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pH

pH   .   '   pH

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E-mail: doveyse@yahoo.com   :   :   :   *

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    $\frac{C}{N}$ /   /   pH .   .

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                                                      Quercus   michauxi

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    $\frac{C}{N}$ /   /   pH .

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pH

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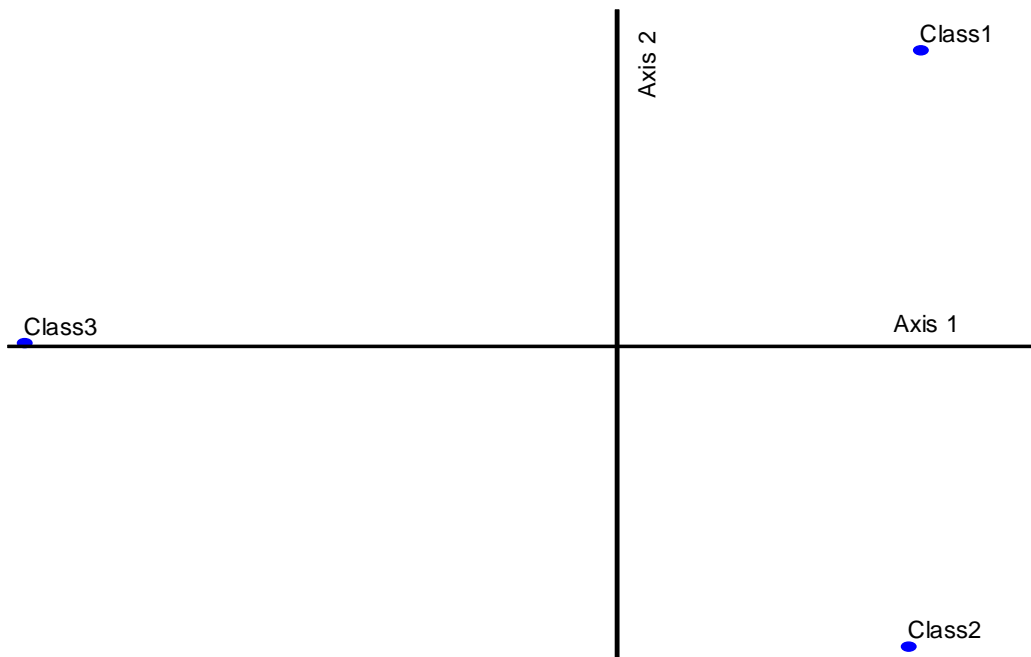.   .
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EC

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(PCA)   TWINSPAN   PCA
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TWINSPAN

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(*Quercus brantii* Jaub. & Spach.)

(*Quercus libani* Oliv.)

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$$I = \frac{2C}{A+B} \times 100$$

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TWINSPAN

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3E-6M			>		
4F-5F-5M-6G-10F			>		
12H					
1F-2E-2F-4H-4M-5G-5H-6C-10D-13D					
1E-2D-3M-4G-5C-6B-11B					
3H-7B	<		<		
9G-9N			>		
7F-8H-9H-10G-11F-11H-14M					
12F	<				
3F					
13F	<				
3D-4D-7D-7E-10H-12E-12G-16M					
6D-9D					
13H					

	( )		( )		
15D-16E					
8E-13C-14D-14G					
12B					
2G					
9A-16C					
6A-9B	<				
13B					
4E			>		
8F-11E			>		
11D-14F	<		>		
5D-11C-14E-15E			>		
9C-10B	<				
10C					
13G-17G					
3G	<				
3C-4C-5B			<		
7A			<		
11G-15F-15H-15M-16H			>		
7C-8D-12C-14C					
12D-16G-17E	<				
16F	<				
8A-14B-15C			<		
8B-16D-17D-17F	<		<		
8C	<		<		

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pH .

$$\frac{C}{N}$$

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(PCA)

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(**PCA**)

