

1991

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(1)

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2010/07/05

2011/03/07

2009

Relevé

35

. 1991

. Braun-Blanquet

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*Quercus cerris* L. subsp.*Pinus brutia* Ten.-2 *pseudocerris* (Boiss.) Chalabi

-3

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## Studying Natural Vegetation after 1991 Fire in Kassab – North of Lattakia - Syria

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### ABSTRACT

The aim of this research was to investigate the changes of vegetation and regeneration of plant species in Kassab forests after 1991 fire. The study area is located in the North western part of Syria in the middle of Al-Baier and Al-Bassit forests to the North of Latakia. Thirty five plant surveys (Relevé) were carried out in the study area during 2009 according to Braun-Blanquet method included the burned area and the nearby locations of non-burned forest. By comparing the plant surveys (Relevé), results showed good regeneration of most plant species that were in the study area before the fire. Three forms of vegetation were distinguished in the study area: 1 - The areas where dominance is shared between *Pinus brutia* Ten. and *Quercus cerris* L. subsp. *pseudocerris* (Boiss.) Chalabi. 2 - Areas dominated by *Pinus brutia* Ten. with accompanying species from Eu-Mediterranean zone and supra Mediterranean zone. 3 – Areas where *Pinus brutia* Ten. and *Quercus cerris* L. subsp. *pseudocerris* (Boiss.) Chalabi are partly or completely absent, and dominated by shrubs and grass species.

**Key words:** Fire, Kassab, Vegetation, Natural Regeneration, *Pinus brutia* Ten., *Quercus cerris* L. subsp. *pseudocerris* (Boiss.) Chalabi

Agee, )

.(1993

.(Gromtsev, 2002; Parviainen, 1996)

Mälkönen and )

.(Levula, 1996; Ryoma and Laaka-Lindberg, 2005; Jayen *et al.*, 2006  
1991

.(2010

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(Barton, 1998)  
1991

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35.89848 -35.87227

35.94006 -35.99101)

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50

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%80 5

(

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858 171

.(Chalabi, 1980)

.(1999 )

(1998 )

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(	$\frac{Mg^{++}}{Ca^{++}}$	40 - 15)	.3.54 1.87	(%70 -37)
				60.50 32.50
	.(1982	)		
	:			-
40)	1.10	0.73		$\frac{Mg^{++}}{Ca^{++}}$
			(	150 - 80)
				(%60 -
	.(1982	)	167	135
				<b>-3</b>
	(	730)		
	(	)		
	1091			
°27.51			15.17°	
1990-1981		°4.25		
.(1	)	(2009)		

(T) (P) (1)  
 -1980 ) - (m) (M)  
 .(1990

	(1)	(2)	(1)									(2)	
1091	161	132	90.5	4	7.8	0.6	9.7	58.6	74.5	141	150	261	( ) P
15.17	8	11.9	18.4	21.7	22.8	22.5	21	17.6	14.4	9.9	7.3	6.4	( ° ) T
19.25	10.67	15.02	22.61	26.82	27.51	27.36	25.3	21.57	17.55	12.46	9.71	8.91	( ° ) M
11.94	5.61	8.81	14.63	17.68	18.93	18.49	16.1	13.3	10.3	6.21	4.41	4.25	( ° ) m

: (Q<sub>2</sub>)

