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Goodal & Perry

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pH.

pH : ( )

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- 
- Canonical Correspondence Analysis
  - Principal Component Analysis

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*Entisol*

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*Juniperus Acantholimon cephalotoides*  
*polycarpus*

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*Entisol*

*Artemisia Amygdalus lycioides*  
*aucheri*

*Entisol*

*Acnatholimon cephalotoides*

*Artemisia aucheri*

*Aridisol*

*Entisol*

*Ephedra intermedio*  
*Acanthophyllum squarrosum*

*Salsola rigida*

*Artemisia aucheri*

*Sa. ri*

*Entisol*

*Amygdalus lycioides*

*Amygdalus lycioides*

*Artemisia sieberi*

*Aridisol*

*Entisol*

*Artemisia sieberi* *Pteropyrum olivieri*

*Acanthophyllum*

*Amygdalus lycioides glandulosum*

*Entisol*

*Ephedra*

*Entisol*

*Pteropyrum olivieri intermedia*

*Ephedra intermedia*

*Anabasis setifera*

*Entisol*

- *Artemisia sieberi*

*Pteropyrum olivieri*

*Entisol*

*Pteropyrum olivieri*

*Entisol*

*Alhagi*

*Geobelia* *Anabasis aphylla* *camelorum*  
*Glycyrrhiza glabra alopecuroides*

*Pteropyrum olivieri*

*Artemisia siberi*

*Entisol*

*Alhagi camelorum*  
*Alhagi*

*Anabasis aphylla*  
*camelorum*

*Pteropyrum olivieri*

*Aridisol*

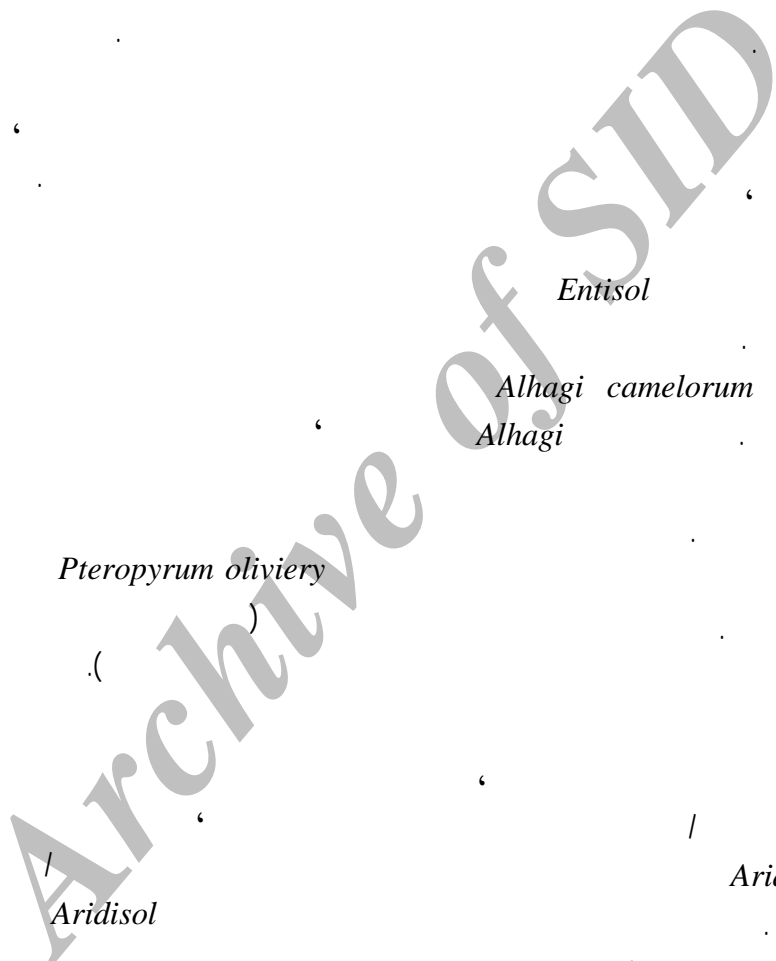
*Aridisol*

*Lycium depressum*

*Tamarix hispida*

*Halocnemum strobilaceum*

*Anabassi aphylla*



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*Aridisol*

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*Halostachys*

*Halocnemum strobilaceum bellangeriana*

(SAR)

