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( : )

\*

( // : // : )

cm  
cm

Archive of SID

(Chin et al., 2000)

(Kine, 2001)

Makhdoom & )

Khorasani (1984

(Lindsay et al., 2008)

Manuela et al., (2005)

%

%

/

/ gr/cm<sup>3</sup>

(Pirmohammadi, 2007)

(Yukse, 2009)

/

/

%

Sun & Liddle (1993 )

(Obua, 1997)

*cynodon dactylon*

*eragrosti*

*sporobolus elongates tenuifolia*

(Deng et al., 2003)

---

*Carpino – Quercetum*

Atik et al. (2009)

(Barzehkar, 1995)

*Carpinus betulus* , *Quercus* :

*Carex* *castanieifolia*  
% *silvatica*

:  
*Rumex acetosella* , *Circaea lutetiana* , *Oplismenus*  
*sp* , *Viola sp* , *Menta aquitica* , *smilax excels* ,  
*Geum orbanum*

/ ° c  
° c

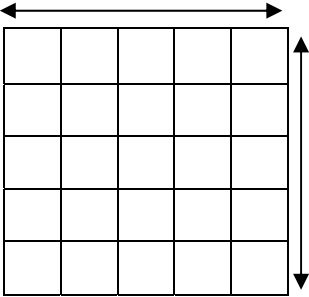
%

(Saeedi ashtiani, 1984)

/ ° / °  
/ ° / °

...

:( )



$$P_{c\%} = \frac{\sum_{i=1}^n P_{i\%}}{25}$$

Barzehkar, )

pH

.(1995

m<sup>2</sup>

=P<sub>i%</sub>

m<sup>2</sup>

=P<sub>c%</sub>

cm

cm

cm

( )

Shields (1993)

cm

cm

m<sup>2</sup>

Manuela et al., )

.(2005

° c

.(baybordi, 1981)

$$d_b = \frac{W_s}{V}$$

=w<sub>s</sub>

(

=d<sub>b</sub>

m<sup>2</sup>

=v

(porosity)

:(baybordi, 1981)

cm

cm

cm

$$f = 1 - \frac{d_b}{d_s}$$

(

=d<sub>b</sub>

= f

=d<sub>s</sub>

(Walkly &

.( )

Black)

cm

cm

Pariant & Zhevelev, 2007)

Duncan

.(Yukse, 2009

cm

cm

Games-Howell

cm

cm

Kruskal-wallis

.(Mansourfar ,2003 mortezapour,2005)

cm

cm

cm

.(Cole & Monz, 2004)

Pearson

.( )

SPSS 16

Archive of SID

cm

cm

cm

cm

cm

cm

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cm

cm

cm

.( )



(ANOVA)

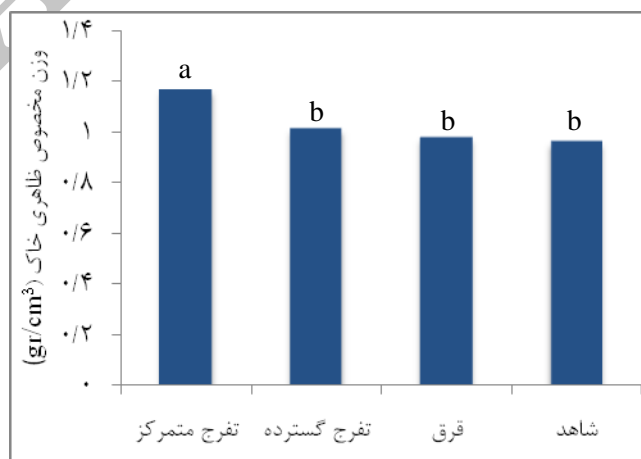
)