$$Q_2 = \frac{2000p}{M^2 - m^2}$$

Q<sub>2</sub>

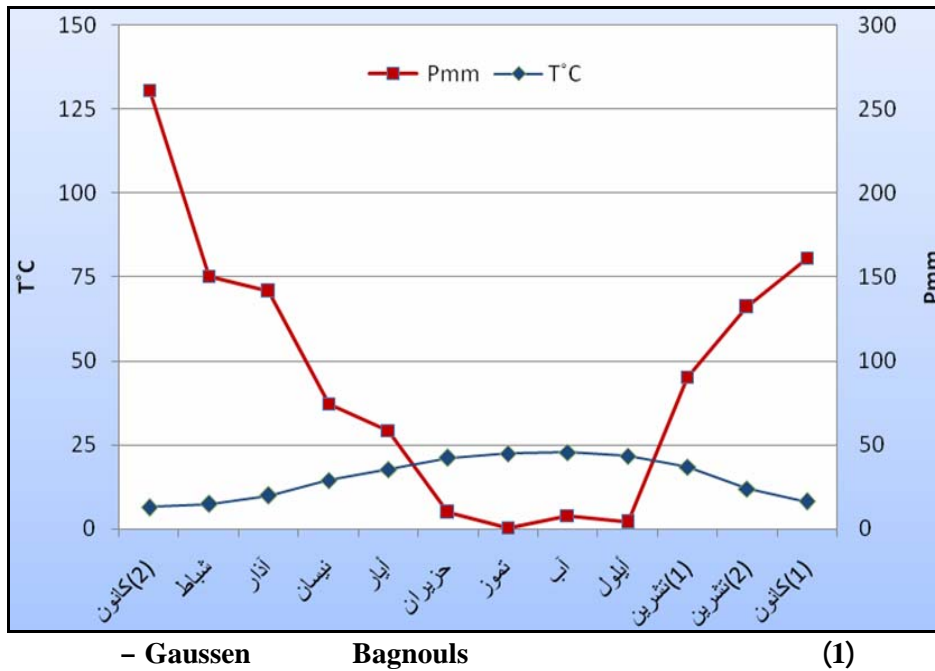
Bagnouls

4

.(162.3)

Gausse

.(1 )



858 171  
450 -100

*Pinus brutia* Ten.

*Quercus*

450

1980 Chalabi) *cerris* L. subsp. *pseudocerris* (Boiss.) Chalabi  
(1998

.(Chalabi, 1980, 1982)

*Quercus cerris* L. subsp. *pseudocerris* (Boiss.) Chalabi  
.(Chalabi, 1980) *Pinus brutia* Ten.

:

*Digitalis ferruginea* L., *Circaea lutetiana* L., *Sedum cepaea* L.,  
*Chaerophyllum libanoticum* Boiss. et Ky., *Lathyrus libani* Fritish.,  
*Silene confertiflora* Chowdhuri, *Euphorbia macrostegia* Boiss., *Cercis*  
*siliquastrum* L., *Pinus brutia* Ten., *Rhus cotinus* L., *Juniperus*  
*oxycedrus* L., *Ferulago autumnalis* Thieb., *Celsia heterophylla* Hub.,  
*Centaurea arifolia* Boiss., *Alyssum crenulatum* Boiss., *Euphorbia*  
*cassia* Boiss., *Thymus cilicicus* Boiss. et Bal., *Convolvulus*  
*pentapetaloides* L., *Scutellaria heterophylla* Montbr. et Auch.

224

Mouterde, P. 1966, 1970, ) 57 155

.(1983

2009 Relevé  
1991

35 .  
Braun-Blanquet

(Chalabi, 1980)

.( 10×10)² 100

ب. 50

. (1983 1970 1966) Mouterde

Chalabi, ) Ellenberg

ت.

(1980

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.1

.2

-

(Chalabi, 1980) Ellenberg

%50

.(Chalabi, 1980)

Analyse Factorielle des

(AFC) Correspondances

( )

.(Lopez, 1992)

( 82 37 )

93 -

(%79)

(%7)

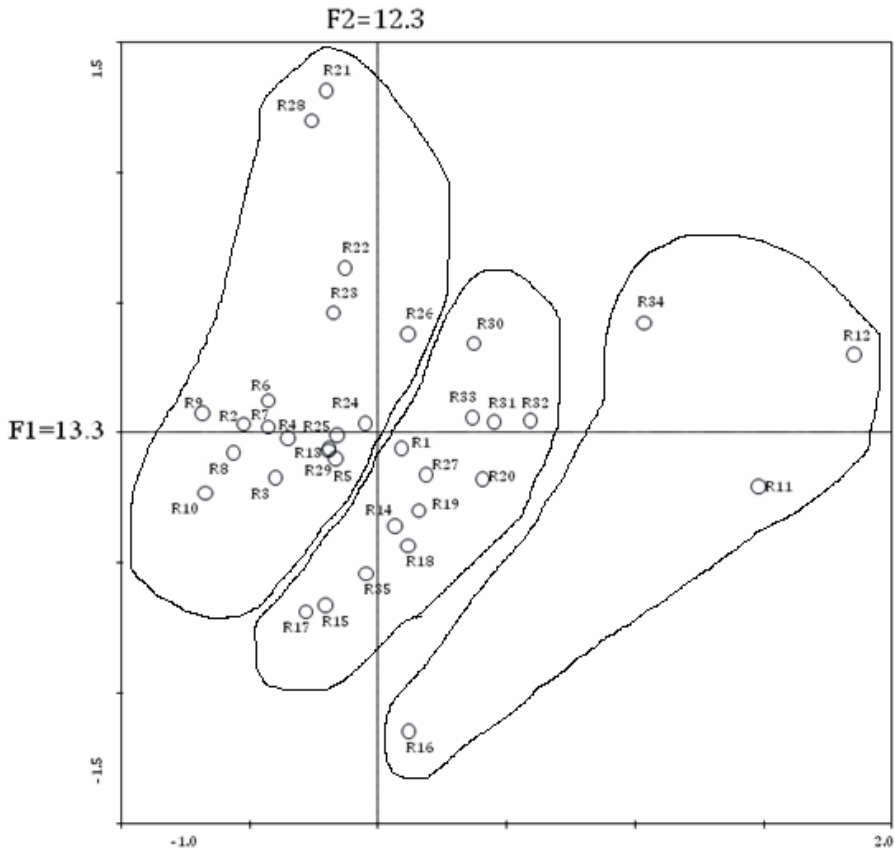
-

.(%7)

