Plant Economy of the Kura-Araxes.

A comparative analysis of agriculture in the Near East from the Chalcolithic to the Middle Bronze Age.

Volume 2

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Tables

Chapter 2

Table 2.1 Sos Höyük periodization from Sagona (2000).

SOS I	**Medieval**	**1100-1300AD**
SOS II	**Iron Age and Post-Achaemenid**	**1000-200BC**
	IIc Post Achaemenid	300-200BC
	IIb Late Iron Age	750/800-300BC
	IIa Early Iron Age	1000-750/800BC
SOSIII	**Late Bronze Age**	**1500-1000BC**
SOSIV Kura-Araxes	**Middle Bronze Age**	**2200-1500BC**
	IVb Middle Bronze Age II	2000-1500BC
	IVa Middle Bronze Age I	2200-2000BC
SOSV Kura-Araxes	**Late Chalcolithic-Early Bronze Age**	**3500/3300-2200BC**
	Vd Early Bronze Age III	2500-2200BC
	Vc Early Bronze Age II	2800-2500BC
	Vb Early Bronze Age I	3000-2800BC
	Va Late Chalcolithic	3500/3300-3000BC

Chapter 3

Table 3.1 Detailed context description of Sos Höyük archaeobotanical samples provided by the excavator, Professor Antonio Sagona.

	Sample details	Period	Sos Phase	Detailed context
SOS1	M17 3764 41 s.84	LC	Sos Va	General debris directly above a hearth
SOS2	M17 3770 71	LC	Sos Va	Secure: soil from floor associated with hearth in 3769. 3rd building layer associated with large stone wall.
SOS3	L17b 4294 132 s.194	LC	Sos Va	Secure. Deep bell-shaped pit
SOS4	L17b 4281 107 149	LC	Sos Va	Ashy pit that cuts the hard packed orange surface (locus 4279)
SOS5	L17b 4247 24 s.45	LC	Sos Va	Secure context. Level of burning immediately above a floor
SOS6	L17b 4299 145 s. 212	LC	Sos Va	Secure. Soil collected from around a small pot sitting on a floor inside of large stone wall first building layer.
SOS7	M17 3755 29 s.57	LC	Sos Va	Secure: soil from above plaster floor
SOS8	M17 3755 22 s.40	LC	Sos Va	Secure: soil from inside hearth associated with plaster floor
SOS9	M17 3769 60 s.130	LC	Sos Va	Secure: soil sandwiched between two hearths. 3rd building layer associated with large stone wall.
SOS10	L17d/M17c 4233 44 s.93	LC	Sos Va	From sondage: dark layer, quite deep
SOS11	M17 3771 63 s.136	LC	Sos Va	Baulk cleaning: soil from section not secure.
SOS12	L17d/M17c 4232 37 s.74	LC	Sos Va	From sondage: shallow plaster pit (bottom of pit) with burnt fill
SOS13	L17b 4269 81 s.123	LC	Sos Va	Secure context. Soil under hearth associated with plaster floor
SOS14	L17b 4279 105 s.148	LC	Sos Va	Secure context. Soil from hearth - hard packed orange surface with charcoal flecks. Second layer associated with large stone wall.
SOS15	L17d/M17c 4219 19 s.36	LC	Sos Va	From sondage: burnt crumbly soil
SOS16	L17b 4287 116 s.171	LC	Sos Va	Secure. Plaster-lined pit associated with loci 4279 and 4278
SOS17	L17b 4279 105 s.147	LC	Sos Va	Secure context. Soil from hearth - hard packed orange surface with charcoal flecks. Second layer associated with large stone wall.
SOS18	M16/M15d 3713 19 s.42	EBI	Sos Vb	Hearth patch, located near a large in situ pot; not far from a burial pit
SOS19	L17b 1590 305 s.655	EBI	Sos Vb	Secure: associated with plaster floor
SOS20	M17 3734 128 s.254	EBI	Sos Vb	Secure: Plaster floor level.
SOS21	L17b 1599 330 s.686	EBI	Sos Vb	Secure: pit with heavily burnt soil

Table 3.1 continued

	Sample details	Period	Sos Phase	Detailed context
SOS22	M16/M17 3726 79 s.165	EBI	Sos Vb	Secure: plaster floor
SOS23	M16/M15d 3715 30 s.67	EBI	Sos Vb	General debris amid ashy patches. No floor.
SOS24	M16/M15d 3723 107 s.222	EBI	Sos Vb	General debris, just north of a house wall.
SOS25	L17b 1595 311 s.665	EBI	Sos Vb	Secure: from hearth embedded in plaster floor 1596 (connected to 1590)
SOS26	M16 3686 81 s.192	EBI/II	Sos Vb/Vc	General debris abutting west face of large, curved stone wall
SOS27	M16 3693 87 s.212	EBI/II	Sos Vb/Vc	Secure: another plaster surface beneath 3962
SOS28	M16 3686 74 s.175	EBI/II	Sos Vb/Vc	General debris abutting west face of large, curved stone wall
SOS29	M16 3692 86 s.206	EBI/II	Sos Vb/Vc	Secure: part of the removal of plaster surface 3691
SOS30	M16 3691 83 s.195	EBI/II	Sos Vb/Vc	Secure: plaster surface abutting west face of large, curved stone wall
SOS31	M16 3691 83 s.195	EBI/II	Sos Vb/Vc	Secure: plaster surface abutting west face of large, curved stone wall
SOS32	M15d 1849 158 s.399	EBII	Sos Vc	Grey soil, thick in some parts; general debris in between pits
SOS33	M15d 1848 156 s.392	EBII	Sos Vc	Grey soil, thick in some parts; general debris in between pits
SOS34	M15d 1856 195 s.483	EBII	Sos Vc	Soft brown soil uniform consistency; general mud brick debris
SOS35	M16d 3642 271 s.570	EBIII	Sos Vd	From a grave, partly disturbed; bones were disarticulated
SOS36	M15d 1855 212 s.534	EBIII	Sos Vd	Secure: from Burial 1 fill
SOS37	M16d 3642 272 s.574 grave 3	EBIII	Sos Vd	From a grave, partly disturbed; bones were disarticulated
SOS38	M15d 1855 211 s.530	EBIII	Sos Vd	Secure: from Burial 1 fill
SOS39	M16bd/N16ac 3640 266 s.563	EBIII	Sos Vd	General debris between pits; heavy concentration of pits
SOS40	M15d 1855 206 s.514	EBIII	Sos Vd	Soft brown soil over plaster surface, uniform consistency; general mud brick debris. This lay over an earthen burial pit.
SOS41	M16bd/N16ac 3640 274 s.580	EBIII	Sos Vd	General debris between pits; heavy concentration of pits
SOS42	M16bd/N16ac 3640 273 s.575	EBIII	Sos Vd	General debris between pits; heavy concentration of pits
SOS43	M16bd/N16ac 3635 240 s.513 pit 7	MBI	Sos IVa	Secure: content from Pit 7
SOS44	L16 4149 47 s.95	MBI	Sos IVa	Secure: clay, ash pit in the corner of room (4140)
SOS45	M16 591 174 s.306	MBI	Sos IVa	Debris from a floor level cut by pits

Table 3.1 continued

	Sample details	Period	Sos Phase	Detailed context
SOS46	L16 4154 57 s.130	MBI	Sos IVa	Secure: square shaped pit which contained a circular plaster lens within. Pit is on the outside of the house and abuts wall.
SOS47	M16 591 174	MBI	Sos IVa	Debris from a floor level cut by pits
SOS48	L16 4140 24 s.62	MBI	Sos IVa	from large room of two roomed building
SOS49	M16 591 174 s.307	MBI	Sos IVa	Debris from a floor level cut by pits
SOS50	M16bd/N16ac 3635 239 s.507 Pit 7	MBI	Sos IVa	Secure: content from Pit 7
SOS51	L16c 4035 60 s.166	MBII	Sos IVb	General debris. Soft grey ashy soil
SOS52	L16c 4012 23 s.62	MBII	Sos IVb	Secure: soil from within Pit 5
SOS53	L16c 4037 63 s.169	MBII	Sos IVb	From small fire pit
SOS54	L16c 4034 56 s.151	MBII	Sos IVb	Collected from within a hearth
SOS55	L16c 4031 49 s.126	MBII	Sos IVb	Secure: white plaster floor
SOS56	L16 4115 179 s.413	MBII	Sos IVb	Secure: contents of pots from room within MB building
SOS57	L16 4115 187 s.427	MBII	Sos IVb	Secure: floor level of room within MB building
SOS58	L16 4117 186 s.424	MBII	Sos IVb	Secure: floor level of room within MB building
SOS59	L16C 4064 67 s.187	MBII	Sos IVb	Secure: from trash pit with heavy concentration of ceramic sherds
SOS60	L16c 4070 111 s.263	MBII	Sos IVb	Secure: content of Pit 5
SOS61	L16c 4045 83 236	MBII	Sos IVb	General debris; among pits and surfaces
SOS62	L16 4123 204 s.459	MBII	Sos IVb	Secure: content from small pit
SOS63	L16c 4073 74 s.207	MBII	Sos IVb	Secure: content of Pit 8
SOS64	L16c 4035 71 s.188	MBII	Sos IVb	From an area with ashy soil and plaster lens
SOS65	L16c 4067 61 s.154	MBII	Sos IVb	Secure: content of Pit 4
SOS66	L16c 4064 67 s.177	MBII	Sos IVb	Secure: from trash pit with heavy concentration of ceramic sherds
SOS67	L16c 4057 30 s.75	MBII	Sos IVb	Secure: from bell-shaped pit (Pit 2)
SOS68	L16c 4054 24 s.62	MBII	Sos IVb	From lime plaster surface
SOS69	L16 4120 197 s.447	MBII	Sos IVb	Secure: floor level of room within MB building; around fixed hearth
SOS70	L16 4117 188 s.433	MBII	Sos IVb	Secure: floor level of room within MB building; around portable hearth and pots

Table 3.2 Summary of the number of samples in each Sos Höyük period.

Sos Höyük Period		Number of samples
Late Chalcolithic	Va	17
Early Bronze I	Vb	8
Early Bronze I/II	Vb/Vc	6
Early Bronze II	Vc	3
Early Bronze III	Vd	8
Middle Bronze I	IVa	8
Middle Bronze II	IVb	20

Table 3.3 Amalgamated identifications of crop items in the Sos Höyük assemblage.

***Triticum dicoccum* (grain)**	*T. dicoccum* (grain) *T.*cf. *dicoccum* (grain)
***Triticum aestivum* (grain)**	*T. aestivum/durum* (grain) *T.* cf. *aestivum/durum* (grain)
Hordeum distichum (grain)	*Hordeum* hulled asymmetric (grain) *Hordeum* cf. hulled asymmetric (grain) *Hordeum* hulled symmetric (grain) *Hordeum* cf. hulled symmetric (grain) *Hordeum* hulled asymmetric/symmetric (grain) *Hordeum* asymmetric/symmetric cf. naked (grain) *Hordeum* indeterminate (grain) cf. *Hordeum* sp. (grain)
***Triticum dicoccum* (glume base)**	*T. dicoccum (*glume base) *T.* cf. *dicoccum (*glume base) *Triticum* sp. (glume base)
***Triticum aestivum* (rachis internode)**	*T. aestivum* (rachis internode) *T.* cf. *aestivum* (rachis internode) *T.* cf. *durum* (rachis internode) *T. aestivum/durum* (rachis internode) *T.* cf. *aestivum/durum* (rachis internode) *T. aestivum/durum* (basal rachis internode)
***Hordeum distichum* (rachis internode)**	*H. vulgare* (rachis internode) *H.* cf. *vulgare* (rachis internode) *H. distichum* (rachis internode) *H.* cf. *distichum* (rachis internode) *H. vulgare/distichum* (rachis internode) cf. *H. vulgare/distichum* rachis (internode)

Table 3.4 Amalgamated identifications of wild/weedy items in the Sos Höyük assemblage.

Atriplex* cf. *lasiantha	*Atriplex* cf. *lasiantha*(in bracts) *Atriplex* sp. cf. *Atriplex* sp.
Chenopodium* cf. *album	*Chenopodium album* *Chenopodium* sp.
Kolchis prostrate/scoparia	*Kochia prostata/scoparia* (fruit) cf. *Kochia prostrata/scoparia*
Euclidium syriaca	*Euclidium syriacum* (seed capsule) cf. *Euclidium syriacum*
***Trigonella* sp.**	*Trigonella astroites* *Trigonella* sp.
***Malva* sp.**	*Malva* cf. *neglecta* *Malva* cf. *sylvestris* (pod) *Malva* sp.
Lolium* cf. *perenne/multiflorum	*Lolium perenne/multiflorum* cf. *Lolium* sp.
Polygonum arenastrum/bellardii	*Polygonum arenastrum/bellardii* *Polyonum* cf. *arenastrum/bellardii*
Agrimonia* cf. *eupatoria	*Agrimonia* cf. *eupatoria* (fruit) *Agrimonia* sp.
Asperula* cf. *involucrata	*Asperula* cf. *involucrata* *Asperula* sp.

Table 3.5 Physical properties of weed seeds relating to relating to crop processing stage. Abbreviations: Big, free, heavy (BFH); big, headed, heavy (BHH); small free heavy (SFH); small headed heavy (SHH); small free light (SFL); small headed light (SHL). Jones (1984, 1987).

	Winnowing by-product	**Coarse sieving by-product**	**Fine sieving by-product**	**Fine sieving product**
Physical characteristics	SFL	SHL, SHH, BHH	SFH	BFH

Table 3.6 Site information for all the sites included in the archaeobotanical analysis detailed in Chapter 5. Sites marked with an asterisk are Kura-Araxes sites with archaeobotanical material. Sites are ordered alphabetically by site code.

Site Name	Site Code	Latitude (decimal degrees)	Longitude (decimal degrees)	Geographical Region	Site Altitude (m)	Rainfall Zone (mm)	Archaeobotanist(s)	Reference/s
Afula	AFL	32.6076	35.2888	Southern Levant	62	393	Y. Melamed	Melamed (1996)
Abu Hamid	AHD	32.3184	35.5714	Southern Levant	240	200	R. Neef	Dollfus *et al.* (1988)
Aknashen	AKN	40.1017	44.2938	Southern Caucasus	838	200-300	R. Hovsepyan, G. Willcox	Hovsepyan and Willcox (2008)
Aparan-III*	APR	40.5027	44.4312	Southern Caucasus	1860	600-700	R. Hovsepyan	Hovsepyan (2010)
Tell Aqab	AQB	37.0581	40.8958	Khabur	445	400	J. McCorriston	McCorriston (1992)
Aratashen	ARA	40.1359	44.2353	Southern Caucasus	852	200-300	R. Hovsepyan, G. Willcox	Badalyan *et al.* (2007)
Arad	ARD	31.2809	35.1247	Southern Levant	565	150	M. Hopf	Hopf (1978)
Arjoune	ARJ	34.5651	36.5283	Amuq-Orontes	500	460	L. Moffet	Moffet (2003)
Areni-I Cave	ARN	39.7314	45.2027	Southern Caucasus	1058	400	R. Hovsepyan, A. Smith	Wilkinson *et al.* (2012); Areshian *et al.* (2012); (Smith *et al.* 2014)
Arslantepe*	ARS	38.3820	38.3615	Upper Euphrates - Upper Tigris	941	400	L Sadori, A Massi, F. Susanna, M. Follieri	(Follieri and Cocccolini 1983); Belisario *et al.* (1994); Sadori *et al.* (2006); Balossi Restelli *et al.* (2010)
Aşvan Kale*	AVK	38.8928	38.9571	Upper Euphrates - Upper Tigris	715	400	M. Nesbitt	Nesbitt (Unpub.)
Tall-e Bakun	BAK	29.9138	52.8873	Iran-Southern Mespotamia	1600	334	N. F. Miller	Miller and Kimiaie (2006)
Bab edh-Dhra	BED	31.2529	35.5329	Southern Levant	-250	50-150	D. McCreedy	McCreedy (1980), McCreedy (2003)

Table 3.6 Continued

Site Name	Site Code	Latitude (decimal degrees)	Longitude (decimal degrees)	Geographical Region	Site Altitude (m)	Rainfall Zone (mm)	Archaeobotanist(s)	Reference/s
Bendebal	BEN	32.3010	48.2377	Iran-Southern Mespotamia	90	300	N. F. Miller	Miller (1983)
Çamlibel	CBL	40.0173	34.5715	Central-Western Anatolia	1050	580	I. Papadopoulou, A. Bogaard	Schachner (2012)
Çadir Hoyuk	CDH	39.6762	35.1440	Central-Western Anatolia	1020	370-425	M. Chernoff, A. Smith	Chernoff and Harnischfeger (1996), Smith (2007)
Chagar Bazar	CGB	36.8756	40.8981	Khabur	385	380	R. Buxo	Buxo (2006)
Chobareti*	CHB	41.5866	43.1237	Southern Caucasus	1610	500-600	L. Martin	Kakhiani *et al.* (2013); (Messager *et al.* 2015)
Çatalhöyük West	CTL	37.6665	32.8279	Central-Western Anatolia	1012	321	A. Bogaard, M. Charles, A. Fairbairn	Bogaard *et al.* (2013)
Çaybolu	CYB	38.8901	38.9735	Upper Euphrates - Upper Tigris	800	400	M. Nesbitt	Nesbitt (Unpub.)
Dilkaya*	DKY	38.3597	43.1415	Southern Caucasus	1650	380	M. Nesbitt	Nesbitt (1991)
Demircihöyük	DMC	39.8534	30.2718	Central-Western Anatolia	870	450	H. Schlichtherle	Schlichtherle (1977)
Domuztepe	DMZ	37.3209	37.03569	Upper Euphrates - Upper Tigris	545	620	A. Kennedy	Kansa *et al.* (2009)
Ebla	EBL	35.7981	36.7989	Amuq-Orontes	400	350	G. Fiorentino, V. Caracuta, C. Wachter-Sarkady	Fiorentino and Caracuta (2010); Wachter-Sarkady (2013)
Emar	EMR	35.9874	38.1107	Middle Euphrates	310	200-250	S. Riehl	Riehl (2010a)

Table 3.6 Continued

Site Name	Site Code	Latitude (decimal degrees)	Longitude (decimal degrees)	Geographical Region	Site Altitude (m)	Rainfall Zone (mm)	Archaeobotanist(s)	Reference/s
Fatmali-Kalecik	FAK	38.8611	38.9344	Upper Euphrates - Upper Tigris	850	400	W. van Zeist	Wright and Whallon (1998)
Farukhabad	FKB	32.5878	47.2237	Iran-Southern Mespotamia	140	355	N. F. Miller	Miller (1981)
Godin Tepe	GDT	34.5184	48.0684	Iran-Southern Mespotamia	1485	420	N. F. Miller	Miller (1990)
Gegharot*	GGH	40.7055	44.2249	Southern Caucasus	2100	600-700	R. Hovsepyan	Badalyan *et al.* (2008)
Girikihaciyan	GRK	38.1466	39.9886	Upper Euphrates - Upper Tigris	750	500	W. van Zeist	Van Zeist (1978)
Gre Virike	GRV	36.9227	38.0153	Middle Euphrates	335	300-400	E. Oybak Donmez	Oybak Donmez (2006)
Hacinebi	HCN	37.0604	37.9769	Middle Euphrates	380	400	N. F. Miller	Stein *et al.* (1996a); Stein *et al.* (1996b)
Hadidi	HDD	36.2660	38.1510	Middle Euphrates	318	200-250	W. van Zeist, J. Bakker-Heeres	van Zeist and Bakker-Heeres (1988)
Hammam et-Turkman	HET	36.4824	39.0569	Khabur	315	250	W. van Zeist	Van Zeist (2003b)
Hirbet ez-Zeraqon	HEZ	32.5865	35.9483	Southern Levant	500	350	S. Riehl	Riehl (2004)
Haftavan	HFV	38.167318	44.7936	Southern Caucasus	1360	340	G. Summers	Summers (1982)
Tepe Hissar	HIS	36.1547	54.3846	Iran-Southern Mespotamia	1000	130	L. Constantini	Constantini and Dyson (1990)
Hajji Ibrahim	HJJ	36.2674	38.2594	Middle Euphrates	350	200-250	N. F. Miller	Miller (1997)

Table 3.6 Continued

Site Name	Site Code	Latitude (decimal degrees)	Longitude (decimal degrees)	Geographical Region	Site Altitude (m)	Rainfall Zone (mm)	Archaeobotanist(s)	Reference/s
Hassek Höyük	HSH	37.7478	38.9312	Upper Euphrates - Upper Tigris	500	550	H.-J. Gregor	Gregor (1992)
Tell el-Hayyat	HYY	32.4210	35.5773	Southern Levant	-240	300	P. Fall	Falconer and Fall (2006)
Imamoğlu*	IMM	38.4527	38.4843	Upper Euphrates - Upper Tigris	693	400	E. Oybak Donmez, S. Demirci	Oybak and Demirci (1997)
Jaffarabad	JAF	32.2751	48.2247	Iran-Southern Mespotamia	85	300	N. F. Miller	Miller (1983)
Tall-e Jari	JAR	29.8555	52.9568	Iran-Southern Mespotamia	1600	334	N. F. Miller	Miller and Kimiaie (2006)
Jericho	JER	31.8707	35.4435	Southern Levant	-214	166	M. Hopf	Hopf (1983)
Jerbalus Tahtani	JRB	36.7902	38.0211	Middle Euphrates	333	300-400	C. Kabukcu	Kabukcu (2012)
Tell Karrana 3	KAR	36.6889	42.9022	Khabur	300	300	L. Costantini, L. Constantini Biasini	Constantini and Constantini Biasini (1993)
Kurban Höyük	KBH	37.4554	38.4430	Upper Euphrates - Upper Tigris	418	550	N. F. Miller	Algaze *et al.* (1986)
Korucutepe*	KCT	38.6358	39.5399	Upper Euphrates - Upper Tigris	900	400	W.van Zeist, J. Bakker-Heeres	Van Zeist and Bakker-Heeres (1975)
Kaman Kalehöyük	KKH	39.3624	33.7866	Central-Western Anatolia	1069	350	M. Nesbitt, A. Fairbairn	Nesbitt (1993); Fairbairn (2002, 2003, 2004)
Kultepe II*	KLT	39.3050	45.4465	Southern Caucasus	965	300	T. Earley-Spadoni	Ristvet *et al.* (2011)
Kamiltepe/Mil Plain Sites	KML	39.8546	47.3808	Southern Caucasus	85	447	A. Decaix	Lyonnet *et al.* (2012)
Kinet Höyük	KNH	36.853647	36.157153	Amuq-Orontes	15	500-700	A. Hynd	Hynd (1997)

Table 3.6 Continued

Site Name	Site Code	Latitude (decimal degrees)	Longitude (decimal degrees)	Geographical Region	Site Altitude (m)	Rainfall Zone (mm)	Archaeobotanist(s)	Reference/s
Kenan Tepe	KNT	37.8306	40.8132	Upper Euphrates - Upper Tigris	560	550-700	P. Graham, A. Smith, C. Meegan	Parker *et al.* (2003); Parker *et al.* (2009); Graham (2011)
Kuruçay Höyük	KRC	37.6347	30.1667	Central-Western Anatolia	960	600	M. Nesbitt	Nesbitt (1996)
Kosak Shamali	KSK	36.5601	38.2801	Middle Euphrates	320	350	G. Willcox	Willcox (2003)
Kumtepe	KUM	39.9787	26.1962	Central-Western Anatolia	10	630	S. Riehl	Riehl (1999)
Leilan	LLN	36.9573	41.5053	Khabur	390	450	W. Wetterstrom, D. de Moulins, A. Smith	de Moulins (2002); Wetterstrom (2003); Smith (2012);
Tell Munbaqa	MBQ	36.2186	38.1289	Middle Euphrates	322	200-250	H. Kuster	Kuster (1989)
Megiddo	MGD	32.5853	35.1847	Southern Levant	150	541	K. Borojevic	Borojevic (2006)
Tell Mastuma	MST	35.8780	36.630725	Amuq-Orontes	478	429	Y. Yasuda	Yasuda (1997)
Mentesh Tepe	MTT	40.9419	45.8328	Southern Caucasus	356	440	A. Decaix	Lyonnet *et al.* (2012)
Maxta*	MXT	39.5899	44.9392	Southern Caucasus	830	200-300	T. Earley-Spadoni	Ristvet *et al.* (2011)
Malyan	MYN	30.0117	52.4081	Iran-Southern Mespotamia	1700	355	N. F. Miller	Miller (1982)
Mezraa Höyük	MZR	36.9774	37.9863	Middle Euphrates	335	300-400	E. Oybak Donmez	Oybak Donmez (2006)
Nevallat	NEV	31.9826	34.9602	Southern Levant	100	490	N. Lipschizt	van den Brink *et al.* (2001)
Numeira	NUM	31.1313	35.5290	Southern Levant	-280	80	D. McCreedy	McCreedy (1980)
Tell el 'Oueili	OUE	31.2427	45.8866	Iran-Southern Mespotamia	5	100-150	R. Neef	Neef (1991)

Table 3.6 Continued

Site Name	Site Code	Latitude (decimal degrees)	Longitude (decimal degrees)	Geographical Region	Site Altitude (m)	Rainfall Zone (mm)	Archaeobotanist(s)	Reference/s
Ovçular Tepe	OVC	39.5921	45.0671	Southern Caucasus	895	300	A. Decaix	Berthon *et al.* (2013)
Oylum Höyük	OYL	36.6991	37.1780	Middle Euphrates	848	470	R. Pasternak	Ozgen *et al.* (1997)
Tell Qara Quzaq-I	QQI	36.6327	38.2148	Middle Euphrates	325	350	G. Matilla Seiquer, D. Rivera Nanez	Seiquer and Nanez (1993)
Qatna/Tell Mishrifeh	QTN	34.8346	36.8661	Amuq-Orontes	490	400	L. Pena-Chocarro, M. Rottoli, S. Riehl	Pena-Chocarro and Rottoli (2007)
Ras an-Numayra	RAN	31.1295	35.5336	Southern Levant	-232	80	C. White	White *et al.* (2014)
Ras Shamra	RAS	35.6016	35.7857	Amuq-Orontes	20	788	W. van Zeist, J. Bakker-Herees	Van Zeist and Bakker-Heeres (1986)
Tell Sabi Abyah	SAB	36.5038	39.0938	Khabur	320	250	W. van Zeist, W. Waterbolk-van Rooijen	Van Zeist and Waterbolk-van Rooijen (1996)
Sarafabad	SFB	32.2856	48.3658	Iran-Southern Mespotamia	94	300	N. F. Miller	Wright *et al.* (1981)
Sos Höyük*	SOS	39.9940	41.5222	Southern Caucasus	1771	430	C. Longford	This thesis
Shiqmim	SQM	31.1928	34.6182	Southern Levant	180	204	M. Kislev	Kislev (1987)
Sataf	STF	31.7747	35.1251	Southern Levant	690	550	C. de Vartavan	Gibson *et al.* (1991)
Tell-es Sweyhat	SWY	36.2740	38.2538	Middle Euphrates	350	200-250	N. F. Miller, W.van Zeist, J. Bakker-Heeres	van Zeist and Bakker-Heeres (1988); Miller (1997)
Tell Taya	TAA	36.3326	42.4937	Khabur	370	325	J. Giles Waines	Reade (1973)
Tell Arbid	TAB	36.8719	41.0220	Khabur	390	380	K. Waslikowa	Wasylikowa and Kolinski (2013)

Table 3.6 continued

Site Name	Site Code	Latitude (decimal degrees)	Longitude (decimal degrees)	Geographical Region	Site Altitude (m)	Rainfall Zone (mm)	Archaeobotanist(s)	Reference/s
Tell Afis	TAF	35.9037	36.7990	Amuq-Orontes	357	280	C. Wachter-Sarkady	Wachter-Sarkady (1998)
Tell 'Atij	TAJ	36.4219	40.8664	Khabur	295	290	J. McCorriston	McCorriston (1995)
Tell Abu en Ni'aj	TAN	32.4125	35.5631	Southern Levant	-273	300	J. Klinge, P. Fall	Klinge and Fall (2010)
Tell Tayinat	TAY	36.2491	36.3763	Amuq-Orontes	95	1146	M. Capper	Capper (2012)
Tell Bderi	TBD	36.3876	40.8136	Khabur	290	240	W. van Zeist	Van Zeist (2003a)
Tell Brak	TBK	36.6680	41.0612	Khabur	360	300	A.Bogaard, M. Charles, S. College, M. M. Hald	Emberling and McDonald (2001); Charles and Bogaard (2001); Colledge (2003); Hald (2008)
Tel Beth Shean	TBS	32.5042	35.5030	Southern Levant	-125	300	O. Simchoni, M. Kislev	Simchoni *et al.* (2007) Simchoni and Kislev (2012)
Tel Beit Yerah*	TBY	32.7177	35.5722	Southern Levant	-195	400	A. Berger	Berger (2013)
Tell es-Sa'idiyeh	TES	32.2679	35.5780	Southern Levant	-260	200-300	C. Cartwright	Cartwright (2002)
Tell Fadous	TFD	34.2240	35.6547	Amuq-Orontes	15	600	S. Riehl	Genz *et al.* (2009)
Tsaghkasar*	TGK	40.4776	43.9284	Southern Caucasus	2080	480	R.Hovsepyan	Hovsepyan (2011)
Tell Ifshar	TIF	32.3724	34.9080	Southern Levant	11	400	M. Chernoff	Chernoff (1988, 1992); Chernoff and Paley (1998)
Tell Jouweif	TJW	36.2472	38.1999	Middle Euphrates	298	250	N. F. Miller	Miller (2004)
Tell Kurdu	TKD	36.3186	36.4277	Amuq-Orontes	160	1100	H. Ekstrom	Yener *et al.* (2000); Ozbal *et al.* (2004)
Tell Kerma	TKM	36.4492	40.8373	Khabur	290	290	J. McCorriston	McCorriston (1995)

Table 3.6 continued

Site Name	Site Code	Latitude (decimal degrees)	Longitude (decimal degrees)	Geographical Region	Site Altitude (m)	Rainfall Zone (mm)	Archaeobotanist(s)	Reference/s
Taşkun Mevkii*	TMK	38.8450	38.9603	Upper Euphrates - Upper Tigris	850	400	M. Nesbitt	Nesbitt (Unpub.)
Tell Mozan	TMZ	37.0572	40.9976	Khabur	431	460	S. Riehl	Riehl (2010b)
Tell Nebi Mend	TNM	34.5561	36.5184	Amuq-Orontes	520	460	L. Moffett	Mathias and Parr (1989)
Tappeh Gijlar*	TPG	37.7120	45.0911	Southern Caucasus	1310	268	L. Constantini, L. Biasini	Constantini and Biasini (1984)
Tepecik*	TPK	38.6542	39.4483	Upper Euphrates - Upper Tigris	890	400	W.van Zeist, J. Bakker-Heeres	Van Zeist and Bakker-Heeres (1975)
Tell Qarqur	TQQ	35.7422	36.3307	Amuq-Orontes	300	350	A. Smith	Smith (2005)
Tell Raqa'I	TRQ	36.4402	40.8521	Khabur	290	200-250	W. Van Zeist	van Zeist (2003c)
Tell al-Rawda	TRW	35.1808	37.6332	Middle Euphrates	519	<200	L. Herveux	Herveux (2004)
Troy	TRY	39.957275	26.2386	Central-Western Anatolia	85	630	S. Riehl	Riehl (1999)
Tel Tsaf	TSF	32.4067	35.5485	Southern Levant	-270	300	P. Graham	Graham (2014)
Tell Selenkahiye	TSK	36.0514	38.0555	Middle Euphrates	290	200-250	W. van Zeist,J. Bakker-Heeres	van Zeist and Bakker-Heeres (1988)
Tell Shiyukh Tahtani	TST	36.787512	38.0360079	Middle Euphrates	340	300-400	N. Gilligan	Gilligan (2010)
Titriş Höyük	TTS	37.4763	38.6767	Upper Euphrates - Upper Tigris	585	550	M. M. Hald	Hald (2010)
Tel Yarmouth	TYM	31.7082	34.9750	Southern Levant	290	500	A. Salavert	Salavert (2008)

Table 3.6 Continued

Site Name	Site Code	Latitude (decimal degrees)	Longitude (decimal degrees)	Geographical Region	Site Altitude (m)	Rainfall Zone (mm)	Archaeobotanist(s)	Reference/s
Tell Zagan	TZG	36.4833	40.7500	Khabur	314	290	D. Samuels	Samuel (1989)
Umm el-Marra	UMM	36.1339	37.6939	Middle Euphrates	91	300	N. F. Miller	Schwartz *et al.* (2000); Schwartz and Miller (2007)
Umm Qseir	UQS	36.4089	40.8495	Khabur	290	<250	J. McCorriston	McCorriston (1992)
Velikent*	VLK	42.1774	48.0640	Southern Caucasus	60	420	A. Arnaz	Gadzhiev *et al.* (1997)
Wadi Fidan 4	WAD	30.6711	35.3859	Southern Levant	4	50	J. Meadows	Meadows (2001)
Yenibademli Höyük	YNB	40.2173	25.8956	Central-Western Anatolia	18	700	E. Oybak Donmez	Oybak Donmez (2005)
Yarim Höyük	YRH	36.9713	37.9706	Middle Euphrates	460	368	N. F. Miller	Rothman *et al.* (1998)

Table 3.7 Sites in this study with archaeobotanical sample data published as combined by period or context records. The number of records published per site and the equivalent number of samples these represents is recorded.

Site name	**Number of records published**	**Number of samples combined together**
Aknashen	5	66
Areni-I Cave	4	not recorded
Çamlibel	1	25
Çatalhöyük West	2	80
Domuztepe	4	220
Ebla	25	416
Hirbet ez-Zeraqon	2	159
Jericho	33	58
Kamiltepe/Mil Plain Sites	5	91
Kurban Höyük	6	99
Leilan	32	52
Mentesh Tepe	1	54
Oylum Höyük	1	17
Qatna	68	113
Ras an-Numayra	1	5
Tel Beit Yerah	22	99
Tel Tsaf	12	58
Tell Aqab	1	3
Tell Fadous	6	79
Umm Qseir	1	3

Table 3.8. Methods of archaeobotanical data recording used for sites included in this study. Sites not listed in this table only record archaeobotanical taxa through minimum number of items.

Site	Scale of abundance	Percentage of sample	Presence/ absence	Minimum number	Site Ubiquity	Weight
Abu Hamid			x			
Aknashen	x			x		
Aparan-III			x	x		
Arad	x			x		
Areni-I Cave			x			
Bendebal			x	x		x
Çadir Höyük			x	x		
Dilkaya	x			x		
Farukhabad	x		x	x		
Fatmali-Kalecik			x	x		
Girikihaciyan			x	x		
Godin Tepe				x		x

Table 3.8 continued

Site	Scale of abundance	Percentage of sample	Presence/ absence	Minimum number	Site Ubiquity	Weight
Hacinebi			x	x		x
Hajji Ibrahim	x		x	x		
Hammam et-Turkman	x		x	x		x
Hassek Höyük			x			
Hirbet ez-Zeraqon			x			
Imamoğlu				x		x
Jaffarabad			x	x		x
Jericho			x	x		x
Kaman Kalehöyük	x			x		
Kenan Tepe	x			x	x	
Kinet Höyük			x	x		
Korucutepe	x	x	x	x		
Kosak Shamali			x	x		
Kultepe II	x		x			
Kurban Höyük					x	
Kuruçay Höyük	x					
Leilan			x	x		
Malyan	x		x	x		x
Maxta	x		x			
Megiddo				x		x
Ras Shamra			x	x		
Sataf			x			
Tall-e Bakun			x	x		x
Tall-e Jari			x	x		x
Tappeh Gijlar	x			x		
Tell Arbid			x	x		
Tell Bderi	x			x		x
Tell Brak			x	x		
Tell es-Sa'idiyeh			x			
Tell Jouweif			x	x		x
Tell Kurdu				x		x
Tell Munbaqa	x			x		
Tell Raqa'I	x		x	x		x
Tell Sabi Abyah	x			x		x
Tell Selenkahiye			x	x		
Tell Zagan			x			
Tell-es Sweyhat			x	x		
Tepecik	x			x		
Umm el-Marra			x	x		x
Wadi Fidan 4	x			x		
Yarim Höyük			x	x		x

Table 3.9. Summary of the number of sites in each phase with archaeobotanical data by geographical region.

	Phase 1	Phase 1-2	Phase 2	Phase 2-3	Phase 3	Phase 3-4	Phase 4	Phase 4-5	Phase 5	Phase 5-6	Phase 6
Amuq-Orontes	3			1	1		2		3	4	7
Central-Western Anatolia	2			1	3		1	1	2		2
Iran-Southern Mespotamia	6	2	1	1	4	3		1	1		2
Khabur	4		2		2	1	4	2	6	2	6
Middle Euphrates	1		2	1	3	2	4	3	5	8	8
Southern Caucasus	4		1		7	1	1	2	4	1	3
Southern Levant	1	1	3		8	4	3	3	6	3	5
Upper Euphrates - Upper Tigris	5		3	2	5	2	4	2	6	1	3
Total sites in each phase	26	3	12	6	33	13	19	14	33	19	36

Table 3.10 Summary of the number of archaeobotanical samples in each phase by geographical region.

	Phase 1	Phase 1-2	Phase 2	Phase 2-3	Phase 3	Phase 3-4	Phase 4	Phase 4-5	Phase 5	Phase 5-6	Phase 6	Total samples
Amuq-Orontes	53			1	28		5		42	62	154	345
Central-Western Anatolia	12			25	42		12	15	12		57	175
Iran-Southern Mespotamia	22	4	32	3	44	112		1	2		111	331
Khabur	55		20		107	14	56	11	209	38	202	712
Middle Euphrates	7		7	20	21	7	13	7	16	145	99	342
Southern Caucasus	27		4		57	19	8	22	35	4	40	216
Southern Levant	12	1	35		75	8	101	26	77	57	251	643
Upper Euphrates - Upper Tigris	174		14	12	63	6	24	17	128	2	10	448
Total samples in each phase	362	5	112	61	435	166	219	99	521	308	924	3212

Table 3.11. Number of samples in each site assemblage according to project phase.

	Phase 1	Phase 1-2	Phase 2	Phase 2-3	Phase 3	Phase 3-4	Phase 4	Phase 4-5	Phase 5	Phase 5-6	Phase 6	Total at each site
Abu Hamid		1										1
Afula					1						2	3
Aknashen	5											5
Aparan-III					1							1
Arad						2	63					65
Aratashen	16											16
Areni-1 Cave			4									4
Arjoune	17											17
Arslantepe					20		4		20			44
Aşvan Kale									12			12
Bab edh-Dhra					25	1	22	9	31	18		106
Bendebal	6											6
Çadir Höyük					13							13
Çamlibel					1							1
Çatalhöyük West	2											2
Çaybolu			10		10							20
Chagar Bazar	1											1
Chobareti					5							5
Demircihöyük									6			6
Dilkaya										4	5	9
Domuztepe	4											4
Ebla									24		1	25
Emar										14	5	19
Fatmali-Kalecik	5		3									8

Table 3.11 Continued	Phase 1	Phase 1-2	Phase 2	Phase 2-3	Phase 3	Phase 3-4	Phase 4	Phase 4-5	Phase 5	Phase 5-6	Phase 6	Total at each site
Gegharot					4							4
Girikihaciyan	44											44
Godin Tepe					9							9
Gre Virike							3	3	2	5		13
Hacinebi			6	20	12							38
Hadidi											19	19
Haftavan									8		7	15
Hajji Ibrahim						2						2
Hammam et-Turkman			8		3					29	37	77
Hassek Höyük					21	5	7					33
Hirbet ez-Zeraqon									2			2
Imamoğlu								5				5
Jaffarabad	3		32									35
Jerbalus Tahtani					5			3	2			10
Kaman Kalehöyük											31	31
Kamiltepe/Mil Plain Sites	3											3
Kenan Tepe	120				9						1	130
Kinet Höyük											27	27
Korucutepe				6					68			74
Kosak Shamali	7											7
Kultepe II									18			18
Kumtepe	10				28							38
Kurban Höyük	1		1		1	1			1		1	6
Kurucay Höyük				25								25
Leilan							3		26		3	32

Table 3.11 Continued	Phase 1	Phase 1-2	Phase 2	Phase 2-3	Phase 3	Phase 3-4	Phase 4	Phase 4-5	Phase 5	Phase 5-6	Phase 6	Total at each site
Malyan						96					105	201
Maxta					13							13
Mezraa Höyük							5			3	2	10
Nevallat			1									1
Numeira									21			21
Ovçular Tepe	3											3
Oylum Höyük			1									1
Qatna/Tell Mishrifeh									17	49	2	68
Ras an-Numayra					1							1
Ras Shamra	12											12
Sarafabad					14							14
Sataf			12		1							13
Shiqmim			22									22
Sos Höyük					17		8	9	8		28	70
Tall-e Bakun	1	3										4
Tall-e Jari	3											3
Tappeh Gijlar					9			13				22
Taskun Mevkii							12					12
Tel Beit Yerah					3	3		16				22
Tel Beth Shean					11				5		10	26
Tel Tsaf	12											12
Tel Yarmouth							16		11			27
Tell Abu en Ni'aj										37		37
Tell Afis					28					8	3	39
Tell al-Rawda										7		7

Table 3.11 Continued	Phase 1	Phase 1-2	Phase 2	Phase 2-3	Phase 3	Phase 3-4	Phase 4	Phase 4-5	Phase 5	Phase 5-6	Phase 6	Total at each site
Tell Aqab	1											1
Tell Arbid											29	29
Tell 'Atij							8					8
Tell Bderi									45			45
Tell Brak			12		104		28		83		47	274
Tell el 'Oueili	4	1										5
Tell el-Hayyat										2	149	151
Tell es-Sa'idiyeh								1				1
Tell Fadous				1			2		1	1	1	6
Tell Ifshar						2					84	86
Tell Jouweif											6	6
Tell Karrana 3						14						14
Tell Kerma								10				10
Tell Kurdu	24											24
Tell Mastuma										4		4
Tell Mozan									13	9	85	107
Tell Munbaqa										22		22
Tell Nebi Mend							3					3
Tell Qara Quzaq-I									6	2	7	15
Tell Qarqur											64	64
Tell Raqa'I							17		29			46
Tell Sabi Abyah	52											52
Tell Selenkahiye										85		85
Tell Shiyukh Tahtani							4				3	7
Tell Taya									13		1	14

Table 3.11 Continued	Phase 1	Phase 1-2	Phase 2	Phase 2-3	Phase 3	Phase 3-4	Phase 4	Phase 4-5	Phase 5	Phase 5-6	Phase 6	Total at each site
Tell Tayinat											56	56
Tell Zagan								1				1
Tell-es Sweyhat									3		44	47
Tepe Hissar					20	11			2		6	39
Tepecik				6			1	12	2	2	8	31
Titris Höyük									25			25
Troy							12		6		26	44
Tsaghkasar					8							8
Umm el-Marra								1	3	7	13	24
Umm Qseir	1											1
Velikent						19			1			20
Wadi Fidan 4					21							21
Yarim Höyük					4	5	1					10
Yenibademli Höyük								15				15

Chapter 4

Table 4.1. Individual sample ratios for samples with more than 30 *T. aestivum* items, and average period ratios of *T. aestivum* rachis internodes to free threshing wheat grain. The expected whole plant ratio for *T. aestivum* rachis to grain is 1:3, c. 0.3.

Late Chalcolithic (avg)	2.69
SOS1	2.91
SOS3	2.55
SOS4	2.05
SOS6	0.37
SOS7	3.55
SOS9	3.31
SOS10	3.59
SOS11	5.30
SOS14	0.93
SOS15	2.36

Early Bronze I (avg)	14.09
SOS18	2.47
SOS20	0.58
SOS22	64.35
SOS23	1.53
SOS24	1.53
Early Bronze I/II (avg)	3.05
SOS26	3.49
SOS27	1.54
SOS28	4.48
SOS30	2.70
Early Bronze II (avg)	1.94
SOS32	1.26
SOS33	3.52
SOS34	1.03
Early Bronze III (avg)	1.42
SOS35	2.59
SOS36	0.27
SOS37	0.60
SOS38	1.10
SOS39	0.35
SOS40	0.75
SOS42	4.29

Middle Bronze I (avg)	2.09
SOS43	0.67
SOS44	2.44
SOS46	2.91
SOS50	2.38
Middle Bronze II (avg)	1.62
SOS51	1.30
SOS56	2.78
SOS57	2.48
SOS58	4.10
SOS59	2.28
SOS60	0.02
SOS63	4.20
SOS64	0.78
SOS65	0.07
SOS66	1.14
SOS67	0.64
SOS68	0.25
SOS70	1.15

Table 4.2. Individual sample ratios of *Triticum dicoccum* glume bases to grain in samples with more than 20 *T. dicoccum* items. The expected whole plant ratio for *T. dicoccum* glume bases to grain is c.1:1.

Middle Bronze I (avg)	
SOS43	9.74
SOS50	1.62
Middle Bronze II (avg)	
SOS59	12.41
SOS60	6.76
SOS66	17.43
SOS67	0.97
SOS68	3.78

Table 4.3. Individual sample ratios and average period ratios of *H. distichum* rachis internodes to grain in samples with more than 30 *H. distichum* items. The expected whole plant ratio for *H. distichum* rachis internode to grain is 1:1.

Late Chalcolithic (avg)	1.64	**Early Bronze I (avg)**	6.43	**Middle Bronze I (avg)**	3.31
SOS1	1.88	SOS18	1.73	SOS45	3.18
SOS3	0.44	SOS20	9.80	SOS46	3.26
SOS4	1.14	SOS22	13.19	SOS49	5.50
SOS5	4.87	SOS23	1.51	SOS50	1.35
SOS6	0.51	SOS24	5.92	**Middle Bronze II (avg)**	1.15
SOS9	1.31	**Early Bronze I/II (avg)**	1.66	SOS54	0.10
SOS10	1.80	SOS26	0.29	SOS55	0.18
SOS11	0.68	SOS28	3.42	SOS56	2.12
SOS12	2.57	SOS30	1.30	SOS57	3.14
SOS15	1.23	**Early Bronze II (avg)**	1.90	SOS58	3.81
		SOS32	2.01	SOS59	0.50
		SOS33	2.13	SOS61	0.19
		SOS34	1.55	SOS62	0.07
		Early Bronze III (avg)	1.49	SOS63	1.22
		SOS35	1.68	SOS65	0.25
		SOS37	0.56	SOS66	0.11
		SOS38	2.16	SOS67	0.47
		SOS39	0.26	SOS69	2.46
		SOS40	2.41	SOS70	1.49
		SOS41	1.91		

Table 4.4. Sos Höyük sample groupings based on correspondence analysis of crop items (see Figures 3.13 and 3.14).

	T. dicoccum glume base rich Group 1	*H. distichum* grain rich Group 2	*T. aestivum* rachis internode rich Group 3a	*H. distichum* rachis internode rich Group 3b	Mixed cereal Group 4
Late Chalcolithic		SOS4	SOS1 SOS2 SOS3 SOS6 SOS7 SOS9 SOS10 SOS11 SOS14 SOS15	SOS5 SOS12	SOS16
Early Bronze I				SOS18 SOS20 SOS22 SOS23 SOS24	
Early Bronze I/II			SOS27 SOS30 SOS31	SOS28	SOS26
Early Bronze II			SOS32 SOS34	SOS33	
Early Bronze III			SOS36 SOS37 SOS38 SOS39 SOS42	SOS35 SOS40 SOS41	
Middle Bronze I		SOS43 SOS50	SOS44 SOS46	SOS45 SOS49	
Middle Bronze II	SOS59 SOS60 SOS66	SOS62 SOS65 SOS67 SOS68	SOS56 SOS58 SOS63 SOS70	SOS57 SOS69	SOS51 SOS52 SOS53 SOS54 SOS55 SOS61 SOS64

Table 4.5. Ubiquity of wild taxa at Sos Höyük for taxa in more than 10% of samples showing entire site ubiquity, total number of items and period ubiquities for the Late Chalcolithic (LC), Early Bronze Age (EB) and Middle Bronze Age (MB).