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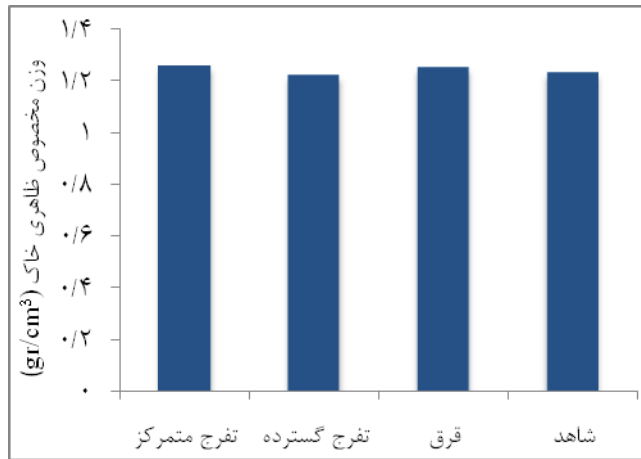
cm

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cm

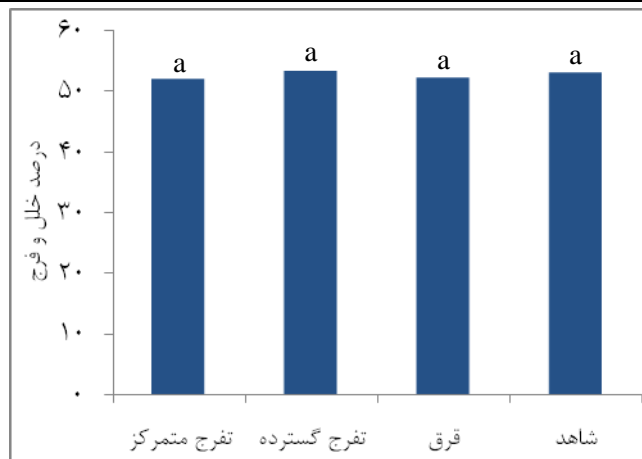
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cm

(. )



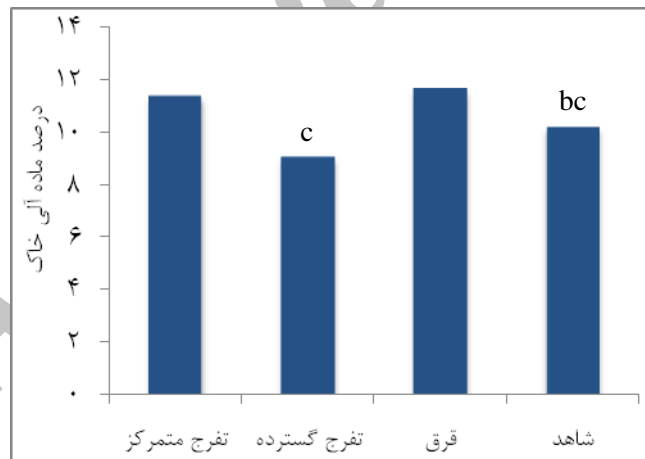


Pearson

Games-

howell

( )