-

(AFC)

.(3 2 )

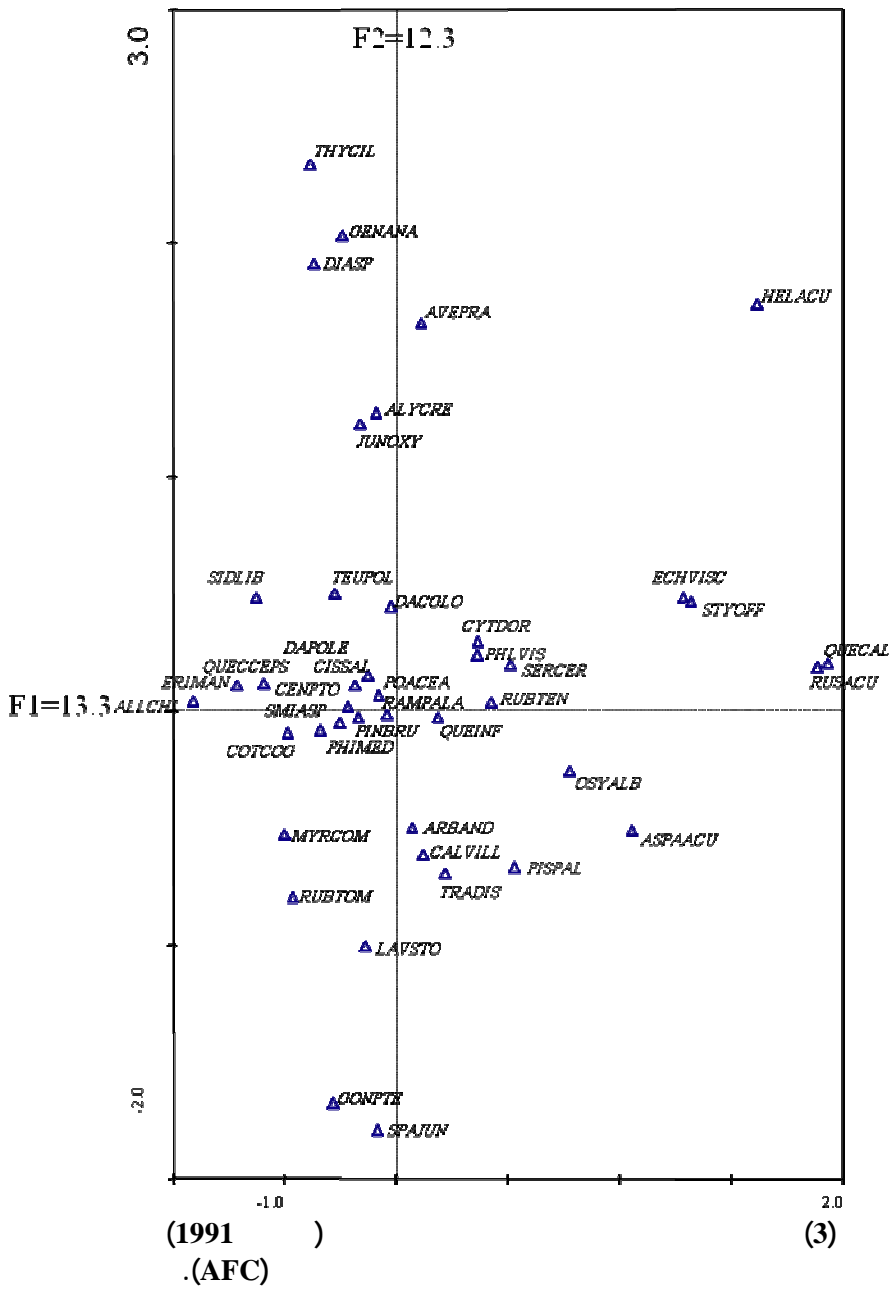


(1991 )

(2)

.(AFC)





:(F1)

%13.3

230

: -  
. 808 578  
: -

(8 10 9 )

*Cotinus* *Quercus cerris* L. subsp. *pseudocerris* (Boiss.) Chalabi  
*Erica manipuliflora* Salisb. *coggyria* Scop.

(34 11 12 )

*Ruscus aculeatus* L. *Quercus calliprinos* Webb  
*Osyris alba* L. *Asparagus acutifolius* L. *Echinops viscosus* D. C.  
*.Heleochloa acutiglumis* Boiss.