(ESP)

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Archive of SID

pH EC

ESP SAR

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	<b>EC (ds/m)</b>	<b>pH</b>	(%)	(%)	(%)	(%)	(%)	(%)	<b>SAR</b>	<b>ESP</b>	
	/	/	/	/	/	/	/	/	/	/	Lithic,torriorthents,coarse loamy mixed (calcareous) mesic mod-deep
	/	/	/	/	/	/	/	/	/	/	Lithic torriorthents coarse loamy mixed (calcareous) skeletal mesic.
	/	/	/	/	/	/	/	/	/	/	Lithic,torriorthent coarse s,loamy,mixed (calcareous)skeletal mesic.
	/	/	/	/	/	/	/	/	/	/	Lithic torriorthents fine ioamy,mixed(calcareous) skeletal mesic.
	/	/	/	/	/	/	/	/	/	/	Typic,Gypsiorthid,sandy mixed, skeletal thermic.
	/	/	/	/	/	/	/	/	/	/	Lithic,xerorthents fineloamy,mixed (calcareous). thermic
	/	/	/	/	/	/	/	-	/	/	Lithic xerorthents coarse loamy fragmental mixed (calcareous) mesic
	/	/	/	/	/	/	/	/	/	/	Typic torriorthents coarse loamy mixed thermic.
	/	/	/	/	/	/	/	/	/	/	Lithic torriorthents coarse loamy mixed skeletal thermic.
	/	/	/	/	/	/	/	/	/	/	Typic calciorthid coarse loamy mixed thermic.



	<b>EC (ds/m)</b>	<b>pH</b>	(%)	(%)	(%)	(%)	(%)	(%)	<b>SAR</b>	<b>ESP</b>	
	/	/	/	/	/	/		/	/	/	Typic torriorthents coarse loamy fragmental ,mixed thermic.
	/	/	/	/	/	/	/	/	/	/	Typic,torriorthents coarse loamy mixed (calcareous) thermic.
	/	/	/	/	/	/	/		/	/	Lithic,torriorthents coarsw mixed ,skeletal ,thermic
	/	/	/	/	/	/	/	/	/	/	Typic Salorthid fine loamy mixed thermic.
	/	/	/	/				/	/	/	Typic Aquisolid fine loamy mixed thermic.
	/	/	/	/	/	/	/	/	/	/	Typic Salorthid fine loamy mixed thermic.
	/	/	/	/	/		/	/	/	/	Typic Salorthid fine loamy mixed thermic.

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‘ EC ESP / / ‘ / ( )