		Site Ubiquity %	Total number	LC %	EB %	MB %
Amaranthaceae	Amaranthaceae	11	45	0	4	25
Atriplex* cf. *lasiantha	Amaranthaceae	31	486	23	28	39
Chenopodium album	Amaranthaceae	67	2220	53	64	78
Kochia prostata/scoparia	Amaranthaceae	27	116	0	0	67
Polycnemum arvense	Amaranthaceae	19	145	35	16	11
Asteraceae	Asteraceae	27	77	35	24	25
***Buglossoides arvensis* (mineralised)**	Boraginaceae	70	355	41	80	79
***Lithospermum officinale* (mineralised)**	Boraginaceae	24	28	0	44	21
Brassicaceae	Brassicaceae	11	41	0	16	14
Brassicaceae type D/F	Brassicaceae	10	105	18	8	7
***Cardaria/Lepidium* type**	Brassicaceae	50	174	41	52	54
Euclidium syriacum	Brassicaceae	21	43	18	24	21
Thlaspi arvense	Brassicaceae	11	44	18	8	11
***Silene* sp. type 1**	Caryophyllaceae	27	149	0	28	43
***Silene* sp. type 2**	Caryophyllaceae	13	91	0	20	14
Vaccaria pyramidata	Caryophyllaceae	47	107	12	40	75
***Convolvulus* sp.**	Convolvulaceae	36	71	29	24	50
Bolboschenus maritimus	Cyperaceae	44	113	47	32	54
***Carex* spp.**	Cyperaceae	17	72	18	12	21
Cyperaceae	Cyperaceae	56	464	65	60	46
***Eleocharis* sp.**	Cyperaceae	16	111	18	4	25
Trifolium/Melilotus/ Medicago	Fabaceae	93	3859	88	96	93
***Trigonella* sp.**	Fabaceae	21	143	18	12	32
***Vicia/Lathyrus* sp.**	Fabaceae	30	78	18	24	43
Lallemantia iberica/canescens/peltata	Lamiaceae	56	431	29	76	54
***Teucrium* sp.**	Lamiaceae	10	14	6	16	7
***Malva* sp.**	Malvaceae	31	87	24	32	36
Bromus* cf. *japonicus	Poaceae	64	302	59	92	43
Lolium* cf. *perenne/multiflorum	Poaceae	57	282	58	64	50
Poaceae	Poaceae	77	682	82	64	86
Poaceae chaff	Poaceae	16	91	41	8	7
Fallopia convolvulus	Polygonaceae	24	32	24	32	18
***Persicaria* sp.**	Polygonaceae	40	126	24	40	50
Polygonum arenastrum/bellardii	Polygonaceae	79	680	76	76	82
***Rumex* sp.**	Polygonaceae	39	94	29	32	50

Table 4.5 continued

		Site Ubiquity %	Total number	LC %	EB %	MB %
***Adonis* sp.**	Ranunculaceae	21	23	6	32	21
***Rosa* spp.**	Rosaceae	24	49	6	32	29
Asperula* cf. *involucrata	Rubiaceae	30	315	29	36	25
cf. *Crucianella* sp.	Rubiaceae	10	65	6	20	4
***Galium* spp. >1mm**	Rubiaceae	84	675	71	84	93
***Galium* spp. <1mm**	Rubiaceae	10	128	0	12	14
Hyoscyamus niger	Solanaceae	13	170	0	8	25
Thymelaea* cf. *passerina	Thymelaeaceae	10	36	6	20	4
Fruit tissue Type B	Unknown	17	44	35	12	11
mini pine cone	Unknown	11	29	12	8	14
Pod A Indet	Unknown	10	9	0	20	7
Type AE	Unknown	21	249	18	20	25

Table 4.6. Wild taxa present in more than 10% of Sos Höyük samples and used in discussions about the sources of plant remains and crop seasonality (sections 4.5 and 4.6). Ecological data derived from Davis *et al.* (1965-1988). Erzurum sowing survival trial (a = autumn sown, f = freezing sown, s = spring sown) from Bulut *et al.* (2010) and Coruh and Bulut (2008). Life habit: a = annual, p = perennial b = biennial.

	Canoco code	**Flowering period**	**Germination**	**Erzurum Sowing trial (a/f/s)**	**Life habit (a/p/b)**	**Height (cm)**	**Habitat**
Polycnemum arvense	Pcn	June-July	Spring		a	5-30	arable
Atriplex* cf. *lasiantha	Atr	May-July	Spring		a	>100	arable, ruderal, steppe
Chenopodium* cf. *album	ChA	May-Aug.	Spring	a/f/s	a	20-150	arable, ruderal
Kochia prostrata/scoparia	Kch	June-Aug.			a/p	20-150	arable, ruderal, steppe
Buglossoides arvensis	LithArv	Feb.-June	Autumn/Spring	s	a	2-30	arable, ruderal, steppe
Lithospermum officinale	LithOff	May-July			p	30-90	arable, ruderal, steppe
Brassicaceae type D/F	BraDF						
***Cardaria/Lepidium* type**	CarLep	April-May	Autumn/Spring		a/p	20-60	arable, ruderal
Thlaspi arvense	ThArv	Feb.-May	Autumn		a	10-70	arable, ruderal
Euclidium syriacum	EucSyr	April-June	Spring		a	15-40	arable, ruderal, steppe
***Silene* spp. type 1/2**	Sil1/Sil2	May-Aug.	Autumn/Spring		p	5-100	arable, ruderal, steppe
Vaccaria pyramidata	Vacc	April-July	Spring	s	a	15-60	arable
***Convolvulvus* sp.**	Conv	April-Sept.		a/f/s	p	3-300	arable, ruderal, steppe
Bolboschoenus maritimus	BolbMa	May-Sept.			p	60-100	wetland
***Carex* spp.**	Carex				p		arable, ruderal, wetland
***Eleocharis* sp.**	Eleo	April-Sept.			p	5-55	wetland
Cyperaceae	Cyper						arable, ruderal, wetland
Trifolium/Melilotus/Medicago	Sleg	April-Aug.		a/s	a/p	10-70	arable, ruderal
***Trigonella* sp.**	Trig	April-July			a	5-40	arable, ruderal, steppe
***Vicia/Lathyrus* sp.**	ViLa						arable, ruderal, steppe

Table 4.6 continued

	Canoco code	Flowering period	Germination	Erzurum Sowing trial (a/f/s)	Life habit (a/p/b)	Height (cm)	Habitat
Lallemantia iberica/canescens/peltata	Lall	April-Aug.			a/p	15-50	arable, ruderal, slopes
***Teucrium* sp.**	Teuc	May-Sept.			p	5-50	ruderal, steppe, slopes
***Malva* sp.**	Malva	May Oct.			a/p/b		arable, ruderal, steppe
Bromus* cf. *japonicus	Bromus	May -July	Spring	a/s	a	70	arable, ruderal, steppe, slope
Lolium* cf. *perenne/multiflorum	Lolium	April-Sept.			a/b/p	50-130	arable, ruderal
Fallopia convolvulvus	Fall	May-Sept.	Spring	a/f/s	p	100	arable, ruderal
***Persicaria* sp.**	Pers	June-Aug.	Spring		a	20-100	wetland, slopes
Polygonum arenastrum/bellardii	Poly	May-Nov.	Spring	a/s	a	20-60	arable, ruderal
***Rumex* sp.**	Rumex	June-Aug.			p	10-150	arable, ruderal, slope, wetland
***Adonis* sp.**	Adonis	March-June		a/f/s	a/p	10-50	arable, ruderal, steppe
***Rosa* spp.**	Rosa	June-July			p	150	slopes, steppe
***Asperula* sp. <1mm**	Asp	May-Sept.			p	15-40	arable, ruderal, steppe, forest
cf. *Crucianella*	Cruc	May-Aug.	Spring		a	5-20	arable, ruderal, steppe, slope
***Galium* spp. big >1mm / small <1mm**	GalBig /GalSm	May-Aug.			a/p		arable, ruderal, steppe, slope
Hyoscyamus niger	Hyosc	April-Aug.	Spring		a/b	20-100	arable, ruderal
***Thymelaea* cf. passerina**	Thyme	April-Aug.			a	15-60	arable, steppe

Table 4.7 Faunal remains identified at Sos Höyük for the Kura-Araxes period recorded as percentages based on number of identified specimens (NISP) and minimum number of individuals (MNI) by Piro (2009) and Howell-Meurs (2001).

	Late Chalcolithic		**Early Bronze I**		**Early Bronze II/III**		**Middle Bronze**	
Piro (2010)	%NISP	% MNI	%NISP	% MNI	%NISP	% MNI	%NISP	% MNI
***Bos taurus* (cow)**	21.6	13.8	24.1	13.8	25.6	18.2	31.1	28.6
***Ovis/Capra* (sheep/goat)**	72.7	34.5	67.3	44.8	67.2	30.3	64.6	39.3
***Sus scrofa* dom. (pig)**	0.5	6.9	0.2	3.5	0.3	3	1.4	3.6
Other	5.2	44.8	8.4	37.9	6.9	48.5	2.9	28.5

	Early Bronze II/III	
Howells-Meurs (2001)	%NISP	% MNI
***Bos taurus* (cow)**	40.6	17.2
***Ovis/Capra* (sheep/goat)**	54.4	56.3
***Sus scrofa* dom. (pig)**	0.4	1.3
Other	4.6	25.2

Table 4.8. Grouping of wild seeds found a Sos Höyük based on their physical characteristics that are important for determining crop processing stages. Big was regarded as >2mm. Based on Jones (1987, 1984), Hynd (1997), Charles and Bogaard (2001), Hald (2008) and personal observation in the laboratory. Abbreviations: Big, free, heavy (BFH); big, headed, heavy (BHH); small free heavy (SFH); small headed heavy (SHH); small free light (SFL); small headed light (SHL).

BFH	*Atriplex* cf. *lasiantha* in bracts			*Fumaria* sp.
	Bupleurum-type			*Aegilops* sp.
	Centaurea sp.			*Fallopia convolvulvus*
	Euclidium syriacum (nutlets)			*Ranunculus* cf. *repens*
	Convolvulvus sp.			*Agrimonia* cf. *eupatoria* (fruit)
	Lathyrus sp.	*Vicia/Lathyrus* sp.		*Galium* spp. >1mm
	Lallemantia iberica/canescens/peltata			*Kochia prostrate/scoparia* (fruit)
BHH	*Anthemis* sp.	cf. *Onobrychis* sp.		*Medicago* cf. *papillosa* pod
SFH	*Atriplex* sp.			*Astragalus* sp.
	Chenopodium cf. *album*			*Trifolium/Melilotus/Medicago*
	Chenopodium foliosum			*Trigonella astroites*
	Chenopodium sp.			*Trigonella* sp.
	Chenopodium/Atriplex			*Geranium* sp.
	Polycnemum arvense			cf. *Ajuga* sp.
	cf. *Artemesia* sp.			*Ajuga/Teucrium*
	Buglossoides arvensis			*Nepeta* sp.
	Brassica type			*Teucrium* sp.
	Cardaria/Lepidium type			cf. *Bellevalia* sp.
	cf. *Camelina* sp.			*Hyoscyamus niger*
	Thlaspi arvense			Small seeded grass Panicoid
	Vaccaria pyramidata			*Polygonum arenastrum/bellardii*
	Bolboschenus maritimus			*Rumex* sp.
	Carex spp.			*Solanum* cf. *nigrum*
	Asperula sp.			*Persicaria* sp.
	cf. *Crucianella sp.*			*Adonis* sp.
	Galium spp. <1mm			*Eleocharis* sp.
SFH/SHH	*Salsola* sp.	cf. *Coronilla* sp.		*Cyperus* spp.
	Gypsophila sp.	cf. *Plantago* sp.		
SFL	*Juncus* sp.			cf. *Lolium* sp.
	Bromus cf. *japonicus*			*Lolium perenne/multiflorum*
SHH	*Silene* sp.	*Malva* sp.	*Thymelaea* sp.	*Malva* cf. *sylvestris*
SHL	*Crepis* sp.			

Table 4. 9 Survivablity of wild seeds and crop items in animal dung as determined by animal feeding experiments recorded as percentage of seeds ingested present in dung. Only the data for the same genera as present in the Sos Höyük samples is included.

	Wallace and Charles (2013)[1]	Will and Tackenberg (2008)	Grande *et al.* (2013)	Gardener *et al.* (1993)	Mancilla-Leyton *et al.* (2012)	Ghassali *et al.* (1998)	Russi *et al.* (1992);	Ramos *et al.* (2010)
Survival %	Sheep	Sheep/goat/deer/cattle	Goat	Cattle	Goat	Sheep	Sheep	Sheep
T. monococcum grain	0.3							
T. monococcum glume base	3.0							
Hordeum vulgare grain	0.0							
Hordeum Rachis internode	3.5							
Atriplex halimus			4					
Chenopodium album	89.9							
Suaeda maritima	7.7							
Lepidium campestre		88.72						
Silene vulgaris		70.26						
Bolboschoenus maritimus	9.8							
Carex alba/sylvatica		94.63/83.7						
Eleocharis uniglumis		100						
Lathyrus pratensis/sylvestris		85.25/97.27						
Medicago *Medicago sativa*						20-50		0.72
Melilotus officinalis		23.06						

[1] Survival percentage from data in Wallace and Charles (2013) calculated as follows: Material from diets A and B: % survival = number of item found/total pellets examined (808) x total number of pellets (23600) / number of items fed to sheep (item in each meal x number of meals (5) x number of sheep (8)) x 100. Material from diet B only: % survival = number of item found/total pellets examined (430) x total number of pellets (15105) / number of items fed to sheep (item in each meal x number of meals (5) x number of sheep (5)) x 100.

Table 4.9 continued	Wallace and Charles (2013)	Will and Tackenbery (2008)	Grande *et al* (2013)	Gardener *et al* (1993)	Mancilla-Leyton *et al* (2012)	Ghassali *et al* (1998)	Russi *et al* (1992)	Ramos *et al* (2010)
	Sheep	Sheep/goat/deer/cattle	Goat	Cattle	Goat	Sheep	Sheep	Sheep
Trifolium pratense *T. repens* *T. subterraneum*	6.3			6.2	1.5			
Trifolium small *Trifolium* large *T. stellatum/tomentosum/campestre*						58-72 10-40	23/36/59	
Vicia cracca *V. ervilia*		58.35						0.83
Juncus effuses	8.0	96.57						
Bromus ramosus agg.		16.8						
Lolium multiflorum *L. rigidum*		6.11			2			
Rumex acetosella		77.51						
Ranunculus acris/bulbosus/repens		99.3/92.4/99.3						
Agrimonia eupatoria		100						
Galium verum		8.37						

Table 4.10 Wild seed to Charcoal ratios (#:g) and Seed >2mm to Charcoal ratio (g:g) by Sos Höyük periods.

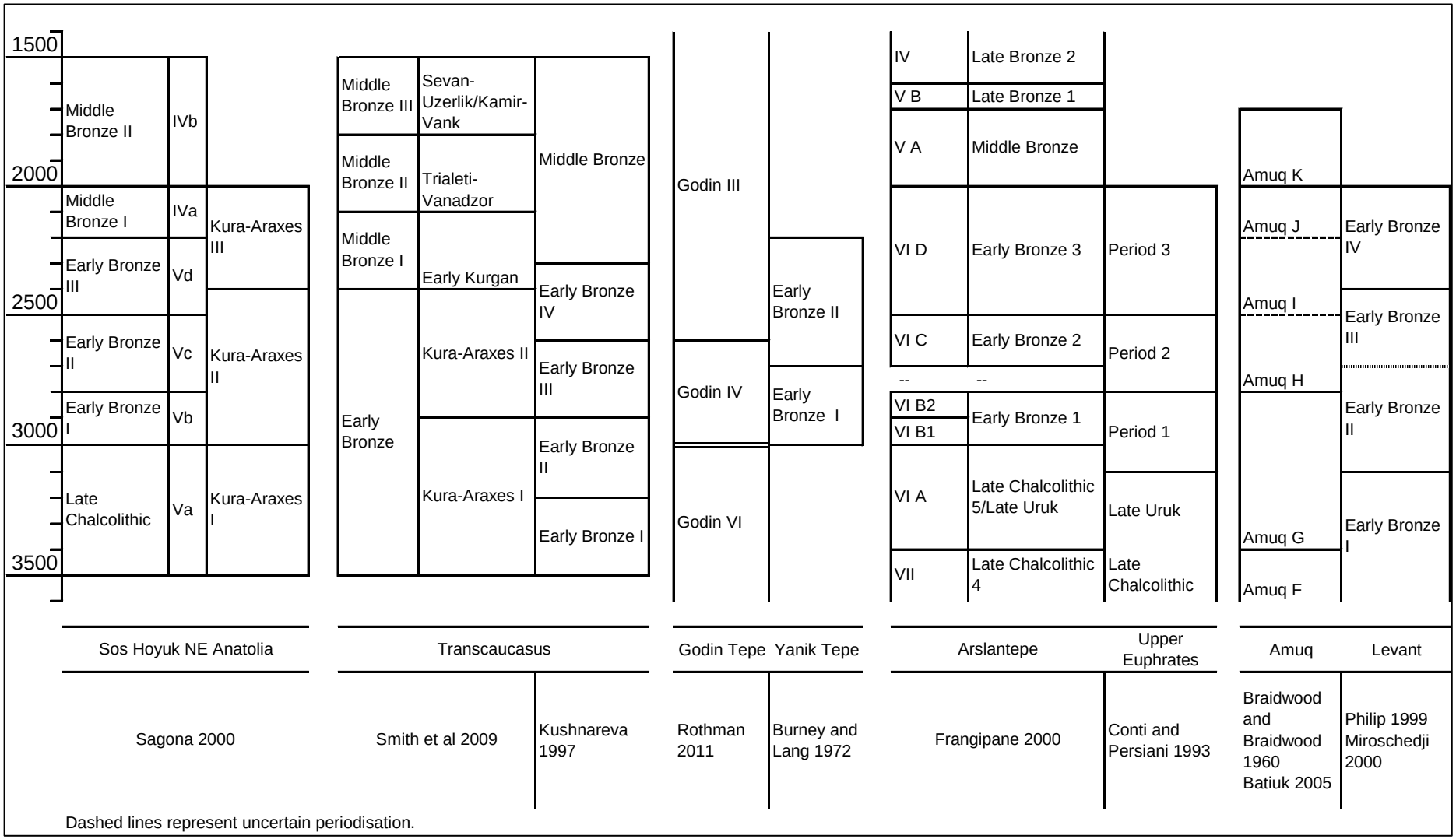
	Wild:Charcoal (#:g)			>2mm seed:Charcoal (g:g)		
	Average	Maximum	Minimum	Average	Maximum	Minimum
Late Chalcolithic	28.54	182.97	0.23	0.07	0.41	0.0001
Early Bronze I	9.10	18.93	2.12	0.02	0.04	0.002
Early Bronze I/II	7.69	14.31	2.14	0.03	0.05	0.014
Early Bronze II	16.35	36.87	4.49	0.04	0.08	0.017
Early Bronze III	13.98	45.34	4.00	0.03	0.04	0.004
Middle Bronze I	7.83	11.99	3.79	0.01	0.03	0.001
Middle Bronze II	13.02	44.74	0.64	0.07	0.33	0.005

Table 4. 11 Comparison of average ratios of the number of wild seeds and weight of seeds >2mm to grams of charcoal from sites in Turkey and Syria. Data sources Gritille (Miller 1998),Tell es-Sweyhat (Miller 1997), Hacinebi (Stein *et al.* 1996), Gordion (Miller 2010). Higher values indicate a greater proportion of dung fuel relative to wood being burnt.

	Period	Wild:Charcoal (#:g)	>2mm Seed:Charcoal (g:g)	Vegetation interpretation
Gritille	Late Medieval	917	2.4	depleted oak woodland
Tell es-sweyhat	Early/Middle Bronze	683	1.13	steppe
Hacinebi	Chalcolithic	57	0.24	steppe forest
Gordion	Bronze-Medieval	45	0.16	steppe woodland
Gritille	Early Medieval	39	0.12	open oak woodland

Figures

Chapter 2



Dashed lines represent uncertain periodisation.

Figure 2.1 Comparative Kura-Araxes chronology for eastern Anatolia, Transcaucasia, northwestern Iran, the Amuq and the southern Levant.

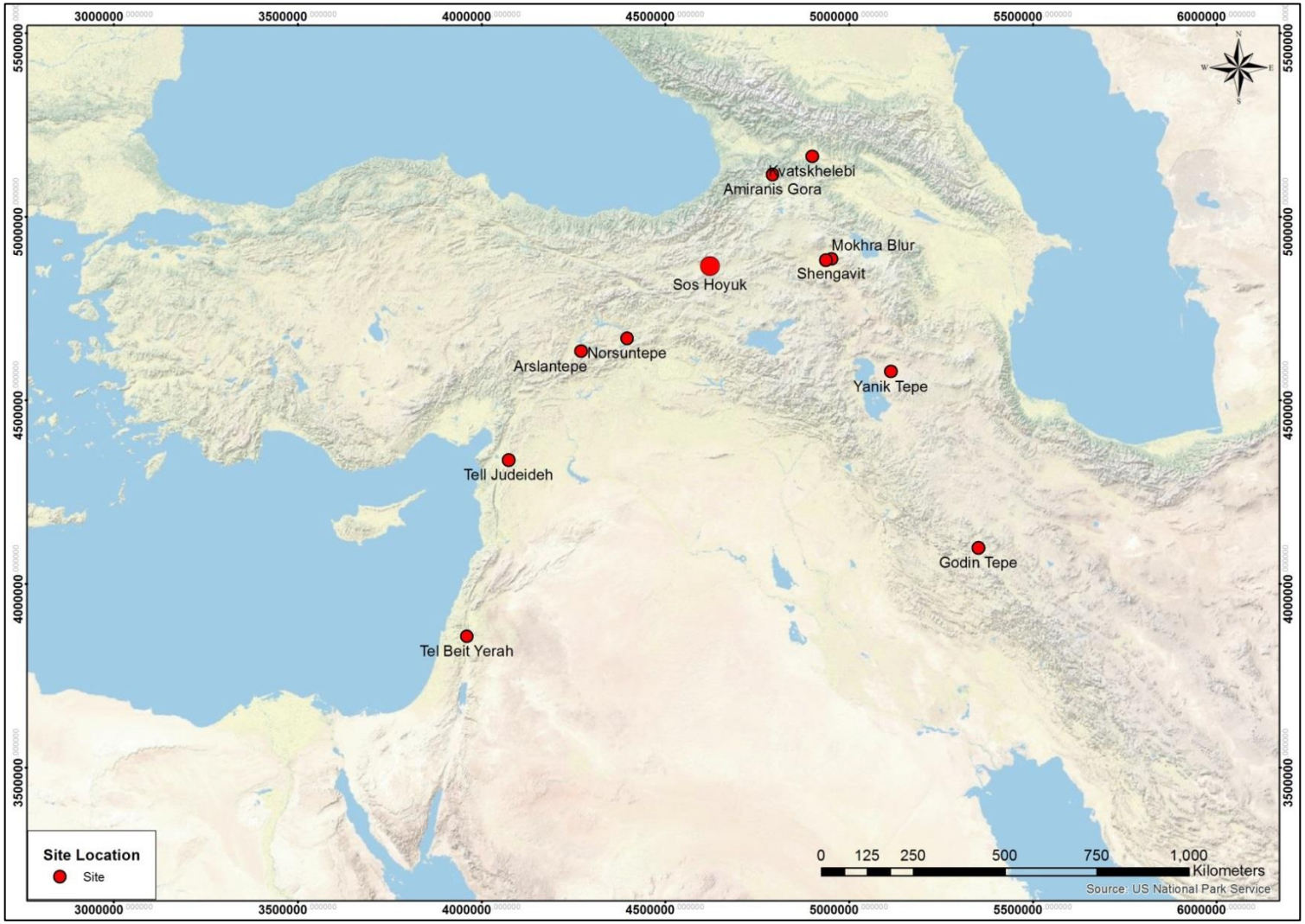


Figure 2.2 Location of some Kura-Araxes sites mentioned in the text, including the site of Sos Höyük.

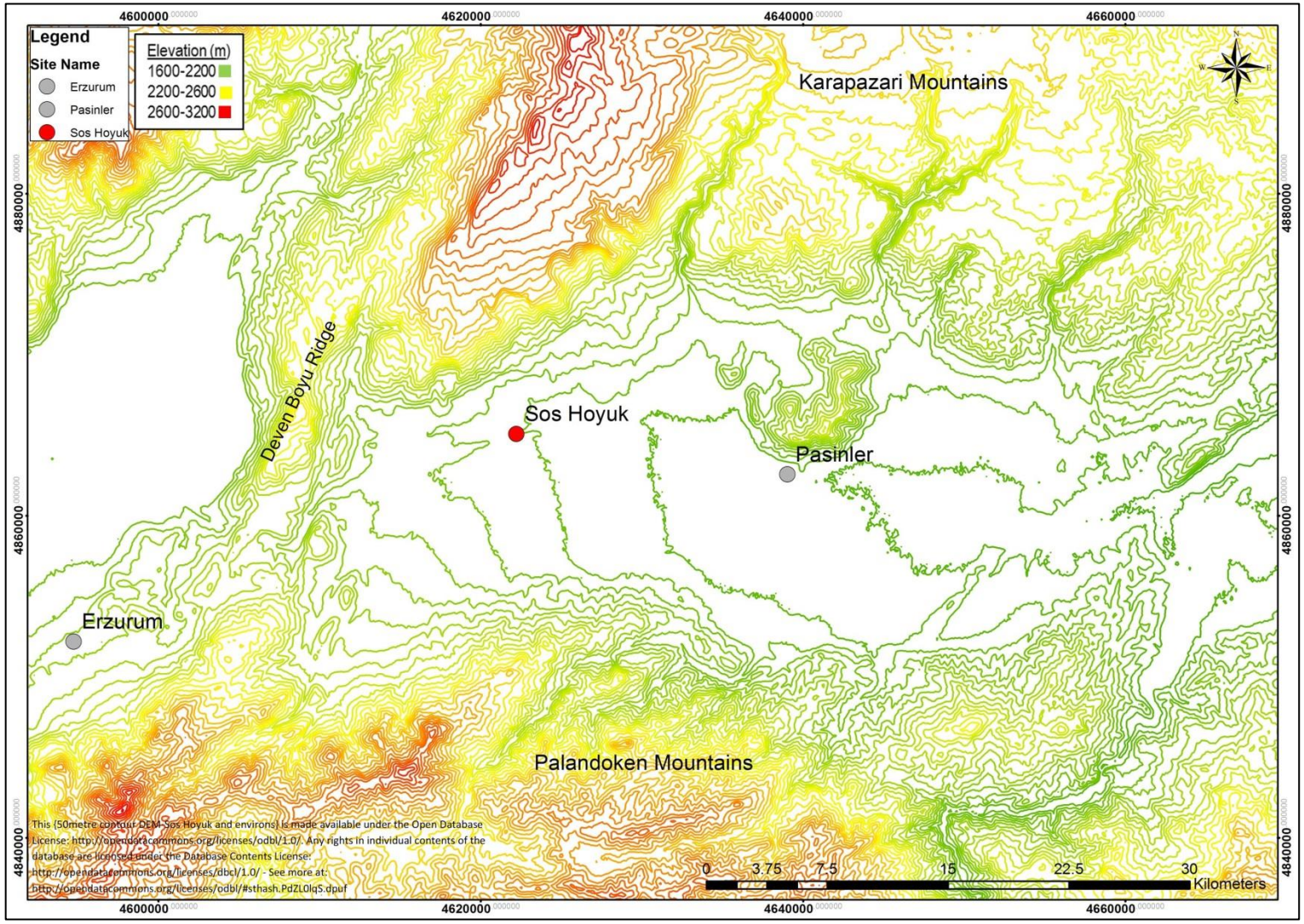


Figure 2.3 The Pasinler Valley, Turkey, indicating the location of Sos Höyük and other places mentioned in the text.

a)

b)

Figure 2.4 a) The site of Sos Höyük and village of Yiğittaşi, photo taken from the north of the Dere Suyu in June 2001 looking south towards the village. Note the cut of the excavation trench in the north east face of the mound. b) Photograph of the Dere Suyu to the north of Yiğittaşi, view looking east. June 2001.

a) 

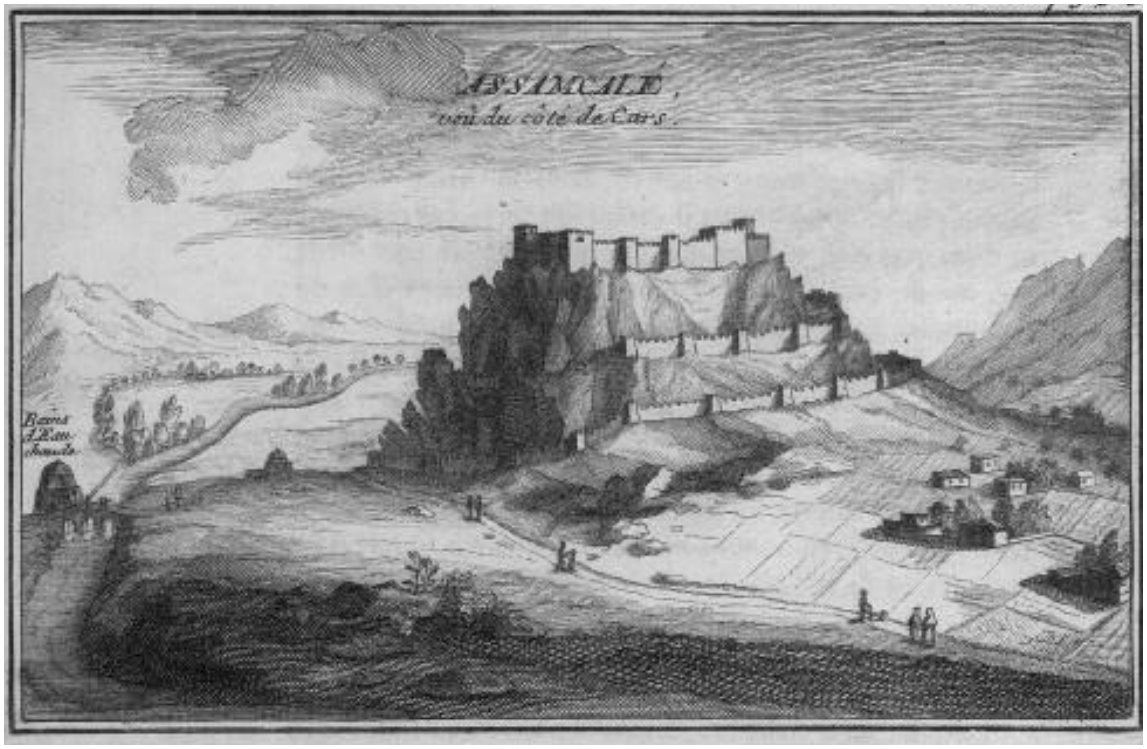
b) 

Figure 2.5 a) Pasinler Valley looking south towards the Palandöken Mountains from the village of Yiğittaşi. The modern Pasinler to Erzurum road runs through the centre of the plain. August 2003. b) Looking northeast towards the Karapazarı mountains from the village of Yiğittaşi standing on the mound of Sos Höyük. June 2001.

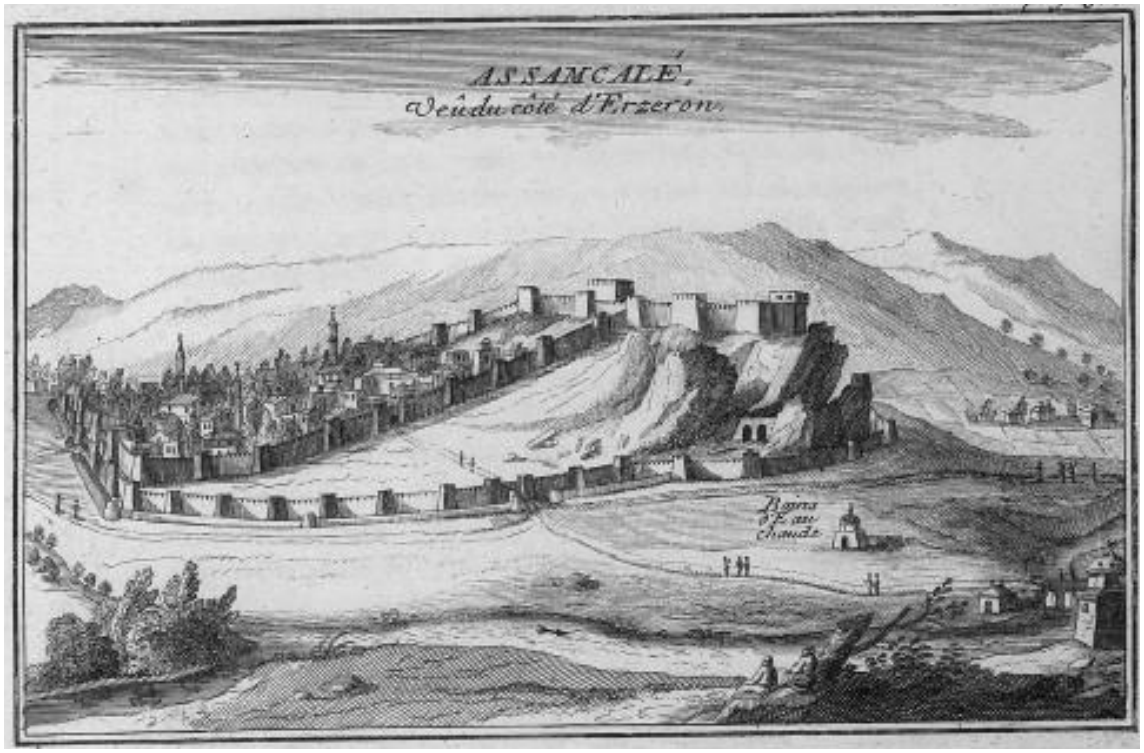
a) 

b) 

Figure 2.6 The Pasinler Valley with wild flowers in bloom. a) Photograph taken facing north June 2001. b) Photograph taken facing south in July 2002. Note the snow still present on the Palandöken Mountains.



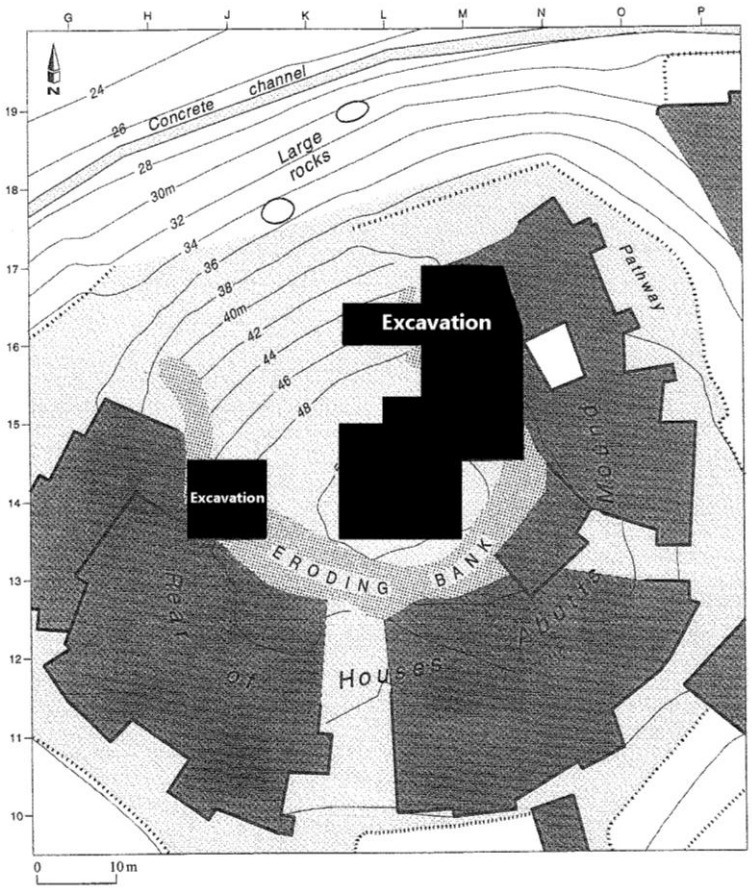
a)



b)

Figure 2.7 Images from Tournefort's *Voyage into the Levant* of the town of Pasinler (Assamcale/Hasankale) and surrounding valley, a) view from the east looking towards Yiğittaşi, b) view from the west. The town of Pasinler is 13km east of Yiğittaşi (Sos Höyük). (Tournefort 1741)

a)



b)

Figure 2.8 a) Plan of central Sos Höyük mound showing approximate areas of excavation based on Kiguradze and Sagona (2003, Figure 3.3). b) Area of excavations on the north east edge of the mound of Sos Höyük. Photograph taken in 2002, two years after excavations had ceased.

Chapter 3

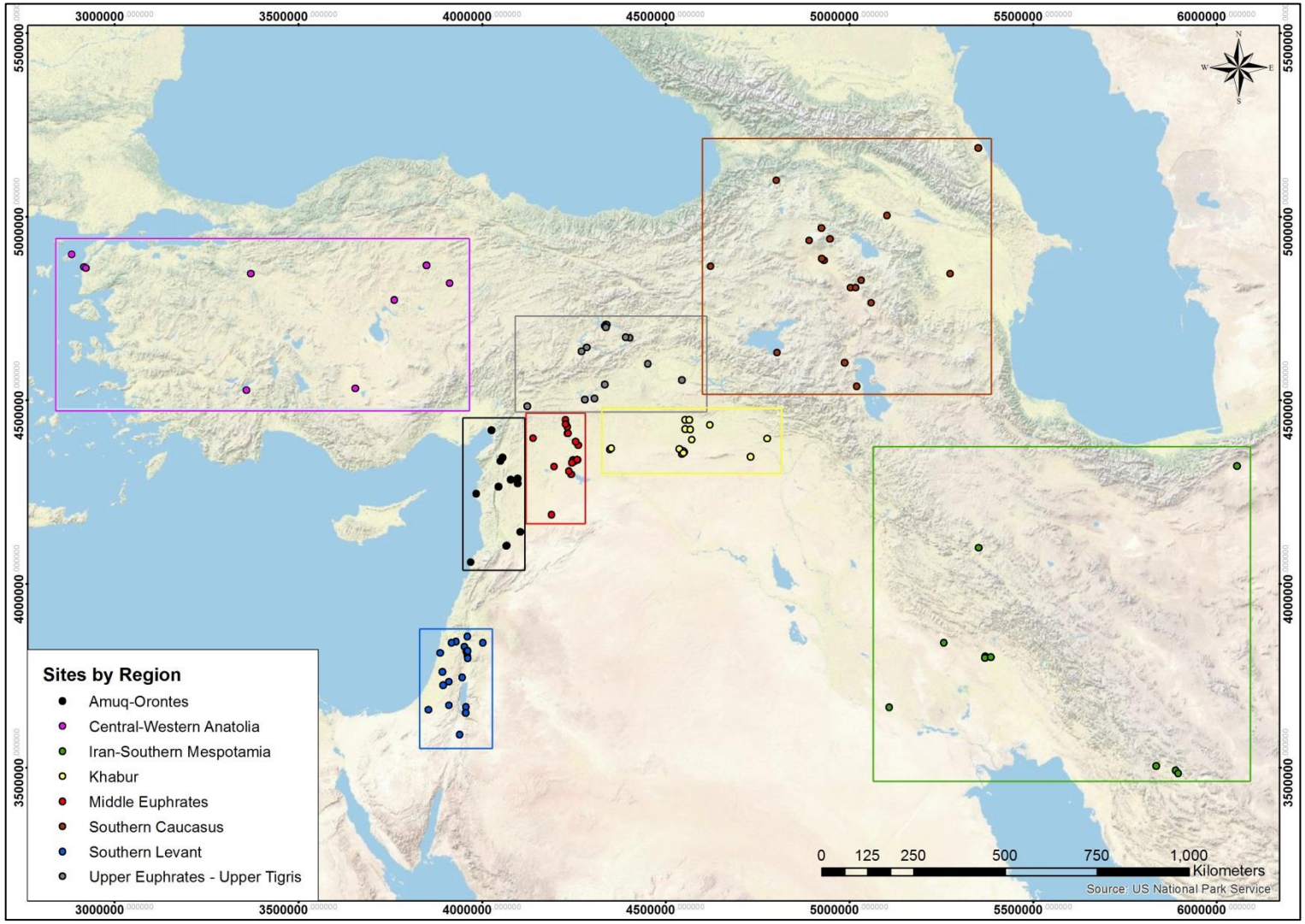


Figure 3.1 Geographical distribution of sites from 6100-1500B.C. with archaeobotanical assemblages, coded by the regional classification used in this thesis.

Figure 3.2 Geographical distribution of Amuq and Orontes sites dating from 6100-1500B.C. with archaeobotanical assemblages used in this thesis.

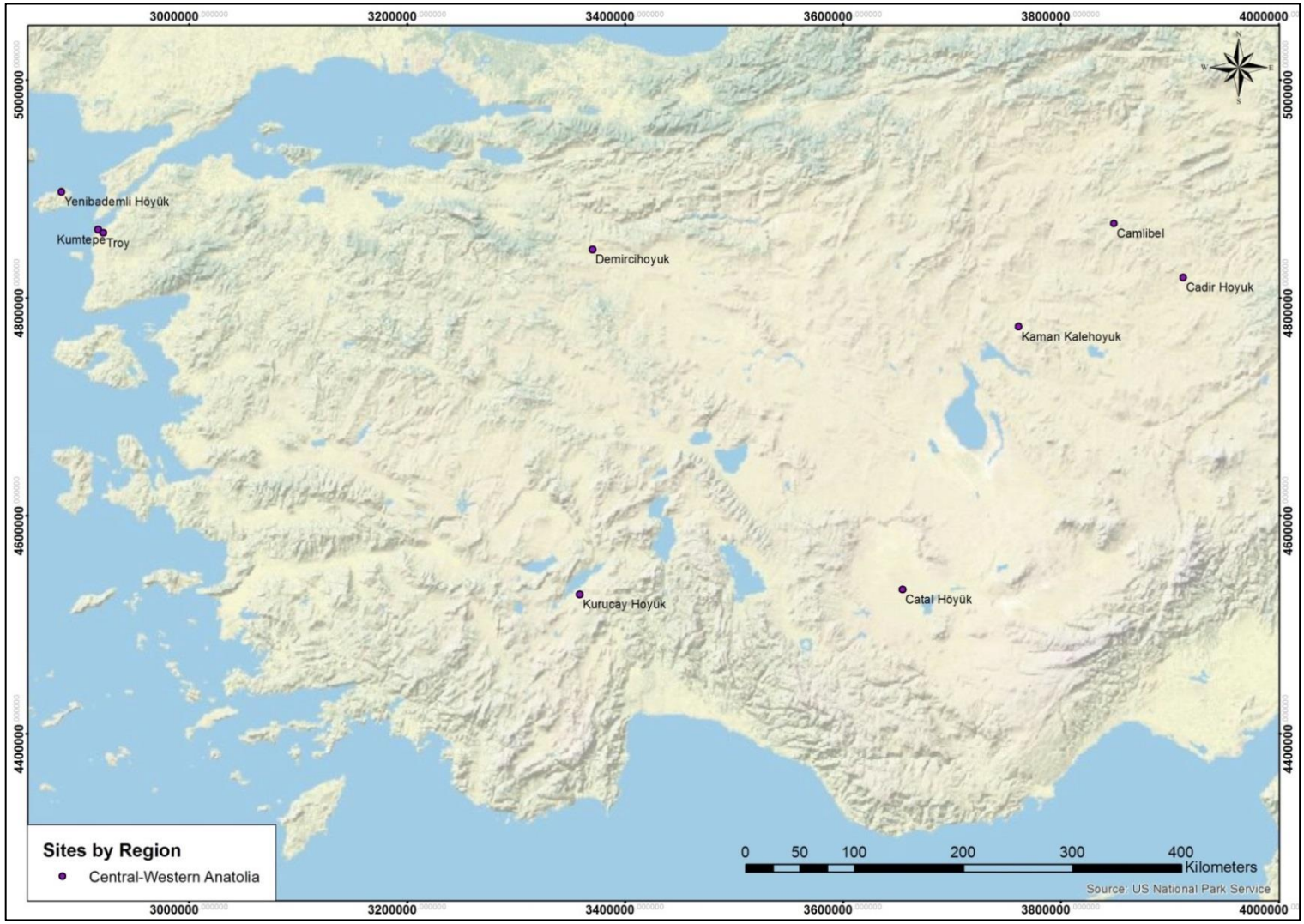


Figure 3.3 Geographical distribution of Central and Western Anatolian sites from 6100-1500B.C. with archaeobotanical assemblages used in this thesis.

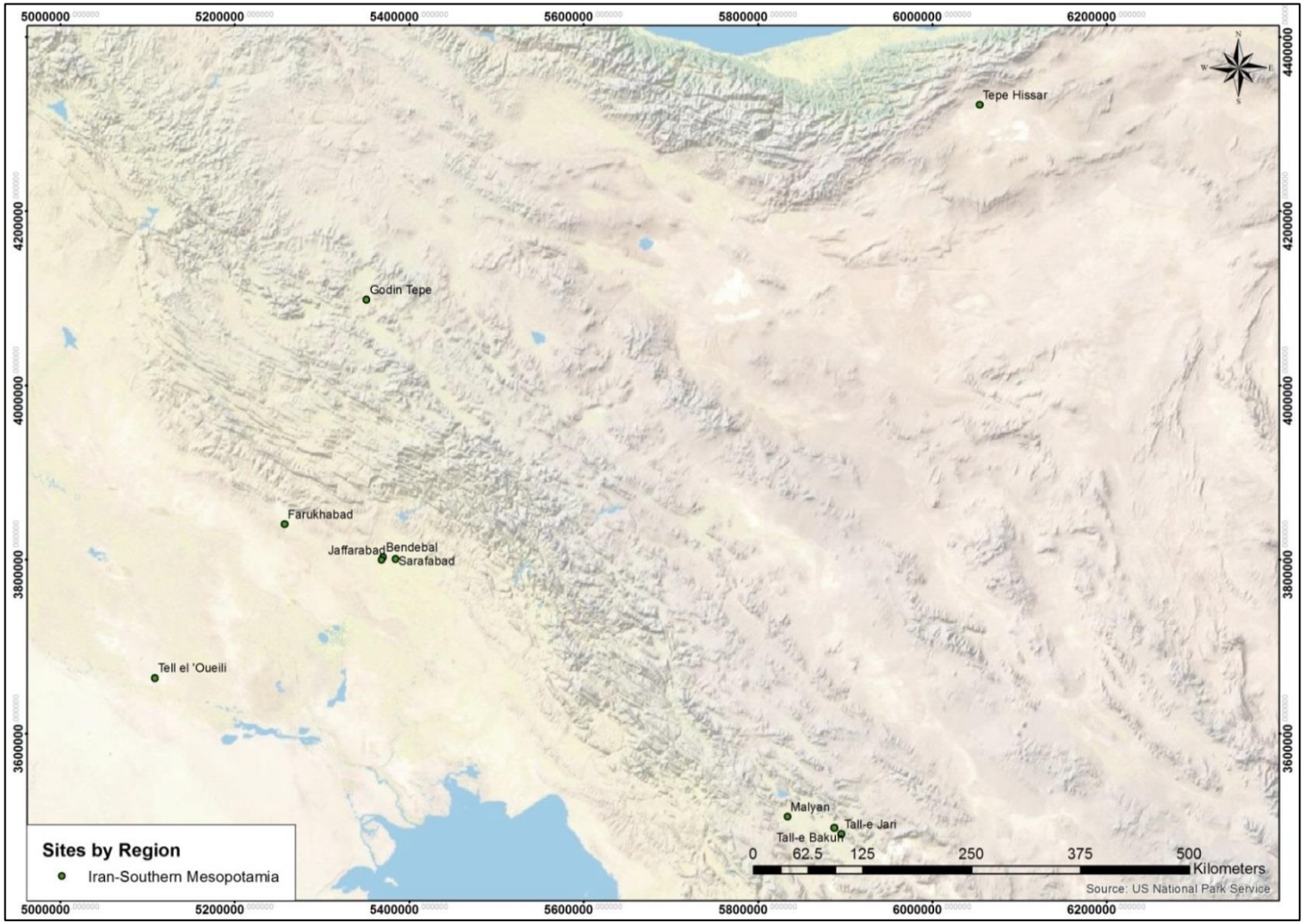


Figure 3.4 Geographical distribution of Iranian and Southern Mesopotamian sites from 6100-1500B.C. with archaeobotanical assemblages used in this thesis.