So.CaCO$_3$			So.Clay		
So.K	(p.p.m)		So.Silt		
So.P	(p.p.m)		So.Sand		
So.EC	(mz/cm)		So.C		
So.Org			So.N		
So.pH			So.C/N		

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PCA

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pH ,

pH

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pH (p.p.m)

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Axis 2 Class1

Class3 Axis 1

Class2

So.EC

So.Clay

Axis 2

Lit.K

So.PH — Axis 1

So.P

Lit.P

So.Caco3

Lit.N

Lit.CN

So.K

So.Sand

So.CN

Lit.C

So.N

So.Silt

So.org

So.C

Lit.Org

Class1

Axis 2

Class3

Axis 1

Class2

Axis 2

• So.Clay

• So.Caco3
• Lit.K

• So.N
• So.org
So.C

So.PH
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• So.Sand

Axis 1 • So.K

So.P
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• So.C/N
• So.Silt

• So.EC

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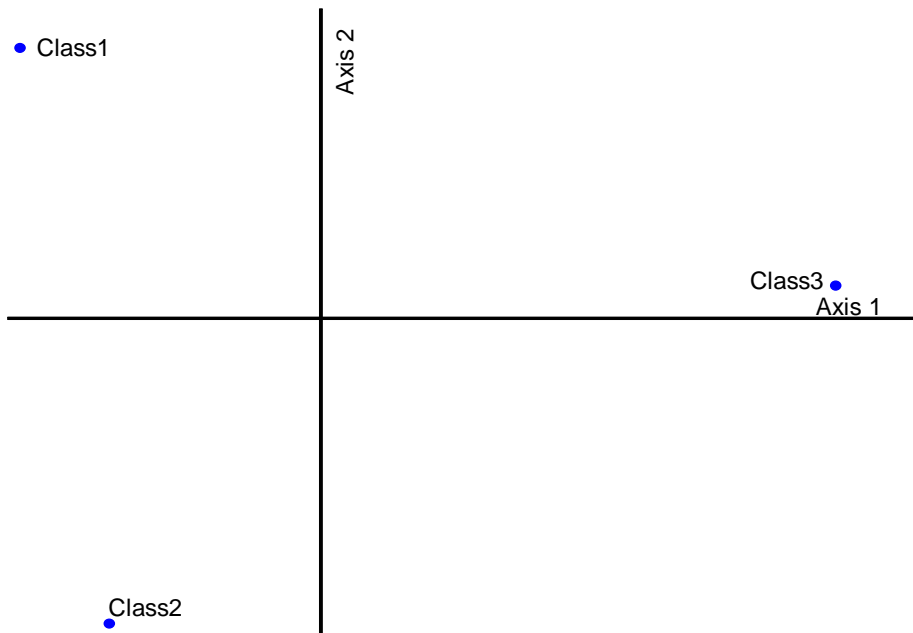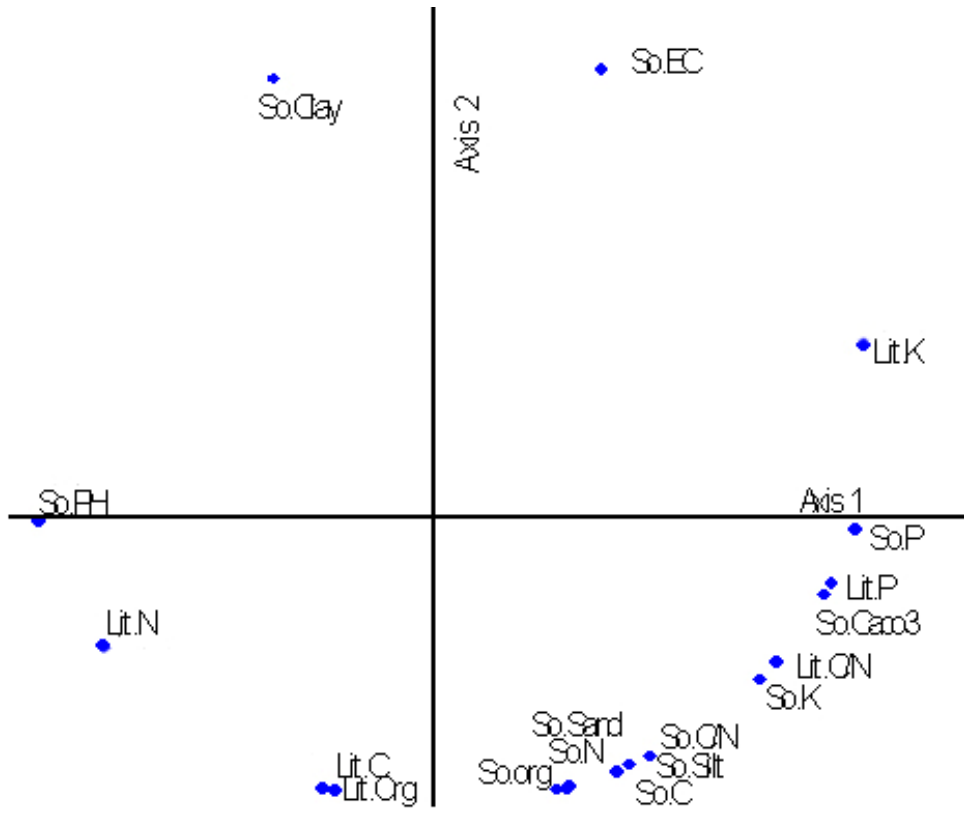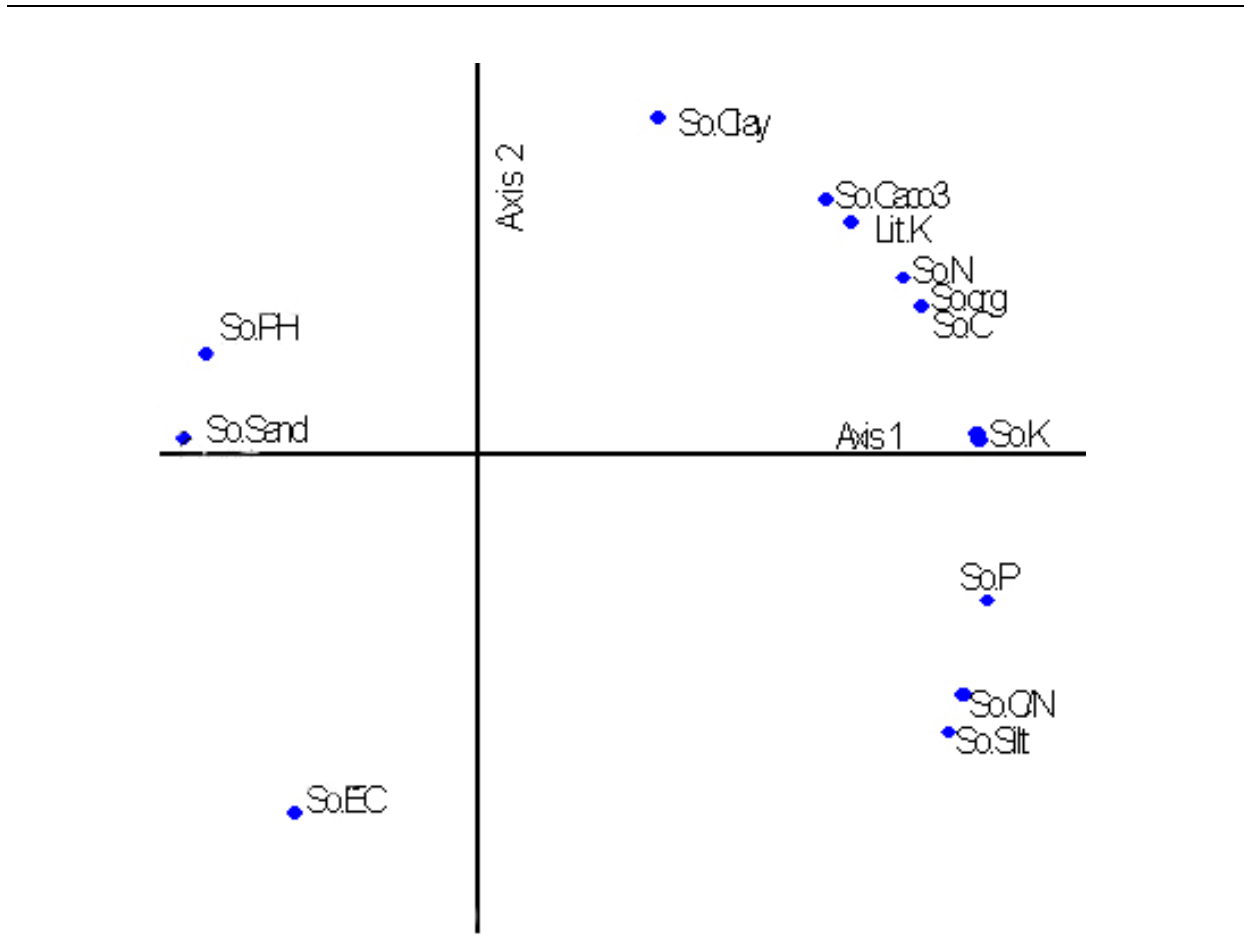
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11- Archambault, L., Barnes, B.V., Witter, J.A. 1989. Ecological species groups of oak ecosystems of southeastern Michigan. Journal of Forest Science, 35(4): 1058 – 1074.