:1991

*Quercus cerris* L. subsp. *pseudocerris*  
6 5 3 2 ) *Pinus brutia* Ten. (Boiss.) Chalabi  
(....29 25 24 10 9 8  
(3 )

*Quercus cerris* L. subsp.  
*Cotinus coggyria* Scop. *pseudocerris* (Boiss.) Chalabi  
*Erica manipuliflora* Salisb. *Sideritis libanotica* Labill.  
*Cistus salviifolius* L.

*Quercus calliprinos* Webb  
(34 12 11 )  
(3 )

*Ruscus aculeatus* L. *Quercus calliprinos* Webb  
*Asparagus acutifolius* L. *Echinops viscosus* D. C.

*Pinus brutia* Ten.  
32 31 30 1 20 18 19 )  
(.....33

*Phillyrea media* L. *Pinus brutia* Ten.  
*Quercus infectoria* *Rhamnus palaestina* Boiss.  
*Serratula cerinthifolia* *Cytisopsis dorycniifolia* Jaub. Et Spach Oliv.  
*Arbutus andrachne* L. (Sm.) Boiss.

-

*Echinops viscosus* D. C. *Ruscus aculeatus* L. *Quercus calliprinos* Webb  
*Heleochloa acutiglumis* Boiss. *Osyris alba* L. *Asparagus acutifolius* L.

:(F2)

:

%12.3

-

(21 ) 702 (16 ) 186 516

-

18 35 16 )

*Spartium* (14

*Lavandula stoechas* L. *Gonocytisus pterocladus* Boiss. *junceum* L.

(23 22 28 21 )

*Genista* *Thymus cilicicus* Boiss. et Bal.

*Dianthus* sp. *Alyssum crenulatum* Boiss. *anatolica* Boiss.

(AFC)

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) )

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((17

*Quercus cerris* L.

*Pinus brutia* Ten.

:subsp. *pseudocerris* (Boiss.) Chalabi

*Pinus brutia* -1

*Quercus cerris* L. subsp. *pseudocerris* Ten.

(2 ) 18 (Boiss.) Chalabi

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28	8	2	4	9	3	10	13	
30	15	50	30	5	5	30	20	%
<b>823</b>	<b>595</b>	<b>562</b>	<b>568</b>	<b>578</b>	<b>556</b>	<b>568</b>	<b>576</b>	( )
55	95	80	85	95	95	90	60	
0	10	5	30	55	55	60	0	
8	15	35	45	30	35	25	40	
47	70	40	10	10	5	5	20	
2.2	1.2	2.3	3.3	4.4	3.4	4.5	3.3	<i>Pinus brutia</i> Ten.
+1	2.2	1.2	2.3	2.2	3.3	2.3	+1	<i>Quercus cerris</i> L. subsp
		1.2	+1					<i>Allium chloranthum</i> Boiss.
+1							+1	<i>Alyssum crenulatum</i> Boiss.
								<i>Arbutus andrachne</i> L.
			+1					<i>Asparagus acutifolius</i> L.
+1								<i>Avena pratensis</i> L.
								<i>Bromus lanceolatus</i> Roth.
								<i>Calamintha vulgaris</i> (L.) Halacsy.
	1.2	1.2			1.2			<i>Calycotome villosa</i> (Vahl) Link
+1								<i>Carex flacca</i> Schreb.
								<i>Cephalaria amana</i> Rech. F.
2.2	4.5	1.2	1.2	1.2	1.2	1.2	2.2	<i>Cistus salviifolius</i> L.
		1.2						<i>Cyclamen coum</i> Mill.
+1								<i>Cynoglossum nebrodense</i> Guss.
2.2							+1	<i>Cytisopsis dorycniifolia</i> Jaub.
+1		1.2					+1	<i>Dactylis glomerata</i> L.
		1.2	+1	+1			+1	<i>Daphne oleifolia</i> Lam.
								<i>Dianthus</i> sp.
								<i>Echinops viscosus</i> D. C.
1.2	1.2	3.3	1.2	2.3		2.2		<i>Erica manipuliflora</i> Salisb.
							+1	<i>Euphorbia cassia</i> Boiss.
								<i>Ferulago cassia</i> Boiss.
2.2								<i>Genista anatolica</i> Boiss., var. <i>cassia</i> .