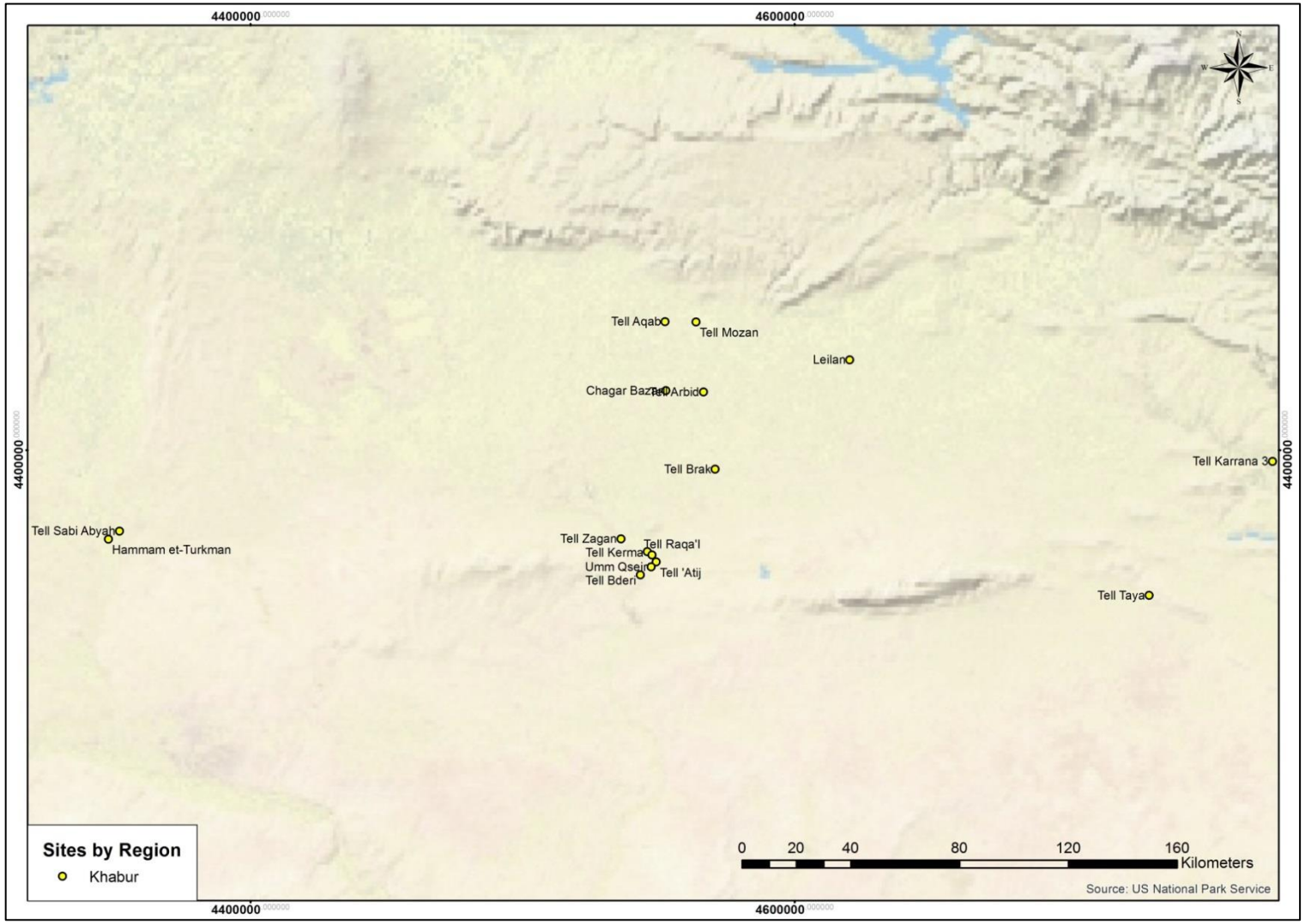


Figure 3.5 Geographical distribution of Khabur sites dating from 6100-1500B.C. with archaeobotanical assemblages used in this thesis.

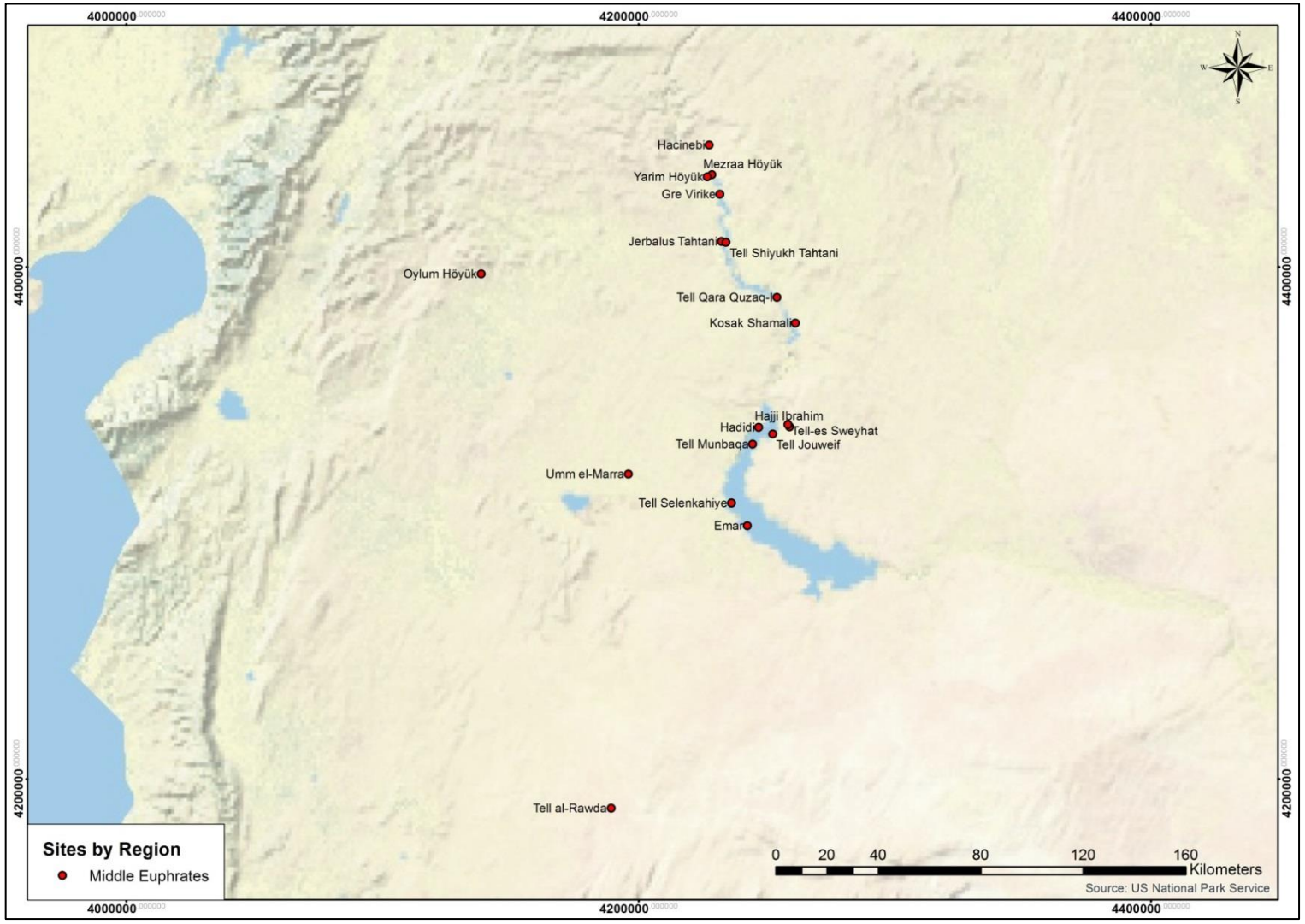


Figure 3.6 Geographical distribution of Middle Euphrates sites dating from 6100-1500B.C. with archaeobotanical assemblages used in this thesis.

Figure 3.7 Geographical distribution of Southern Caucasian sites dating from 6100-1500B.C. with archaeobotanical assemblages used in this thesis.

Figure 3.8 Geographical distribution of Southern Levant sites dating from 6100-1500B.C. with archaeobotanical assemblages used in this thesis.

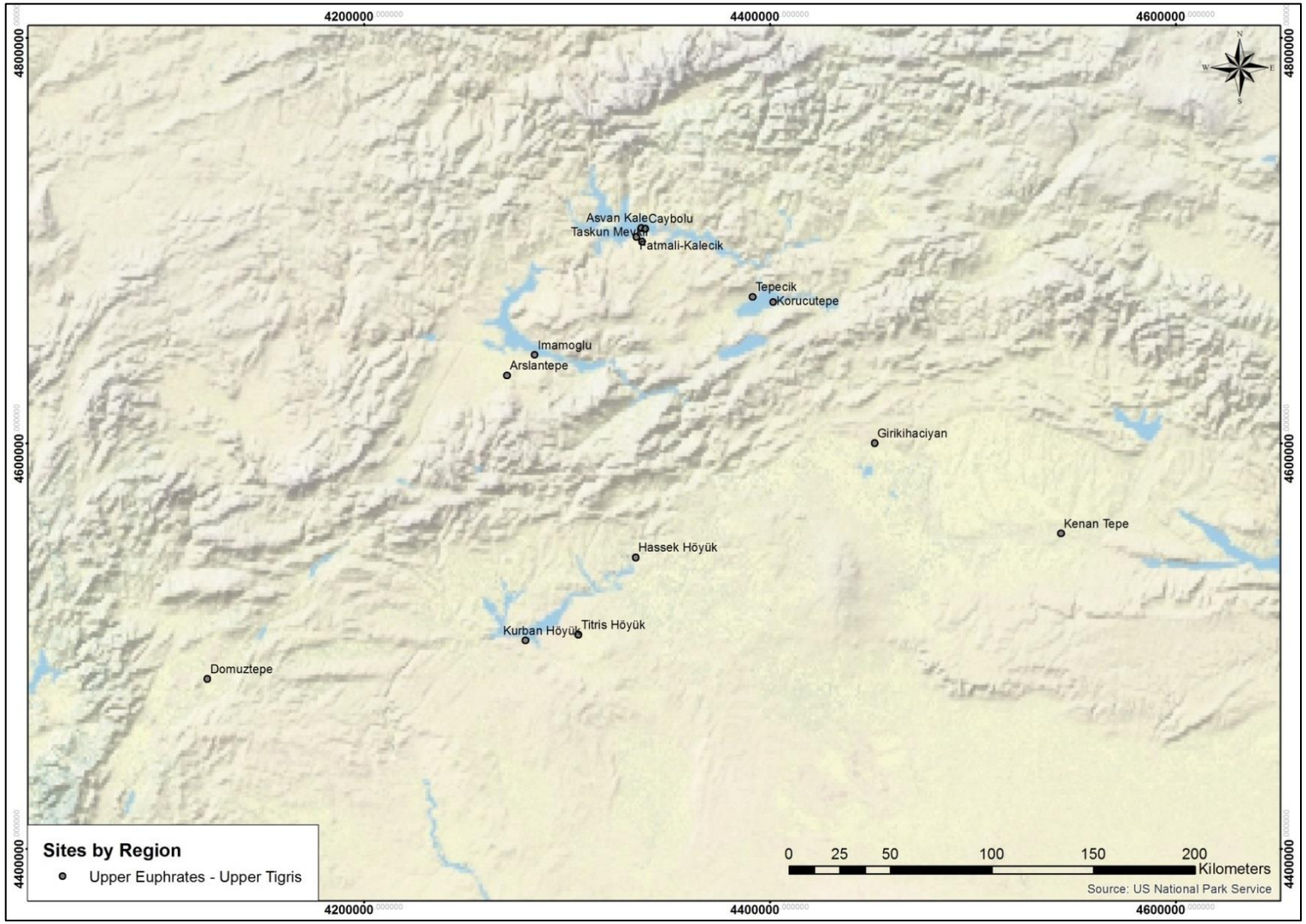


Figure 3.9 Geographical distribution of Upper Euphrates and Tigris sites dating from 6100-1500B.C. with archaeobotanical assemblages used in this thesis.

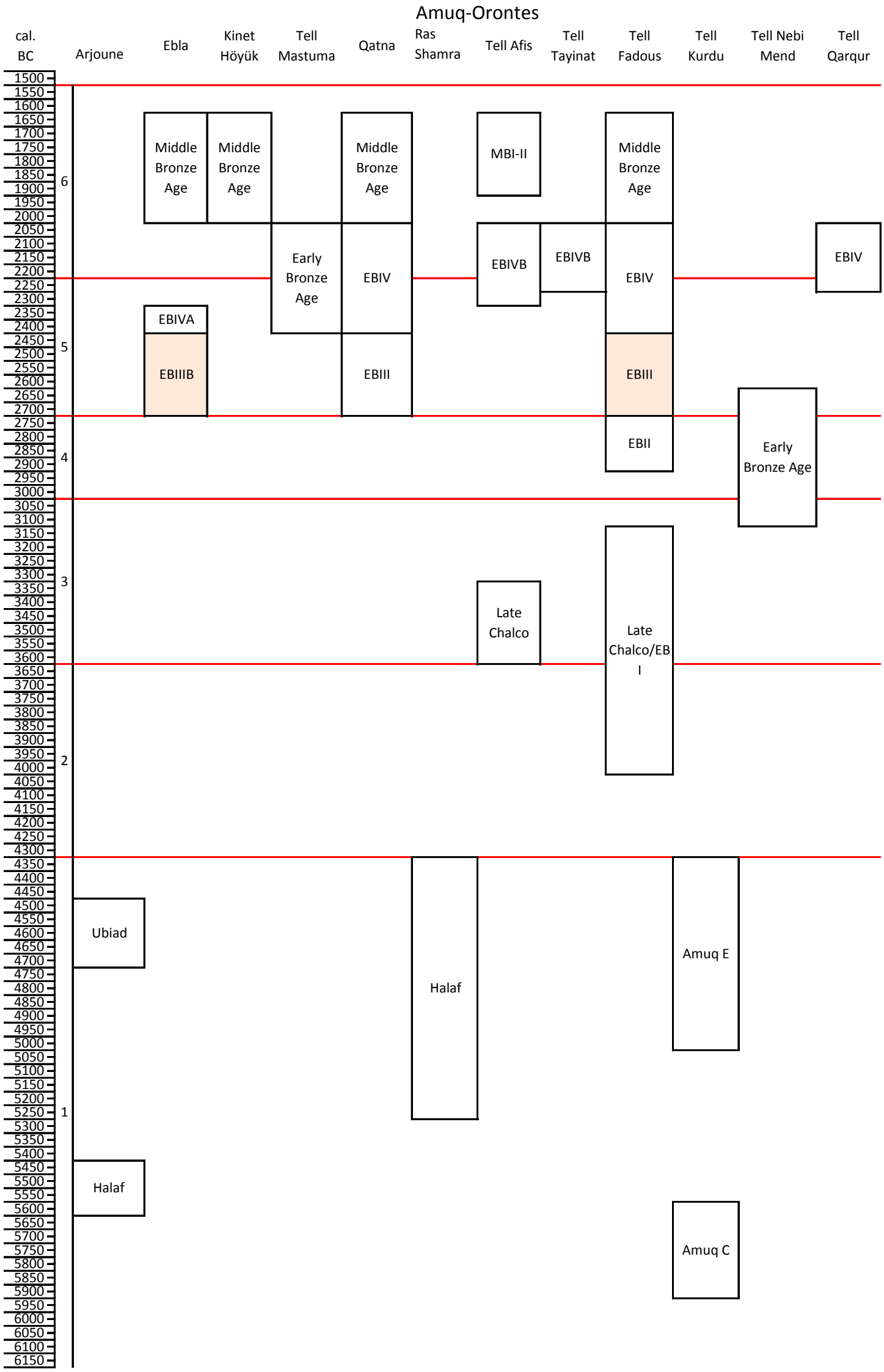


Figure 3.10 Chronology of Amuq-Orontes sites showing only the periods with archaeobotanical used in this thesis. Periods shaded pink contain a few Kura-Araxes ceramic sherds. Abbreviations: Chalco = Chalcolithic, EB = Early Bronze, MB = Middle Bronze.

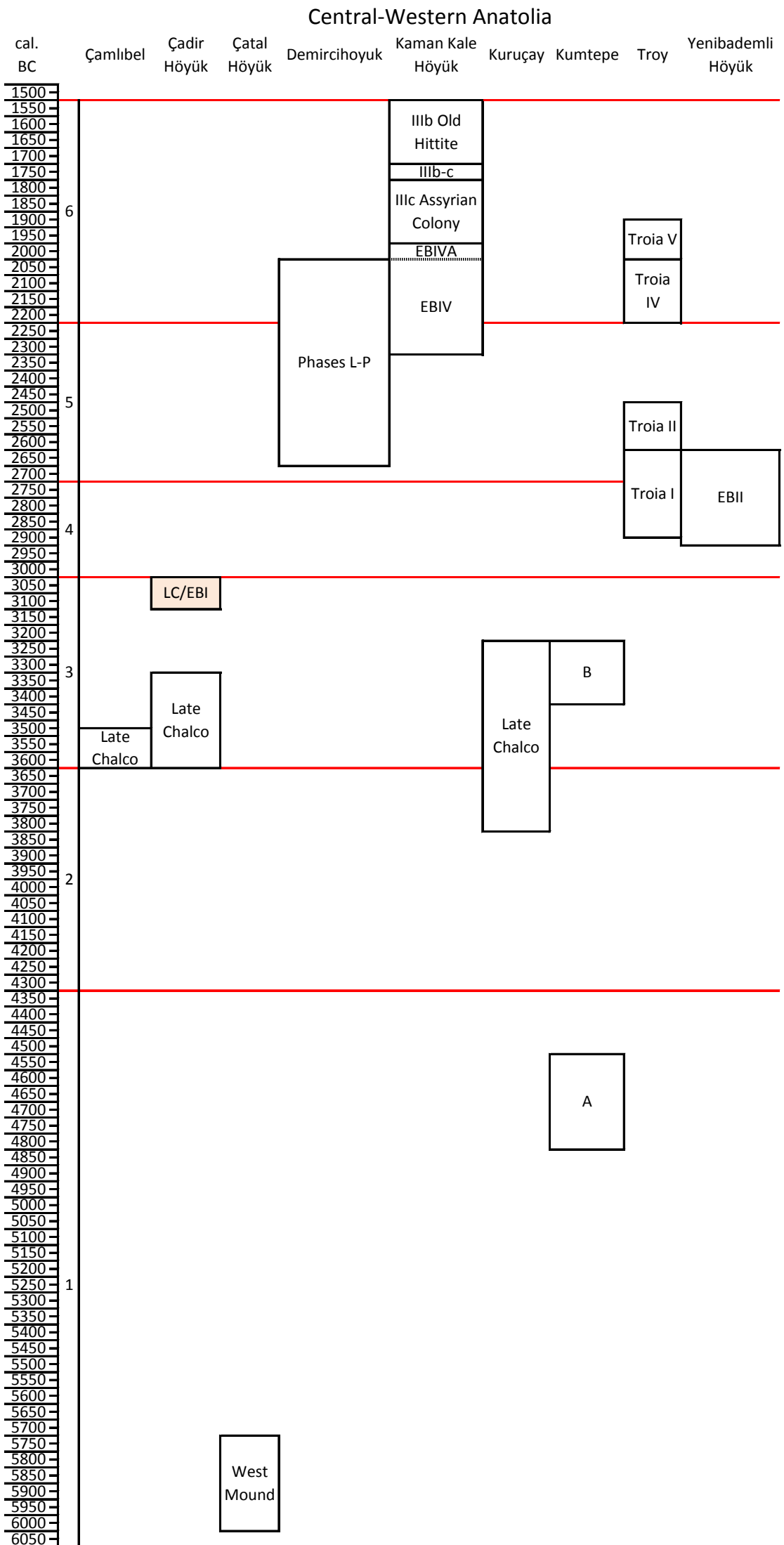


Figure 3.11 Chronology of Central-West Anatolian sites showing only the periods with archaeobotanical used in this thesis. Periods shaded pink contain a few Kura-Araxes ceramic sherds. Abbreviations: Chalco = Chalcolithic, LC = Late Chalcolithic EB = Early Bronze.

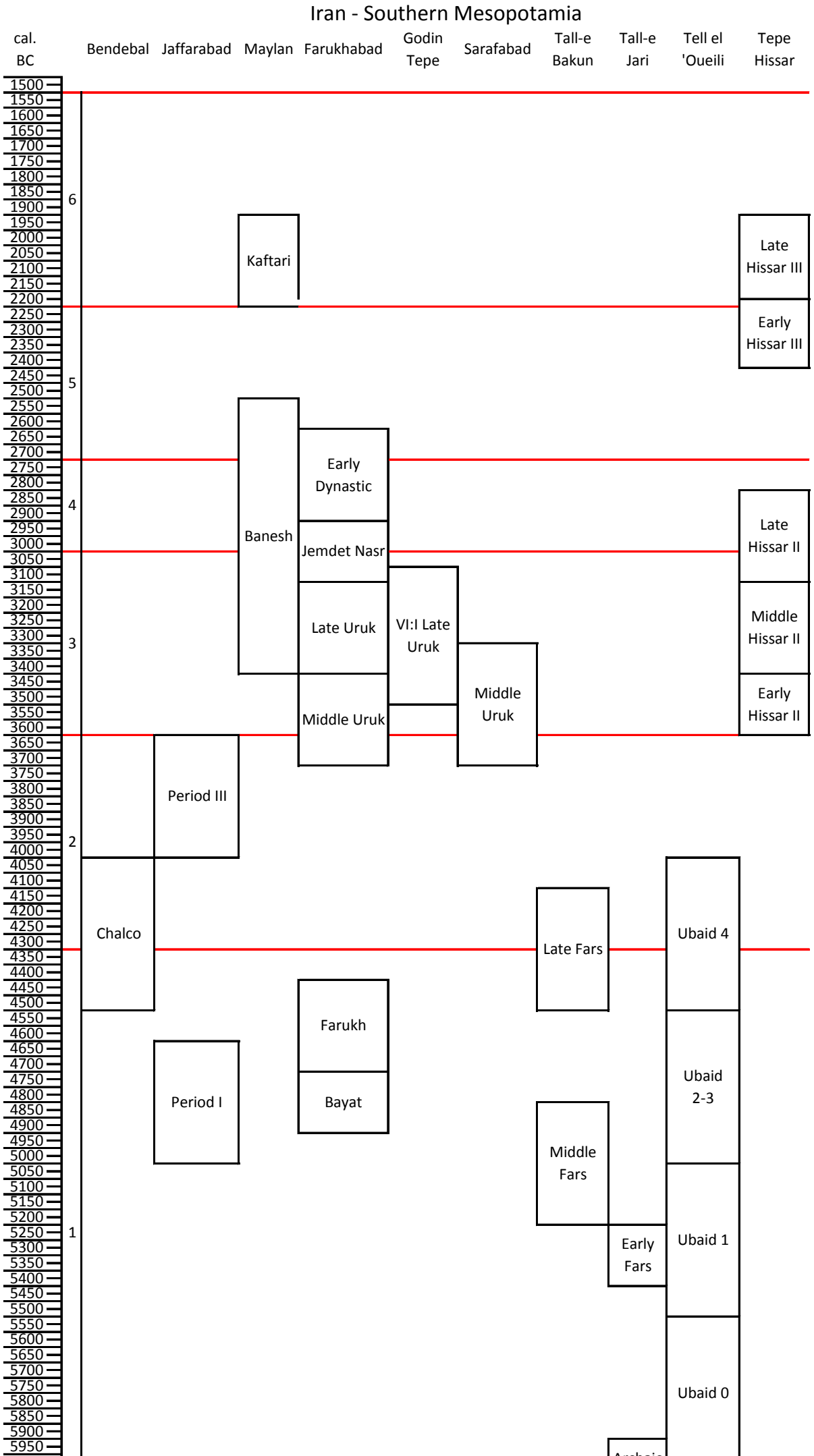


Figure 3.12 Chronology of Iran-Southern Mesopotamian sites showing only the periods with archaeobotanical used in this thesis. Abbreviations: Chalco = Chalcolithic.

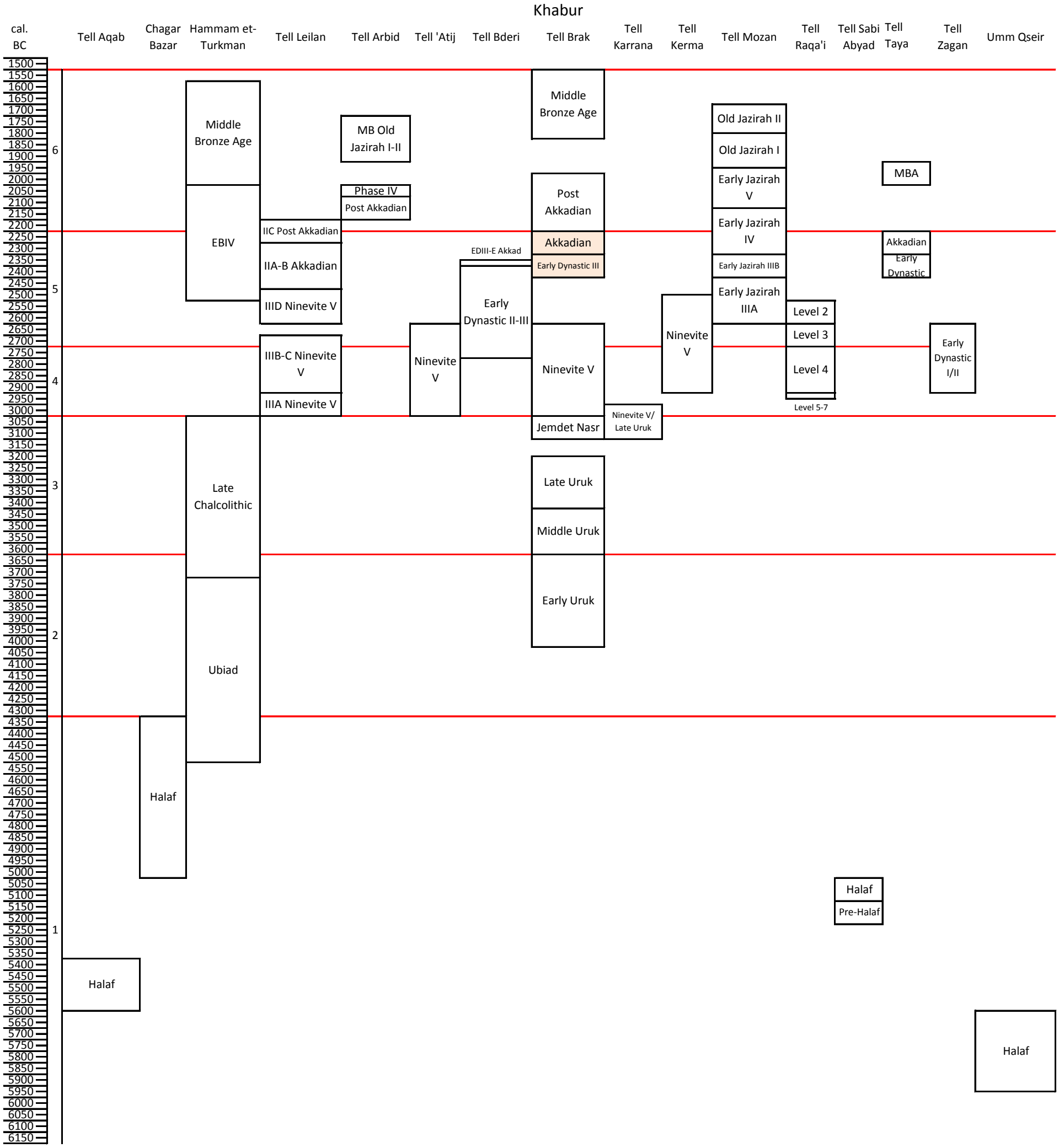


Figure 3.13 Chronology of Khabur sites showing only the periods with archaeobotanical used in this thesis. Periods shaded pink contain a few Kura-Araxes ceramic sherds. Abbreviations: EB = Early Bronze, MB = Middle Bronze.

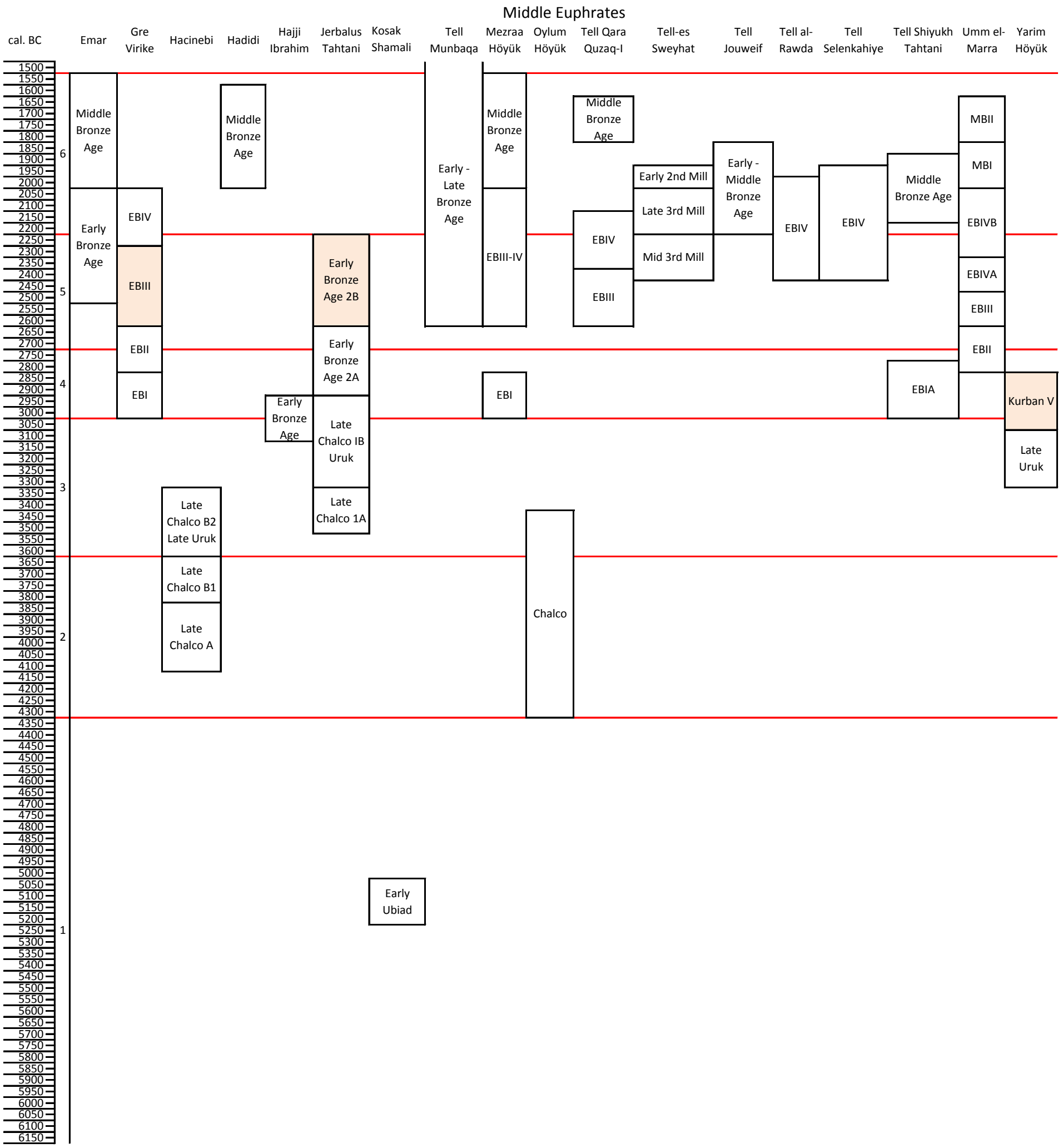


Figure 3.14 Chronology of Middle Euphrates sites showing only the periods with archaeobotanical used in this thesis. Periods shaded pink contain a few Kura-Araxes ceramic sherds. Abbreviations: Chalco = Chalcolithic, EB = Early Bronze, MB = Middle Bronze.

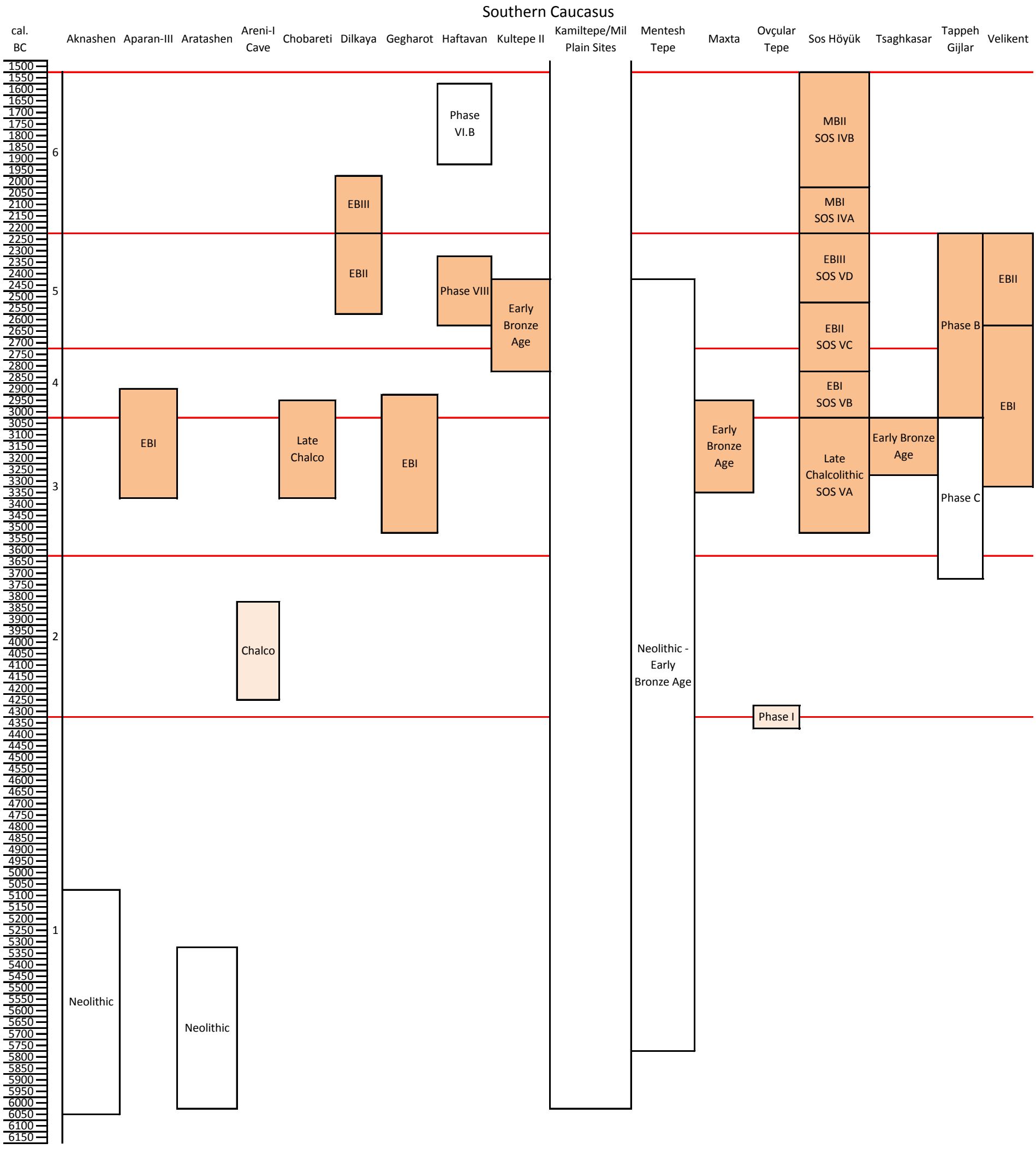


Figure 3.15 Chronology of Southern Caucasus sites showing only the periods with archaeobotanical used in this thesis. Periods shaded orange are Kura-Araxes in cultural assemblage; periods shaded pink contain a few Kura-Araxes ceramic sherds. Abbreviations: Chalco = Chalcolithic, EB = Early Bronze, MB = Middle Bronze.

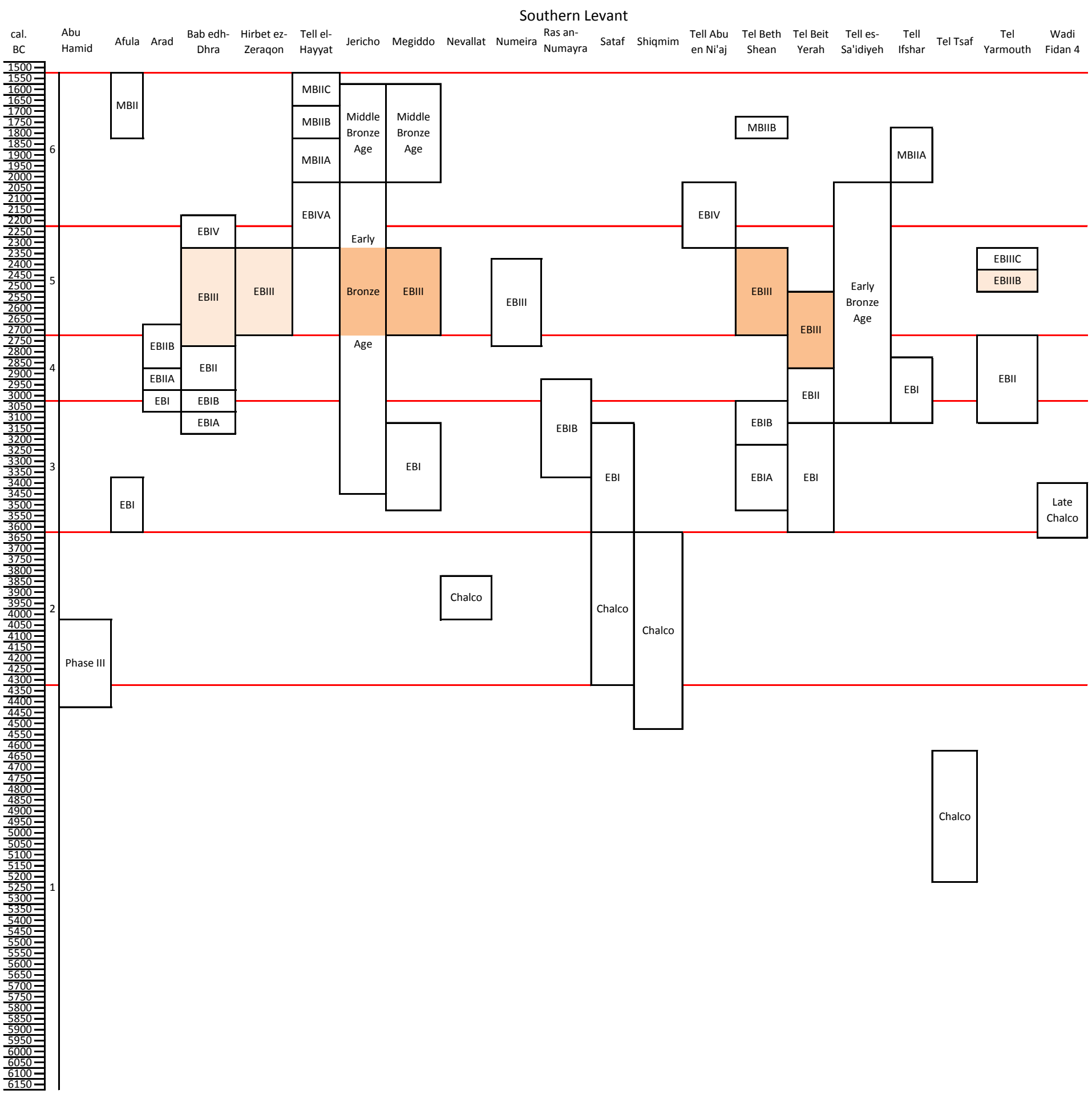


Figure 3.16 Chronology of Southern Levant sites showing only the periods with archaeobotanical used in this thesis. Periods shaded orange have Kura-Araxes or mixed Kura-Araxes cultural assemblage; periods shaded pink contain a few Kura-Araxes ceramic sherds. Abbreviations: Chalco = Chalcolithic, EB = Early Bronze, MB = Middle Bronze.

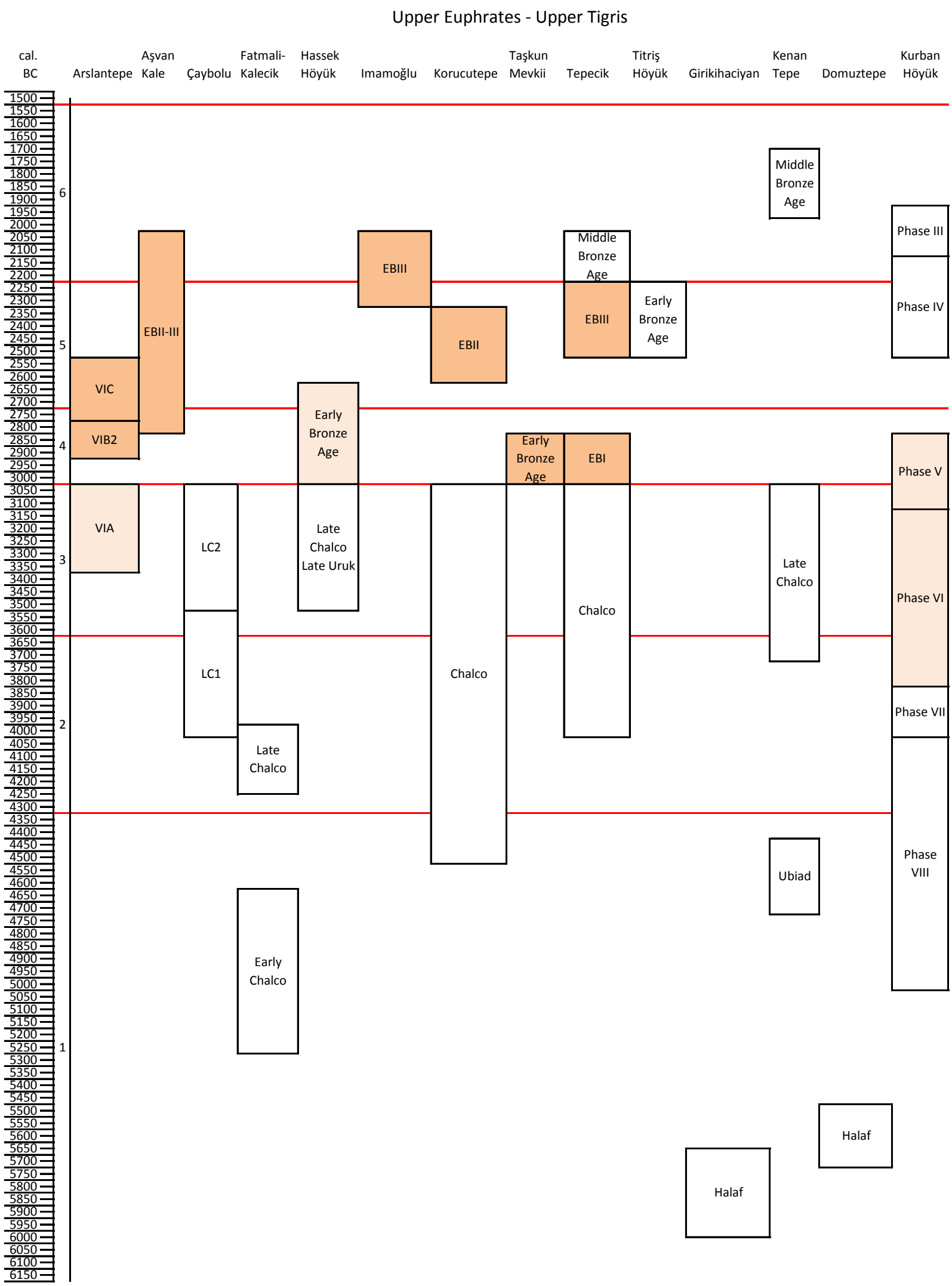


Figure 3.17 Chronology of Upper Euphrates and Tigris sites showing only the periods with archaeobotanical used in this thesis. Periods shaded orange have Kura-Araxes or mixed Kura-Araxes cultural assemblage; periods shaded pink contain a few Kura-Araxes ceramic sherds. Abbreviations: Chalco = Chalcolithic, LC = Late Chalcolithic EB = Early Bronze.