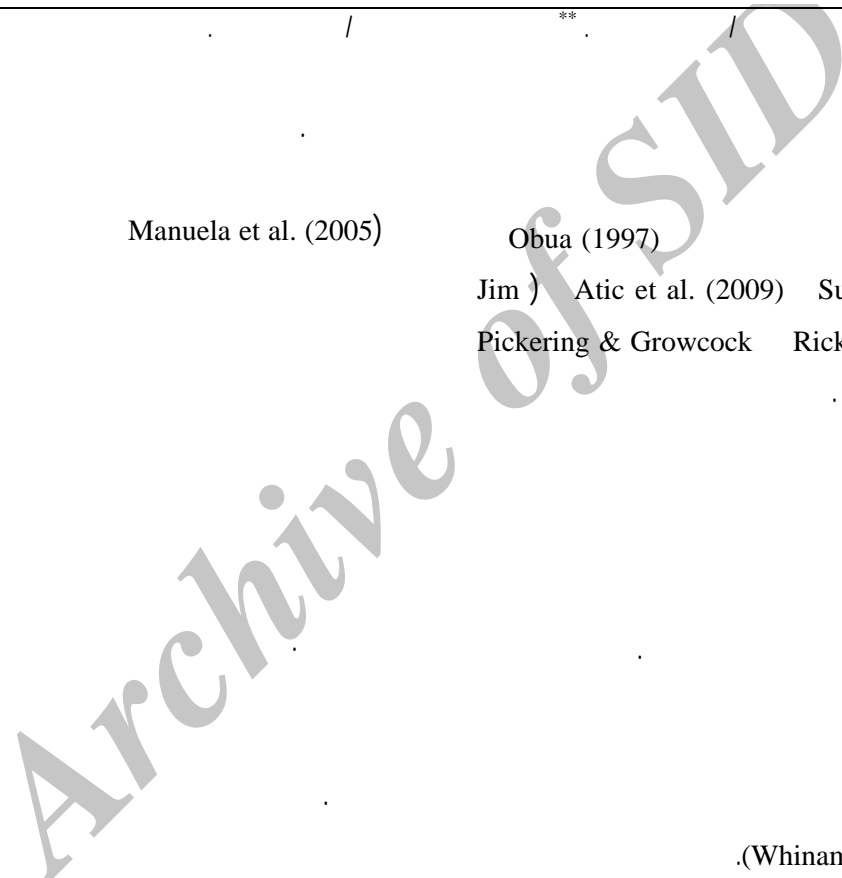


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* /	** /	** /	
		/	** / *

Manuela et al. (2005)

Obua (1997)

Jim ) Atic et al. (2009) Sun & Liddle (1993)  
 Pickering & Growcock Rickard (1994) (1987  
 (2009)



.(Whinam & Chilcott, 2003)

*smilax excels* *oplismenus sp* *carex silvatica*  
*Rumex acetoslla*

Marvie Mohadjer, 2007)

.(Mingyu, 2009

& Zhevelev (2007) Manuela et al. (2005)  
 Pickering et al. Deng et al. (2003) Parient  
 Makhdoom & (2010)  
 Khorasani, (1984)

cm

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Sun & Liddle, Kissling (2009)  
Zhevelev Yuksek (2009) (1993)  
Jim (1987) & Parient (2008)

cm

Yuksek (2009)

cm

Yuksek (2009)

Deng et al. (2003)

cm

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## The impact of recreation on regeneration, herbaceous cover and soil quality (A case study: *Nour* forest park)

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### Abstract

Tourism is considered in many natural regions of world as a development strategy and specifically ecotourism is a suitable option for achieving sustainable development. Therefore it is necessary to identify widespread effects of ecotourism on the natural resource. This study assessed the effect of recreation in four regions including intensive recreation, extensive recreation, grazed after intensive recreation and control region in *Nour* Forest Park. In each region herbaceous cover, regeneration rate, bulk density and soil porosity in surface and subsurface as well as organic matter were measured. The results showed that intensity of recreation is effective on the amount of herbaceous cover, the amount of regeneration, the amount of compaction and the porosity in 0-5 cm soil depth but had no impact on the amount of soil organic matter. In the intensive recreation region the amount of soil compaction in 0-5 cm and the porosity were increased and decreased respectively in comparison with the control region. Intensive recreation region had very low herbaceous cover and regeneration compared to the control region which is the results of damage of intensive recreation. The result showed that a extensive recreation has low impact.. Herbaceous cover was slowly rising in grazed region but regeneration is more than other regions. Soil bulk density in grazed region was not significantly different compared to the control region that can indicate the recovery of intensive recreation region to natural forest condition. The results suggest that determining some intensive recreation region and periodic fencing them is a may prevent destruction of nature.

**Key words:** recreation effects, compaction, herbaceous cover, regeneration, *Nour* forest park