28	8	2	4	9	3	10	13	
		1.2						<i>Gladiolus segetum</i> Ker- Gawler
								<i>Heleochloa acutiglumis</i> Boiss.
+1								<i>Juniperus oxycedrus</i> L.
						+1	1.2	<i>Lavandula stoechas</i> L.
								<i>Lygia aucheri</i> (Meissn.)Boiss.
+1								<i>Melica angustifolia</i> Boiss. Et Bl.
	2.2	+1	1.2		2.2	2.2		<i>Myrtus communis</i> L.
								<i>Osyris alba</i> L.
1.2	1.2	2.2	2.3	2.3	2.3	1.2	1.2	<i>Phillyrea media</i> L.
		1.2	1.2		1.2			<i>Phlomis viscosa</i> Poir.
							1.2	<i>Pistacia palaestina</i> Boiss.
+1	1.2	+1	+1	+1	+1		2.2	<i>Centaurea ptosimopappa</i>
2.3	1.2	1.2	1.2		1.2	+1	1.2	<i>Quercus infectoria</i> Oliv.
								<i>Quercus microphylla</i> (ky)
								<i>Ranunculus millefolius</i> Banks et.
+1	1.2	1.2	2.3	1.2	1.2	+1	1.2	<i>Rhamnus palaestina</i> Boiss.
	1.2	2.2	2.3	1.2	1.2	1.2	1.2	<i>Cotinus coggyria</i> Scop.
			+1					<i>Rubia tenuifolia</i> d'Urv. Var. <i>elliptica</i>
								<i>Rubus tomentosus</i> Borckh.
								<i>Ruscus aculeatus</i> L.
			+1					<i>Serratula cerinthifolia</i> (Sm.)
+1								<i>Seseli rubellum</i> Post
	2.2			1.2			+1	<i>Sideritis libanotica</i> Labill.
	+1	1.2	+1	1.2	1.2	1.2		<i>Smilax aspera</i> L.
								<i>Sorbus torminalis</i> (L.) Grantz
								<i>Styrax officinalis</i> L.
+1		1.2	+1					<i>Teucrium polium</i> L.
1.2								<i>Thymus cilicicus</i> Boiss. et Bal.
								<i>Muscari</i> sp.
1.2	+1		1.2		1.2		2.3	<i>Poaceae</i>
							+1	<i>Verbascum</i> sp.
+1								<i>Zoegea leptaurea</i> L.

...(2)

5	21	6	7	23	24	25	26	29	22	
10	25	20	30	10	60	30	55	45	40	%
<b>602</b>	<b>702</b>	<b>618</b>	<b>614</b>	<b>700</b>	<b>730</b>	<b>740</b>	<b>747</b>	<b>792</b>	<b>701</b>	( )
95	70	85	90	55	90	70	70	95	75	
2	0	1	0	0	0	0	0	20	15	
8	5	5	5	30	20	15	5	20	25	
85	65	80	85	25	70	55	65	55	30	
1.2	1.2	2.2	+1	+1	+1	1.2	1.2	2.3	2.3	<i>Pinus brutia</i> Ten.
2.2	2.2	2.2	1.2	3.3	2.3	1.2	1.2	2.3	2.3	<i>Quercus cerris</i> L. subsp
										<i>Allium chloranthum</i> Boiss.
	2.3			+1	1.2	+1	+1		1.2	<i>Alyssum crenulatum</i> Boiss.
					2.2	1.2	1.2			<i>Arbutus andrachne</i> L.
										<i>Asparagus acutifolius</i> L.
										<i>Avena pratensis</i> L.
									+1	<i>Bromus lanceolatus</i> Roth.
									+1	<i>Calamintha vulgaris</i> (L.) Halacsy.
			1.2	+1	1.2	1.2				<i>Calycotome villosa</i> (Vahl) Link
										<i>Carex flacca</i> Schreb.
									+1	<i>Cephalaria amana</i> Rech. F.
3.4	3.3	4.4	4.4	2.3	3.3	3.3	3.4	4.4	2.3	<i>Cistus salviifolius</i> L.
										<i>Cyclamen coum</i> Mill.
										<i>Cynoglossum nebrodense</i> Guss.
					+1	1.2	1.2			<i>Cytisopsis dorycniifolia</i> Jaub.
		+1		+1					+1	<i>Dactylis glomerata</i> L.
+1	+1	1.2	+1		+1	+1		+1	+1	<i>Daphne oleifolia</i> Lam.
	+1			+1						<i>Dianthus</i> sp.
				+1	+1		+1		+1	<i>Echinops viscosus</i> D. C.
		2.2	1.2						2.2	<i>Erica manipuliflora</i> Salisb.
										<i>Euphorbia cassia</i> Boiss.
									+1	<i>Ferulago cassia</i> Boiss.
	+1						1.2			<i>Genista anatolica</i> Boiss., var. <i>cassia</i>