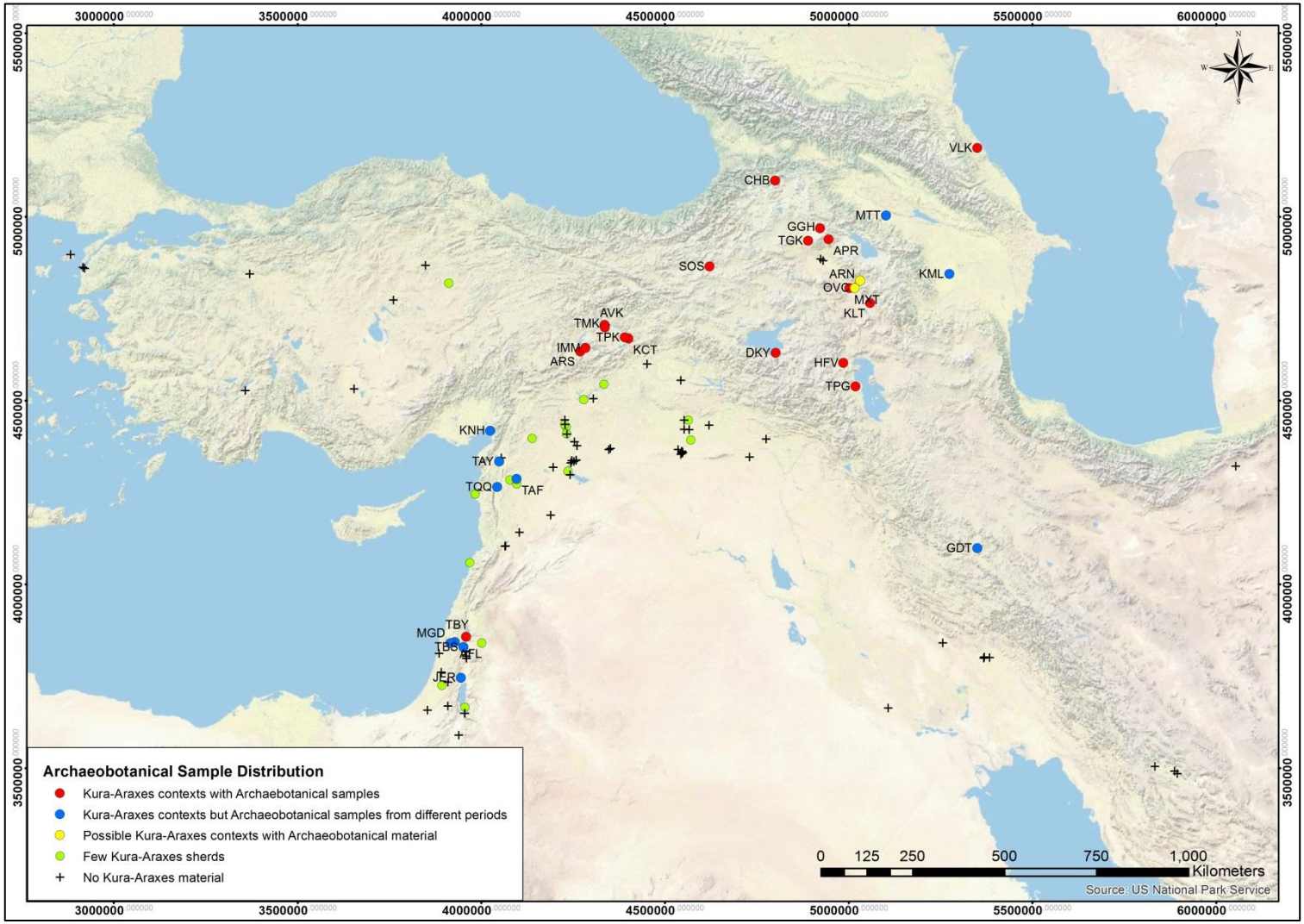


Figure 3.18 Sites coded according to whether Kura-Araxes material culture is present in the same period as the archaeobotanical assemblage. Site names in Table 3.6

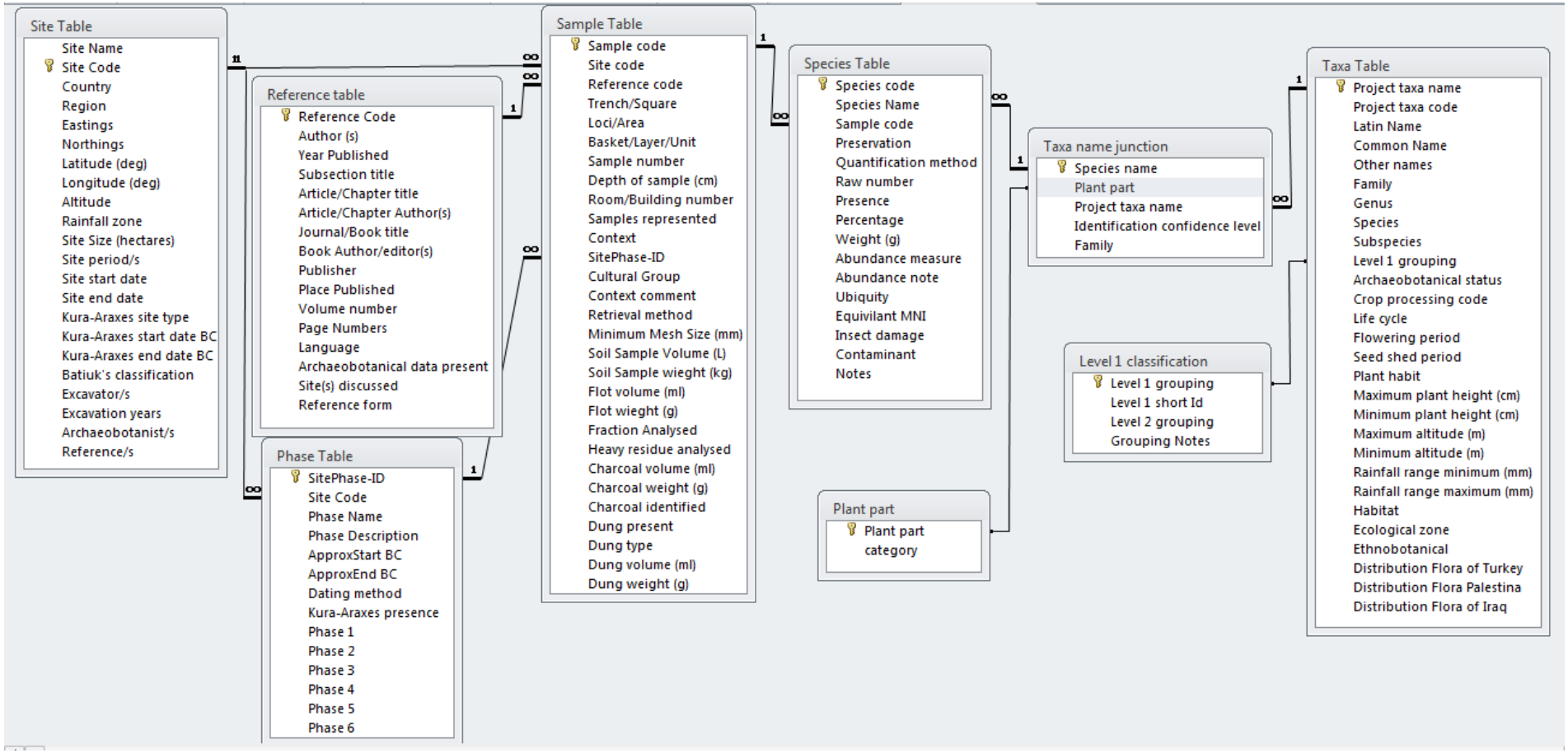
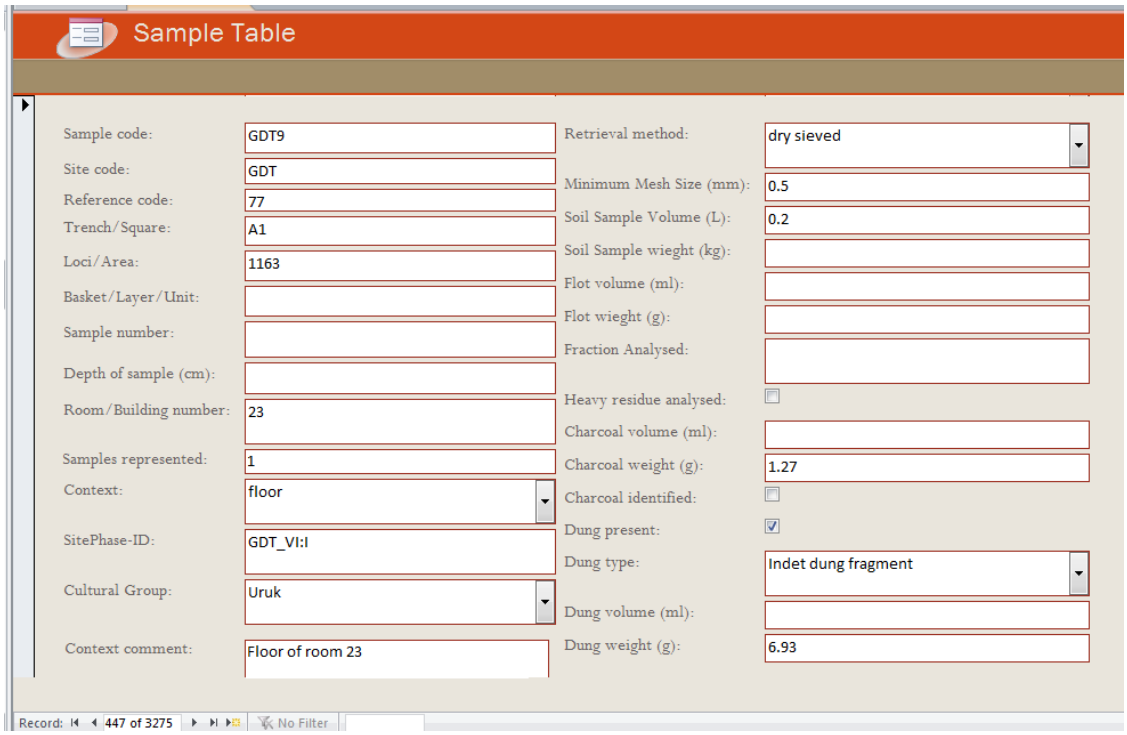
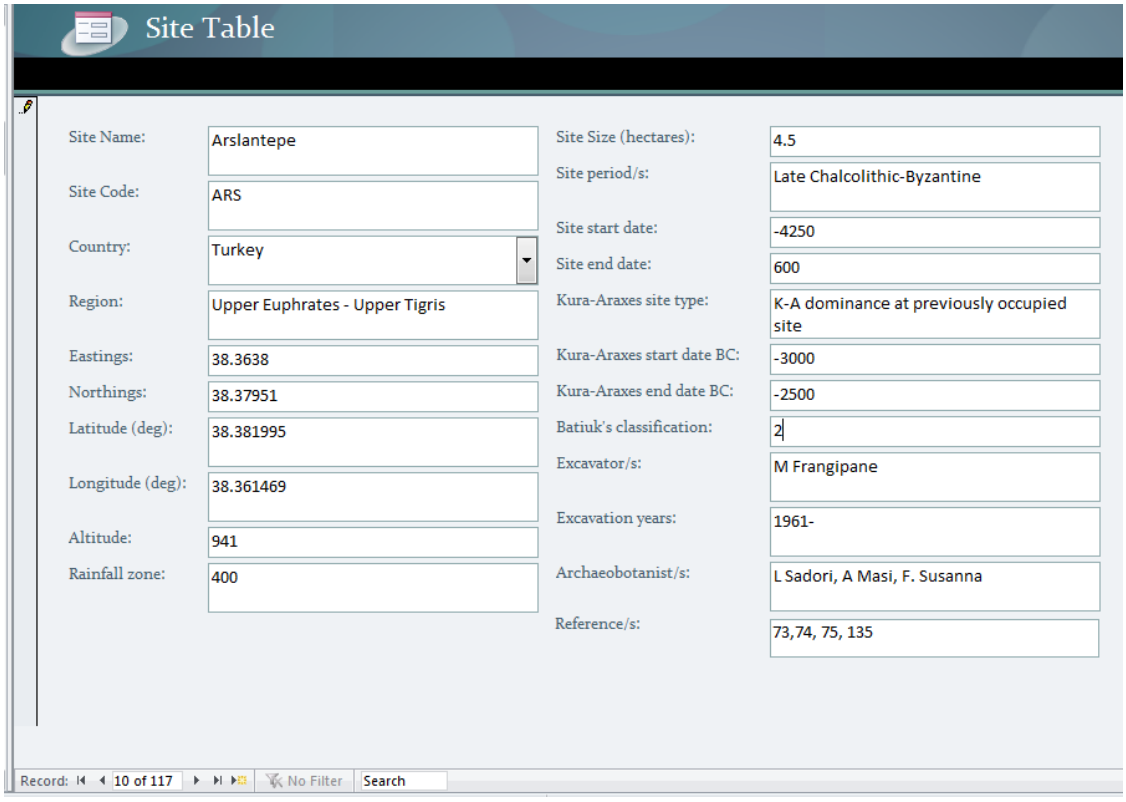


Figure 3.19. Database design in Microsoft Access for the storage of Near Eastern archaeobotanical assemblages from 6100-1500B.C. The key symbol indicates the primary key record of each table, links between tables are shown by the lines with the type of relationship one (1) to many (∞) indicated.

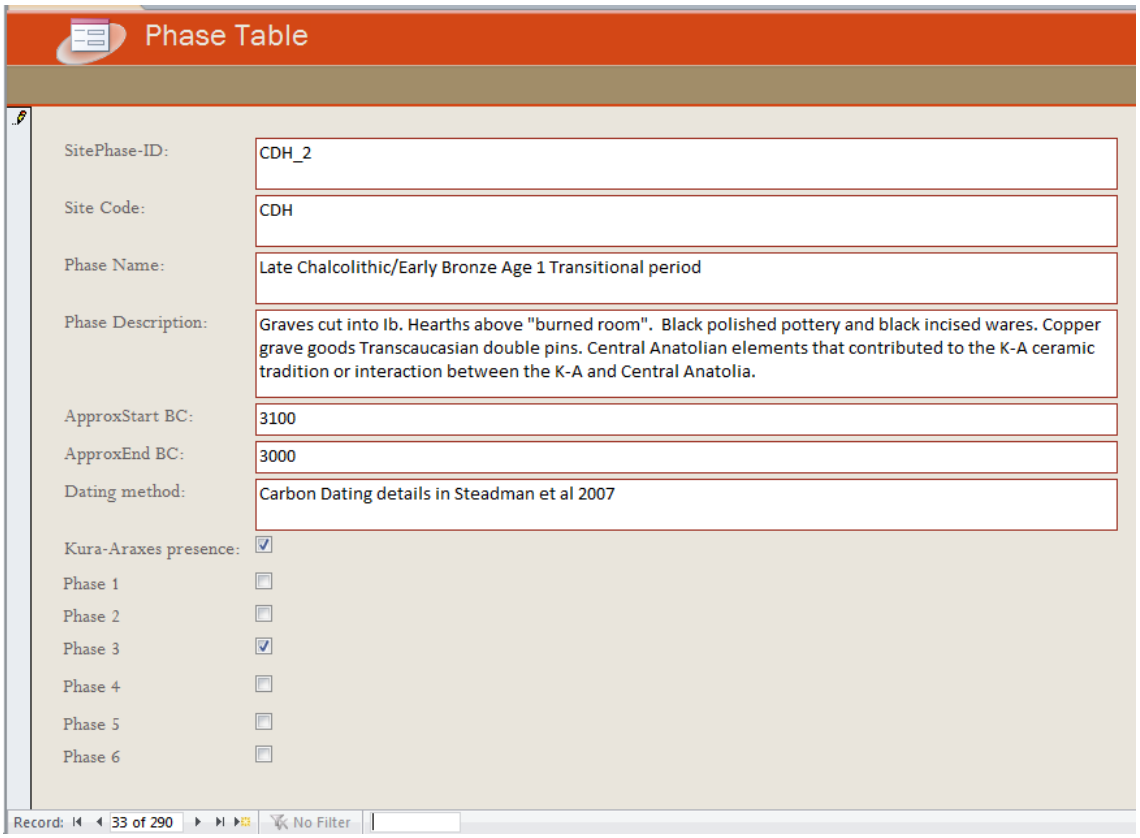


a)

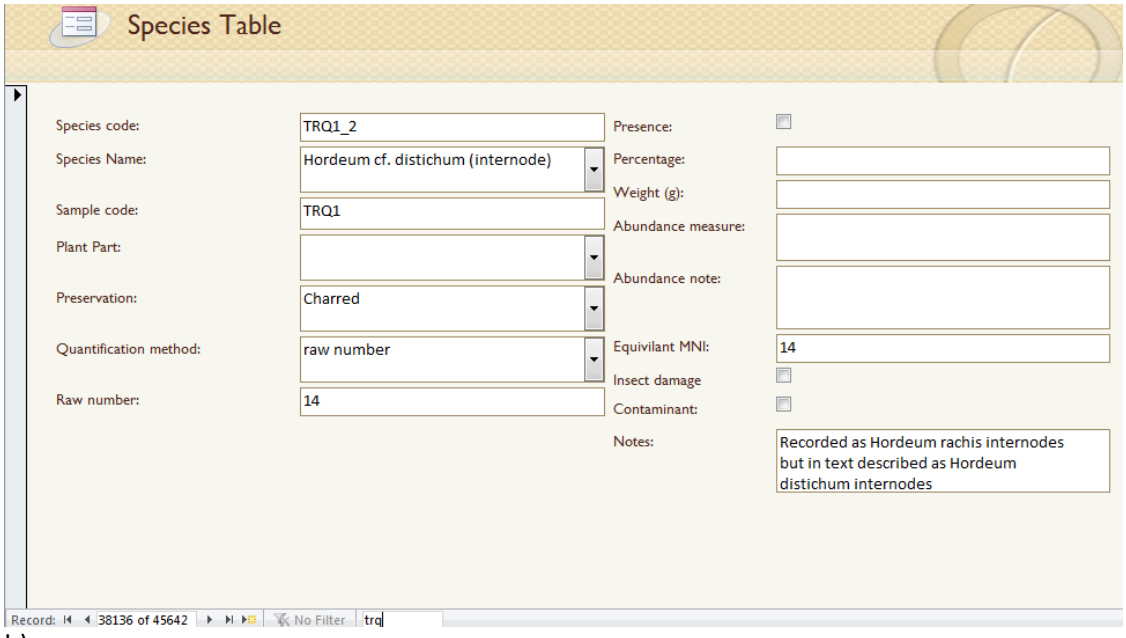


b)

Figure 3.20 Examples of tables in the Microsoft Access database of Near Eastern archaeobotanical assemblages from 6100-1500B.C.. a) sample table, b) site table.



a)



b)

Figure 3.21 Examples of tables in the Microsoft Access database of Near Eastern archaeobotanical assemblages from 6100-1500B.C.. a) phase table, b) species table

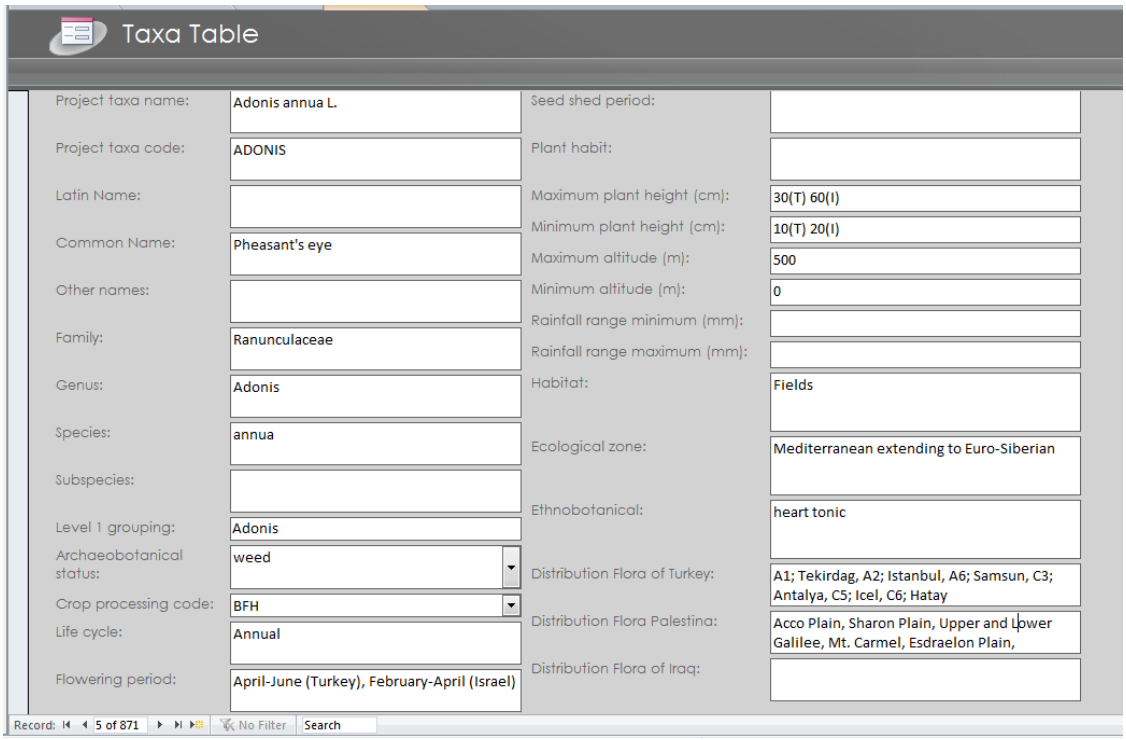


Figure 3.22 Examples of the taxa table in the Microsoft Access database of Near Eastern archaeobotanical assemblages from 6100-1500B.C..

Chapter 4

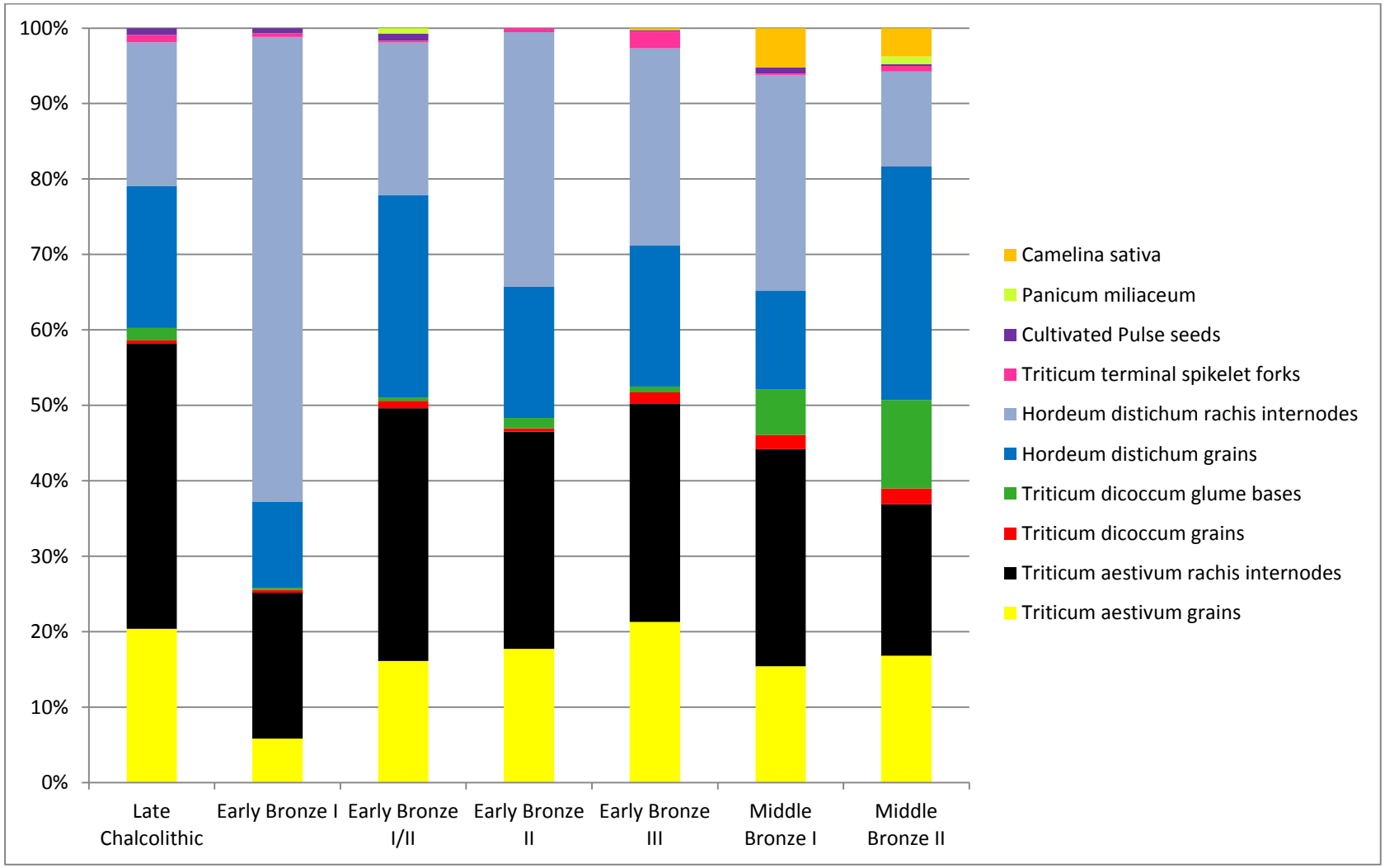


Figure 4.1 Graph of crop item percentages for each period at Sos Höyük.

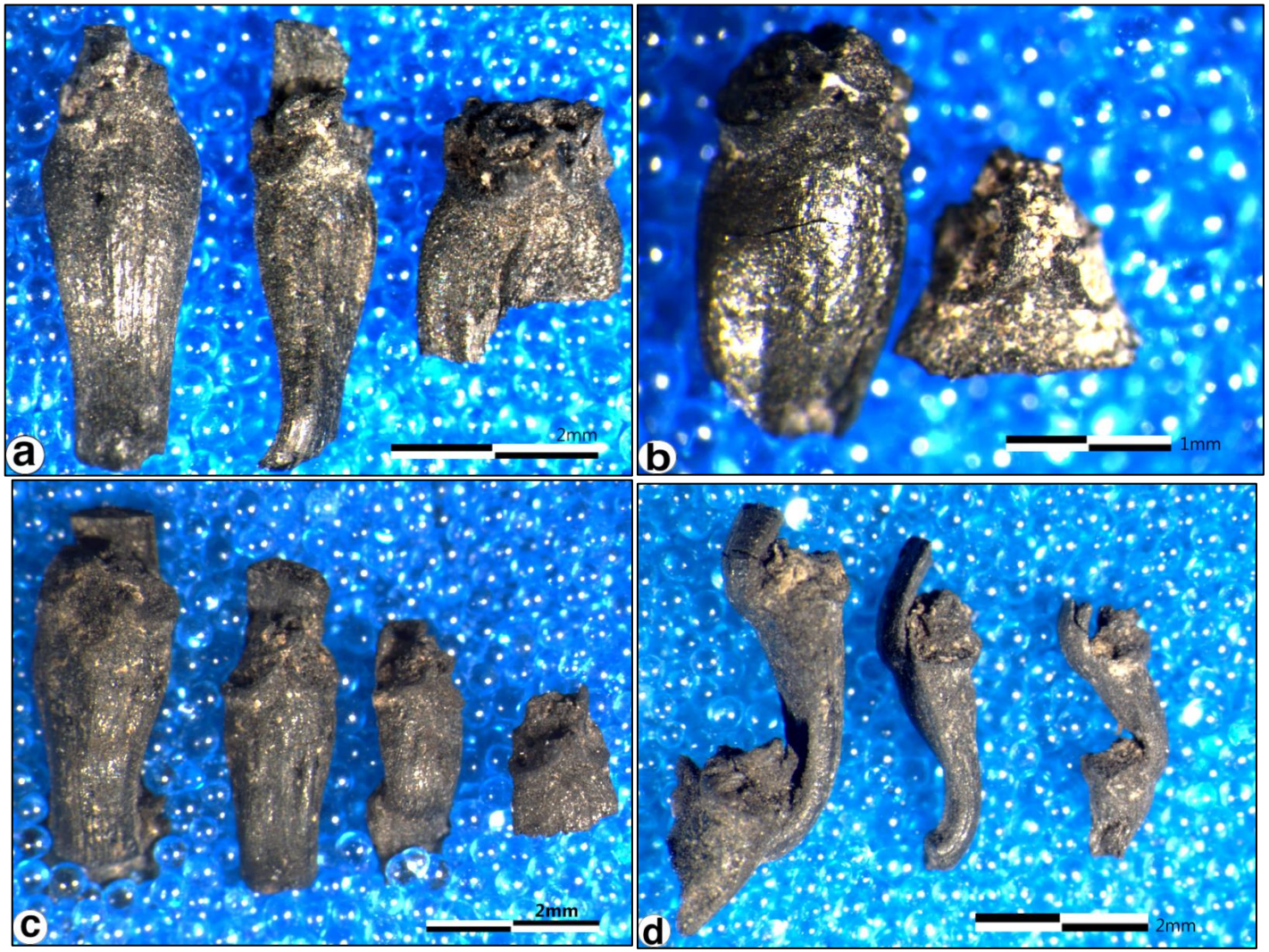


Figure 4.2 *T. aestivum* rachis internodes from Sos Höyük. Material from a) Late Chalcolithic , b) Early Bronze I c) and d) Middle Bronze II samples

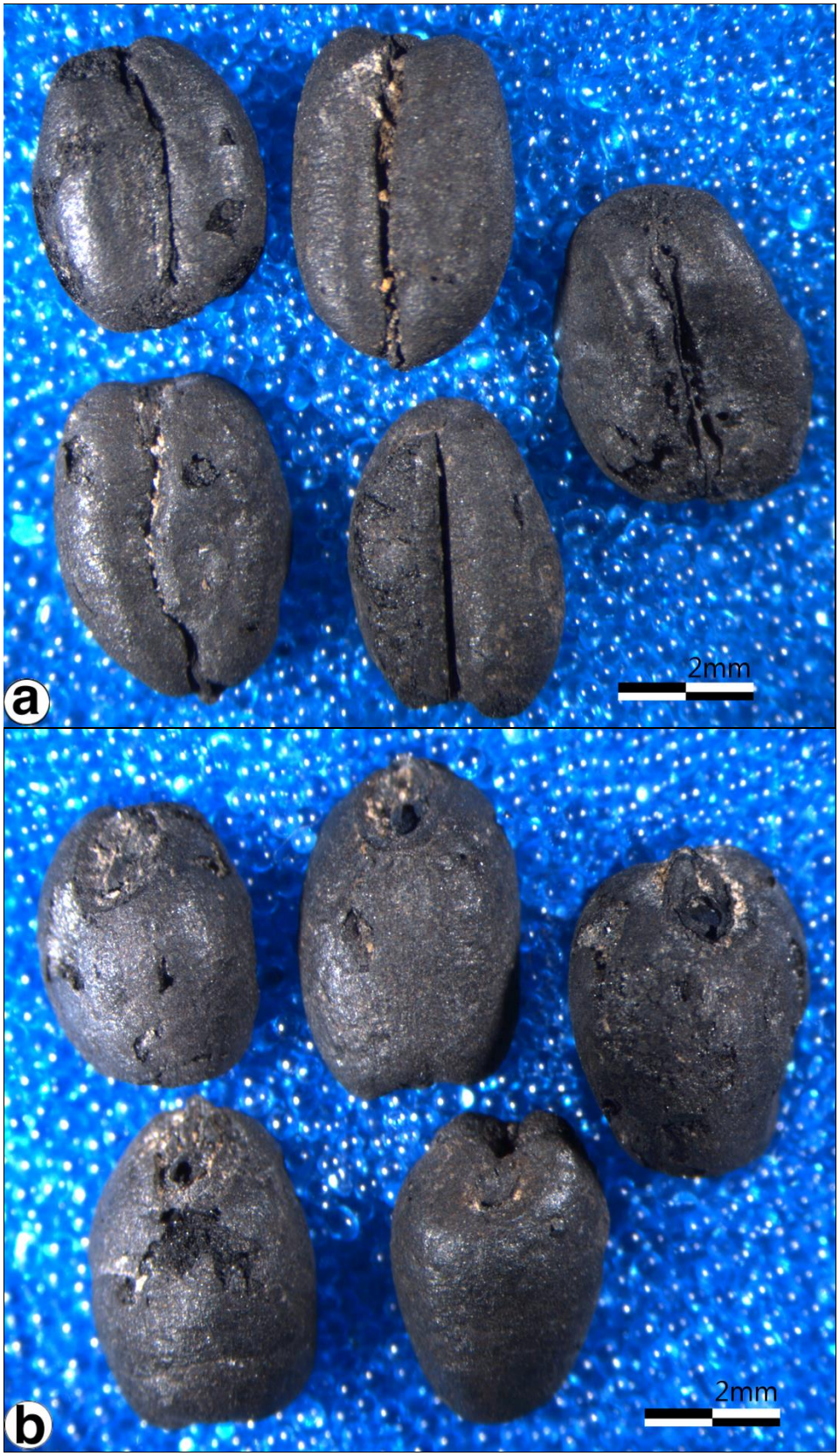


Figure 4.3 Free threshing wheat grains (*T. aestivum*) from Late Chalcolithic Sos Höyük, sample SOS6. a) ventral view and b) dorsal view.

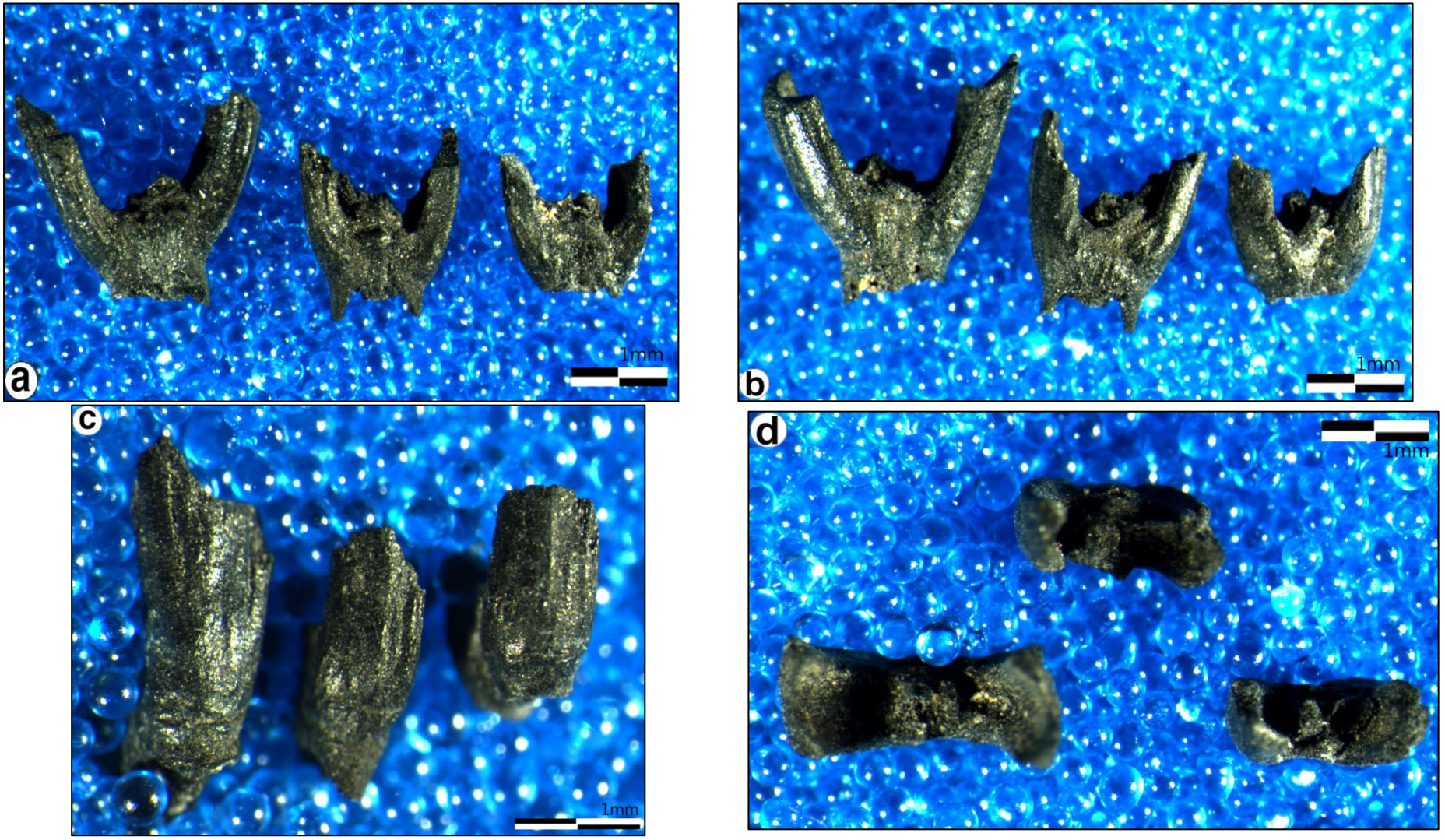


Figure 4.4 Spikelet forks of *T. dicoccum* from sample SOS59. a) abaxial view, b) axial view c) lateral view and d) spikelet forks top down view.

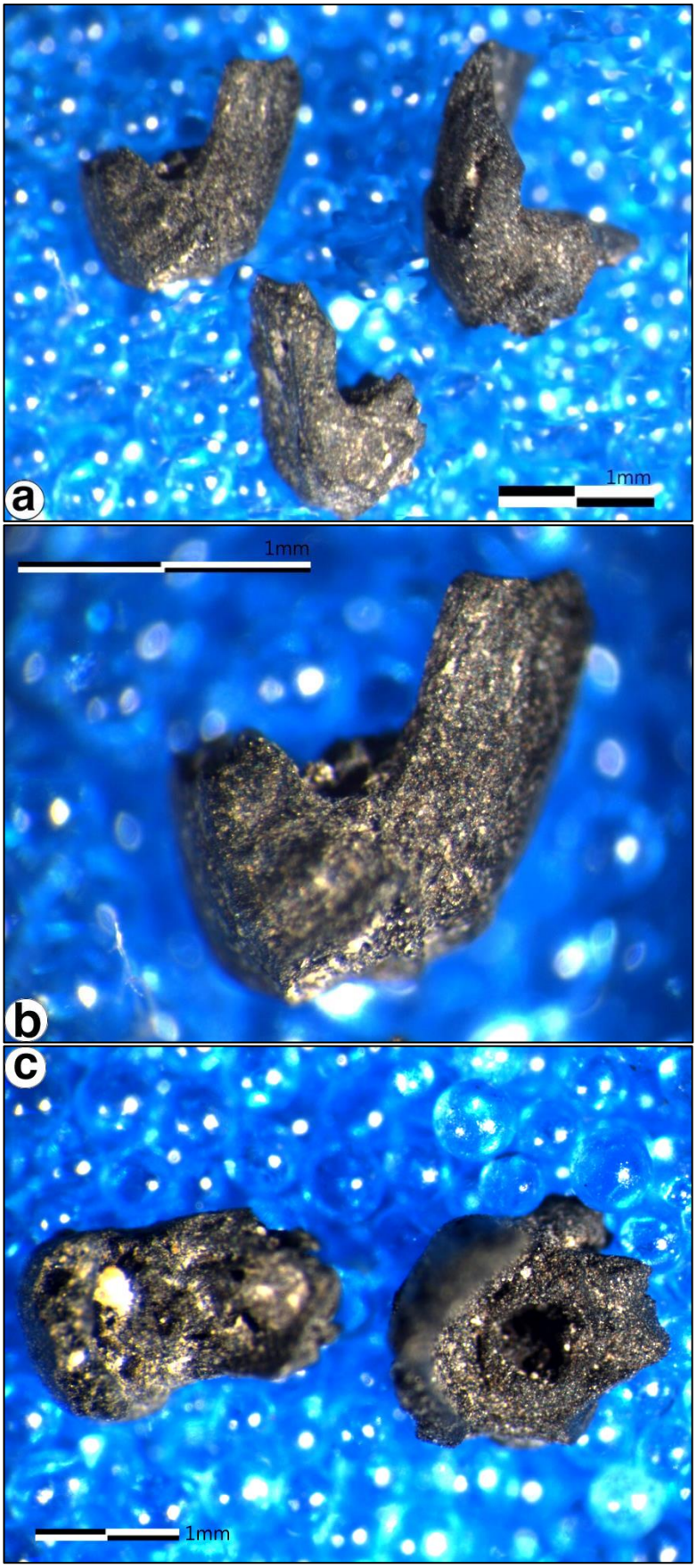


Figure 4.5 *Triticum* terminal spikelet forks from Late Chalcolithic SOS9. a) and b) side view, c) view from above.

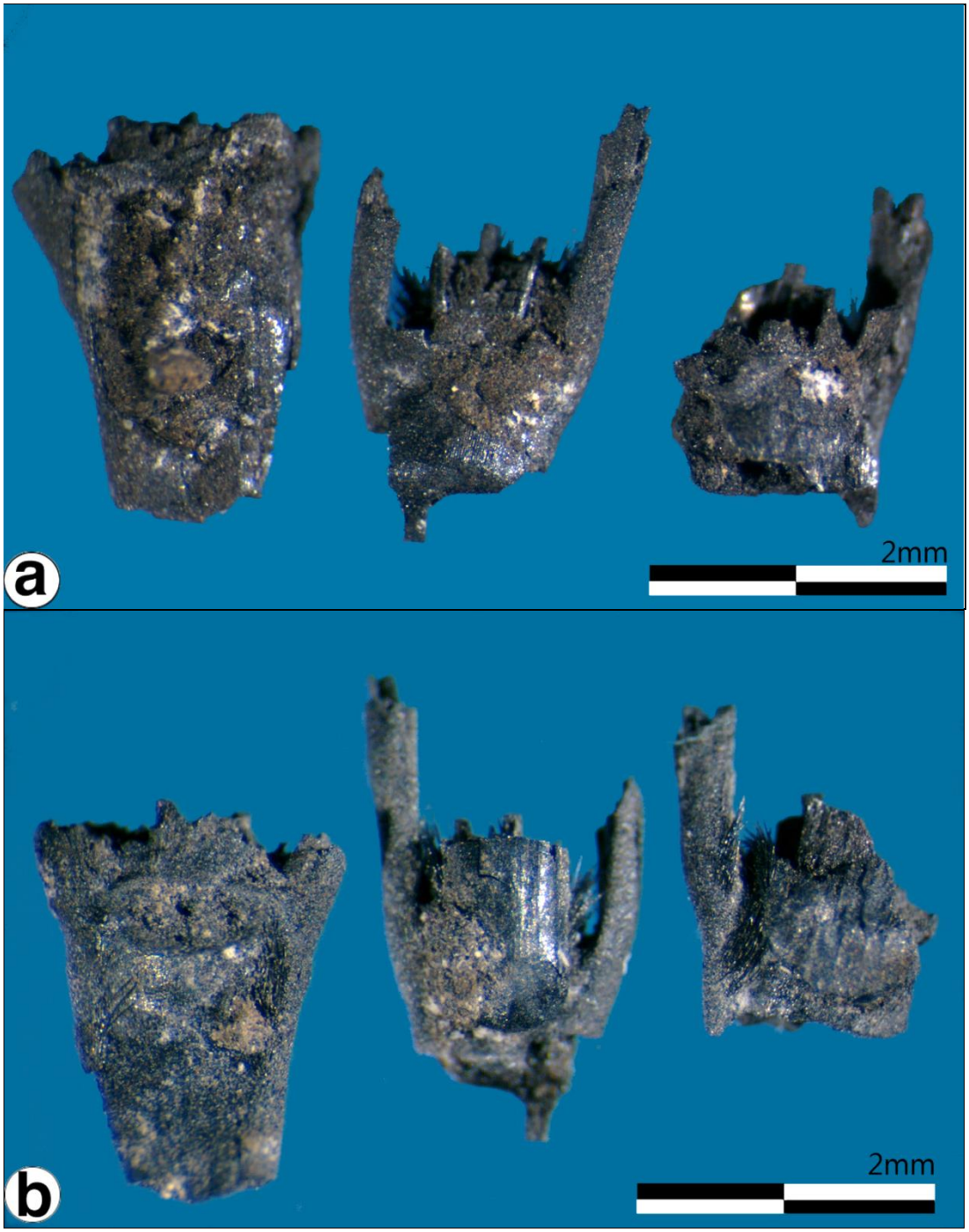


Figure 4.6. Hulled 2-row Barley (*H. distichum*) rachis internodes from Early Bronze I Sos Höyük, sample SOS22. Note the lateral sterile spikelets and hairs visible on the middle and right rachis internodes. a) axial view and b) abaxial view.

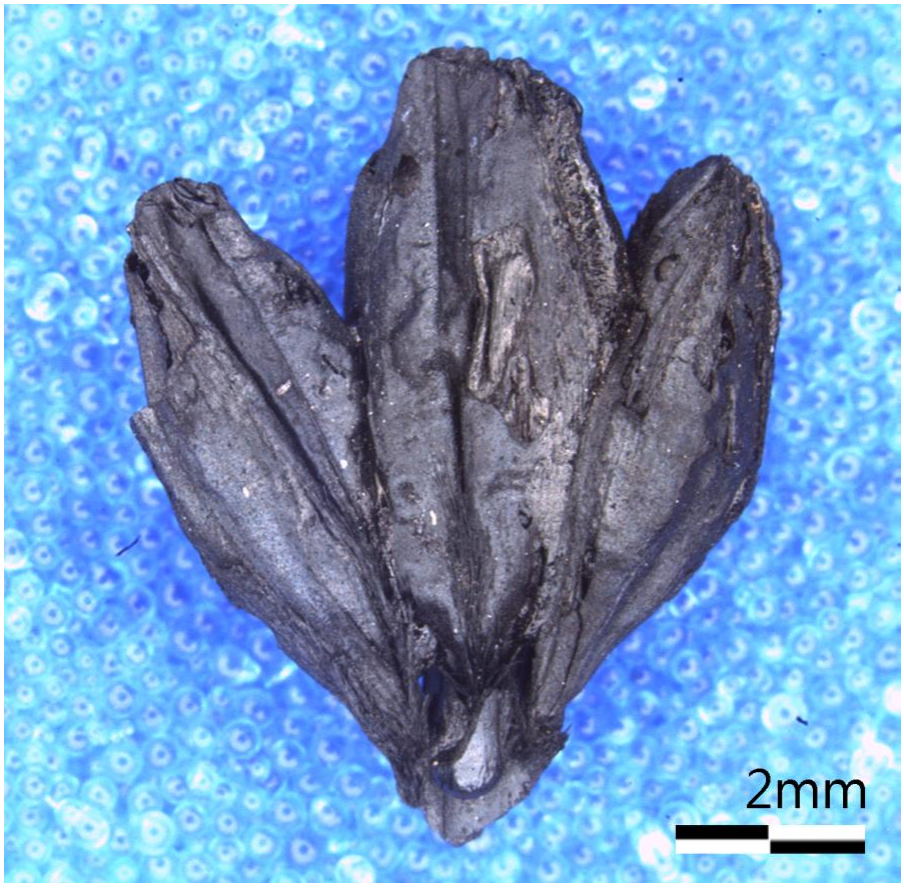


Figure 4.7 Example of six-row barley (*Hordeum vulgare*) from Early Bronze Age Kvatskhelebi, Georgia. Note the two lateral spikelets have produced grains which are asymmetrical.

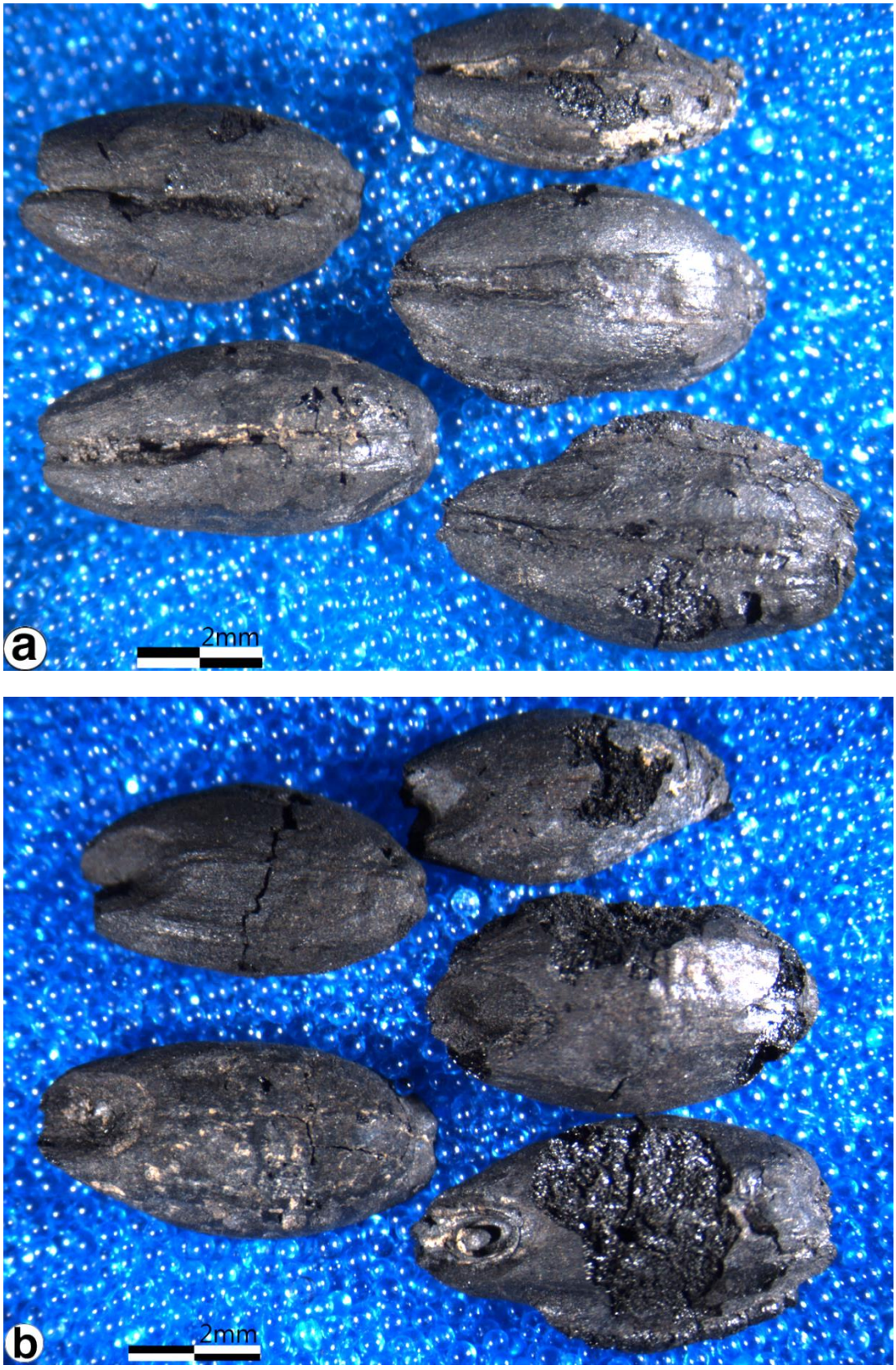


Figure 4.8 Sos Höyük hulled *H. distichum* grains, from Late Chalcolithic, sample SOS6. a) ventral view and b) dorsal view.

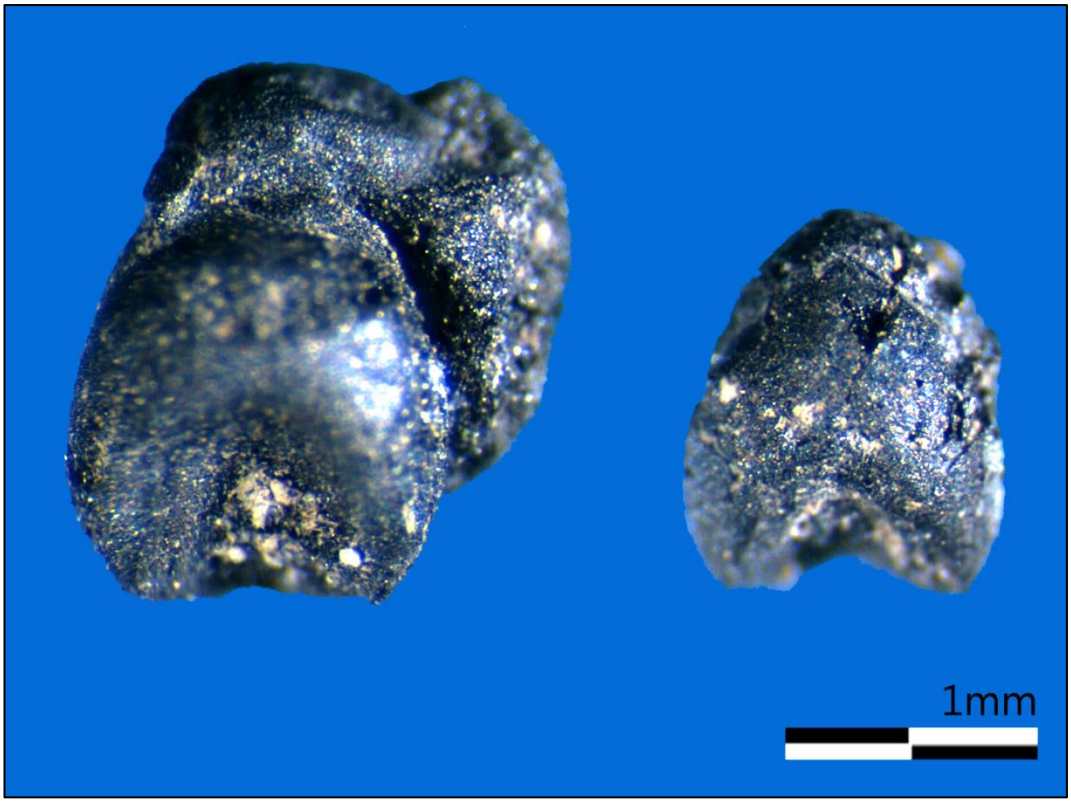


Figure 4.9. *Panicum miliaceum* from SOS64, Middle Bronze II.