.( ) SAR

PCA

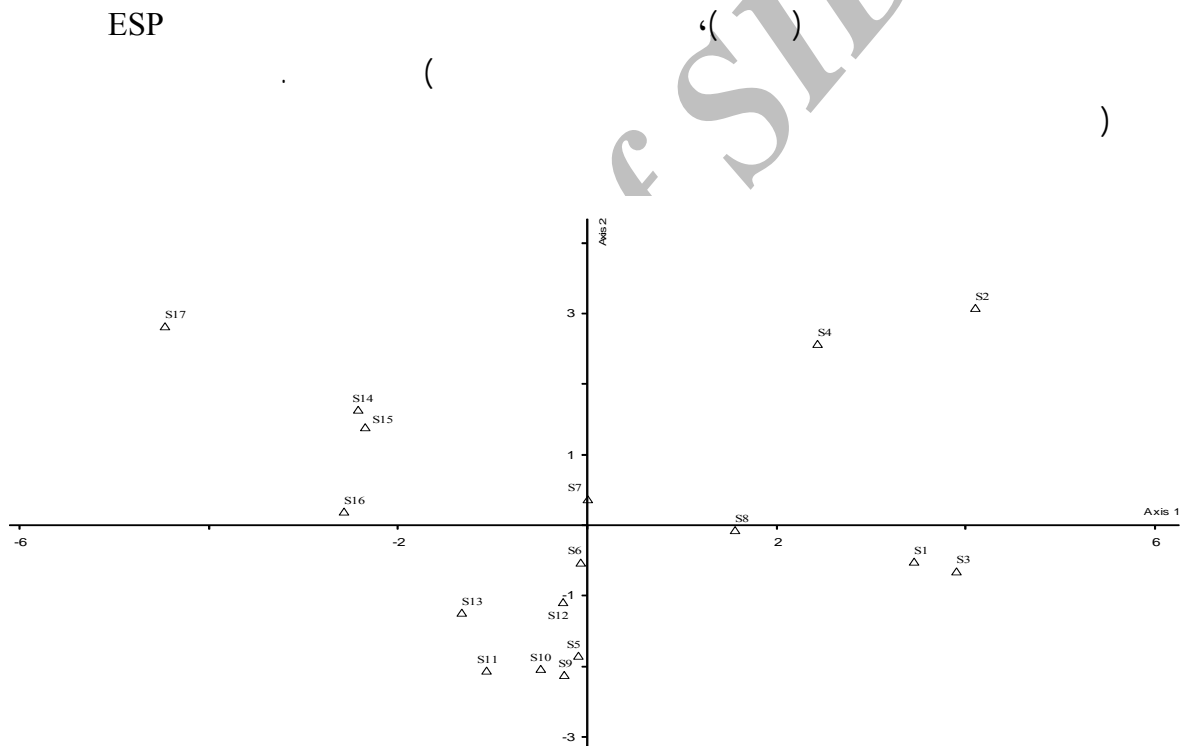
(ds/m)	/	/	/	/	/	/
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(PCA)

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ESP



( ESP  
*Acanthophyllum squarrosum*  
*Pteropyrum olivieri*-*Ephedra intermedia*  
 ( ) *Ephedra infermedia*

*Anabasis*  
*Anabasis* *aphylla*-*Alhagi camelorum*  
 ) *aphylla*-*Lycium depressum*

(  
 ) ESP

Artemisia aucheri – Salsola

ESP

( ) rigida

Artemisia sieberi-Pteropyrum olivieri

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Amygdalus lycioides –

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) Acanthophyllum glandulosa

Anabasis setifera-Ephedra intermedia

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Juniperus polycarpus –

( )

) Acantholium cephalotoides

ESP

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Halochemum strobilaceum – Tamarix

( ) hispida

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Artemisia siberi – Pteropyrum

Halochemum strobilaceum –

( ) olivieri

( ) Halostachys bellangeriana

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Amygdalus lycioides –

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( ) Pteropyrum olivieri

Artemisia sieberi-Amygdalus

( ) lycioides

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Artemisia aucheri – Amygdalus

( ) (CCA)

( ) lycioides

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An. Ac. sq-Eph. In

aph-Ly. de

Ju. pd- Ac. ce Ar. au-Ac. ce

‘ EC

An. An. aph-Ly De ESP SAR

‘Ha. st-Ha. Be Ha. st- Ta. hi ‘aph-Al. ca

Ha. st- Ha. be

PCA

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An. aph-Ly.de An. aph-Al.ca ( )

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Ac.