5	21	6	7	23	24	25	26	29	22	
										<i>Gladiolus segetum</i> Ker- Gawler
	+1									<i>Heleochoa acutiglumis</i> Boiss.
										<i>Juniperus oxycedrus</i> L.
										<i>Lavandula stoechas</i> L.
				+1						<i>Lygia aucheri</i> (Meissn.)Boiss.
										<i>Melica angustifolia</i> Boiss. Et Bl.
1.2										<i>Myrtus communis</i> L.
								+1		<i>Osyris alba</i> L.
1.2	1.2	1.2	1.2	+1	2.2	2.2			+1	<i>Phillyrea media</i> L.
3.3	2.3	1.2		1.2	1.2		1.2		+1	<i>Phlomis viscosa</i> Poir.
1.2					+1		1.2			<i>Pistacia palaestina</i> Boiss.
+1	+1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	+1	<i>Centaurea ptosimopappa</i>
2.2		+1	2.2	1.2	2.3	2.3	2.3	1.2	1.2	<i>Quercus infectoria</i> Oliv.
	2.2									<i>Quercus microphylla</i> (ky)
									+1	<i>Ranunculus millefolius</i> Banks et
1.2	+1	1.2	1.2		+1	+1	1.2		+1	<i>Rhamnus palaestina</i> Boiss.
1.2		1.2	1.2	+1	1.2			2.3	1.2	<i>Cotinus coggyria</i> Scop.
				+1	+1		+1			<i>Rubia tenuifolia</i> d'Urv. Var. <i>elliptica</i>
								+1		<i>Rubus tomentosus</i> Borckh.
								+1	+1	<i>Ruscus aculeatus</i> L.
	+1			+1						<i>Serratula cerinthifolia</i> (Sm.)
										<i>Seseli rubellum</i> Post
	+1		1.2	1.2					+1	<i>Sideritis libanotica</i> Labill.
					+1	+1			1.2	<i>Smilax aspera</i> L.
						+1				<i>Sorbus torminalis</i> (L.) Grantz
									1.2	<i>Styrax officinalis</i> L.
								+1		<i>Teucrium polium</i> L.
	2.2								1.2	<i>Thymus cilicicus</i> Boiss. et Bal.
					+1					<i>Muscari</i> sp.
+1	1.2	1.2	1.2		1.2	1.2			1.2	<i>Poaceae</i>
										<i>Verbascum</i> sp.
										<i>Zoega leptaurea</i> L.

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(3)

19	30	32	31	1	18	20	27	35	33	15	14	
75	30	80	70	50	60	5	30	25	45	45	50	%
182	800	715	752	582	171	173	710	695	703	222	242	
20	60	80	80	50	85	75	95	95	75	75	70	
3	0	2	5	10	15	30	0	30	35	10	0	
7	25	40	10	35	25	25	5	40	10	20	10	
10	35	38	65	5	45	20	90	25	30	45	60	
1.2	2.2	2.2	22	2.3	2.3	3.3	+1	3.3	3.3	2.3	+1	<i>Pinus brutia</i> Ten.
										1.2		<i>Quercus cerris</i> L. subsp. <i>pseudocerris</i>
+1												<i>Allium emarginatum</i> Rech
+1												<i>Arabis laxa</i> Sibth. et Smith
				+1			1.2	2.2		1.2	1.2	<i>Arbutus andrachne</i> L.
				1.2	1.2	+1						<i>Asparagus acutifolius</i> L.
	+1											<i>Avena pratensis</i> L.
+1												<i>Calendula bicolor</i> Rafin.
		1.2	1.2	1.2	2.2		2.3			3.3	3.3	<i>Calycotome villosa</i> (Vahl) Link
+1												<i>Chrysopogon gryllus</i> (L.) Trin.
	2.3	2.2	1.2	1.2	3.3	+1	4.4	2.3	3.3	2.2	2.3	<i>Cistus salviifolius</i> L.
											+1	<i>Crucianella ciliata</i> Lam.
	2.2	1.2	2.3		+1		1.2		+1		1.2	<i>Cytisopsis dorycnifolia</i> Jaub. Et Spach
			+1									<i>Cytisus cassius</i> Boiss.
				1.2							+1	<i>Dactylis glomerata</i> L.
			2.2		+1	+1	+1	+1	+1			<i>Daphne oleifolia</i> Lam.
	+1	+1										<i>Echinops viscosus</i> D. C.
						1.2					+1	<i>Erica manipuliflora</i> Salisb.
										1.2		<i>Gonocytisus</i> <i>pterocladus</i> Boiss.
						+1						<i>Hypericum</i> <i>origanifolium</i> Willd.
+1												<i>Iberis taurica</i> Boiss.
				+1								<i>Juniperus oxycedrus</i> L.
						1.2						<i>Laurus nobilis</i> L.