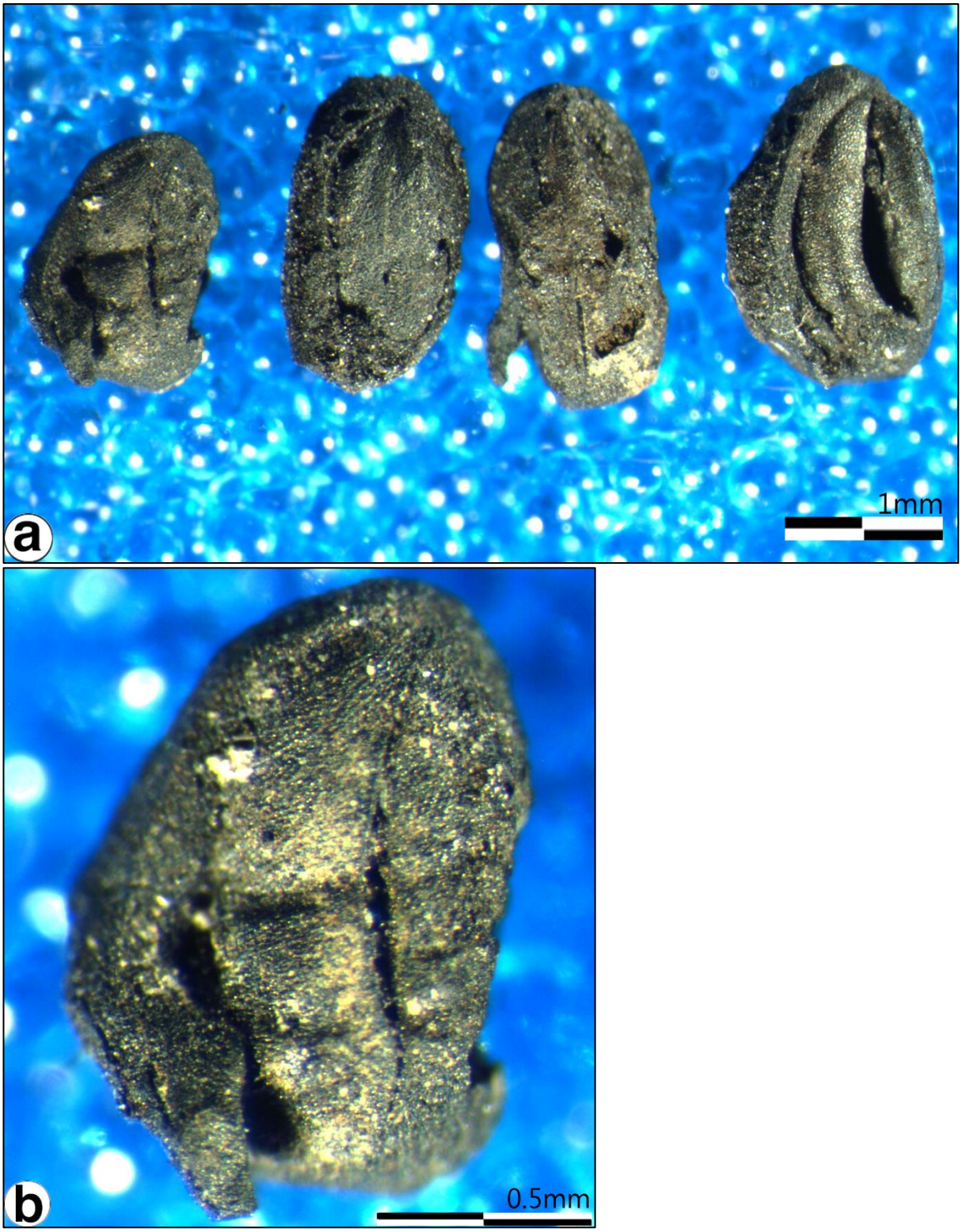
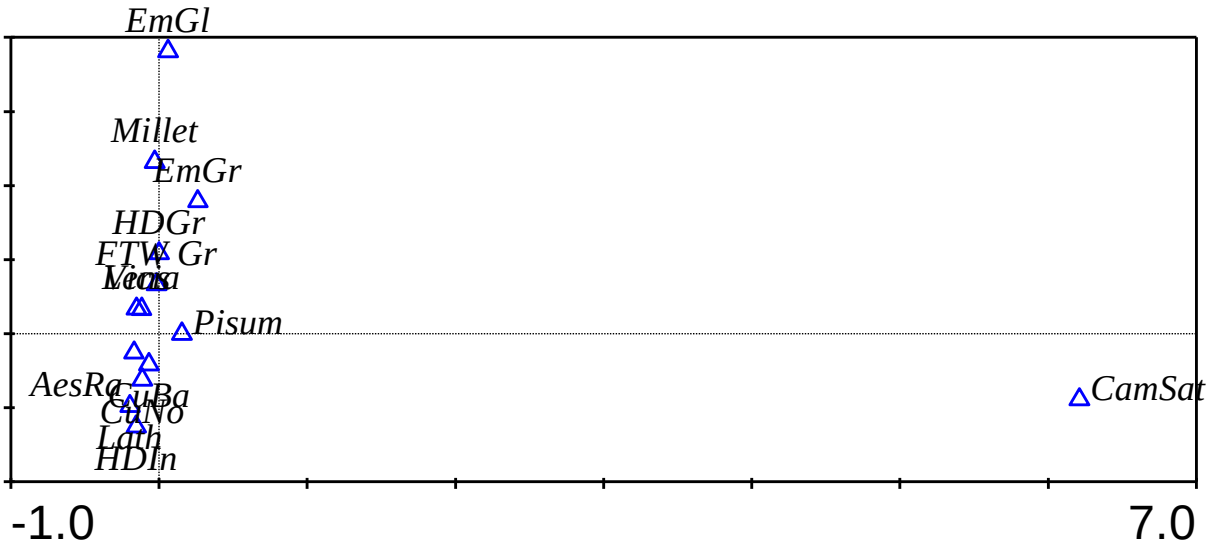
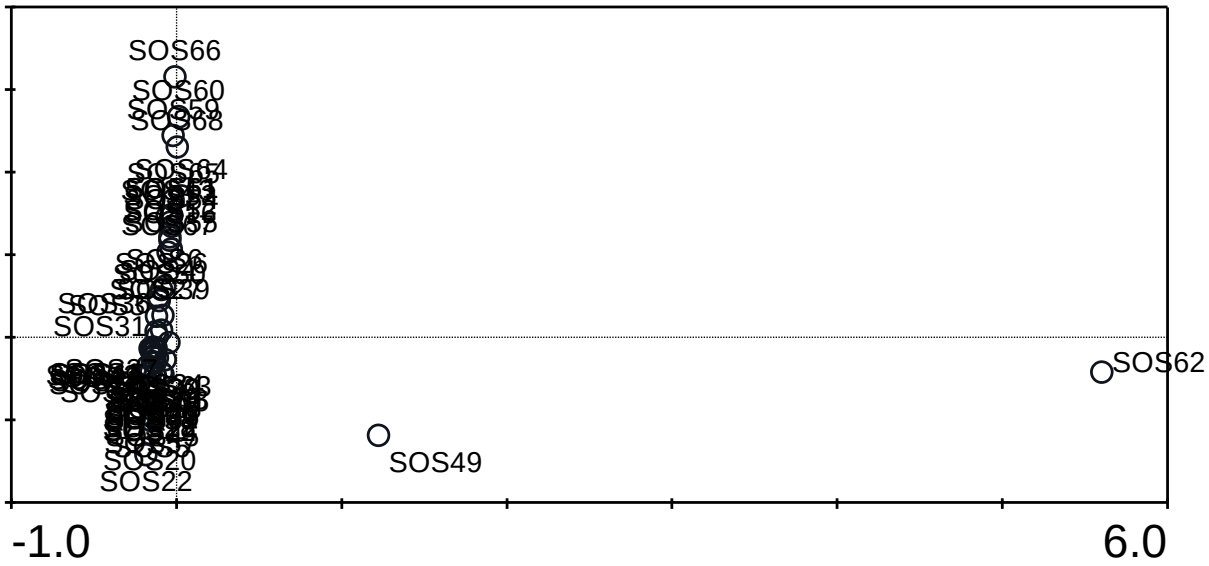


Figure 4.10. *Camelina sativa* from Middle Bronze II sample SOS62. Scale in a) 1mm and in b) 0.5mm. Note the protruding radicle and papillose surface texture.

Figure 4.11 *Lallemantia iberica/canescens/peltata* from Middle Bronze II samples SOS62.

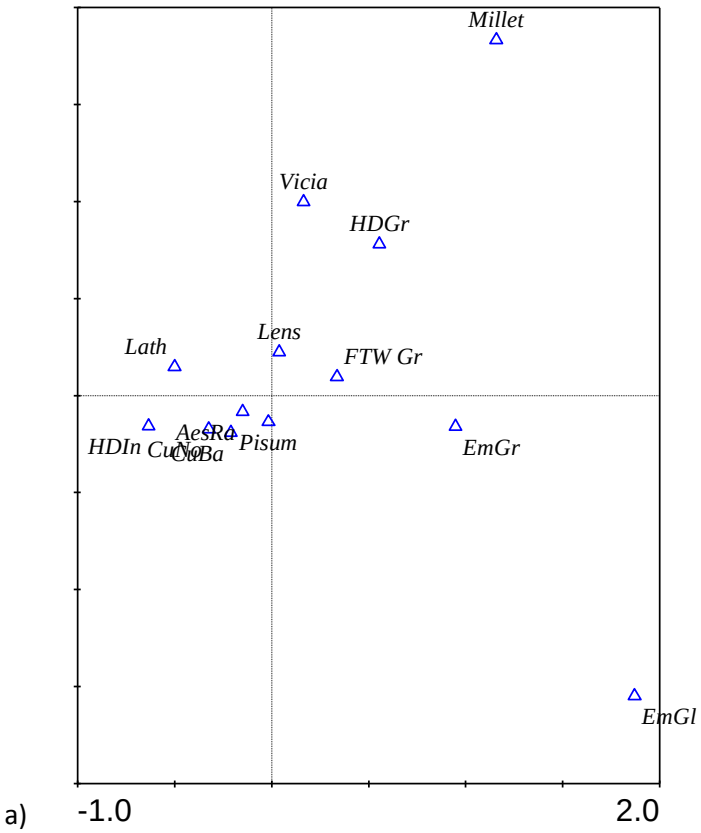


a)

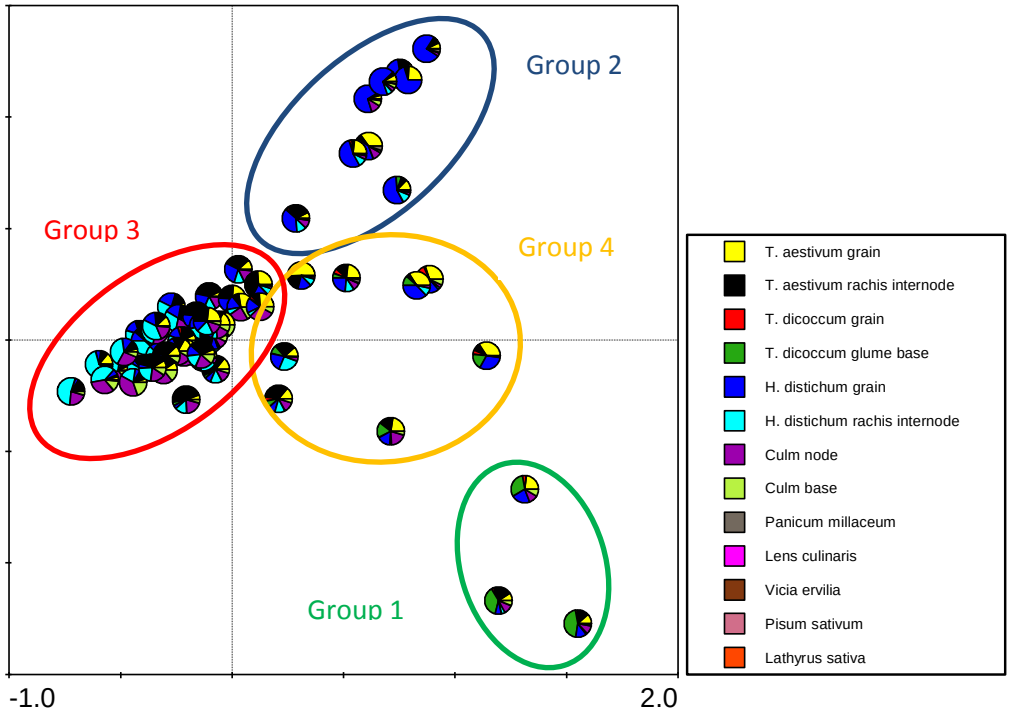


b)

Figure 4.12. Correspondence analysis of crop remains from Sos Höyük of samples with more than 30 crop items. a) plot of species, b) plot of samples. Species codes given in the text.

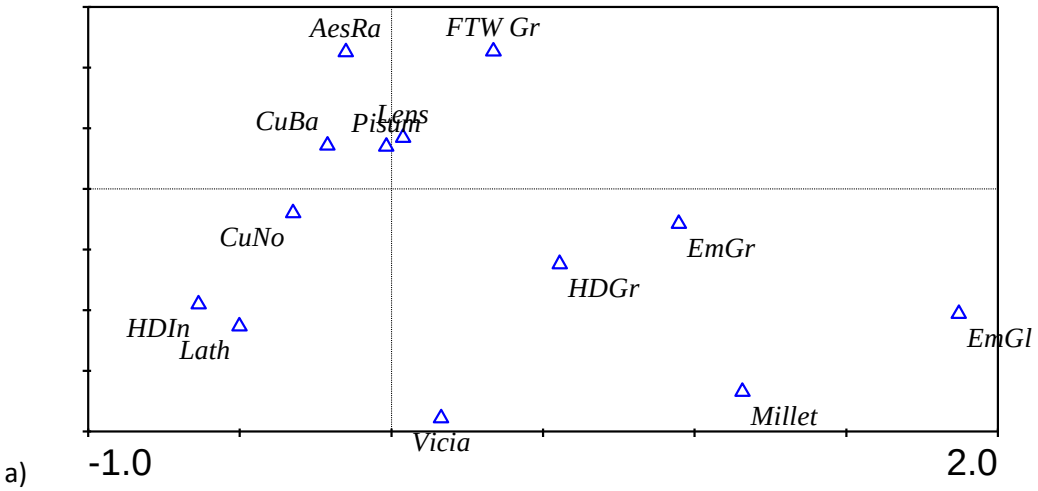


a)

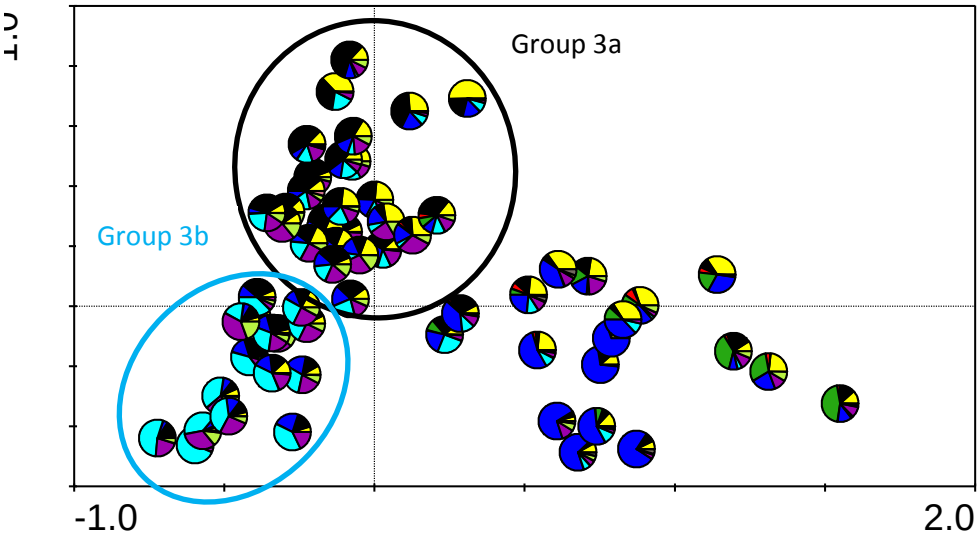


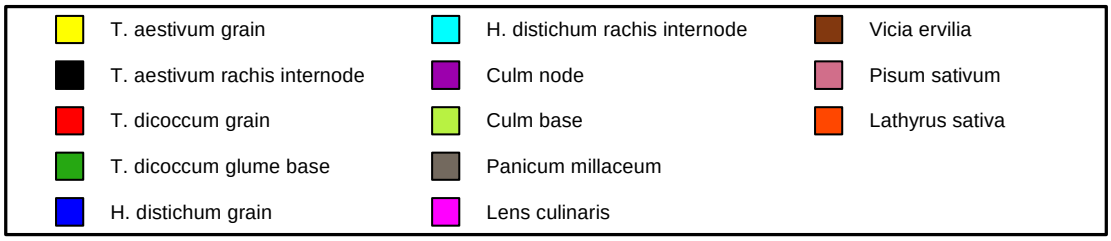
b)

Figure 4.13 Correspondence analysis of crop remains from Sos Höyük based on samples with more than 30 crop items (excluding Camelina sativa). (a) plot of species (b) plot of samples with sample points represented as pie charts showing the proportions of different crop items. Elipses were drawn for interpretive purposes only and are arbitrary indications of compositional groups identified in the text.



a)





b)

Figure 4.14 Correspondence analysis of crop remains from Sos Höyük of samples with more than 30 crop items (excluding Camelina sativa) showing axes 1 (horizontal) and 3 (vertical). (a) plot of species (b) plot of samples with sample points represented as pie charts showing the proportions of different crop items. Elipses were drawn for interpretive purposes only and are arbitrary indications of compositional groups identified in the text.

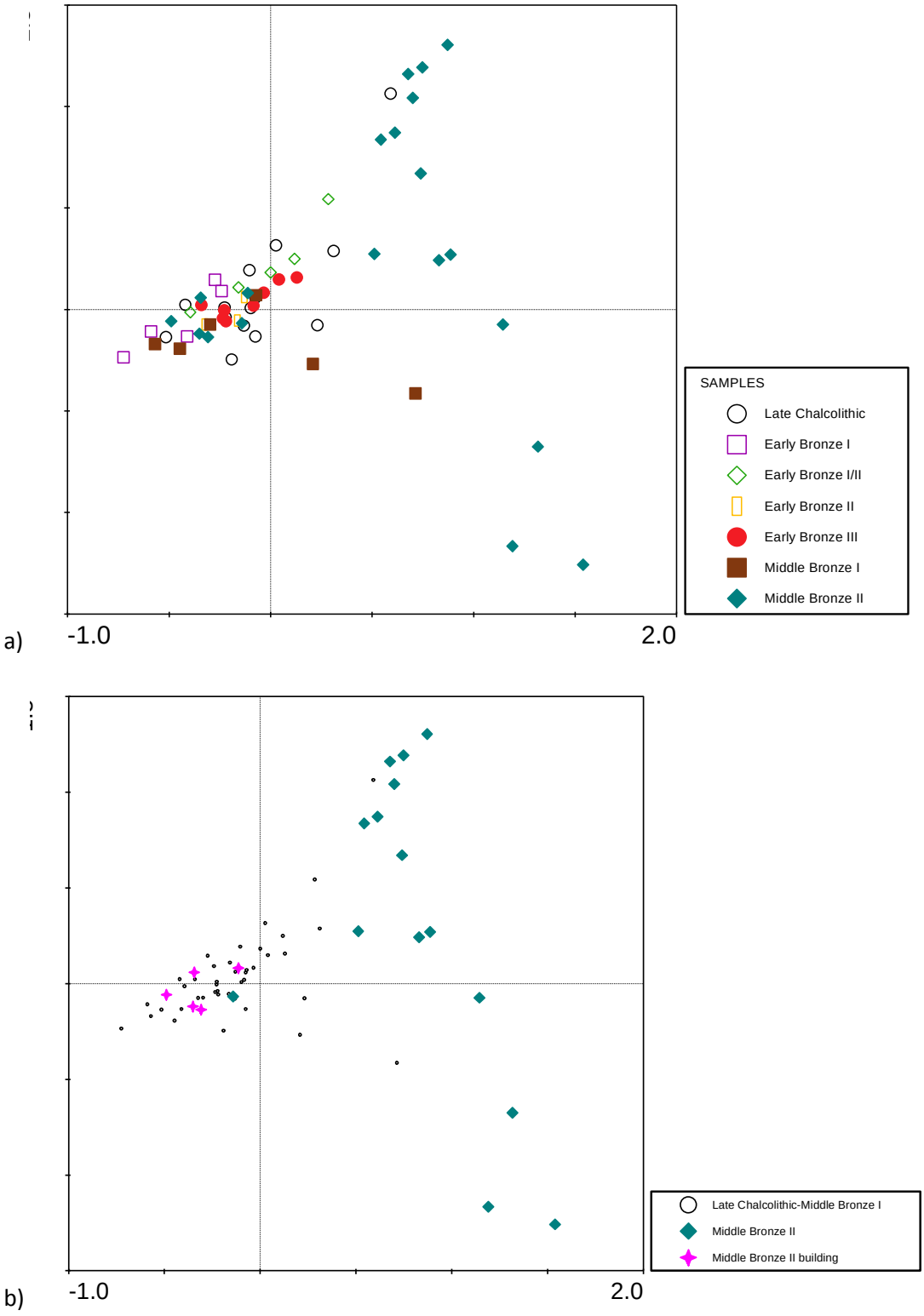


Figure 4.15 Correspondence analysis plot of crop remains from Sos Höyük of samples with more than 30 crop items. a) All samples coded by archaeological period, and b) Only Middle Bronze II samples coded with those from the building in trench L16 indicated.

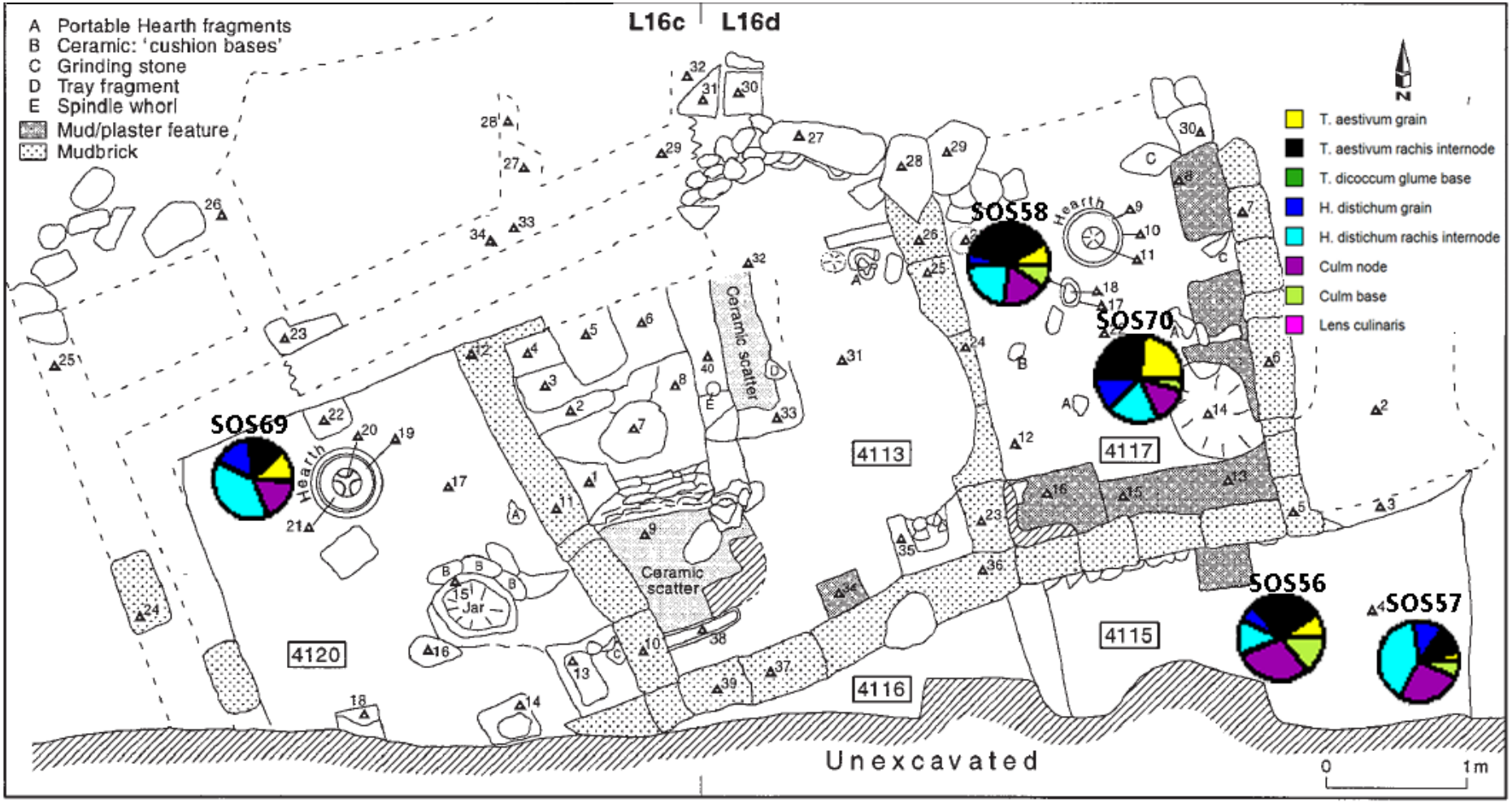


Figure 4.16 Plan of Middle Bronze II house in Trench L16 showing the location of archaeobotanical samples, represented by pie charts showing proportion of crop types. Plan from Sagona and Sagona 2000.

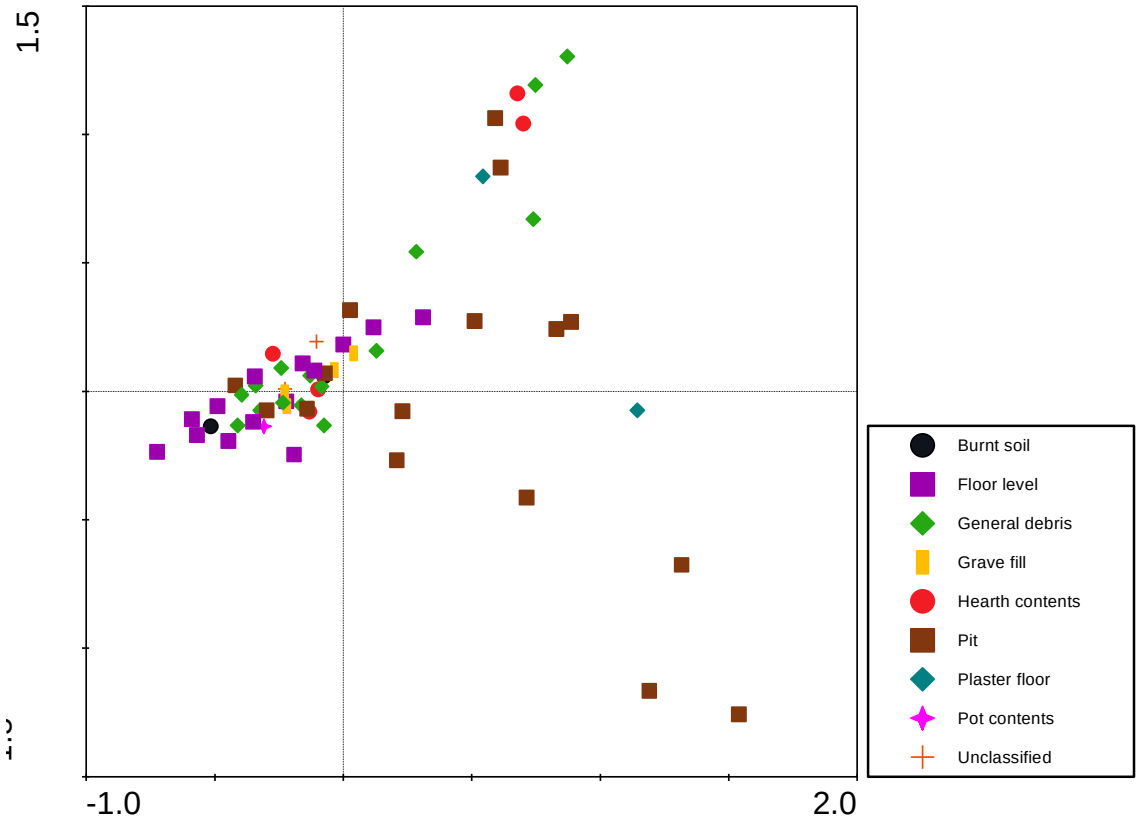
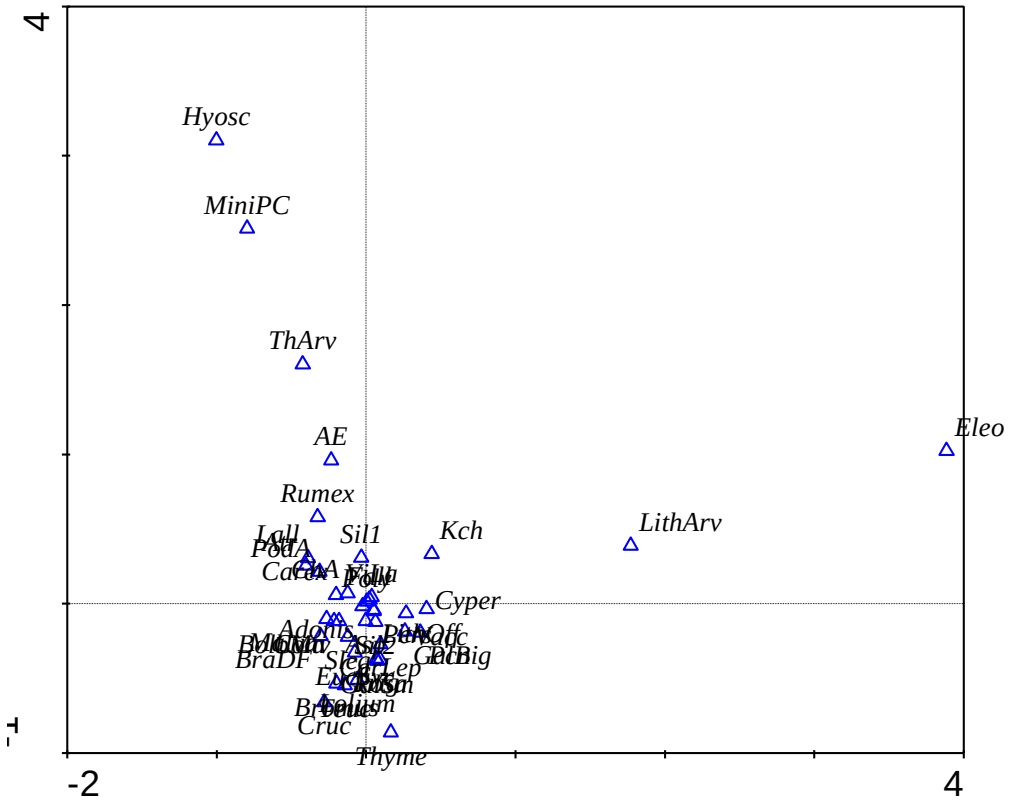
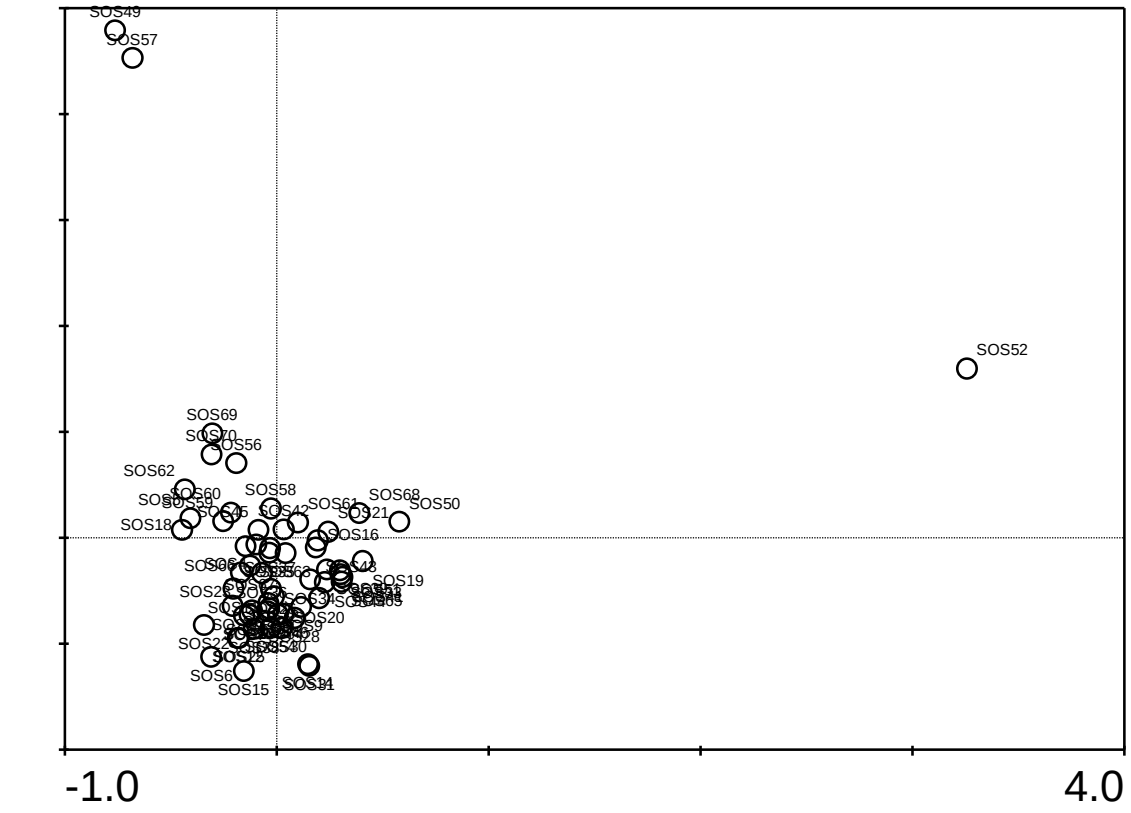


Figure 4.17 Correspondence analysis plot of crop remains from Sos Höyük of samples with more than 30 crop items. Samples coded by context.

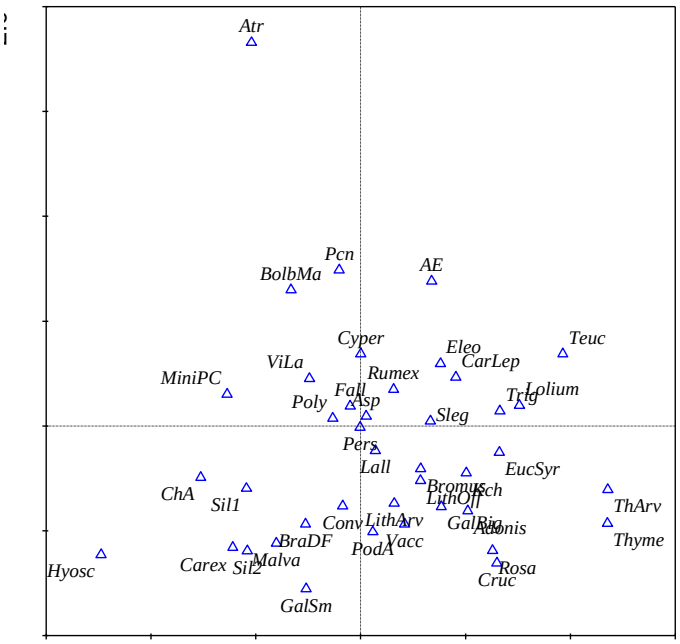


a)

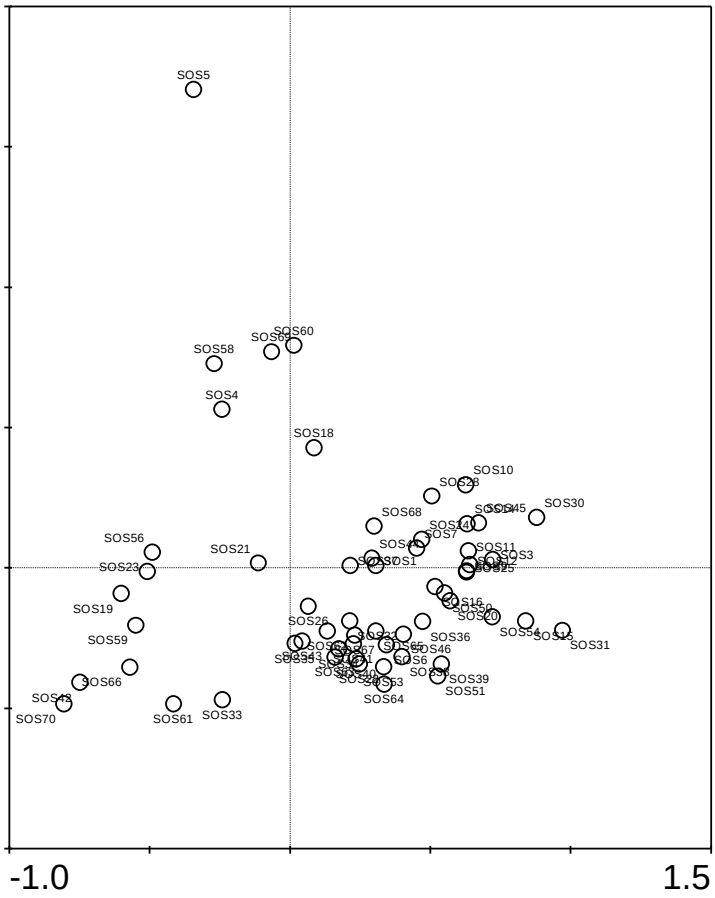


b)

Figure 4.18 Correspondence analysis of Sos Höyük samples containing more than 30 seeds of wild taxa a) species plot, b) sample plot. Species codes listed in Table 4.6.



a)



b)

Figure 4.19 Correspondence analysis of Sos Höyük samples containing more than 30 seeds of wild taxa excluding samples SOS49, SOS52, SOS57. a) species plot, b) sample plot Species codes listed in Table 4.6.

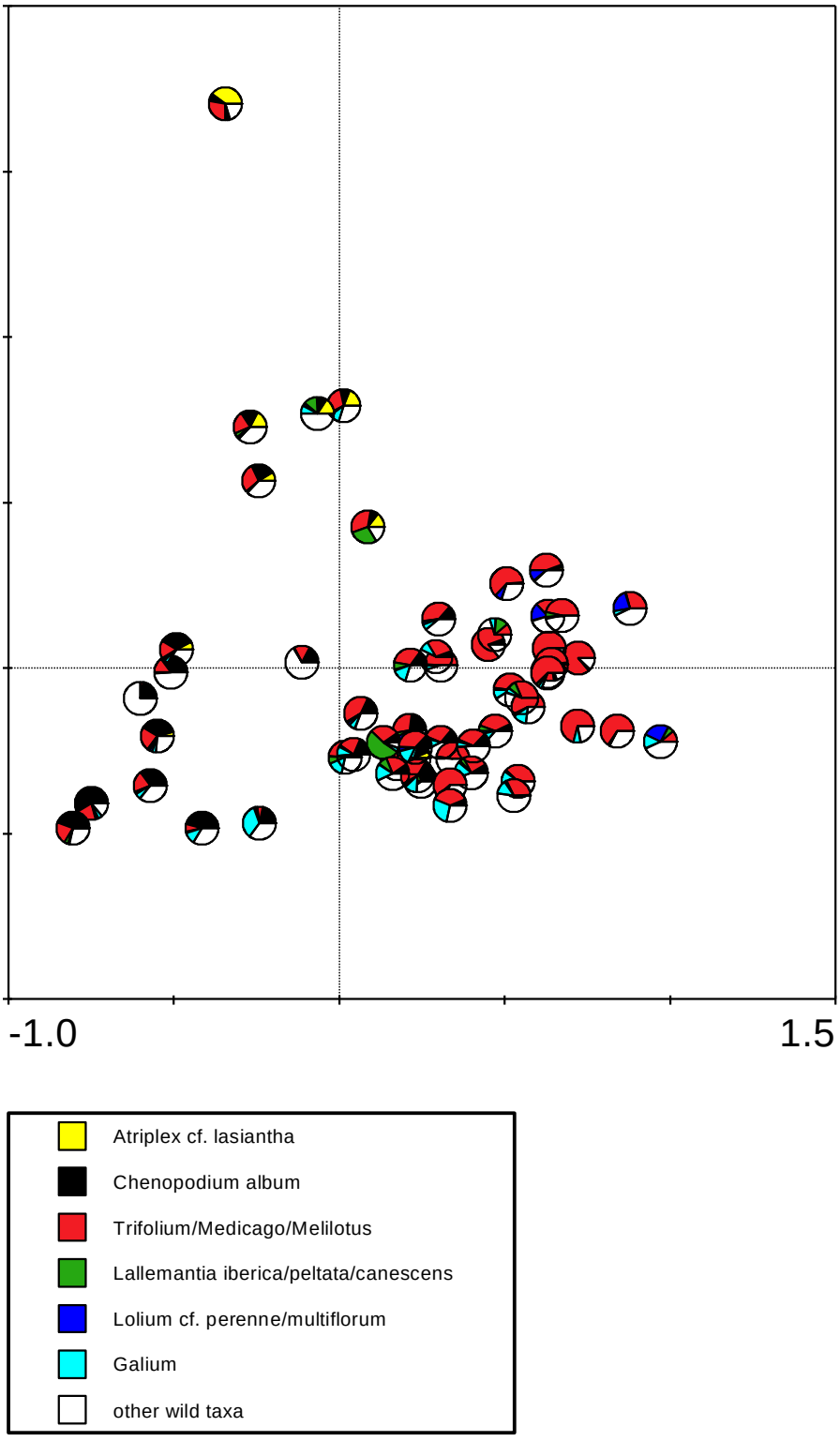
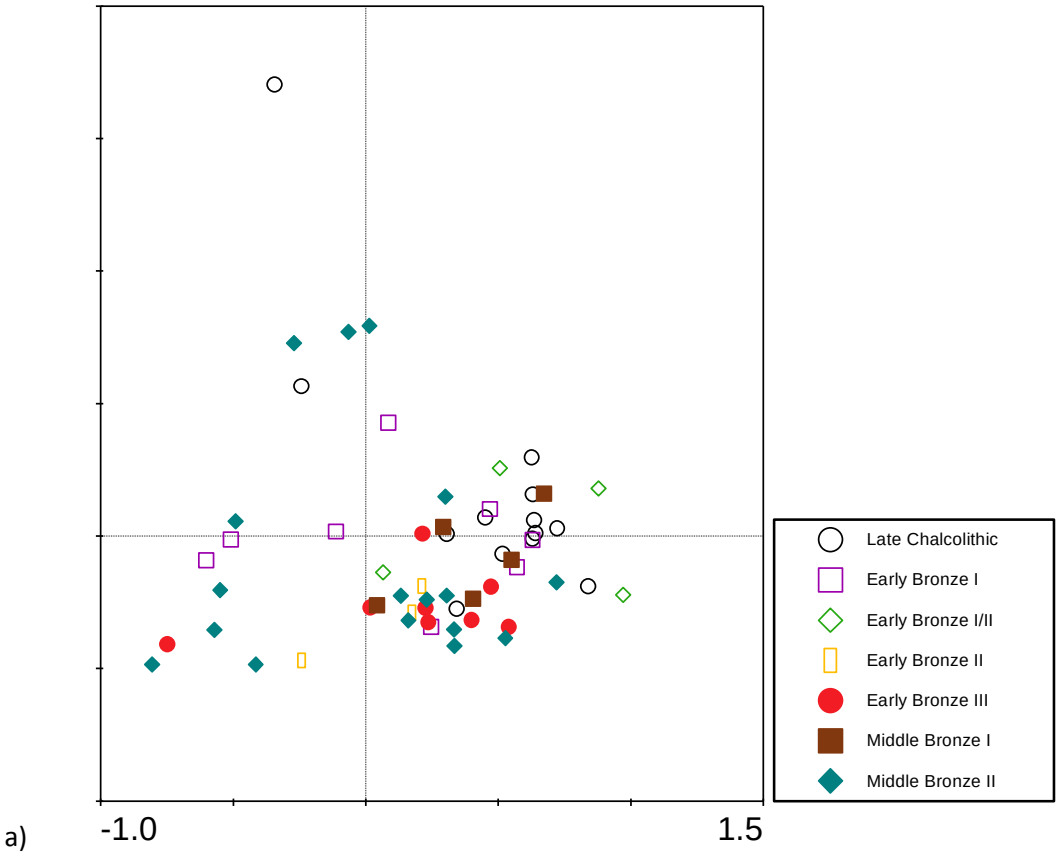


Figure 4.20 Correspondence analysis of Sos Höyük samples containing more than 30 seeds of wild taxa, excluding samples SOS49, SOS52, SOS57. Samples represented by pie charts of species composition. Only taxa which constitute more than 25% of a sample are coded.



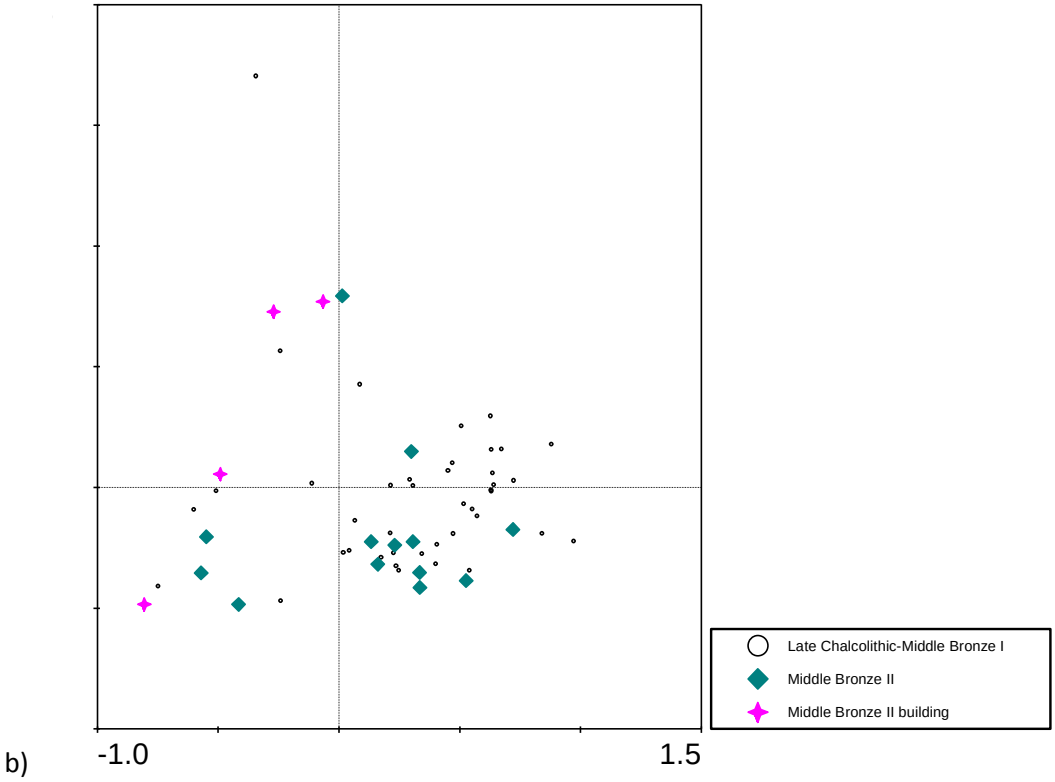


Figure 4.21. Correspondence analysis plot of Sos Höyük samples containing more than 30 seeds of wild taxa, excluding samples SOS49, SOS52, SOS57. a) All samples coded by archaeological period, and b) Only Middle Bronze II samples coded with those from the building in trench L16 indicated.