12- Brunet, J., Falkengren-Grerup,U., Tyler,G. 1996. Herb layer vegetation of south Swedish beech and oak forests-effects of management and soil acidity during one decade, Forest Ecology and Management. 88: 259-272.

13- Daniel, T.W., Helms, J.A., Baker, F.S. 1979. Principles of silviculture. Second edition. The McGraw Hill Companies, USA, 500p.

14- Gilman, E.F., Watson, D.G. 1993. *Ouercus acutissima*: Sawtooth oak. Institute of Food and Agriculture Science. University of Florida.

15- Hook, D.D. 1969. Influence of soil type and drainage on growth of swamp chestnut oak (*Quercus michauxii* Nutt.) seedling. USDA Forest Service Research Note SE-106, 3p.

16- Spies,T.A., Barnes, B.V. 1985. Multifactor ecological classification of the northern hardwood and conifer ecosystems of Sylvania Recreation Area, Upper Peninsula, Michigan, Canadian Journal of Forestry research. 15: 949-960.

17- Tworkoski, T.J., Burger, J.A.,Smith, W.M. 1983. Soil texture and bulk density affect growth of white oak seedling. Tree Planters Notes, 34 (2): 22 – 25.

18- Zahedi Amiri, Gh. 1998. Relation between ground vegetation and soil characteristics in a mixed hardwood stand, Ph. D thesis, Gent University, Belgium.

Effect of edaphical factors on oak sprouting ability in Marivan forests

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Abstract

This research was carried out in the Doveyse Forest with an area of 660 hectare, located in northern-east of Marivan city, Kurdistan Province, Iran. Totally 103 plots were designed using a systematic random rectangular grid with dimensions of 150m × 300m. Sprouting situation of oaks was studied in the plots. Based on plant ecological groups' map and physiographical factors, site homogeneous units were determined and soil samples were prepared from these units. The effect of the most important edaphical factors (totally 12 factors) were analyzed using PCA in the main aspects. The results showed that the most important factors affecting sprouting of oaks in north aspects are pH and electrical conductivity, and in south aspects PH and potassium content of soil are the factors that play a crucial role.

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