19	30	32	31	1	18	20	27	35	33	15	14	
					+1						1.2	<i>Lavandula stoechas</i> L.
											+1	<i>Michauxia campanuloides</i> L'herit.
				+1	2.2	1.2				1.2		<i>Myrtus communis</i> L.
							1.2	+1				<i>Osyris alba</i> L.
+1												<i>Pennisetum divisum</i> (C. C. Gmel.) Henrard
	2.2	2.2		2.3	1.2	2.2	1.2	2.3		1.2		<i>Phillyrea media</i> L.
	1.2	1.2		+1	+1		2.2		1.2		1.2	<i>Phlomis viscosa</i> Poir.
2.2			+1		2.2	2.2		2.3	+1	1.2	1.2	<i>Pistacia palaestina</i> Boiss.
		1.2	+1	+1	+1		1.2	1.2	1.2	1.2	1.2	<i>Centaurea ptosimopappa</i> Hayek
	+1	2.3	2.3			2.2			1.2			<i>Quercus calliprinos</i> Webb
	2.3	3.3	3.3	2.3	2.3	2.2	2.3	2.2	2.2	2.3	2.3	<i>Quercus infectoria</i> Oliv.
						+1	1.2					<i>Rhamnus alaternus</i> L.
				+1	+1	1.2		1.2		1.2	2.2	<i>Rhamnus palaestina</i> Boiss.
			1.2					2.2	1.2	1.2		<i>Cotinus coggyria</i> Scop.
+1	+1		+1	1.2	+1			+1				<i>Rubia tenuifolia</i> d'Urv. Var. <i>elliptica</i>
						+1						<i>Ruscus aculeatus</i> L.
+1												<i>Salvia judaica</i> Boiss.
+1			1.2	+1		+1			1.2			<i>Serratula cerinthifolia</i> (Sm.) Boiss.
+1											+1	<i>Sideritis libanotica</i> Labill.
+1				1.2		+1		+1				<i>Smilax aspera</i> L.
								1.2				<i>Spartium junceum</i> L.
			+1	+1								<i>Teucrium polium</i> L.
					+1							<i>Themeda trianda</i> Forsk. Var. <i>brachyantha</i>
	+1											<i>Thesium bergeri</i> Zuccar.
+1											+1	<i>Trachynia distachya</i> (L.) Link.
	+1											<i>Verbascum tripolitanum</i> Boiss.
2.2	1.2		1.2		2.3	2.3					1.2	<i>Poaceae</i>

.1991

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(4)

16	11	12	34	
15	45	10	70	%
186	788	808	675	
90	80	75	90	
0	2	0	0	
25	40	1	10	
65	38	74	80	
	1.2			<i>Pinus brutia</i> Ten.
+1				<i>Quercus cerris</i> L. subsp. <i>pseudocerris</i> (Boiss.) Chalabi
			+1	<i>Alyssum crenulatum</i> Boiss.
		+1		<i>Anthemis tinctoria</i> L. var. <i>discoidea</i> (All.) Vahl
	+1			<i>Arbutus andrachne</i> L.
+1	1.2	+1		<i>Asparagus acutifolius</i> L.
3.3	2.2			<i>Calycotome villosa</i> (Vahl) Link
3.3	1.2	+1	2.3	<i>Cistus salvifolius</i> L.
		+1		<i>Crucianella imbricata</i> Boiss.
			1.2	<i>Cytisopsis dorycniifolia</i> Jaub. Et Spach
		+1		<i>Dactylis glomerata</i> L.
		+1		<i>Dorycnium hirsutum</i> (L.) Ser.
	1.2	+1	+1	<i>Echinops viscosus</i> D. C.
		+1		<i>Eryngium falcatum</i> Laroche
		+1		<i>Fibigia eriocarpa</i> (D.C.) Boiss.
+1				<i>Gonocytisus pterocladus</i> Boiss.
		+1		<i>Heleochloa acutiglumis</i> Boiss.
1.2				<i>Lavandula stoechas</i> L.
		+1		<i>Origanum syriacum</i> L.
		+1		<i>Osyris alba</i> L.
2.2				<i>Phillyrea media</i> L.
+1	1.2	1.2	2.2	<i>Phlomis viscosa</i> Poir.
2.2	3.3	+1		<i>Pistacia palaestina</i> Boiss.
		+1		<i>Poa chaixii</i> Vill.
		+1		<i>Psoralea bituminosa</i> L.
	3.3	4.5	2.3	<i>Quercus calliprinos</i> Webb
2.2	1.2		4.4	<i>Quercus infectoria</i> Oliv.
	+1	2.2		<i>Rhamnus palaestina</i> Boiss.
		+1		<i>Rubia tenuifolia</i> d'Urv. Var. <i>elliptica</i> (Boiss.) Ehrend.
	1.2	1.2		<i>Ruscus aculeatus</i> L.
		+1		<i>Serratula cerinthifolia</i> (Sm.) Boiss.
		+1		<i>Smilax aspera</i> L.
2.2				<i>Spartium junceum</i> L.