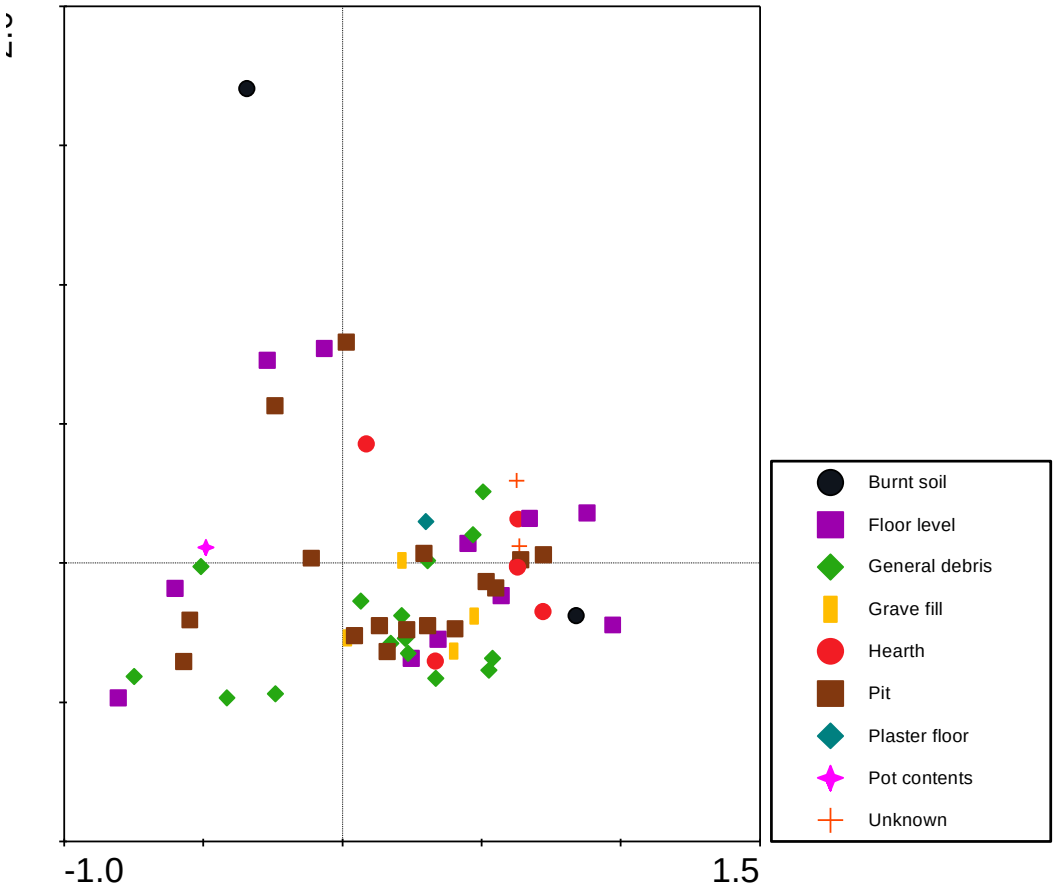


Figure 4.22. Correspondence analysis plot of Sos Höyük samples containing more than 30 seeds of wild taxa, excluding samples SOS49, SOS52, SOS57. Samples coded by context.

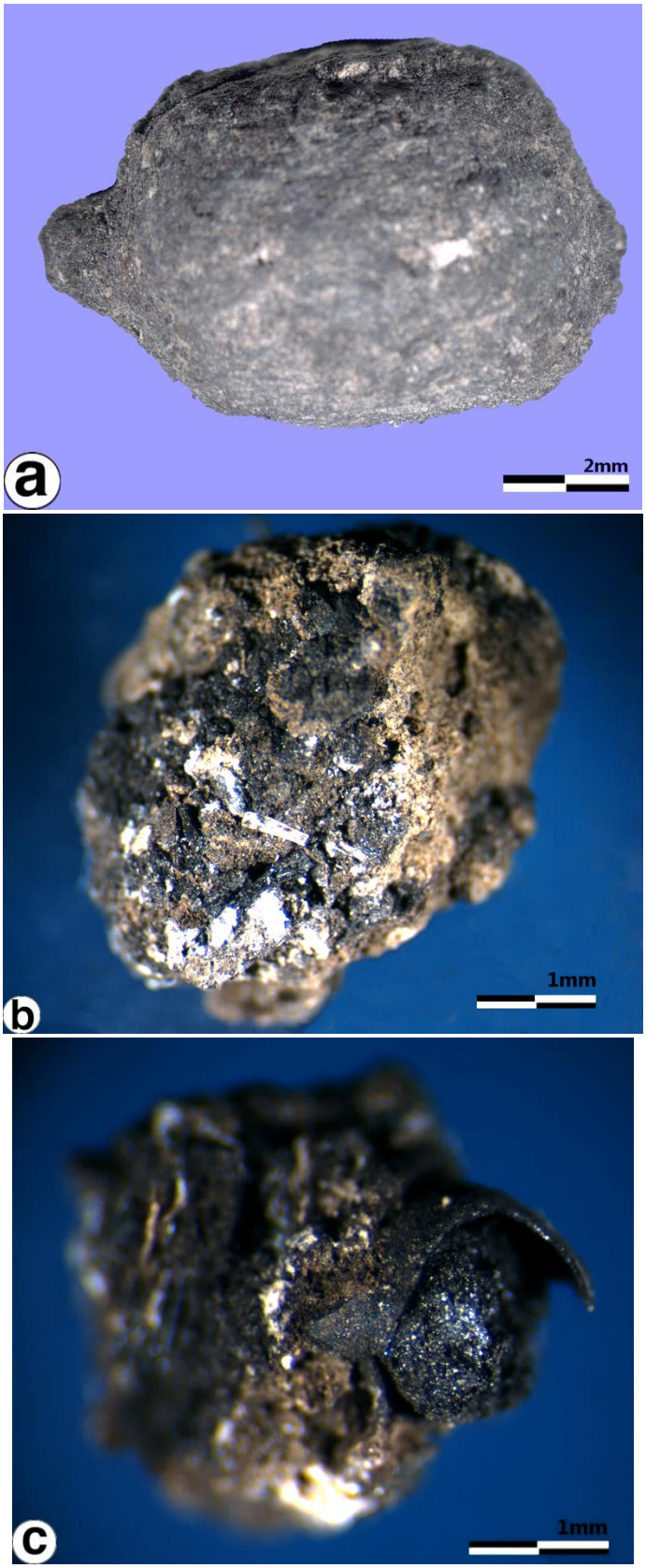
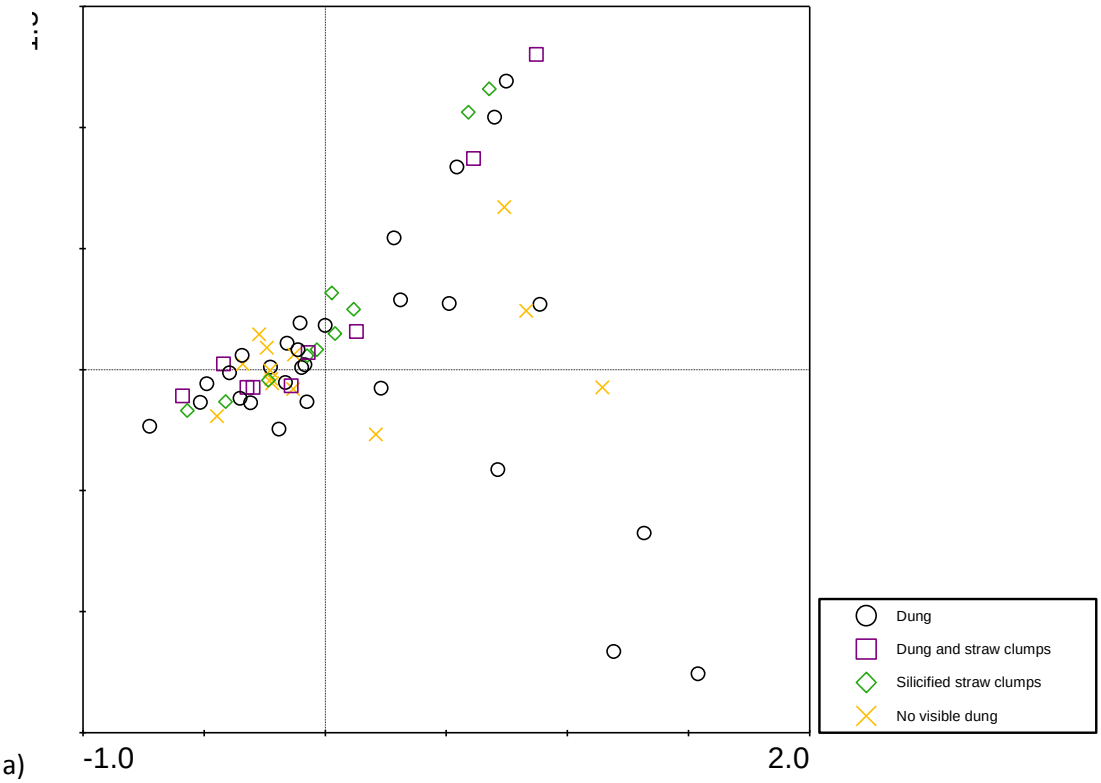
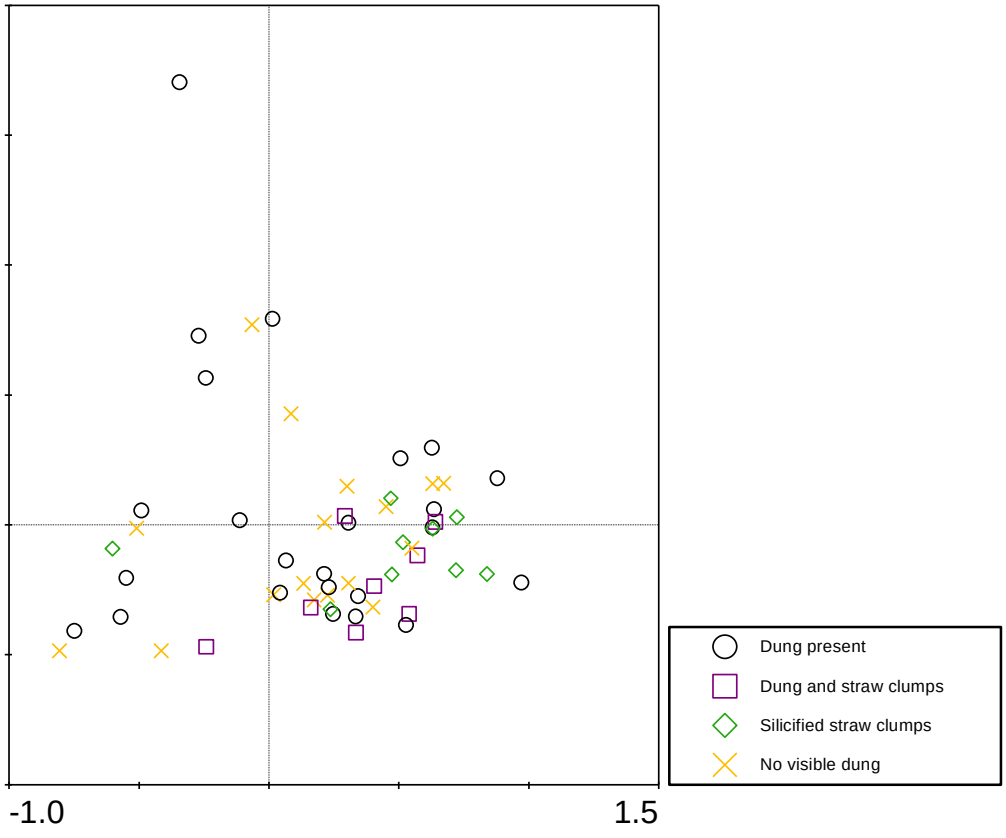


Figure 4.23. Examples of dung in the Sos Höyük assemblage a) Sheep/Goat faecal pellet from Middle Bronze II (SOS64), b) amorphous dung fragment from Late Chalcolithic SOS4, and c) amorphous dung fragment with charred *Polygonum cf. arenastrum/bellardii* seed embedded in the matrix (SOS4).



a)



b)

Figure 4.24 Correspondence analysis plots of Sos Höyük samples coded by presence of dung fragments or silicified straw clumps. a) plot of cultivated items of samples with more than 30 items b) plot of wild taxa of samples with more than 30 wild items.

	Winter			Spring			Summer			Autumn		
	D	J	F	M	A	M	J	**J**	A	S	**O**	N
Atriplex cf. *lasiantha*	❄	❄	❄	❄		x	x	x				❄
Chenopodium album	❄	❄	❄	❄		x	x	x	x			❄
Kolchia prostata/scoparia	❄	❄	❄	❄			x	x	x			❄
Polycnemum arvense	❄	❄	❄	❄			x	x				❄
Buglossoides arvense	❄	❄	❄	❄	x	x	x					❄
Lithospermum officinale	❄	❄	❄	❄		x	x	x				❄
Thlaspi arvense	❄	❄	❄	❄	x	x						❄
Euclidium syriacia	❄	❄	❄	❄	x	x	x					❄
Vaccaria pyramidata	❄	❄	❄	❄	x	x	x	x				❄
Bolboschenus maritimus	❄	❄	❄	❄		x	x	x	x	x		❄
Trigonella sp.	❄	❄	❄	❄	x	x	x	x				❄
Lallemantia cf. *iberica/canescens/peltata*	❄	❄	❄	❄	x	x	x	x	x			❄
Bromus cf. *japonicus*	❄	❄	❄	❄		x	x	x				❄
Lolium cf. *perenne/multiflorum*	❄	❄	❄	❄	x	x	x	x	x	x		❄
Fallopia convolvulvus	❄	❄	❄	❄		x	x	x	x	x		❄
Persicaria sp.	❄	❄	❄	❄			x	x	x			❄
Polygonum arenastrum/bellardii	❄	❄	❄	❄		x	x	x	x	x	x	❄
Rumex sp.	❄	❄	❄	❄			x	x	x			❄
Adonis sp.	❄	❄	❄	❄	x	x	x					❄
Asperula cf. *involucrata*	❄	❄	❄	❄		x	x	x	x	x		❄
Hyoscyamus niger	❄	❄	❄	❄	x	x	x	x	x			❄
Thymelaea cf. *passerina.*	❄	❄	❄	❄	x	x	x	x	x			❄

Figure 4.25 Representation of the flowering/fruiting period of wild taxa found in Sos Höyük samples based on Davis (1965-1988). Period of snow cover in the Pasinler Valley indicated. Harvest months July/August for autumn sown crops and October for spring sown crops (Hopkins 2003; Bardsley 2001; Aycicek and Yildirim 2006)

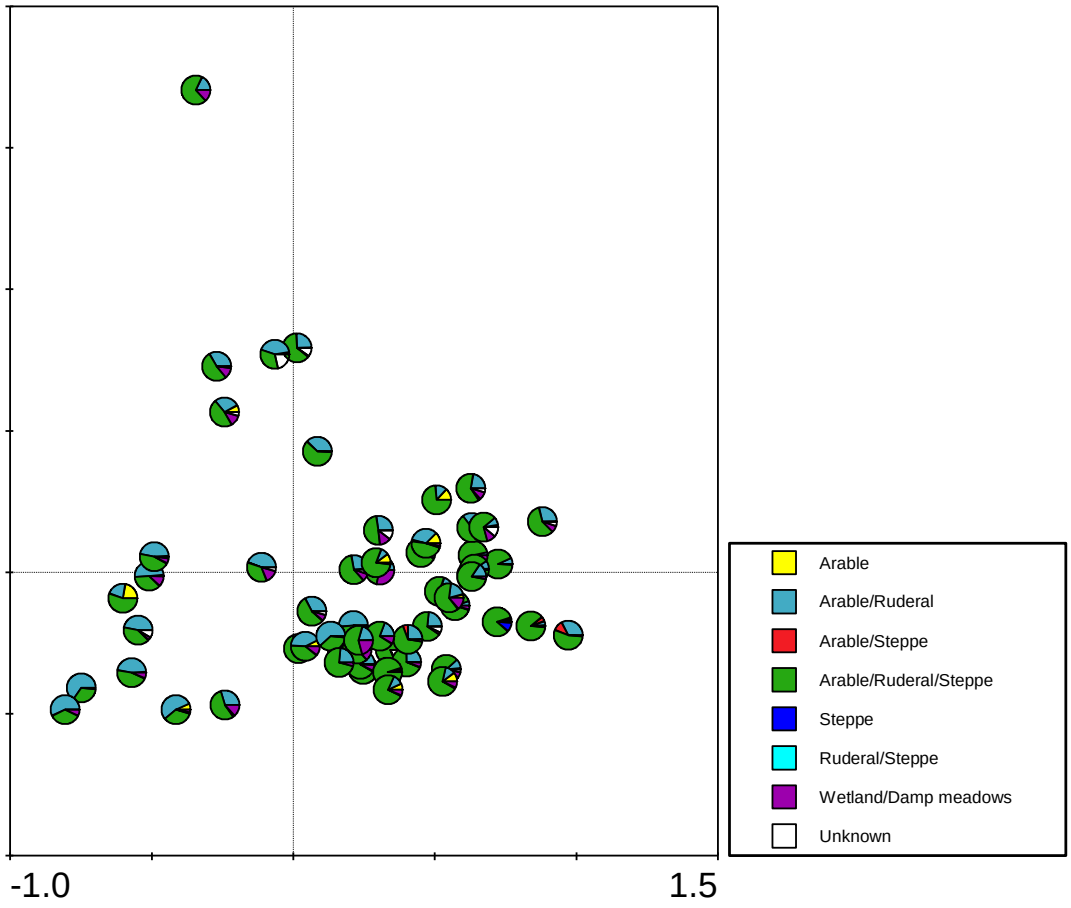
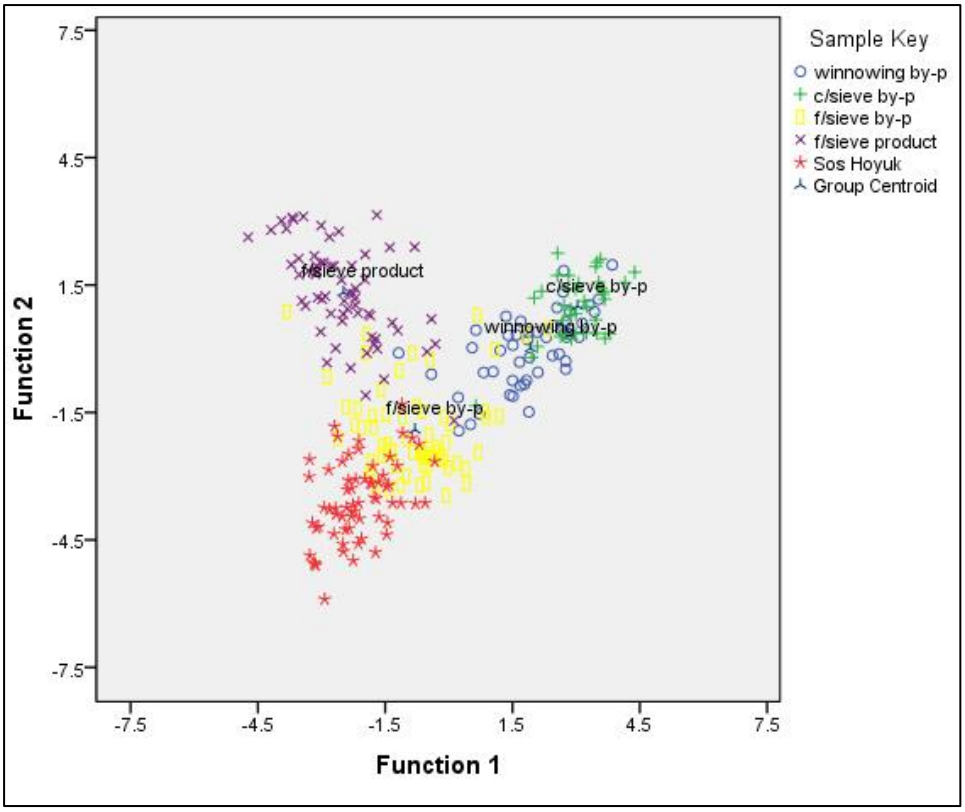


Figure 4.26. Correspondence analysis plot of Sos Höyük samples with more than 30 wild items, excluding samples SOS49, SOS52, SOS57, where samples are represented by pie charts showing habitat type based on table 4.6.

a)



b)

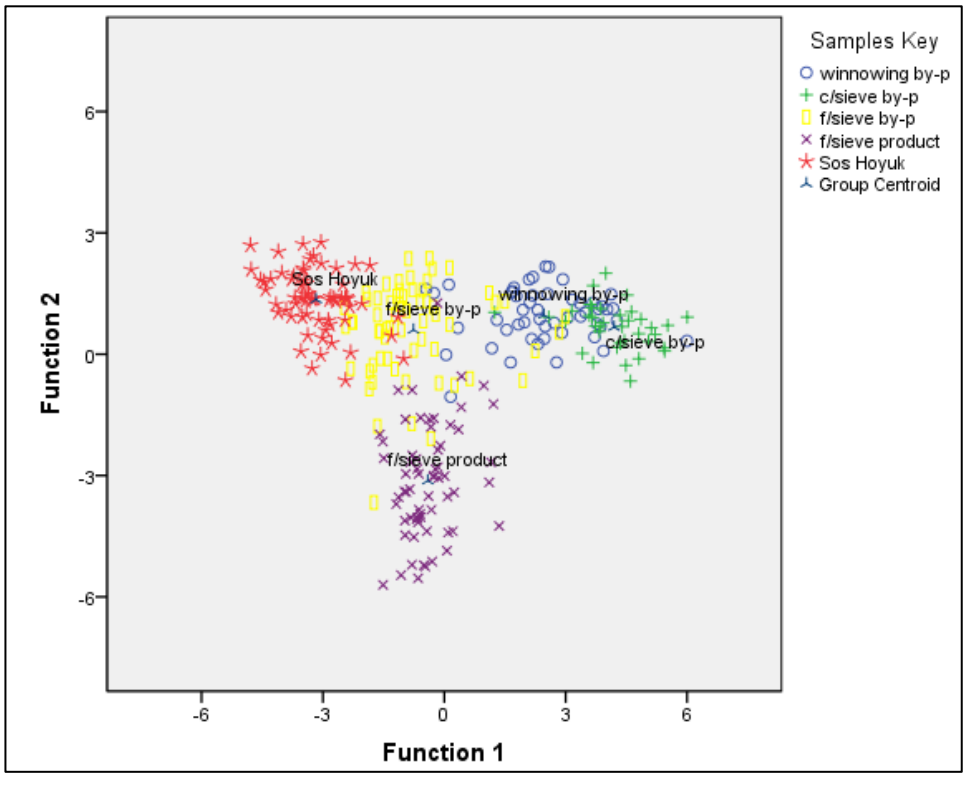
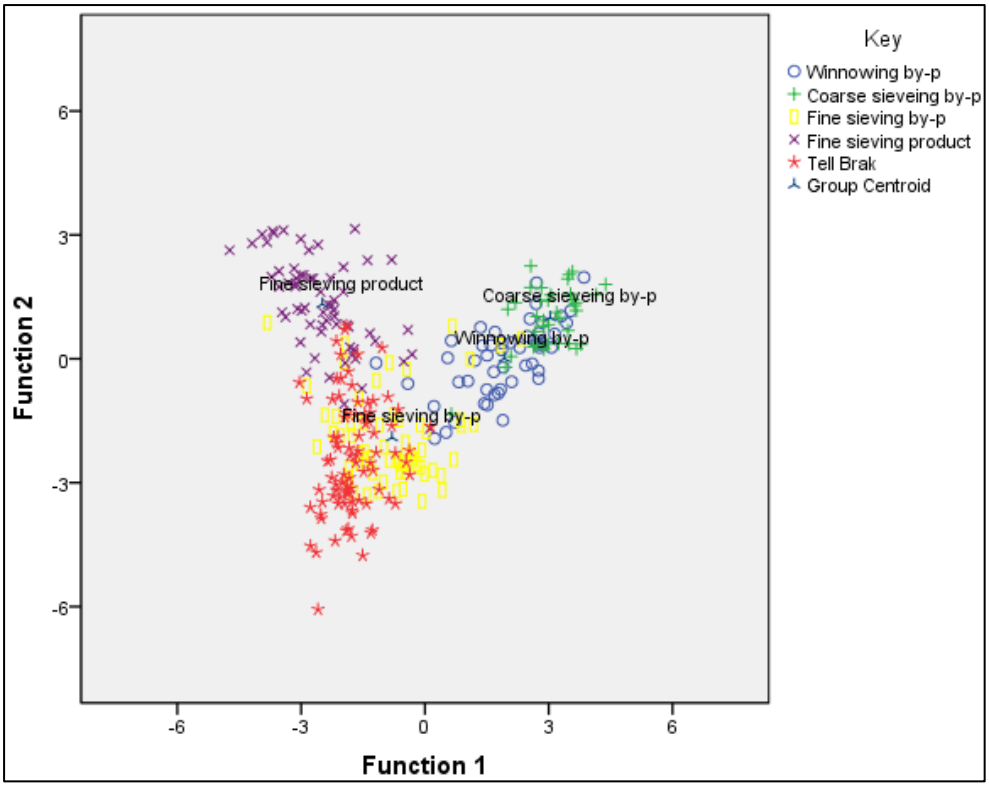


Figure 4.27 Discriminant analysis plots comparing the Sos Höyük samples to ethnographic crop processing groups from Amorgos, Greece, using physical characteristics of weed seeds (Jones 1984). Indeterminate SFH/SHH weed seeds from Sos Höyük are treated as SFH in the plots. a) Sos Höyük samples entered without classification b) Sos Höyük samples entered as a separate group in the analysis.

a)



b)

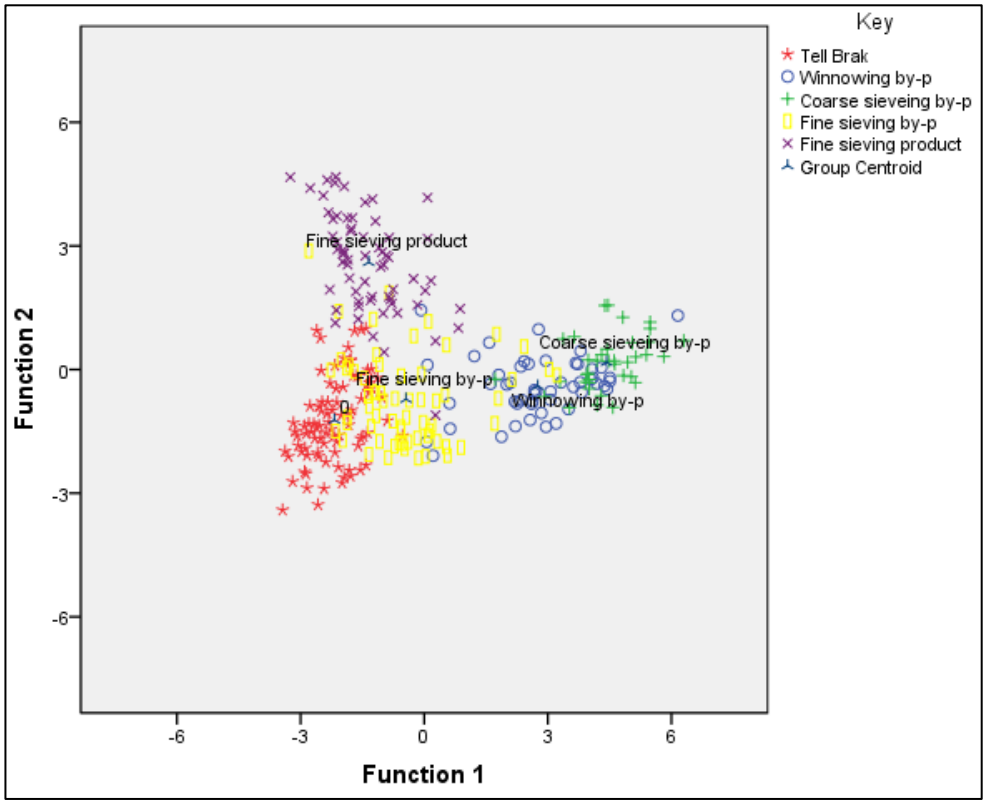
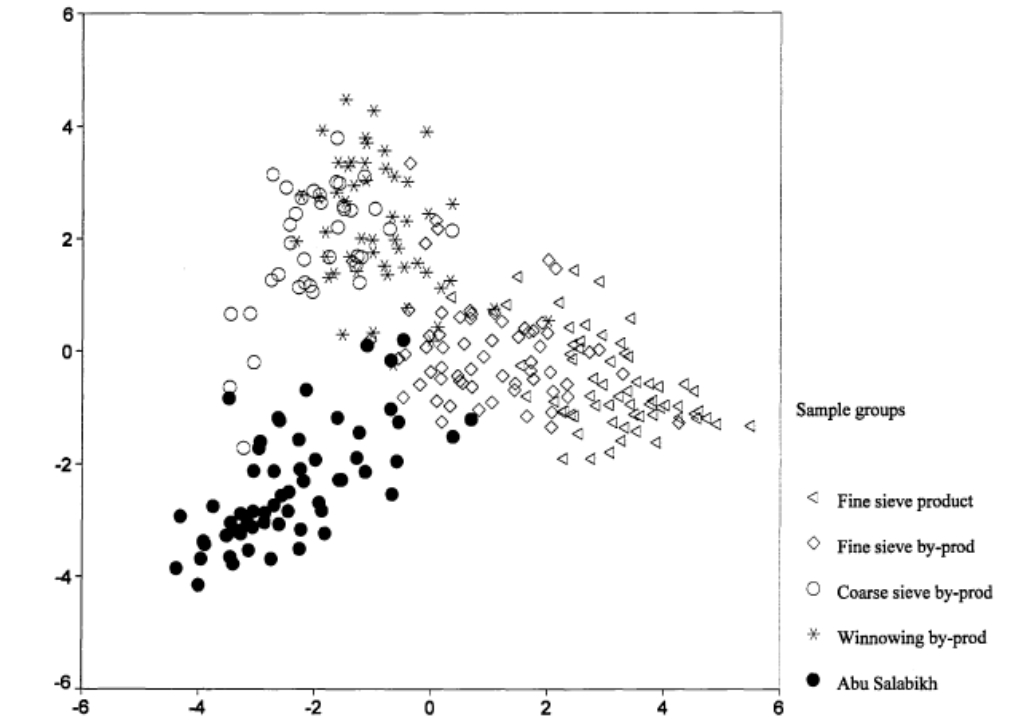
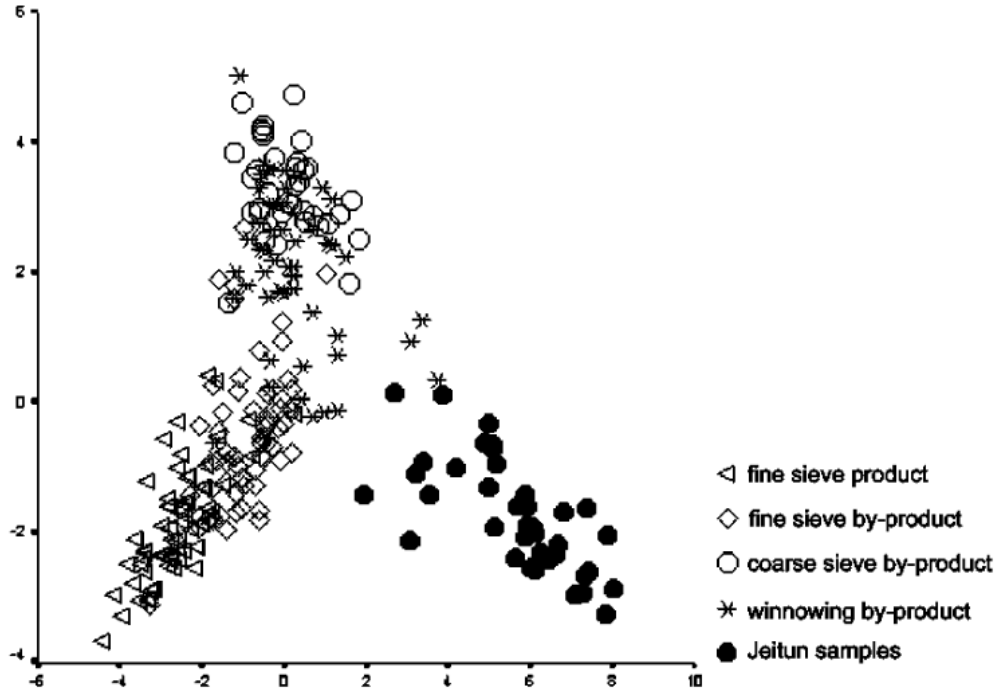


Figure 4.28 Discriminant analysis plots comparing the Tell Brak (Hald 2008) samples to ethnographic crop processing groups from Amorgos, Greece, using physical characteristics of weed seeds (Jones 1984). a) Tell Brak samples entered without classification b) Tell Brak samples entered as a separate group in the analysis.



a)



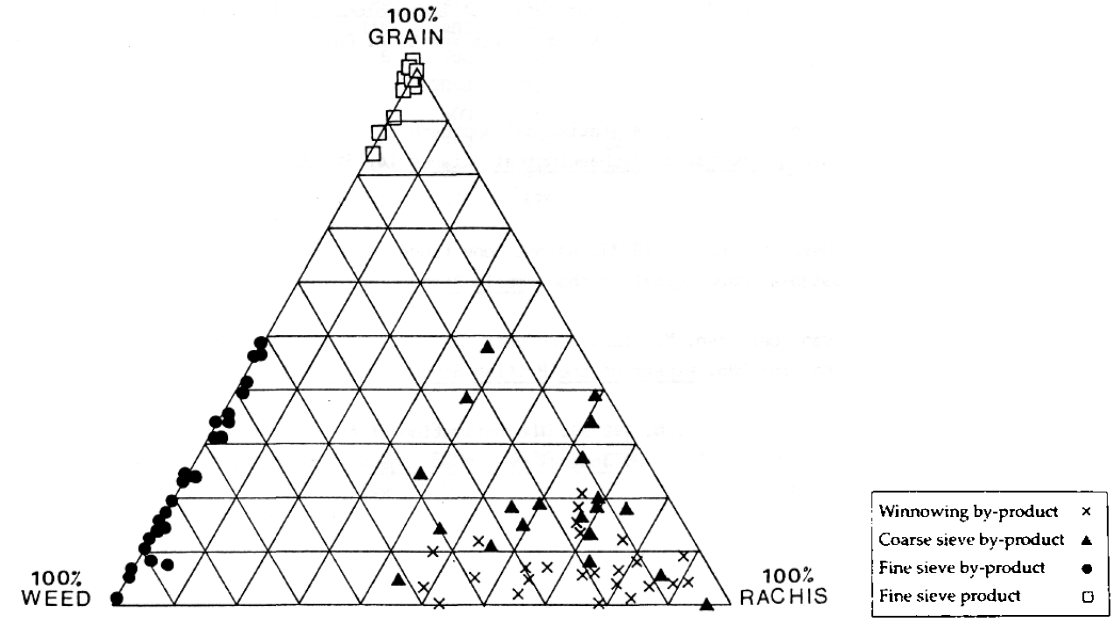
b)

Figure 4.29. Discriminant analysis plots comparing the archaeological samples from a) Abu Salabikh and b) Jeitun with the ethnographic samples from known crop processing stages at Amorgos (Jones 1984). Each plot shows the archaeological samples entered at the discrimination stage as separate groups (Charles 1998, Figure 2b; Charles and Bogaard 2005, Figure 6).

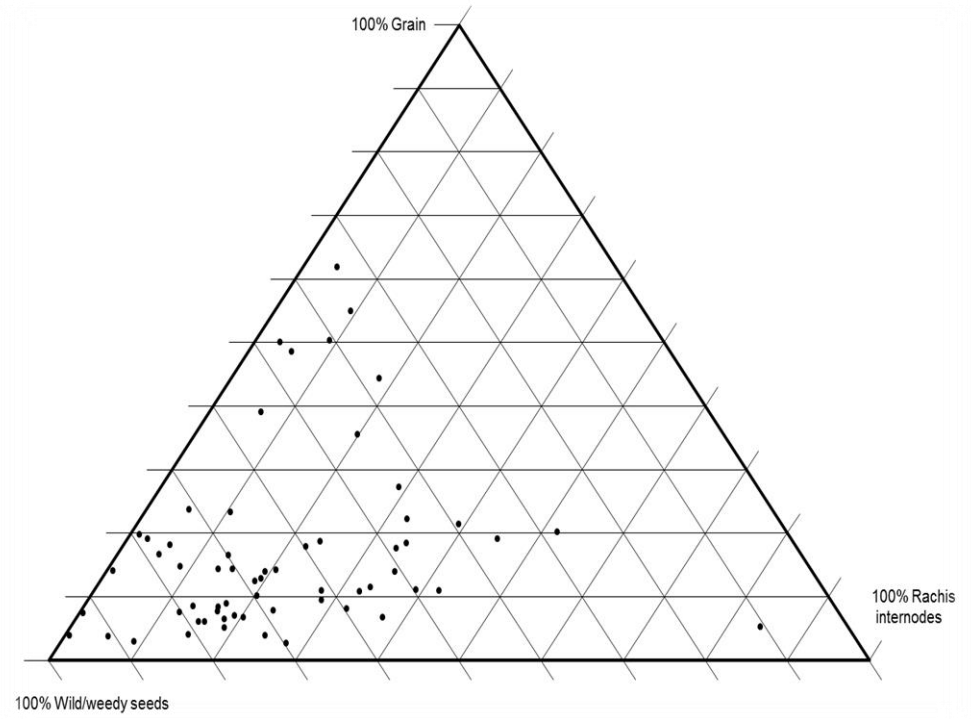
Figure 4.30 Animal dung drying in the village of Küçükköy, Konya Province, Turkey (August 2007). Note the straw embedded in the drying dung clumps and pile of chaff, possibly crop processing remains, in the centre of the photograph. Prepared dung fuel cakes are piled against the building in the background.

Figure 4.31 Dung fuel made from sheep/goat dung in the village of Küçükköy, Konya Province, Turkey, (August 2007). Note the straw embedded in dung.

Figure 4.32 Dung fuel cakes (foreground) in Yiğittaşi, modern Sos Höyük, taken looking south July 2001.



a)



b)

Figure 4.33 a) Plot showing the proportions of grain, rachis internodes and weed seeds from crop processing samples from Amorgos, Greece (Jones 1990). b) Plot showing the proportions of grain, rachis internodes and wild seeds from Sos Höyük including only free threshing cereal rich samples and samples with more than 30 cereal items plus 30 wild seeds. Samples excluded: SOS8, 13, 17, and 29, due to too few items; 66 59 60 for being Emmer rich. Triplot generated using Graham and Midgley 2007

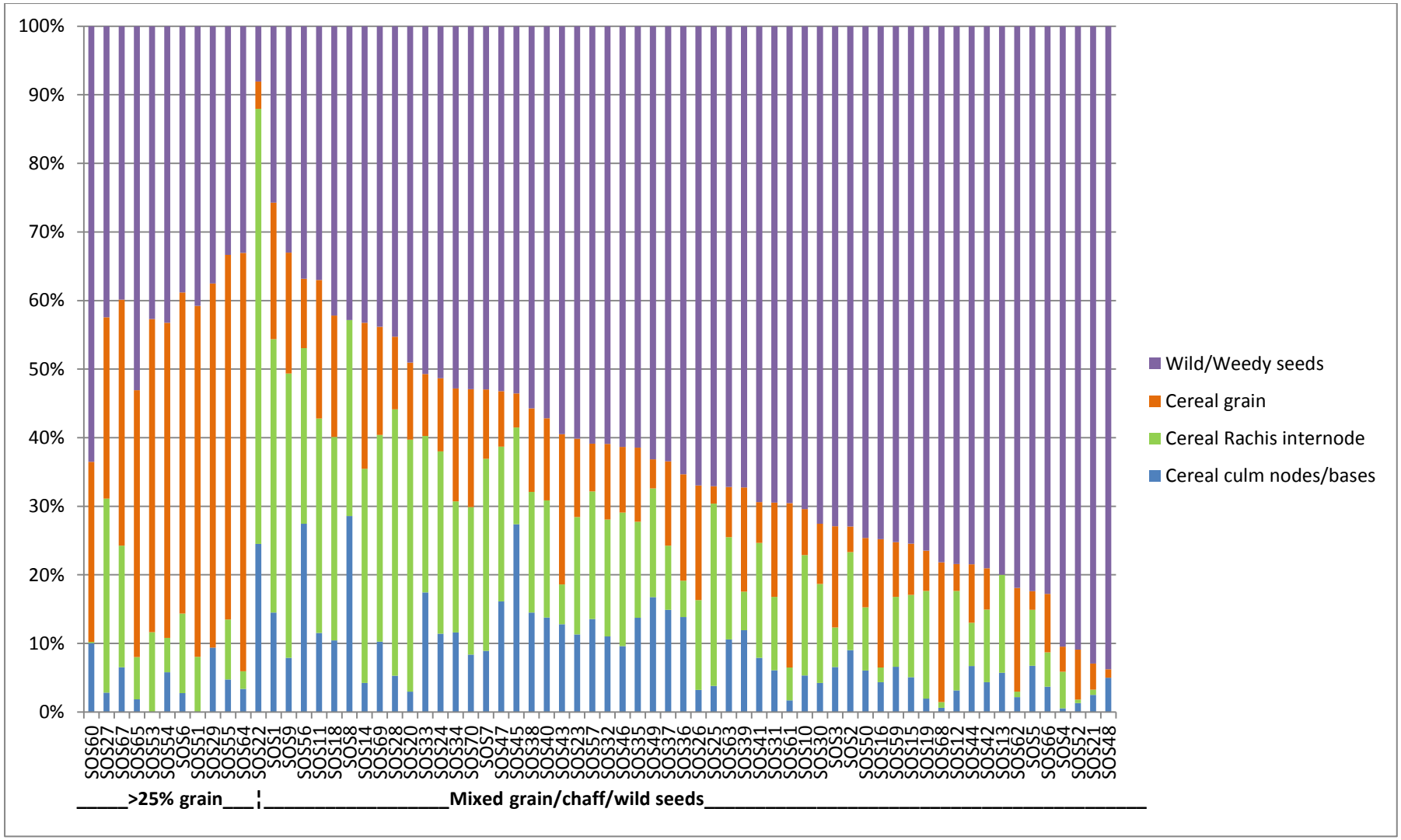


Figure 4.34 Percentage composition of Sos Höyük samples based on Anderson and Ertuğ-Yaraş (1998)'s analysis of dung and fodder samples from Central Anatolia.

a)

b)

Figure 4.35. a) Decaying mudbrick building in Küçükköy, Konya Province, Turkey, (August 2007), next to dung bricks and manure pile mixed with crop processing residues. b) Abandoned house in Dzveli, southern Georgia (July 2013), being used as a rubbish dump and for preparing manure to spread on the fields. Rubbish is frequently burnt on the manure pile for sanitation purposes.

Chapter 5

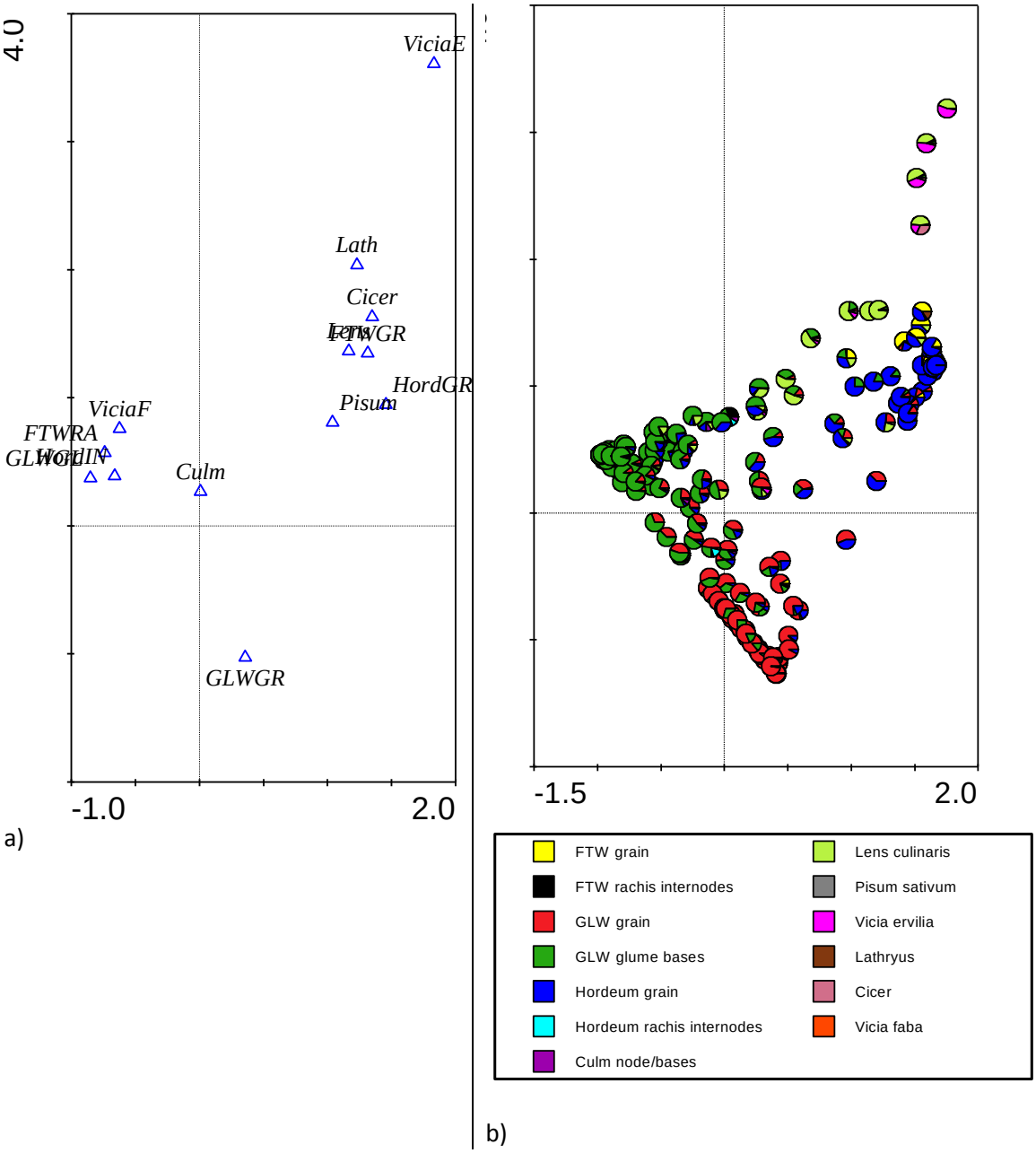


Figure 5.1 Correspondence analysis of crop remains from Phase 1 samples with more than 30 crop items. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of crop types.

