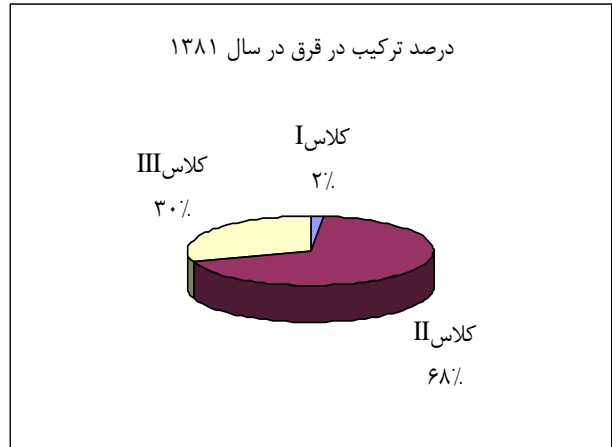
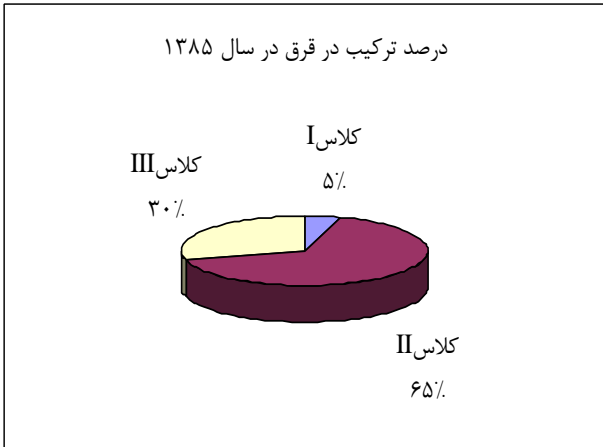
*Hypericum* *Teurium polium* *Centaurea behen*

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(*helianthemoides*

*Bromus* *Festuca ovina*: )

*Puccenella* *Onobrychis michauxii* *tomentellus*



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p-value

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p > /			p < /		
p > /			p < /		



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(Moghaddam,1998

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) (Akbarzadeh & Arzani , 2001) .

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(Robert *et al.*,2004

( Hulet & Tumanek, 1969)

(Akbarzadeh & Arzani , 2001)

R.J.Fensham and *et al.*, 2010 )

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(Kohandel , 2006)

.,1975 Romo&Redmann ,1975)

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(Smith&Schmutz

*Artemisia*

*Crucinella glauca sieberi*

( Beck et al .,1999) ( Hennessy *et al.* ,1998)

D.G.Milchunas and )

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(Sanadghol,2003

(W.K.Lauenroth,1993

*et al.*,1987)

( Heitschmidt

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## The Effect of Precipitation and Short - term Exclosure on the Rangeland Vegetation Cover of Ahmad-Abad, Zanjan

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### Abstract

The effect of exclosure on the changes of vegetation cover of rangelands of Ahmad-Abad region located in Zanjan province has been studied during 2002 to 2006. Three transects comprises of 60 fixed quadrates were establish within exclosure area and outside as well. The changes of vegetation cover were studied to made comparison between the changes of manipulated factors and soil elements using *t test*. The results showed that total vegetation cover and vegetation cover of shrubs , perennial grasses and forbs of last year had significant difference compared to those of first year within exclosure ( $p < 0.01$ ). But the response of vegetative forms to exclosure, grazing and precipitation were the same. The average density of shrubs within and outside of the exclosure and that of perennial grasses within exclosure of the year 2002 in comparison with those of the year 2002 were significantly different (at *a* level 0.05 and 0.01, respectively). The comparison of vegetation cover of increaser species such as *Crucianella glauca* and *Artemisia sieberi* showed there are significant differences between years 2002 and 2006 within exclosure (significant levels of 0.05 and 0.01, respectively). The decreaser species within the exclosure has been increased compared with outside of the exclosure. Comparison of means of percentage of nitrogen and organic mater at two different depths, inside and outside of the exclosure, showed no significant differences between the start and end years of the study period.

**Keywords:** Exclosure, Vegetation composition, Vegetative cover, Density, Decreaser & increaser & invader species, Nitrogen and organic mater