16	11	12	34	
	1.2			<i>Styrax officinalis</i> L.
		+1		<i>Trifolium physodes</i> Stev.
		+1		<i>Trifolium purpureum</i> Loisel.
			+1	<i>Allium</i> sp.
		+1		<i>Centaurea</i> sp.
		+1		<i>Micromeria</i> sp.

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-1

56

18

(2)

823 556

%95 - 55 :

%55-0 :

%45-5 :

%85-5 :

4.5 +.1

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Braun-Blanquet

+1

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3.3

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*Alyssum crenulatum* Boiss.

700

*Calycotome villosa* (Vahl) Link

*Erica manipuliflora* Salisb.

*Smilax aspera* L. *Myrtus communis* L.

*Pinus brutia* Ten.

*Rhamnus* *Quercus infectoria* Oliv.  
*Cotinus coggyria* Scop. *palaestina* Boiss.

*Centaurea ptosimopappa* Hayek subsp. *canescens*  
 (Bello, 2006) Bello (2006)

.(Chalabi, 1980)

*Cistus salviifolius* L.

4.5 1.2

-

*Quercus cerris* L.

*Quercus* *Quercus infectoria* Oliv. subsp. *pseudocerris* (Boiss.) Chalabi

*Cotinus coggyria* *Cyclamen coum* Mill. *microphylla* (ky) Thiebaut  
 Scop.

*Phillyrea media* *Asparagus acutifolius* L. *Alyssum crenulatum* Boiss.

*Cytisopsis* *Rhamnus palaestina* Boiss. *Arbutus andrachne* L. L.

*Calycotome* *dorycniifolia* Jaub.

*Erica* *Cistus salviifolius* L. *villosa* (Vahl) Link

*Phlomis viscosa* Poir. *manipuliflora* Salisb.

*Alyso* (*crenulatae*)-*Quercetum*

*Alyssum crenulatum* *pseudocerridis*

*Thymus cilicicus* Boiss. et Bal. Boiss.

(1980) Chalabi

*Calycotome villosa* (Vahl) Link

*Serratula cerinthifolia* (Sm.) Boiss *Cistus salviifolius* L.

Cisto-Micromiretea

*Pistacia palaestina* *Phillyrea media* L.

*Smilax aspera* L. Boiss.

*Pinus brutia* Ten.

4.5 1.2 -

3.3 +.1 -

*Smilax aspera* L.

*Rhamnus palaestina* Boiss. *Phillyrea media* L.

*Cyclamen coum* Mill. *Quercus infectoria* Oliv.

*Cotinus coggyria* Scop.

(2002 ) *Erica manipuliflora* Salisb.

*Calycotome villosa* (Vahl) Link

*Phlomis viscosa* Poir. *Cistus salviifolius* L.

1980 Chalabi)

(2002 1982

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%95 - 20 :

%35-0 :

%40-5 :

%90-5 :

3.3 +.1

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*Quercus calliprinos* Webb  
*Rhamnus palaestina*  
*Asparagus acutifolius* L.  
*Quercus infectoria* Oliv.  
 .(Chalabi, 1980)  
*Gonocytiso-Pinion*

*Pistacia palaestina* Boiss.  
*Phillyrea media* L.  
*Smilax aspera* L. Boiss.

*Cytisopsis dorycniifolia* Jaub. Et (Barbero *et al.*, 1976)  
 .Spach

*Ptosimopappo-Quercion*

(Barbero *et al.*, 1976)

*Centaurea ptosimopappa* Hayek subsp. *canescens* Bello (2006)  
 .(Bello, 2006)

*Daphne oleifolia* Lam.  
*Serratula* *Rubia tenuifolia* d'Urv.var.*elliptica* (Boiss.) Ehrend  
*Arbutus andrachne* L. *cerinthifolia* (Sm.) Boiss.  
 .(2002 )  
*Calycotome villosa* (Vahl) Link  
*Cistus salviifolius* L.  
 (2002 2000 )

*Calycotome villosa* (Vahl) Link  
 .*Cistus salviifolius* L.

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39 ( ) 4 (4) .( )  
 . 808 186  
 (%80-38) %90 – 75 :  
 .%40

*Cistus salviifolius* L. *Calycotome villosa* (Vahl) Link

*Quercus infectoria* Oliv.

*Pistacia* *Quercus calliprinos* Webb

*Rhamnus palaestina* Boiss. *palaestina* Boiss.

*Calycotome villosa* (Vahl) Link *Phillyrea media* L.

*Asparagus acutifolius* L.

*Cistus salviifolius* L.

3.3 +.1 -

*Alyssum crenulatum* *Cytisopsis dorycniifolia* Jaub. Et Spach

*Phlomis Echinops viscosus* D. C. *Dactylis glomerata* L. Boiss.

*.viscosa* Poir.

.(2002 1980 Chalabi)

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