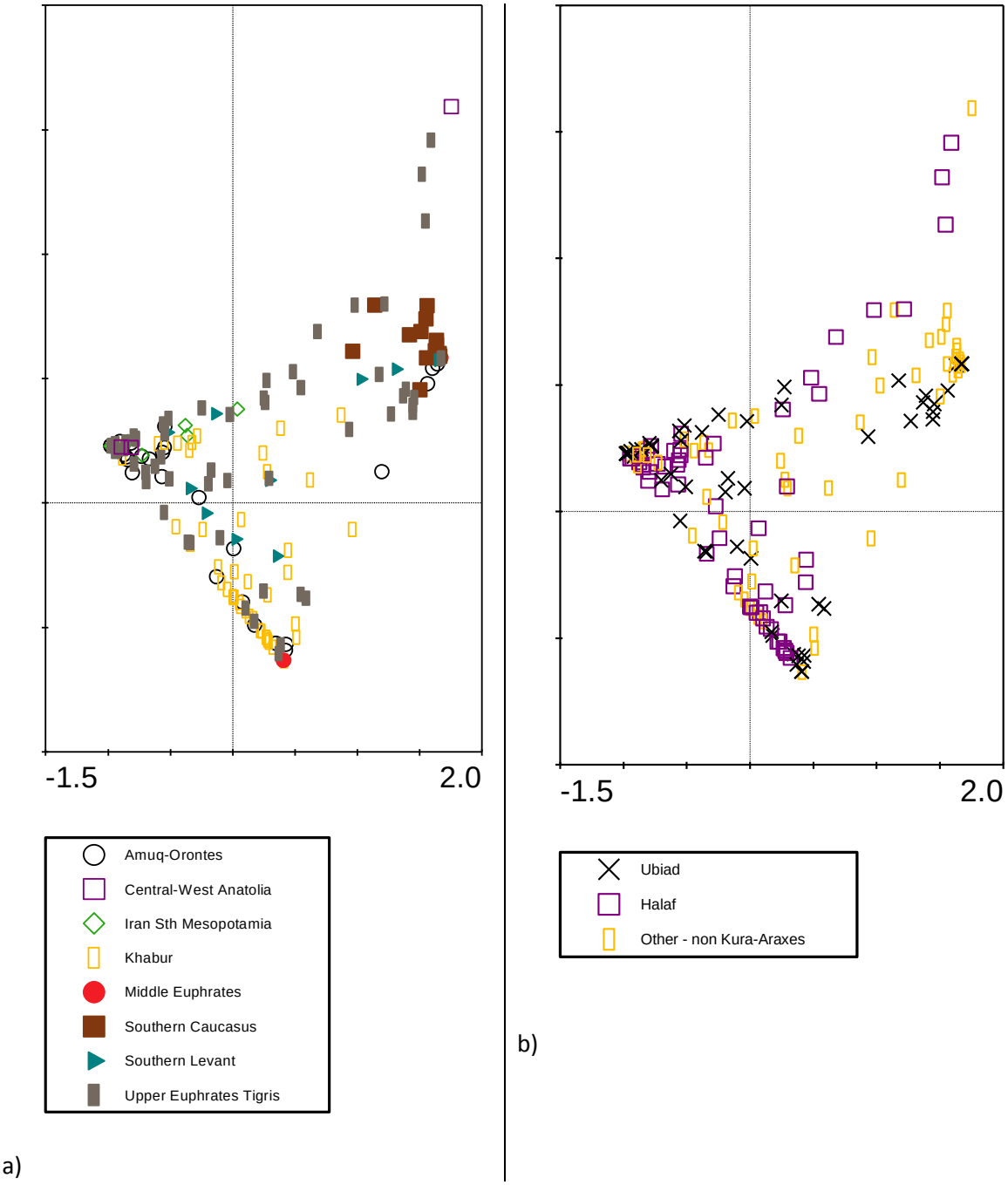


Figure 5.2 Correspondence analysis plot of crop remains from Phase 1 samples with 30 or more crop items. a) samples coded by geographic region, b) samples coded by cultural group.

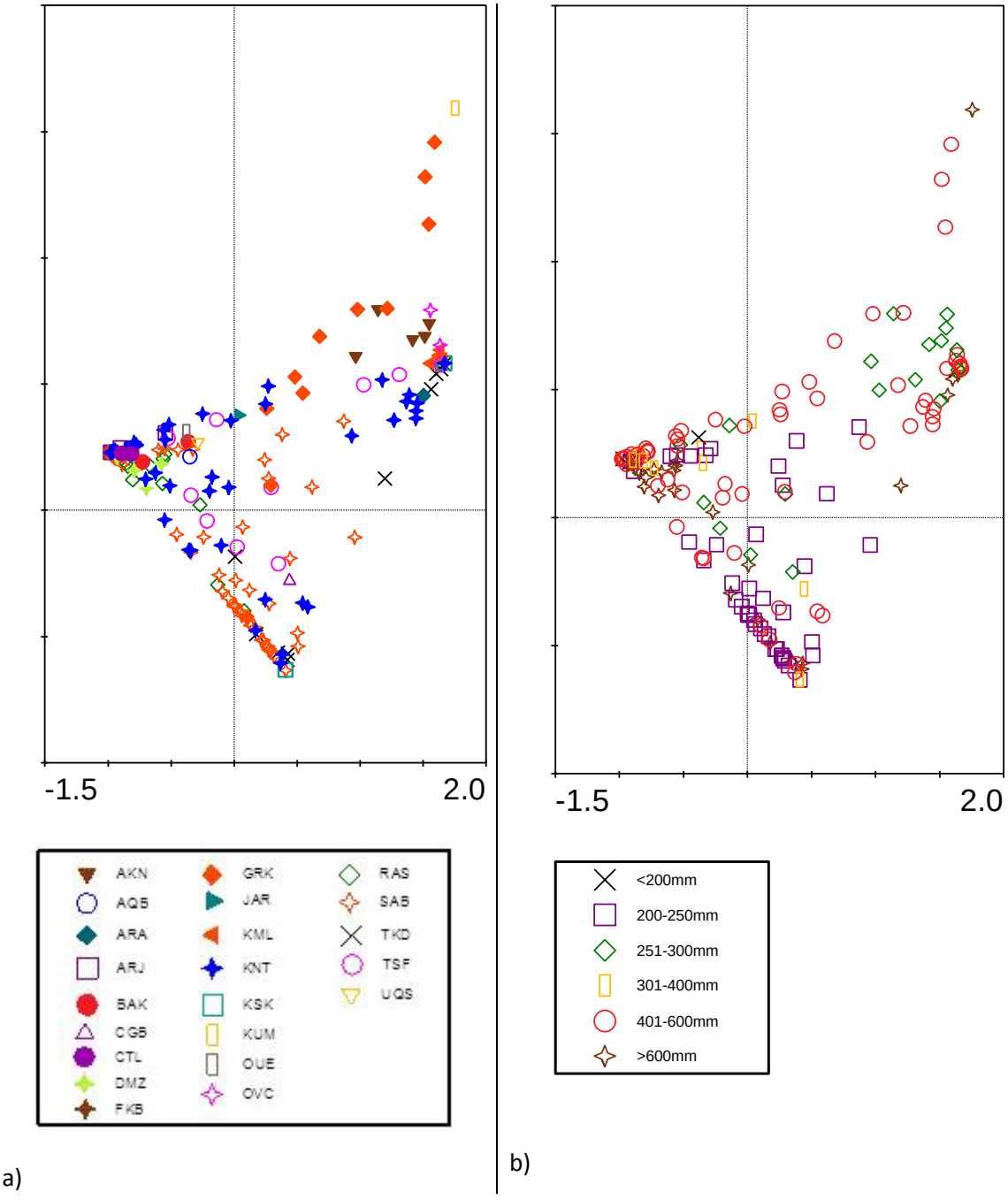


Figure 5.3 Correspondence analysis plot of crop remains from Phase 1 samples with 30 or more crop items. a) coded by site, b) coded by site modern annual rainfall.

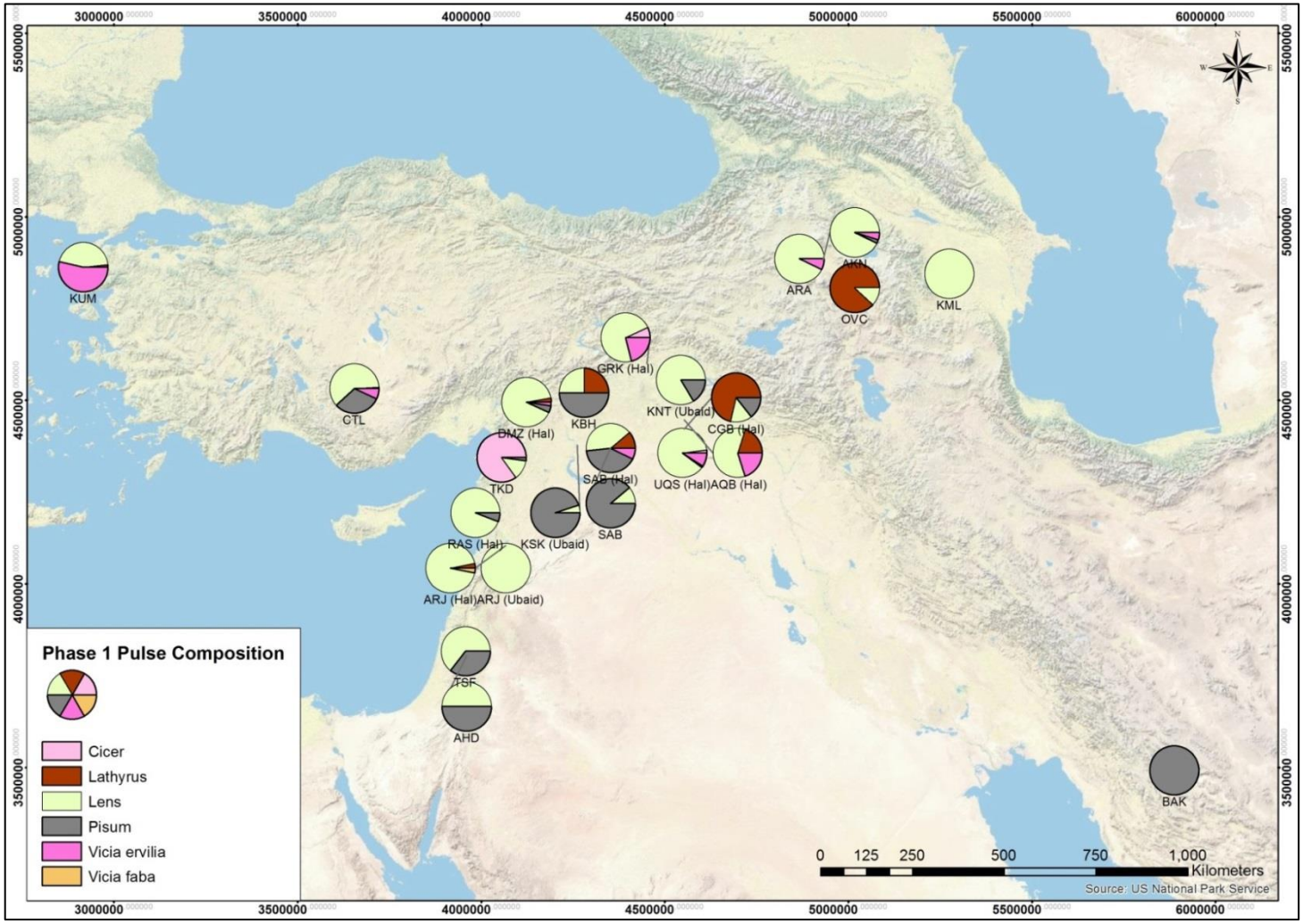


Figure 5.4 Map of Phase 1 sites with sites represented as pie charts showing the proportion of pulse taxa. Pies based on total items in each site culture phase. Cultural coding: Hal = Halaf; Ubaid.

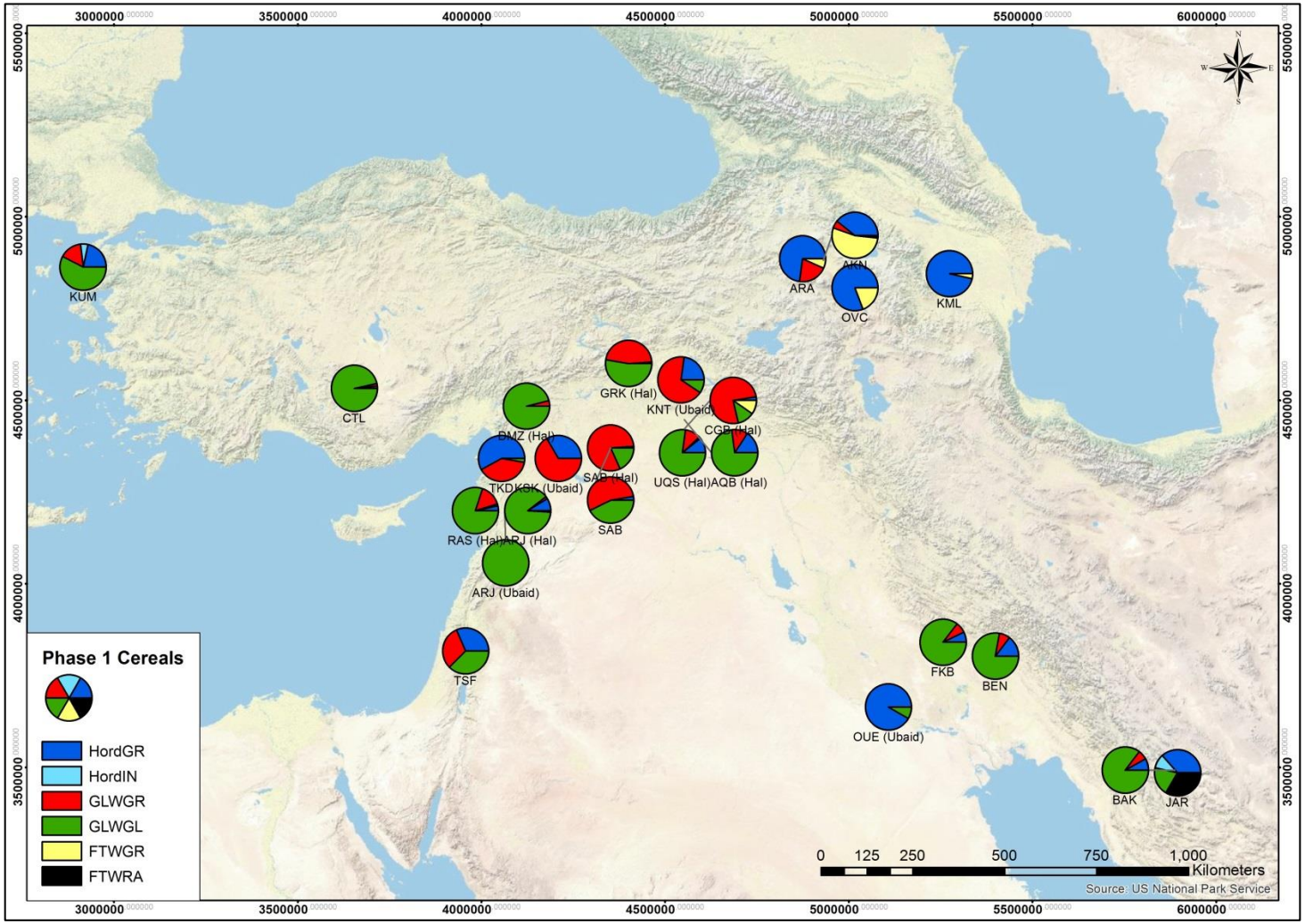
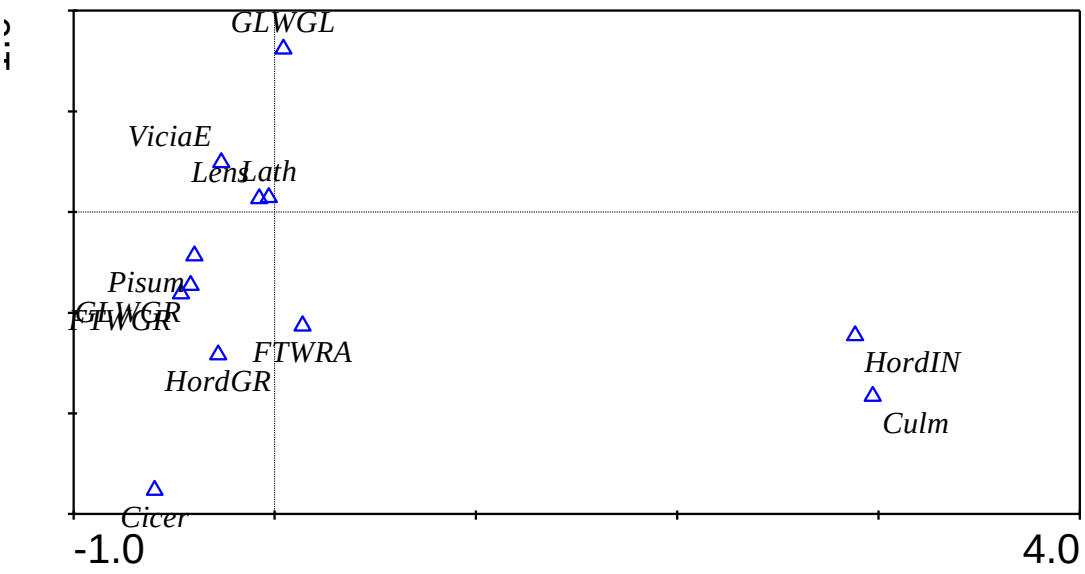
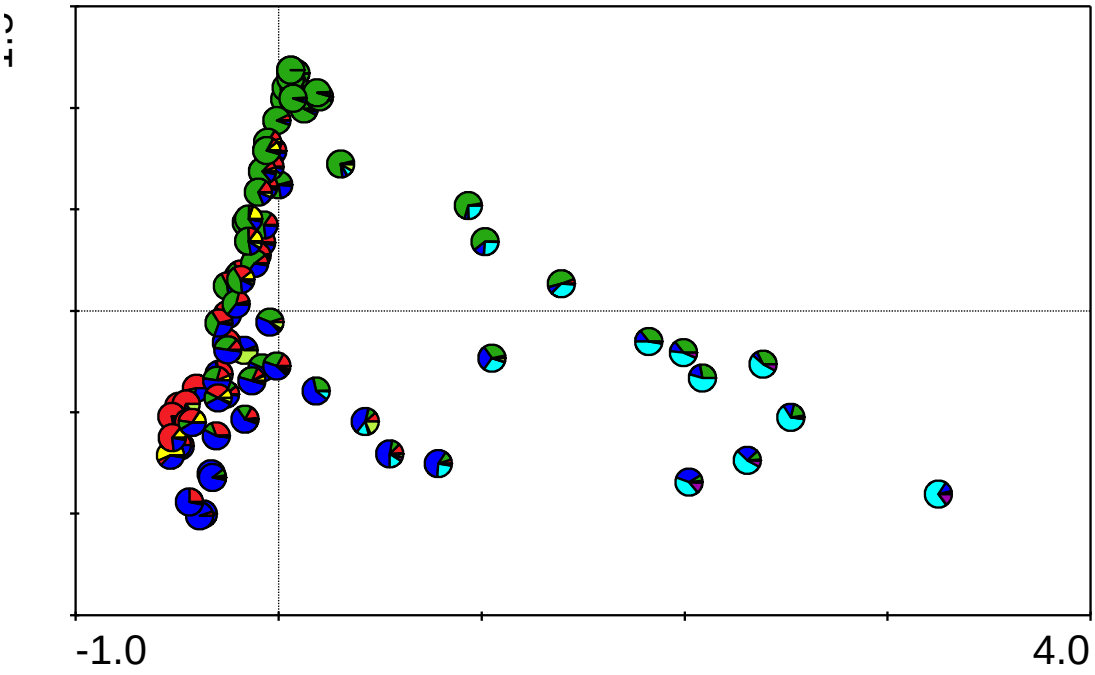
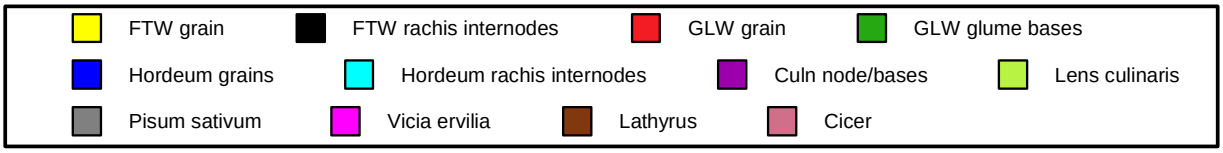


Figure 5.5 Map of Phase 1 sites with cultural group indicated. Sites represented as pie charts showing the proportion of cereal items where the total of cereal items in each site cultural grouping is more than 30 items. Cultural coding: Hal = Halaf; Ubaid



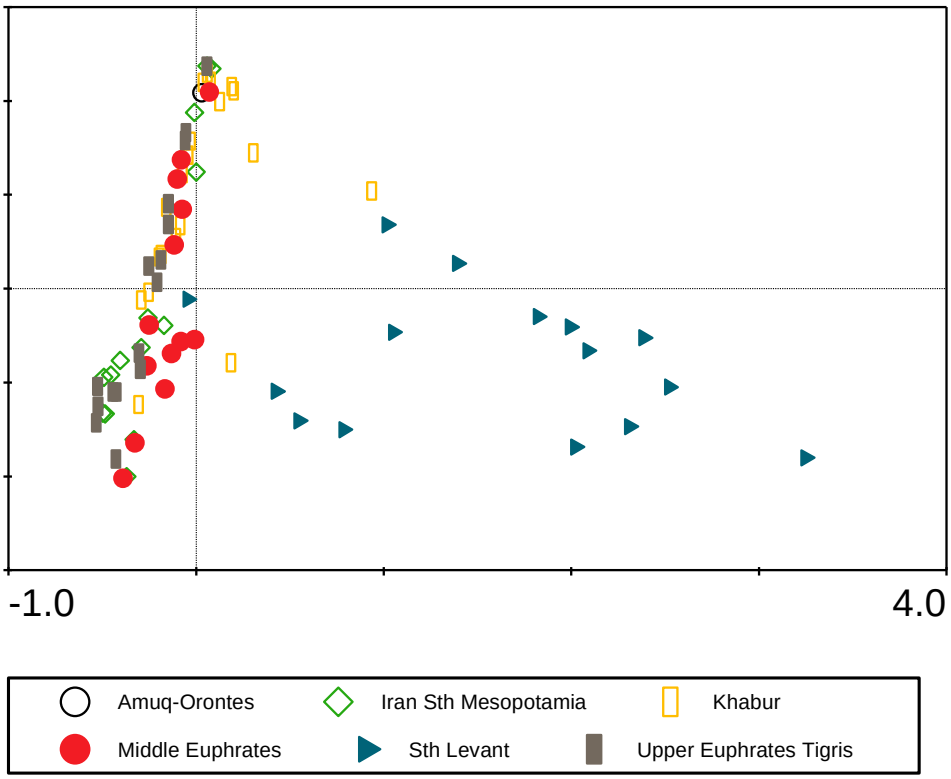
a)



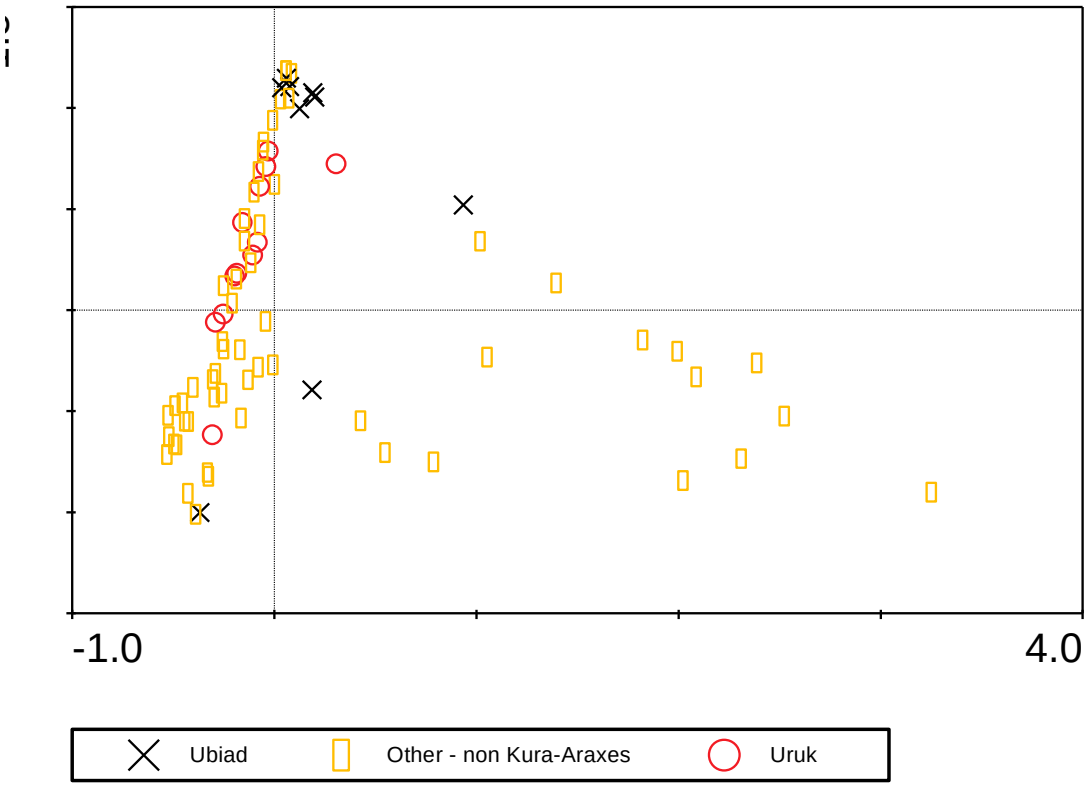


b)

Figure 5.6 Correspondence analysis of crop remains from Phase 2 samples with more than 30 crop items. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of crop types.

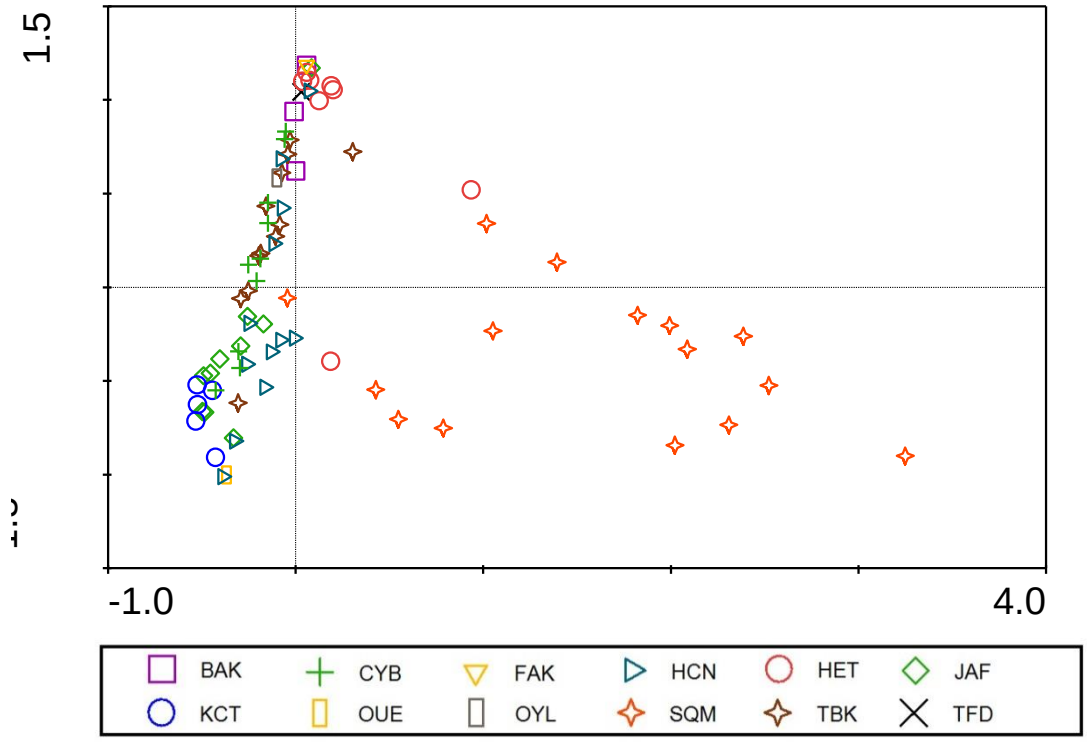


a)

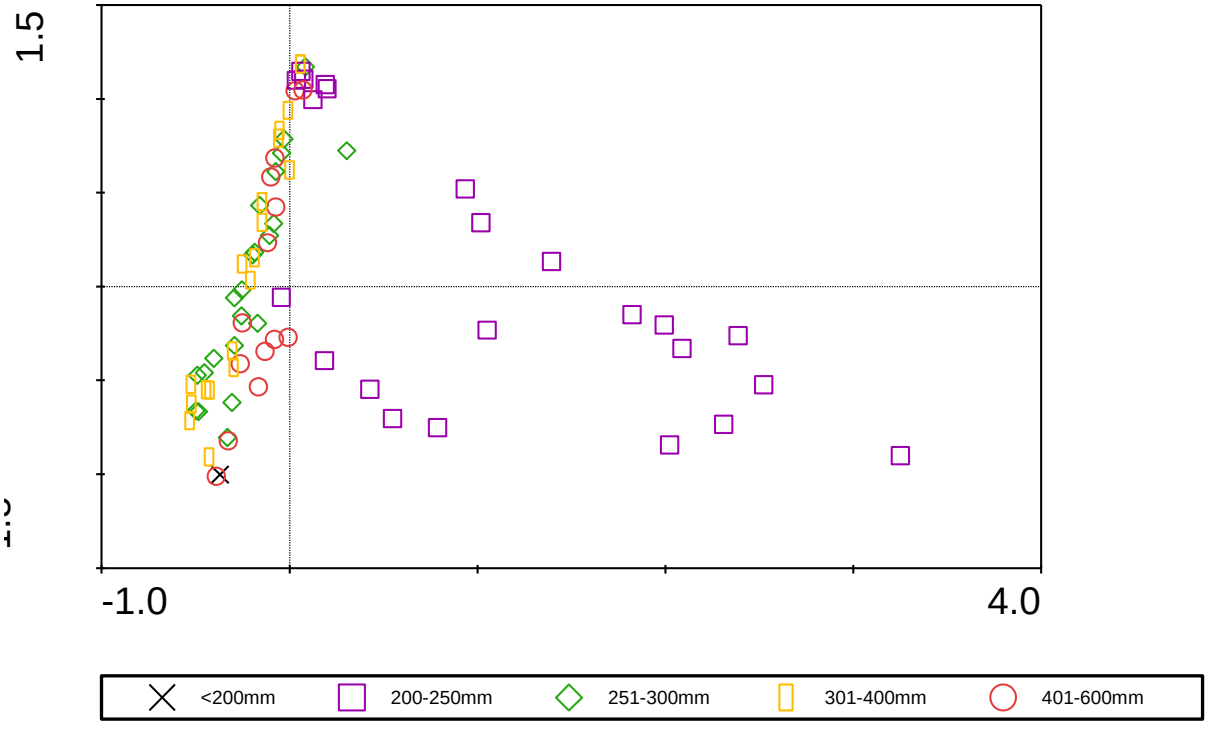


b)

Figure 5.7 Correspondence analysis plot of crop remains from Phase 2 samples with 30 or more crop items. a) samples coded by geographic region, b) coded by cultural group,



a)



b)

Figure 5.8 Correspondence analysis plot of crop remains from Phase 2 samples with 30 or more crop items. a) samples coded by site b) coded by modern average annual precipitation

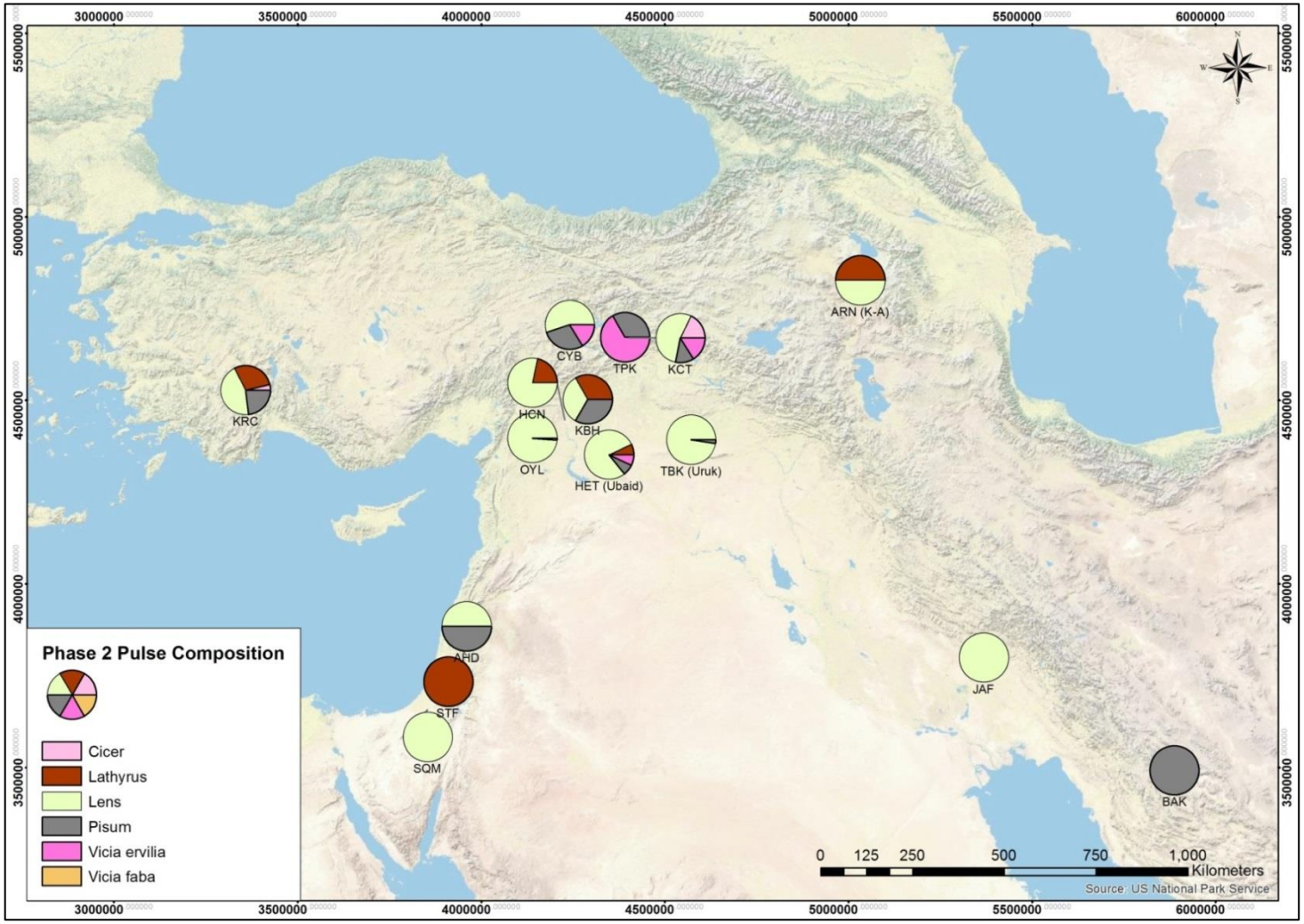


Figure 5.9 Map of Phase 2 sites with sites represented as pie charts showing the proportion of pulse taxa. Pies based on total items in each site culture phase. Cultural coding: Uruk; Ubaid; K-A = Possible Kura-Araxes.

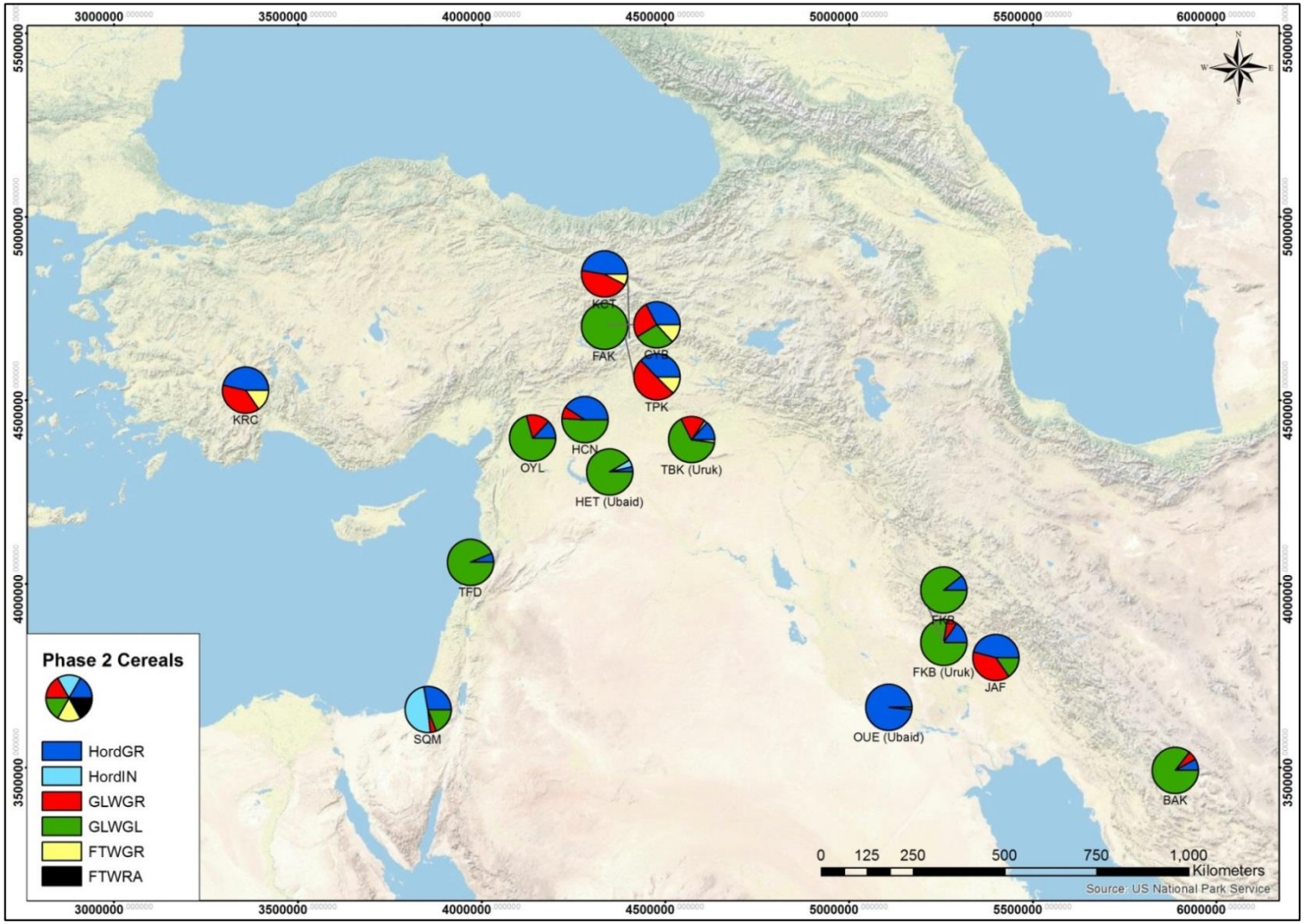


Figure 5.10 Map of Phase 2 sites by cultural group. Sites represented as pie charts showing the proportion of cereal items where the total of cereal items at each site is more than 30 items. Cultural coding: Uruk; Ubaid;

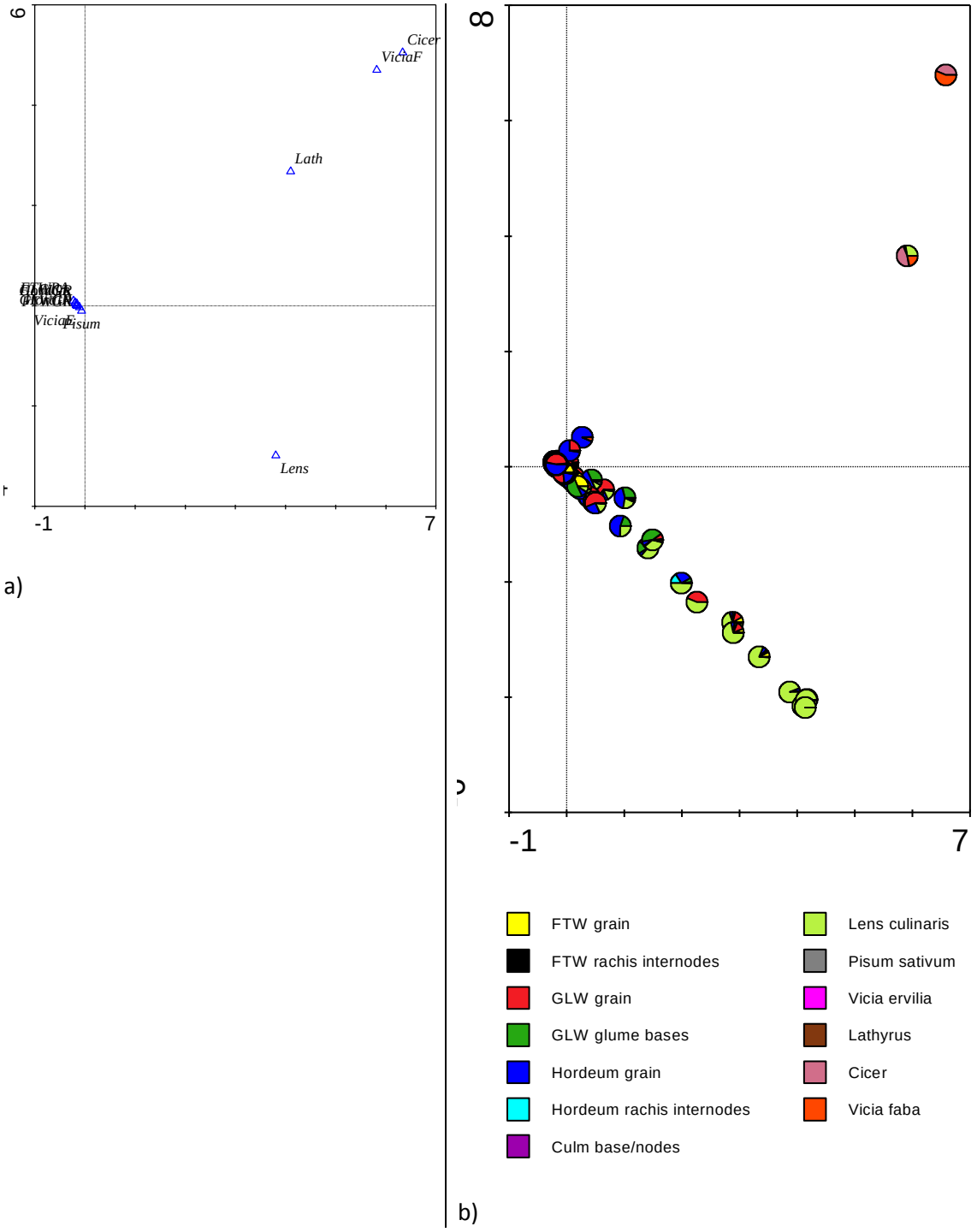


Figure 5.11 Correspondence analysis of crop remains from Phase 3 with samples 30 or more crop items. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of crop types.

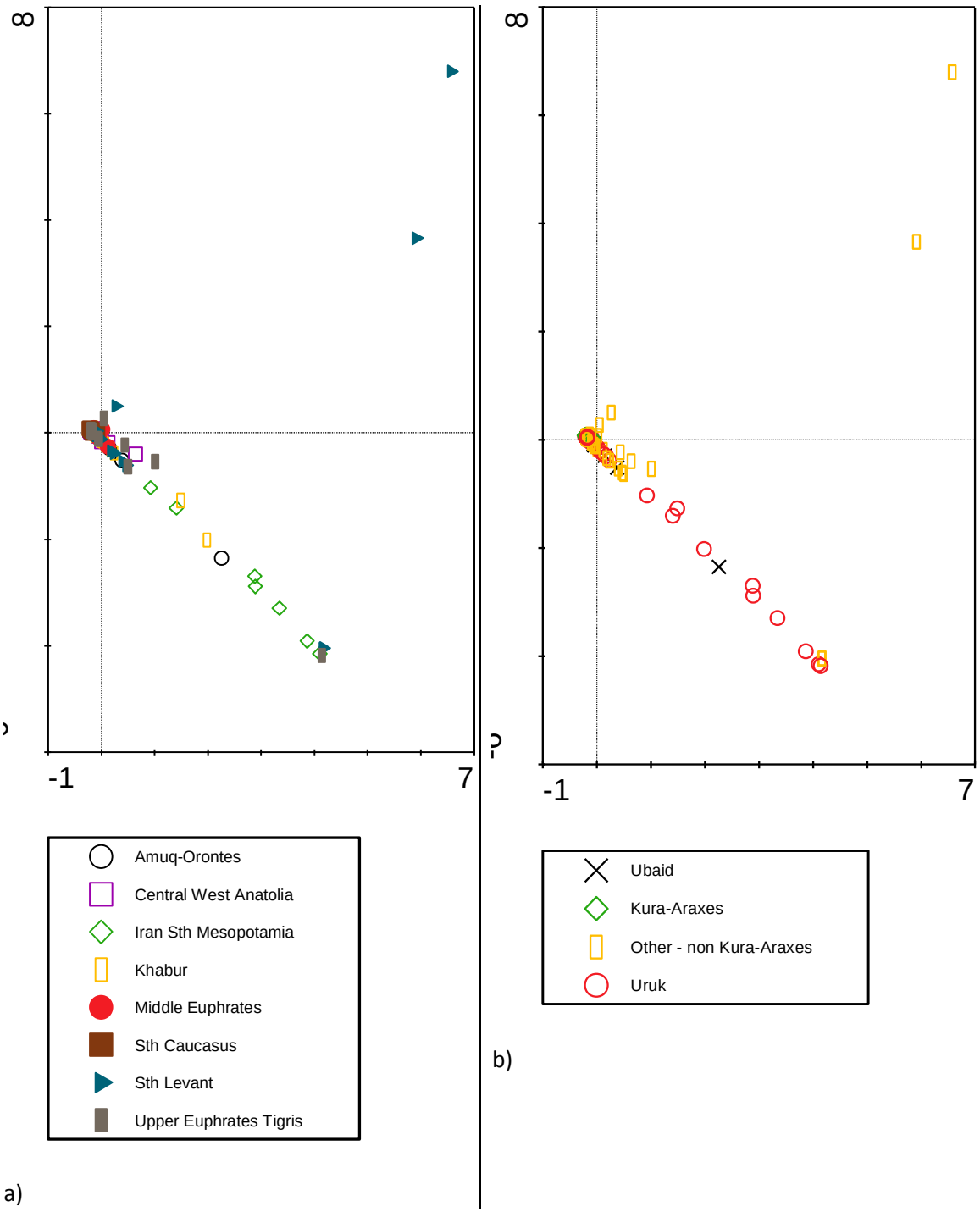


Figure 5.12 Correspondence analysis plot of crop remains from Phase 3 samples with 30 or more crop items. a) samples coded by geographic region, b) samples coded by cultural grouping.

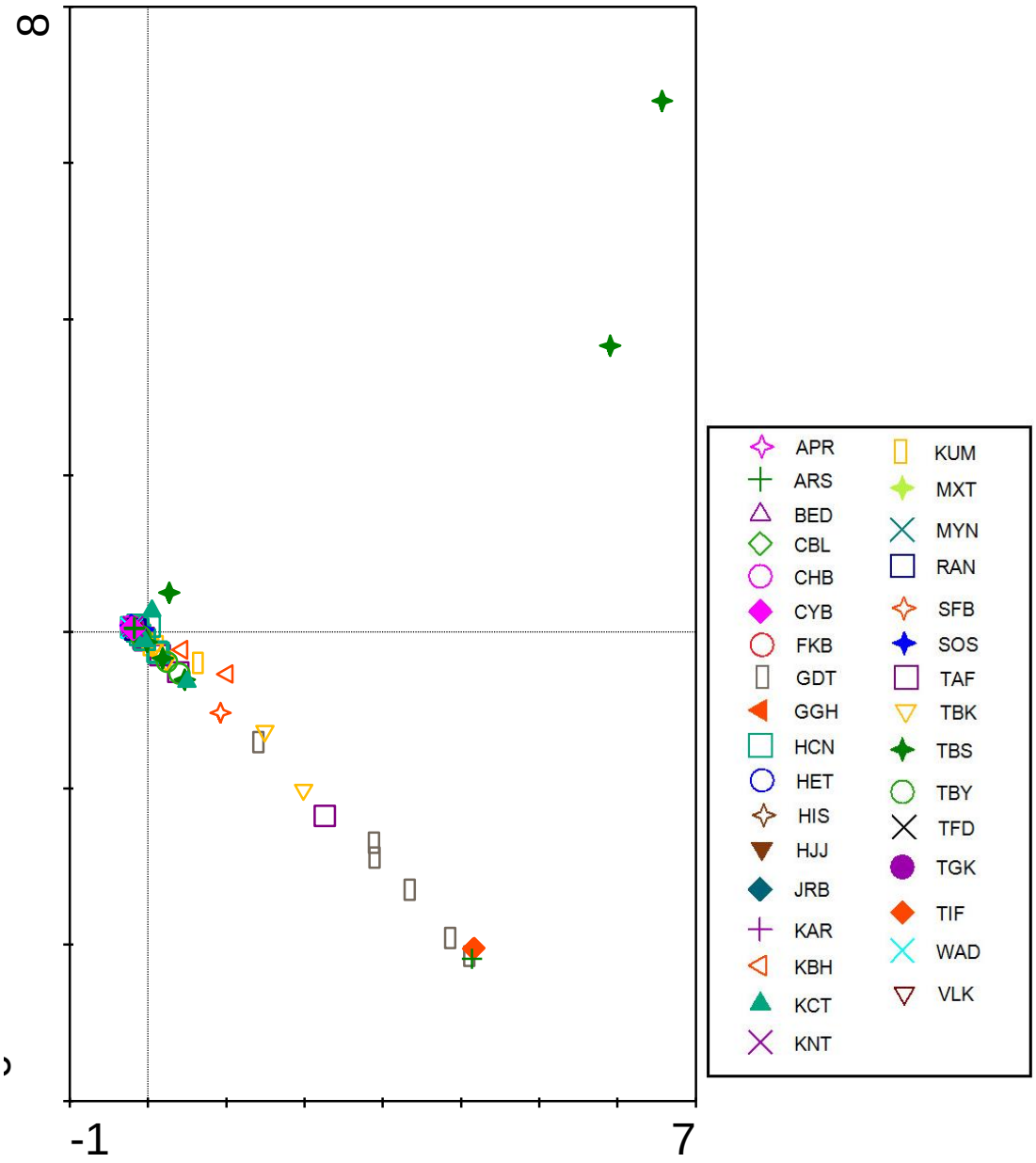


Figure 5.13 Correspondence analysis plot of crop remains from Phase 3 samples with 30 or more crop items coded by site.