Ar. si - Pt. ol Pt. ol- Eph. in sq-Eph. in

ESP

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ESP

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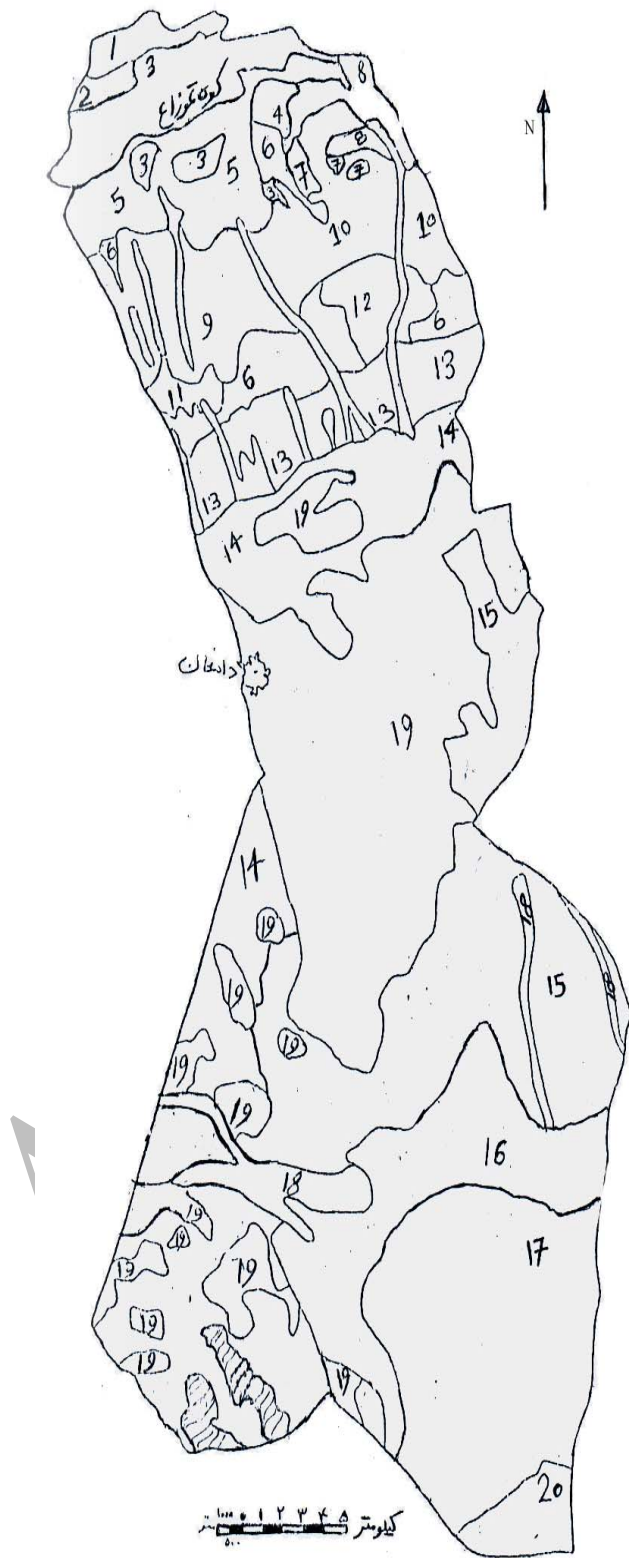
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## Investigation on Environmental Factors Influencing Distribution of Plant species (Case study: Damghan Region of Semnan Province)

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(Received 2 July 2006, Accepted 22 January 2007)

### Abstract

The purpose of current study is to investigate the cause of plant species' distribution in association with environmental factors to find the most important governing factors in the relation to vegetation cover and environmental factors (soil characteristics, slope, aspect, elevation and precipitation). Working units serving as the bases of the research were established, and after preparing maps of slope, aspect, elevation, lithology and geomorphology and combining the maps, a single working map was compiled. In order to study plant cover in each unit, random-systematic sampling was conducted in 10 plots. Regarding the species studies and distribution, the area of each unit was determined based on the minimal area method. Floristic list, canopy cover and density of species were determined in each plot, and vegetation type of each working unit was listed with respect to two dominant species. Furthermore, 5 profiles were sampled within the plots to study soil characteristics in 0-50 cm depth as the effective depth of rooting. Subsequently, the texture, percent of lime, gypsum, organic matter as well as pH, EC, SAR and ESP were measured. To study the soil and vegetation cover the Principal Components Analysis (PCA) was used through PC-ORD software program. The results showed that among environmental factors, elevation, precipitation and slope as the first set of factors determine the change in the vegetation cover by 39.29% while the second set of factors, including sand percentage, loam and ESP plays contributes to the change by 20.5%. These two sets of factors altogether explain 59.79% of vegetation cover variation in Damghan region.

**Keywords:** Damghan region, Working unit, Vegetation cover type, Environmental factors, Soil properties, Principal components Analysis

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