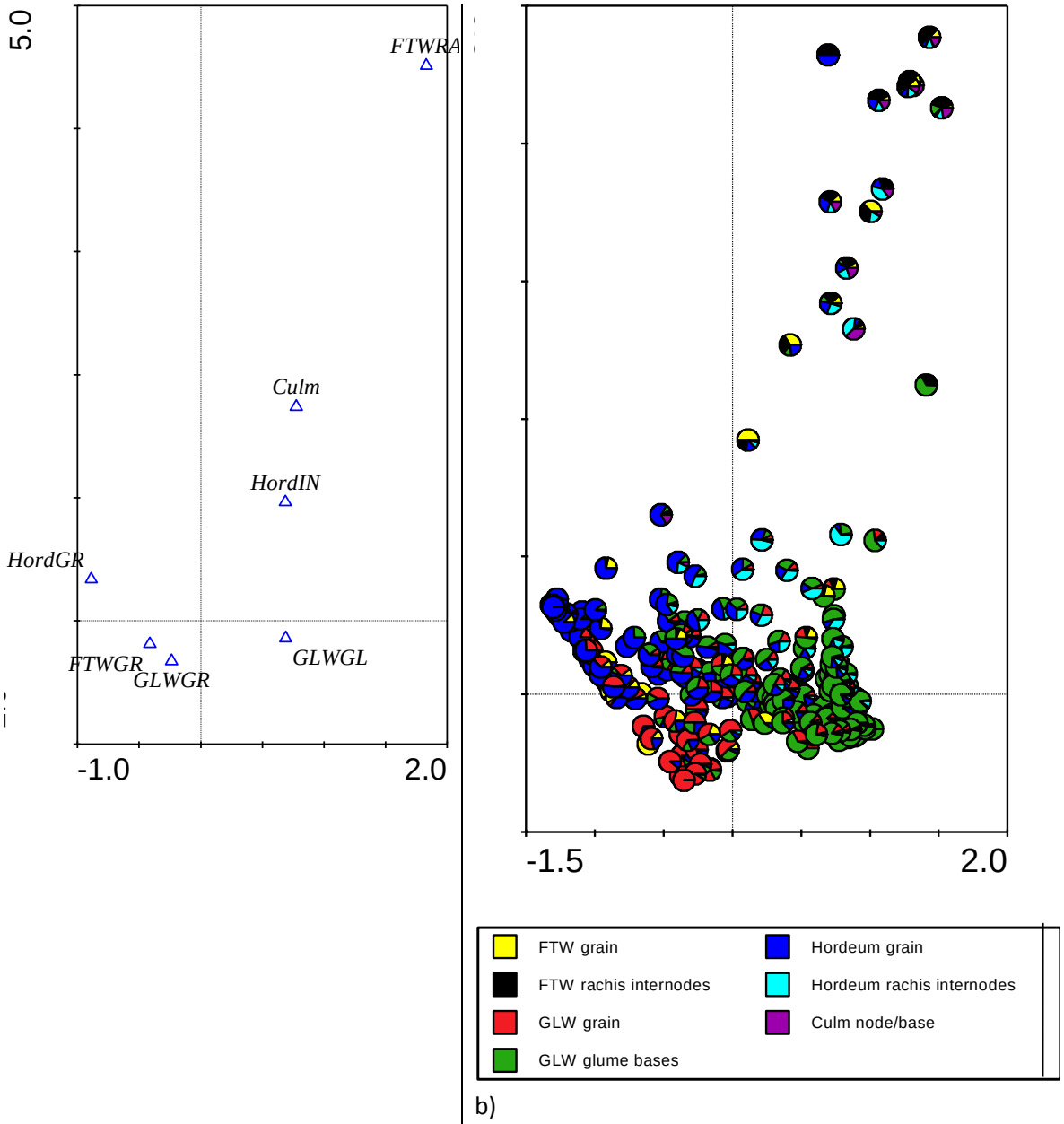


Figure 5.14 Correspondence Analysis of cereal remains from Phase 3 samples 30 or more cereal items. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of cereal types.

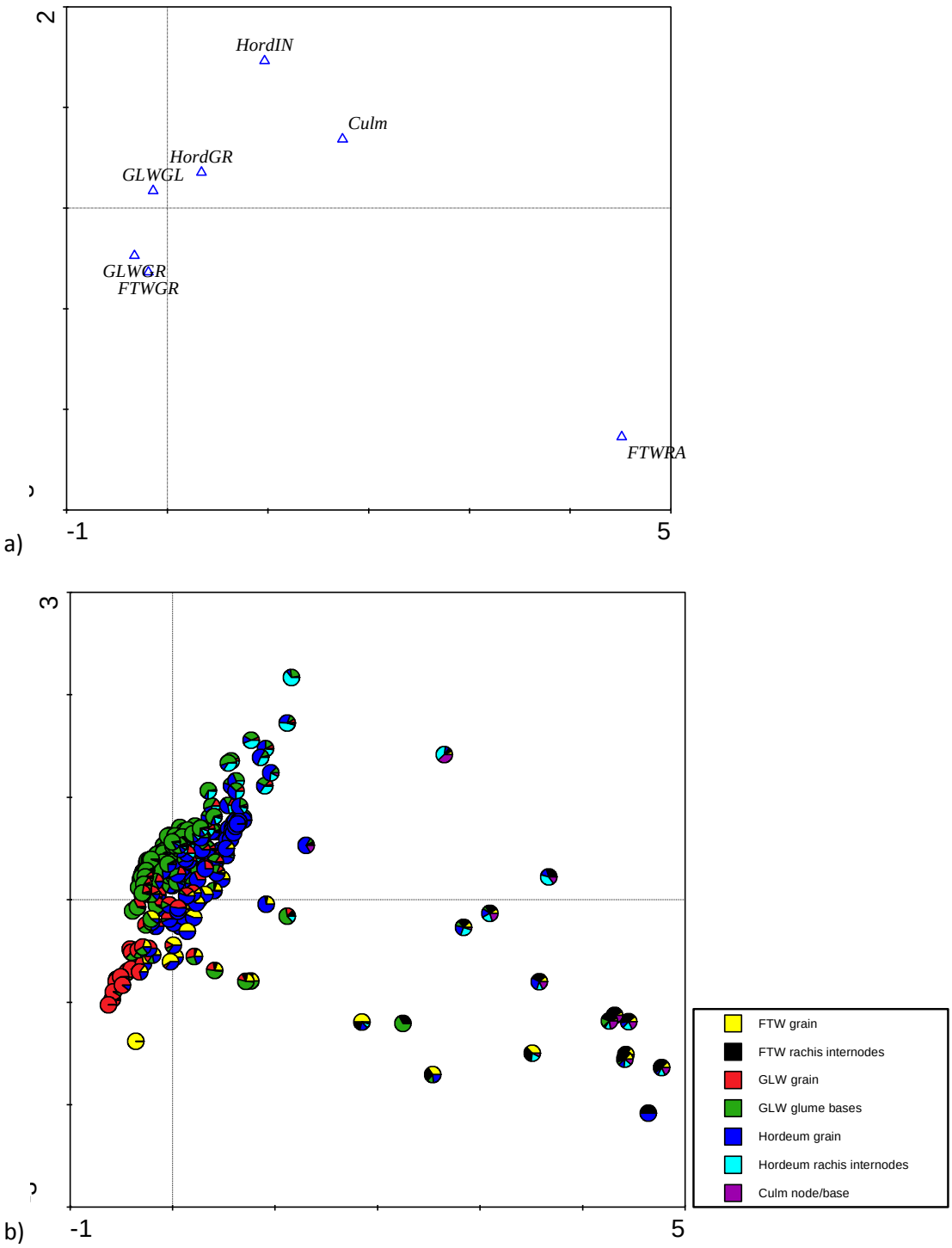


Figure 5.15 Correspondence Analysis of cereal remains from Phase 3 samples with 30 or more cereal items showingaxes 2 (horizontal) and 3 (vertical). a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of cereal types.

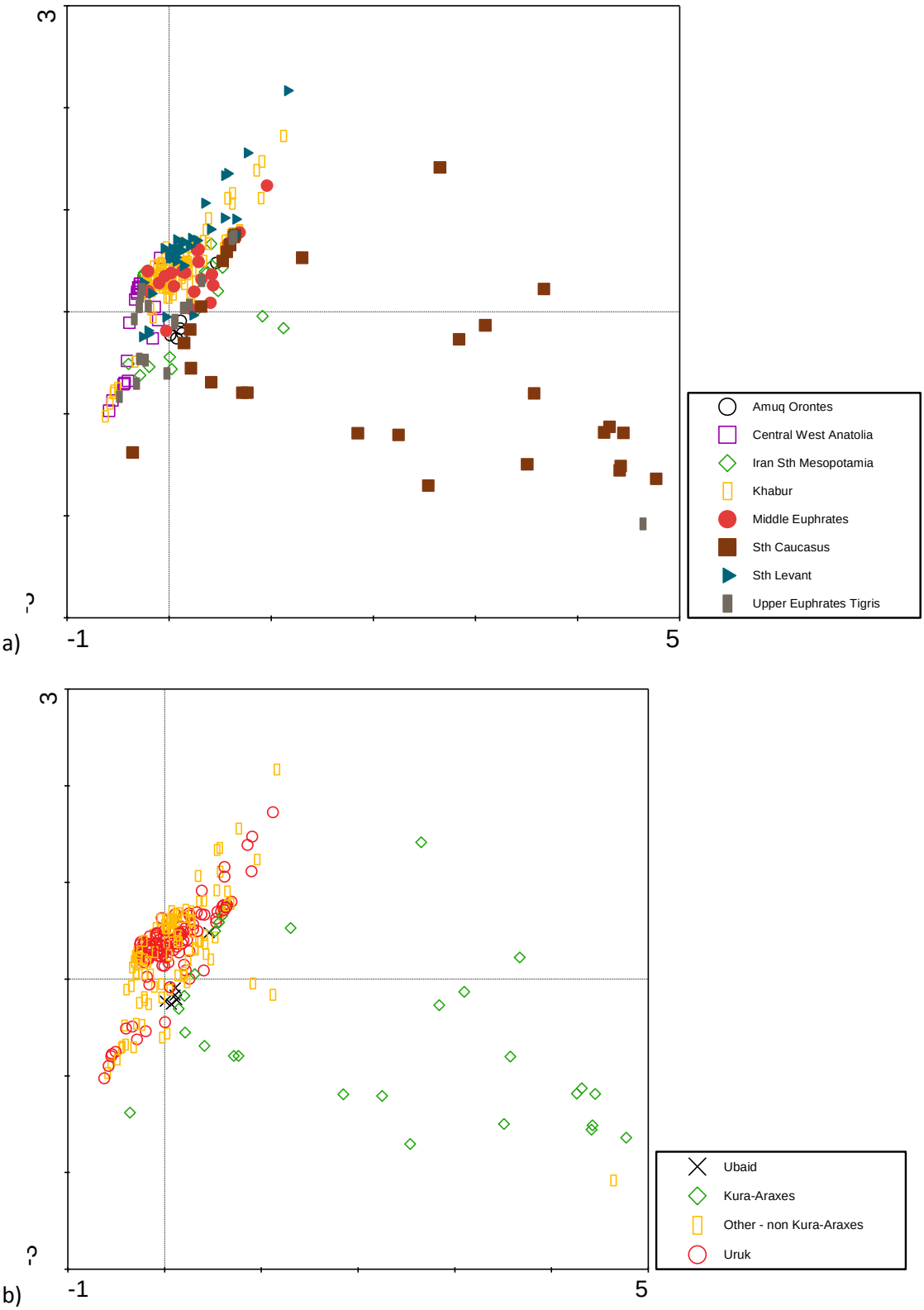


Figure 5.16 Correspondence Analysis plot of cereal remains from Phase 3 samples with 30 or more cereal items showing axes 2 (horizontal) and 3 (vertical). a) plot coded by geographical region, b) plot coded by cultural group.

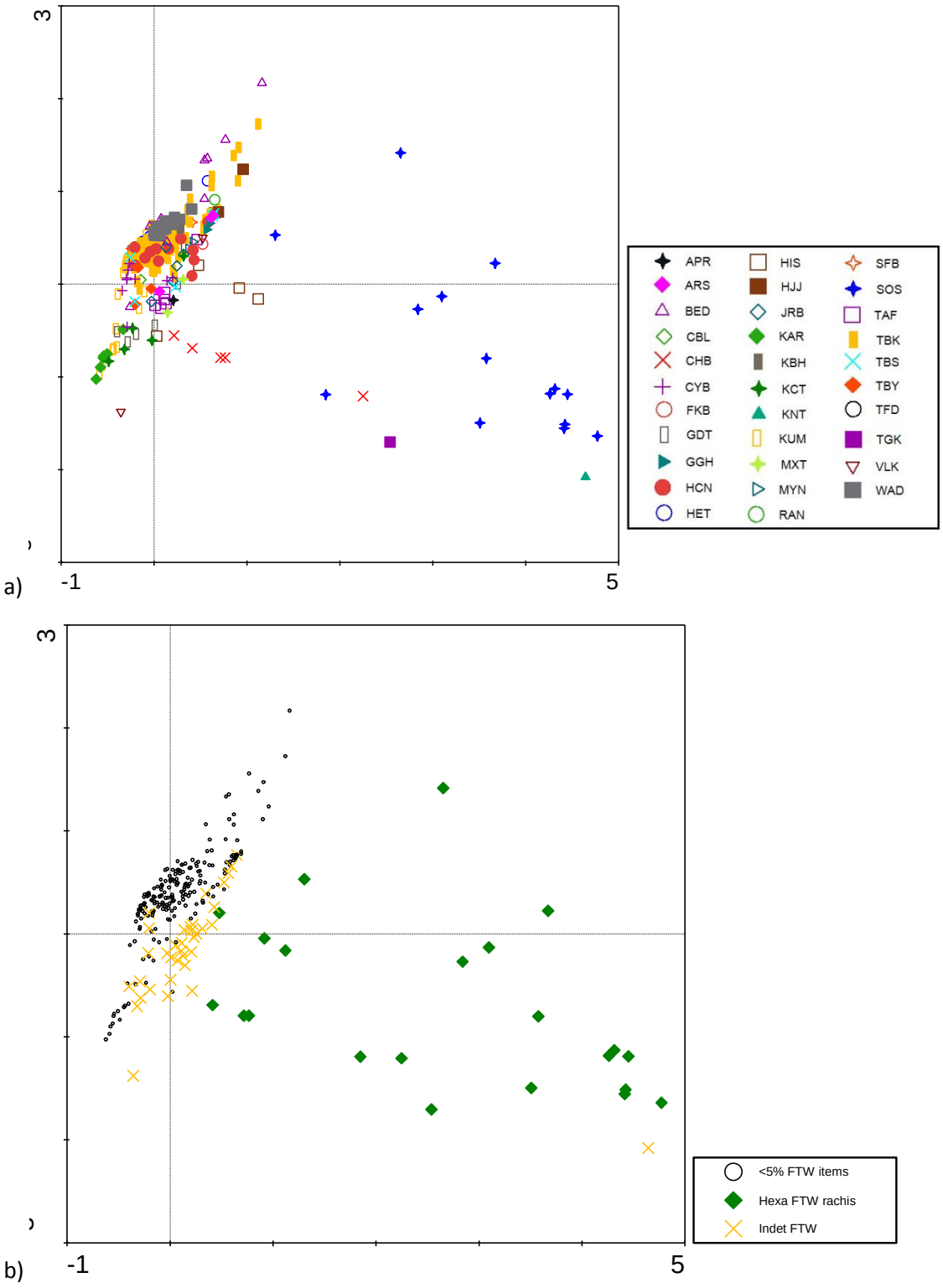


Figure 5.17 Correspondence Analysis plot of cereal items from Phase 3 samples with 30 or more cereal items showingaxes 2 (horizontal) and 3 (vertical). a) plot coded by site, b) Plot of samples coded by free threshing wheat identification where the minimum value of free threshing wheat content is equal to 5% or more of items. Hexa FTW = Hexaploid free threshing wheat rachis internodes, indet FTW = Indeterminate free threshing wheat rachis internodes and grain.

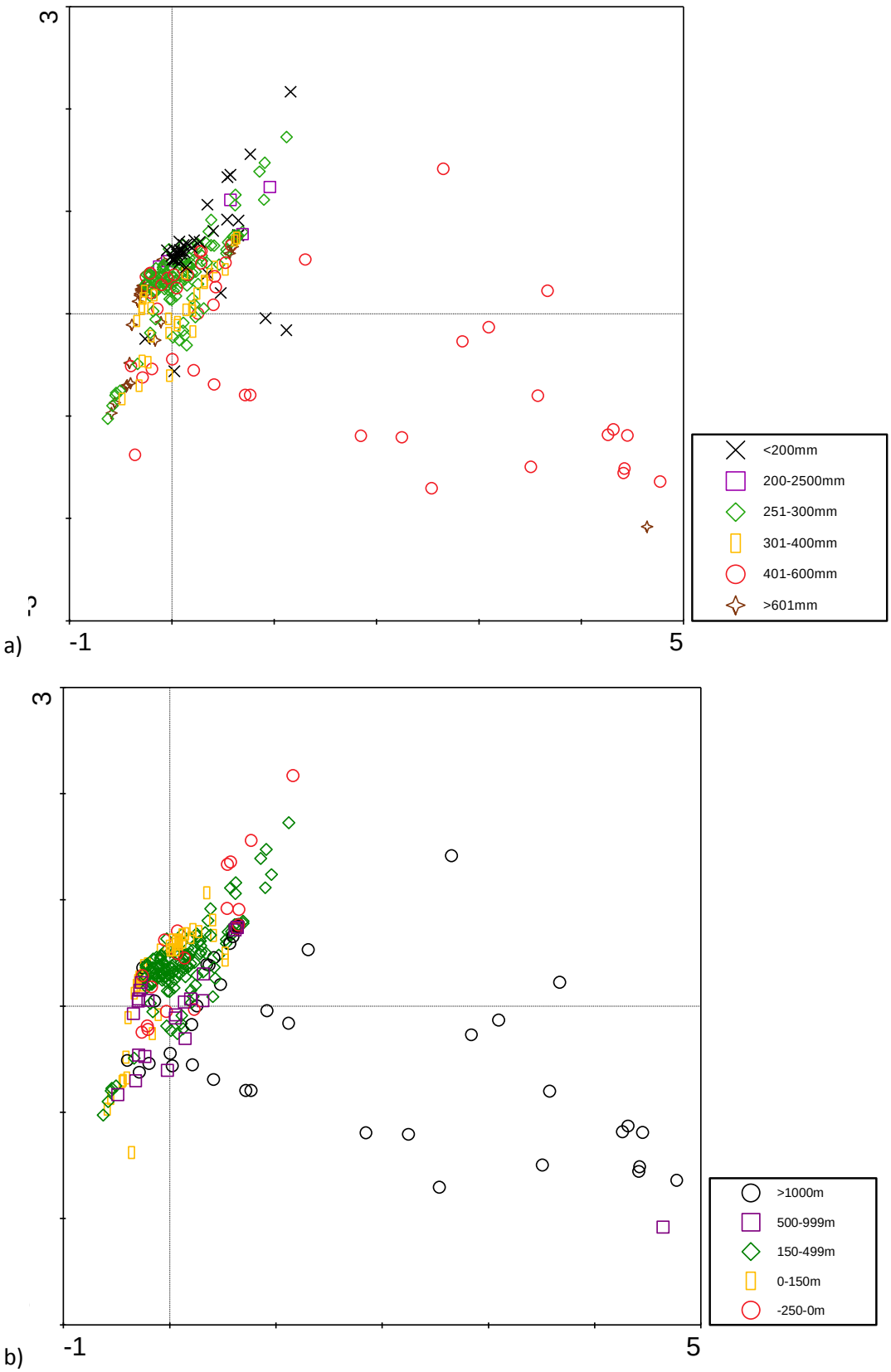


Figure 5.18. Correspondence analysis plot of cereal items from Phase 3 samples, with 30 or more cereal items, showing axes 2 (horizontal) and 3 (vertical). a)plot coded by annual rainfall, b) plot coded by site altitude.

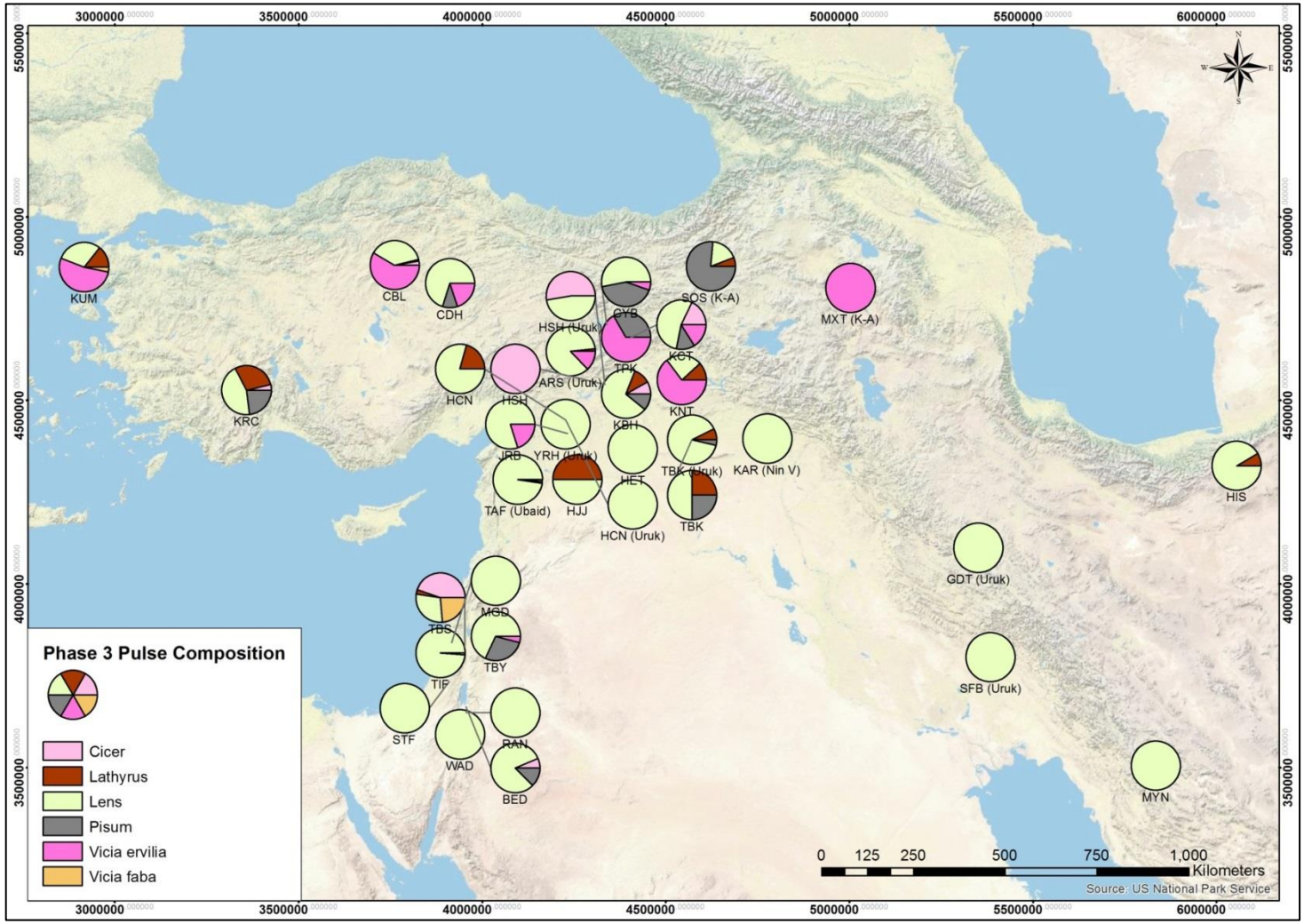


Figure 5.19 Map of Phase 3 sites by cultural grouping. Sites represented as pie charts showing the proportion of pulse taxa. Pies based on total items in each site culture phase. Cultural coding: Uruk; Ubaid; Nin V = Ninevite V; K-A = Kura-Araxes

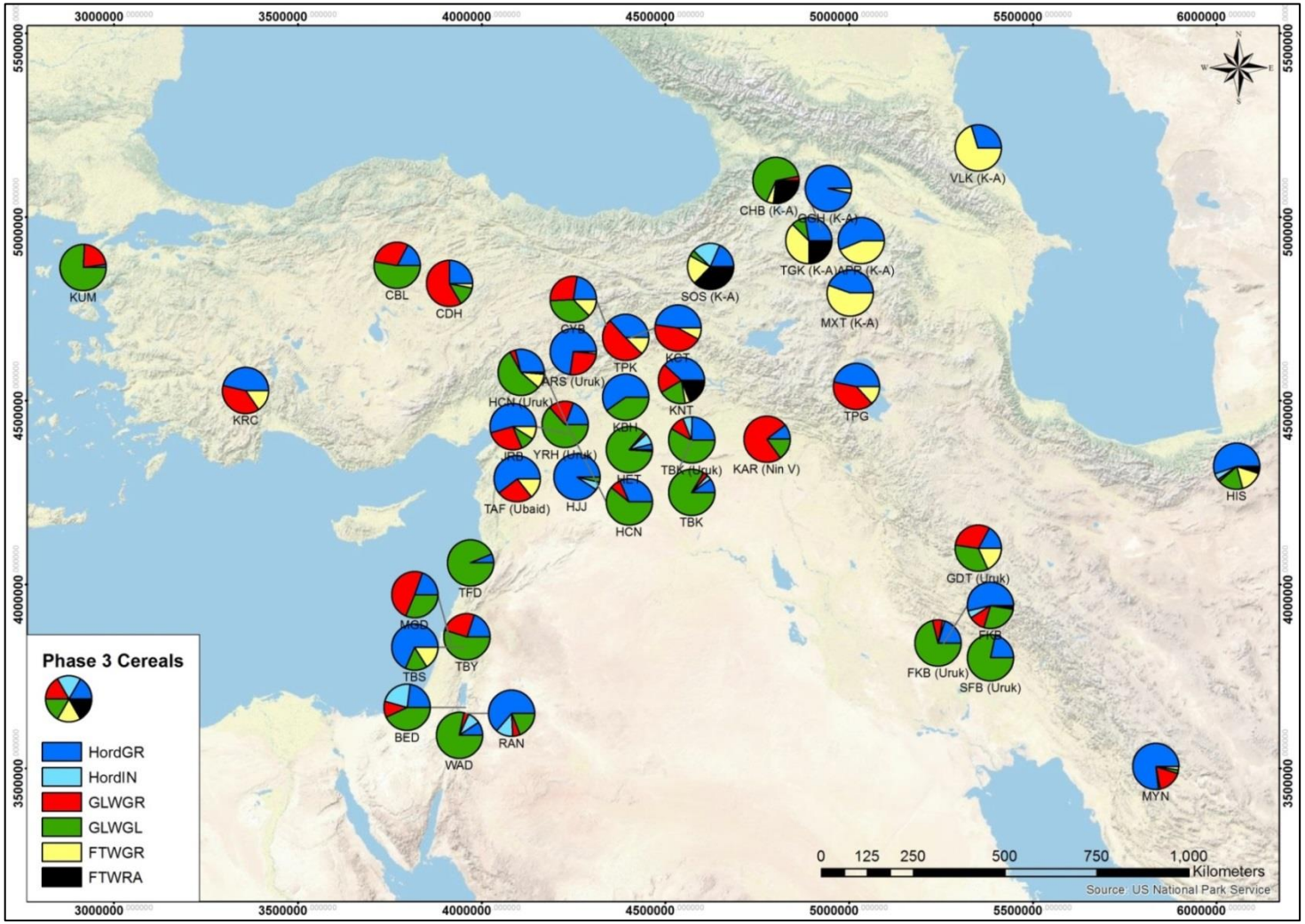


Figure 5.20 Map of Phase 3 sites by cultural grouping. Sites represented as pie charts showing the proportion of cereal items where the total of cereal items for each site cultural group is more than 30 items. Cultural coding: Uruk; Ubaid; Nin V = Ninevite V; K-A = Kura-Araxes

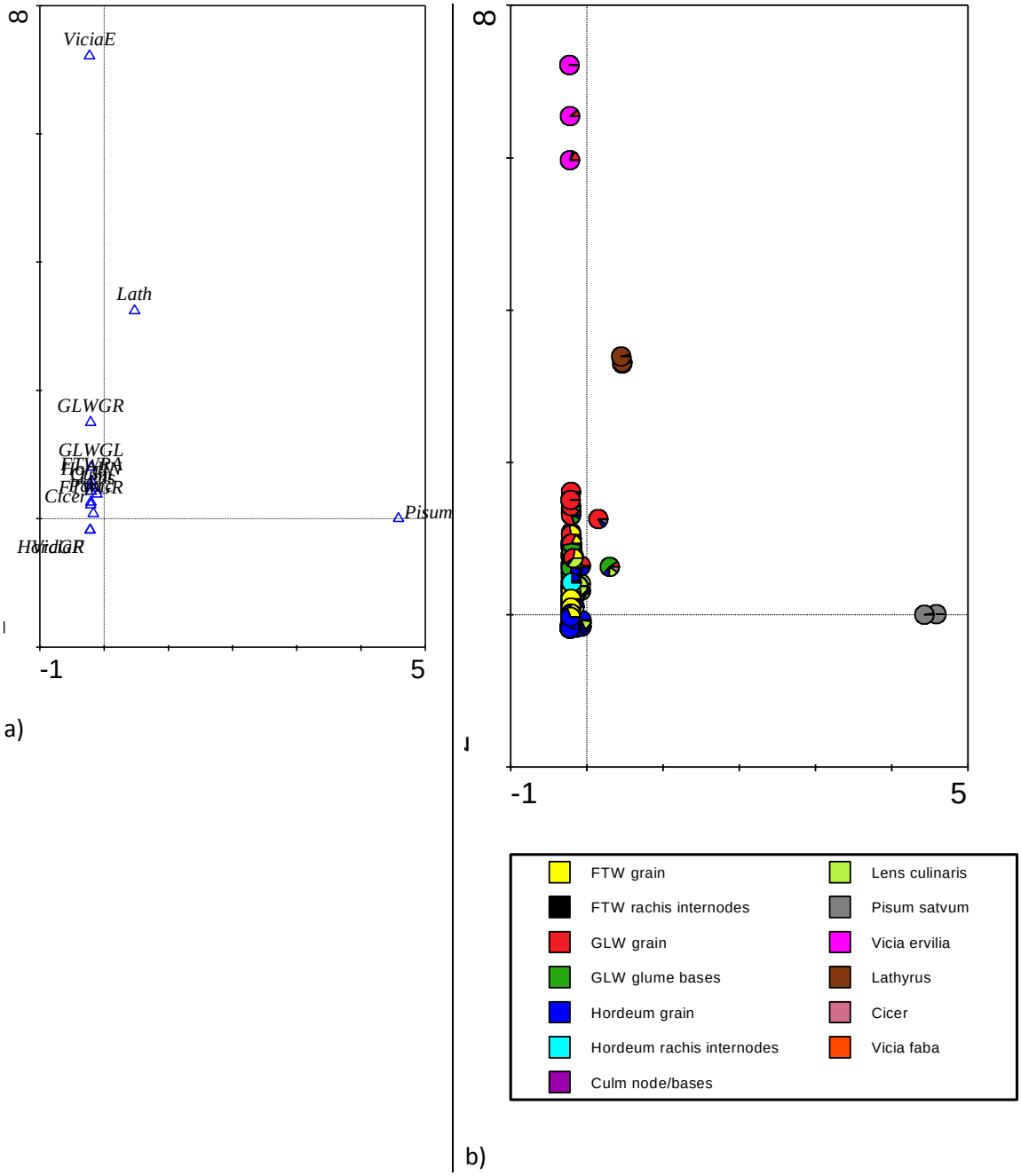


Figure 5.21 Correspondence analysis of crop remains from Phase 4 samples with 30 or more crop items. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of crop types.

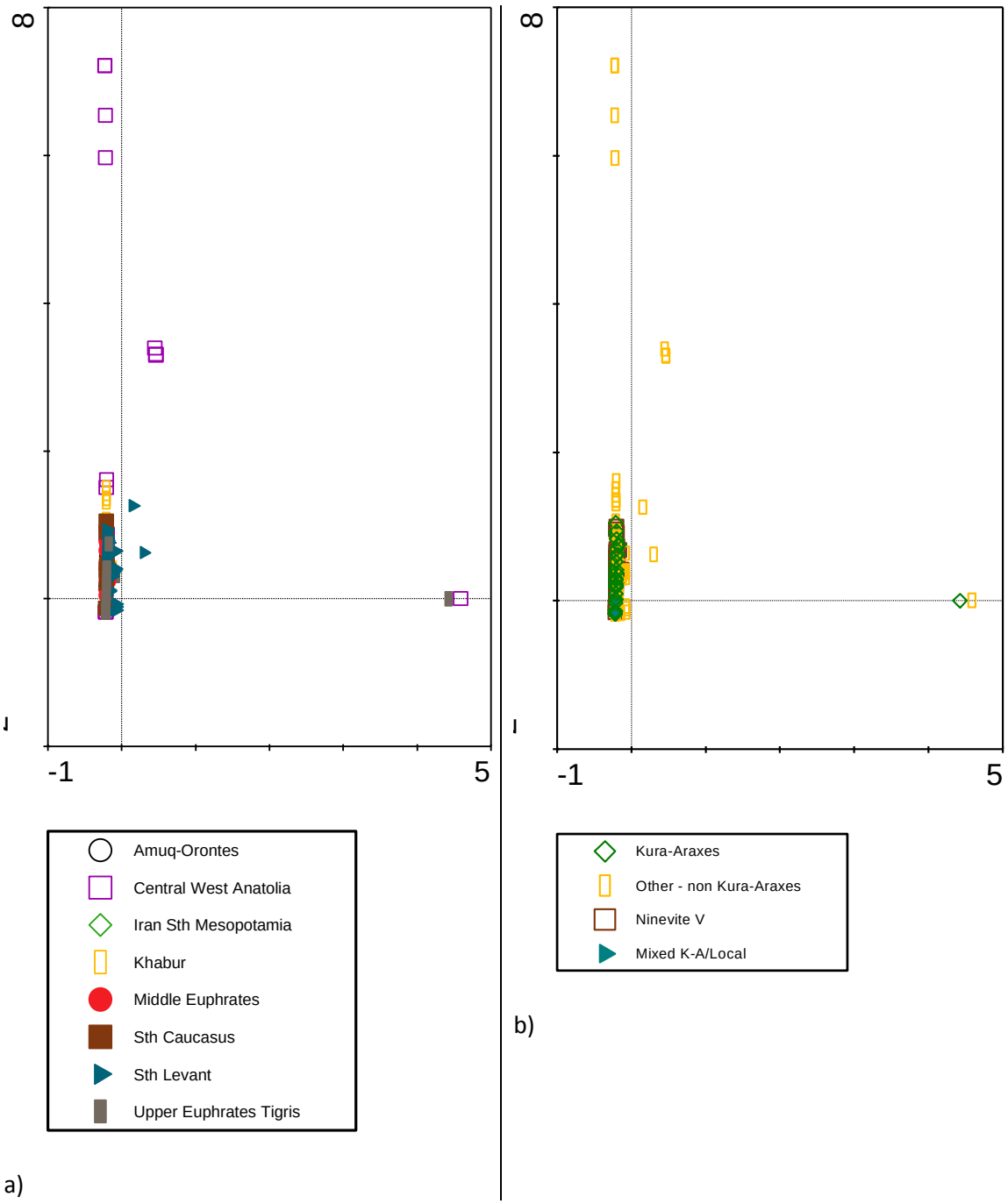


Figure 5.22 Correspondence analysis plot of crop remains from Phase 4 samples with 30 or more crop items. a) samples coded by geographical region, b) samples coded by cultural group.

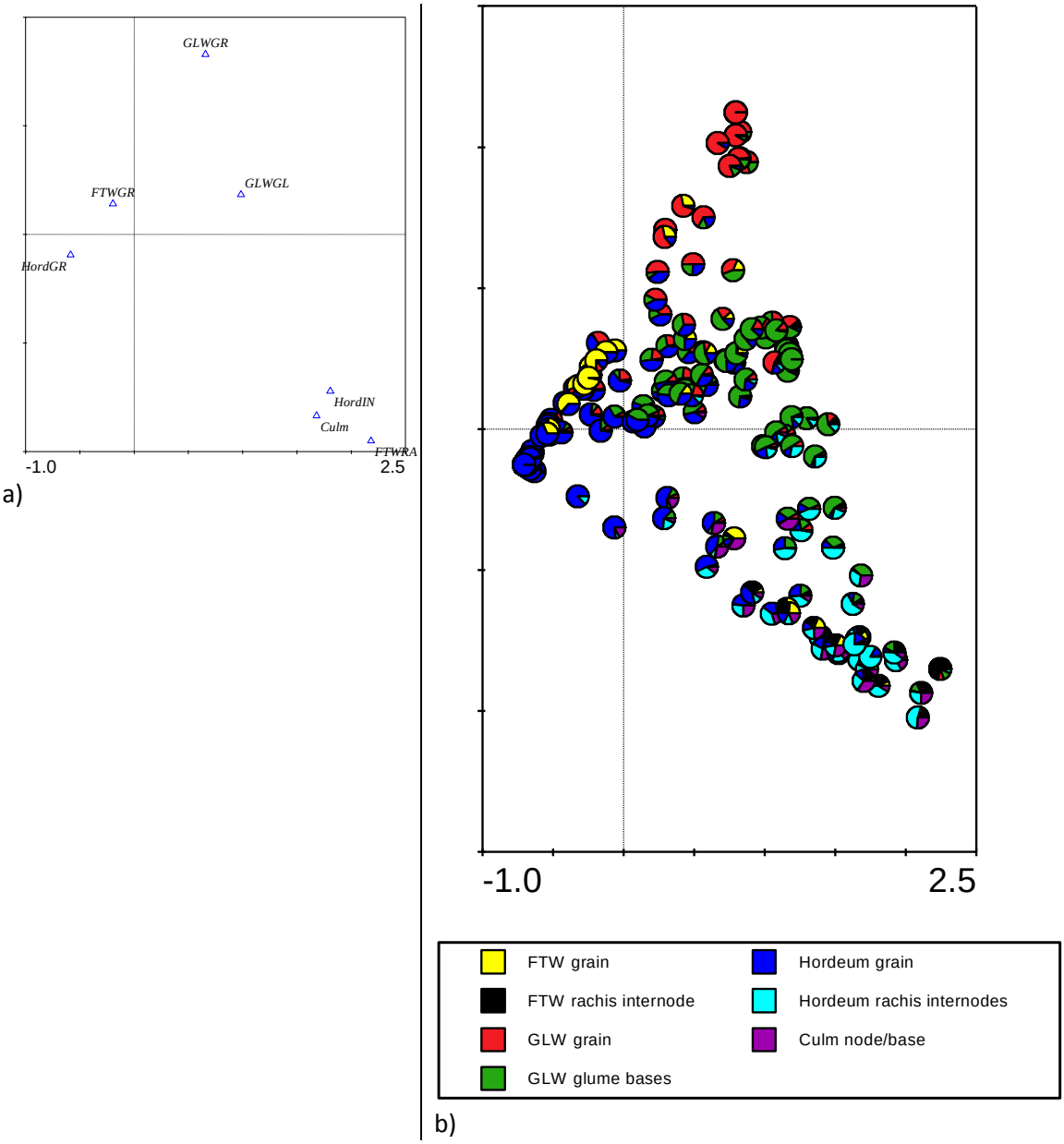


Figure 5.23 Correspondence analysis of cereal items from Phase 4 samples with 30 or more cereal items without samples YNB4, YNB6 and YNB7. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of cereal types.

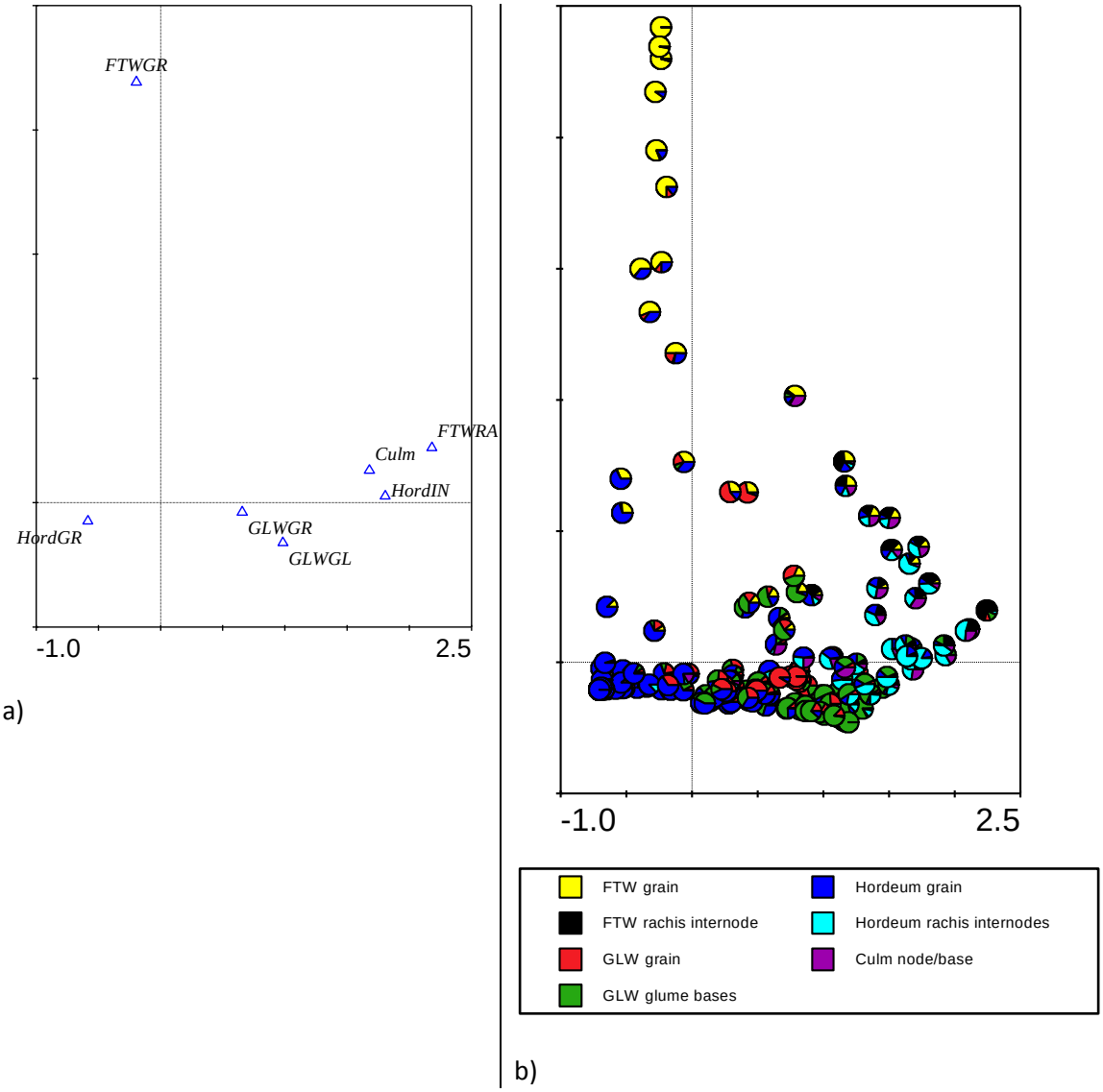


Figure 5.24 Correspondence analysis of cereal items from Phase 4 samples with 30 or more cereal items, excluding samples YNB4, YNB6 and YNB7, showing axes 1 (horizontal) and 3 (vertical). a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of cereal types.

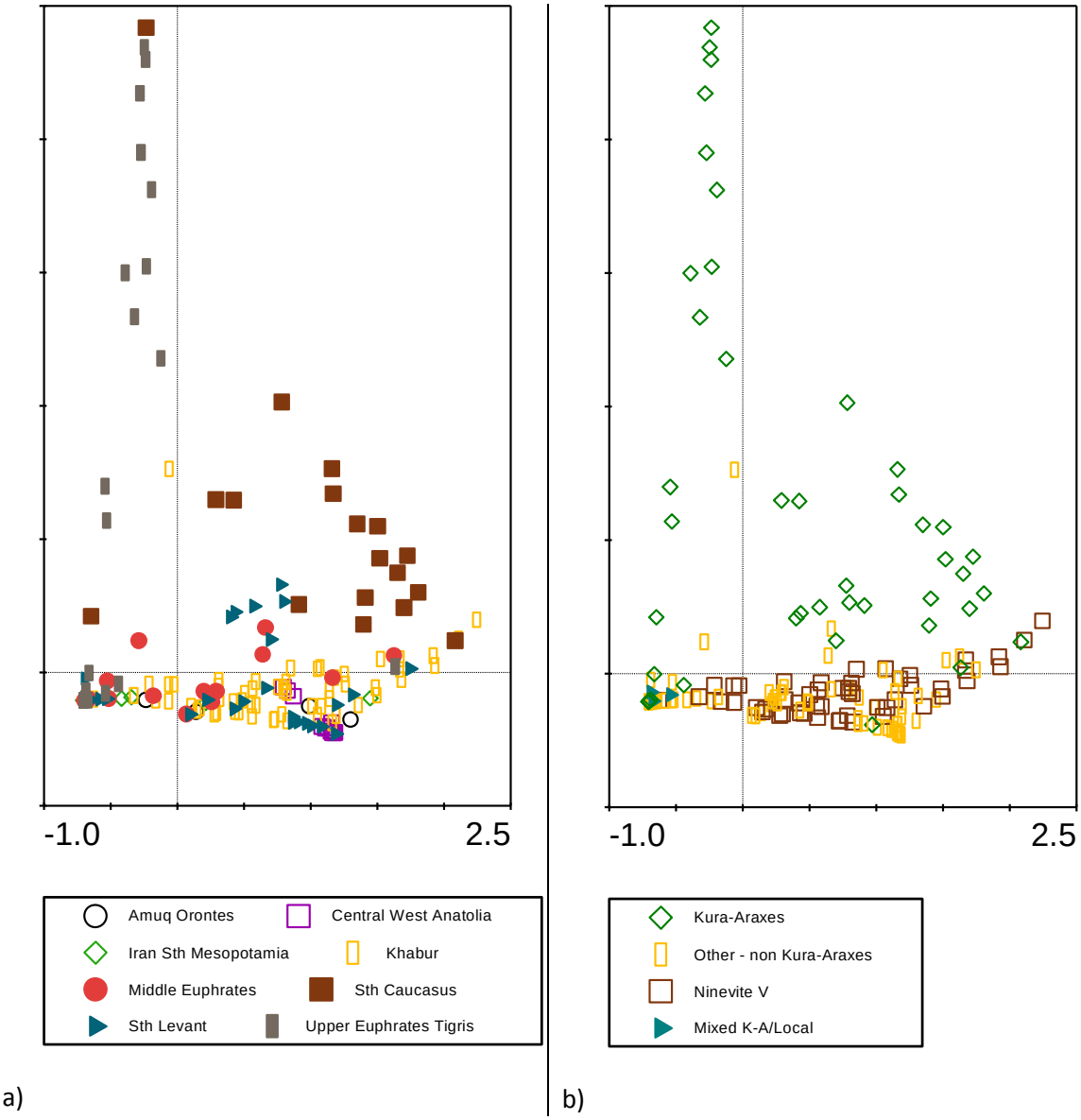


Figure 5.25 Correspondence analysis plot of cereal items from Phase 4 samples with 30 or more cereal items, excluding samples YNB4, YNB6 and YNB7, showing axes 1 (horizontal) and 3 (vertical). a) plot of samples coded by geographical regions, b) plot of samples coded by cultural group.

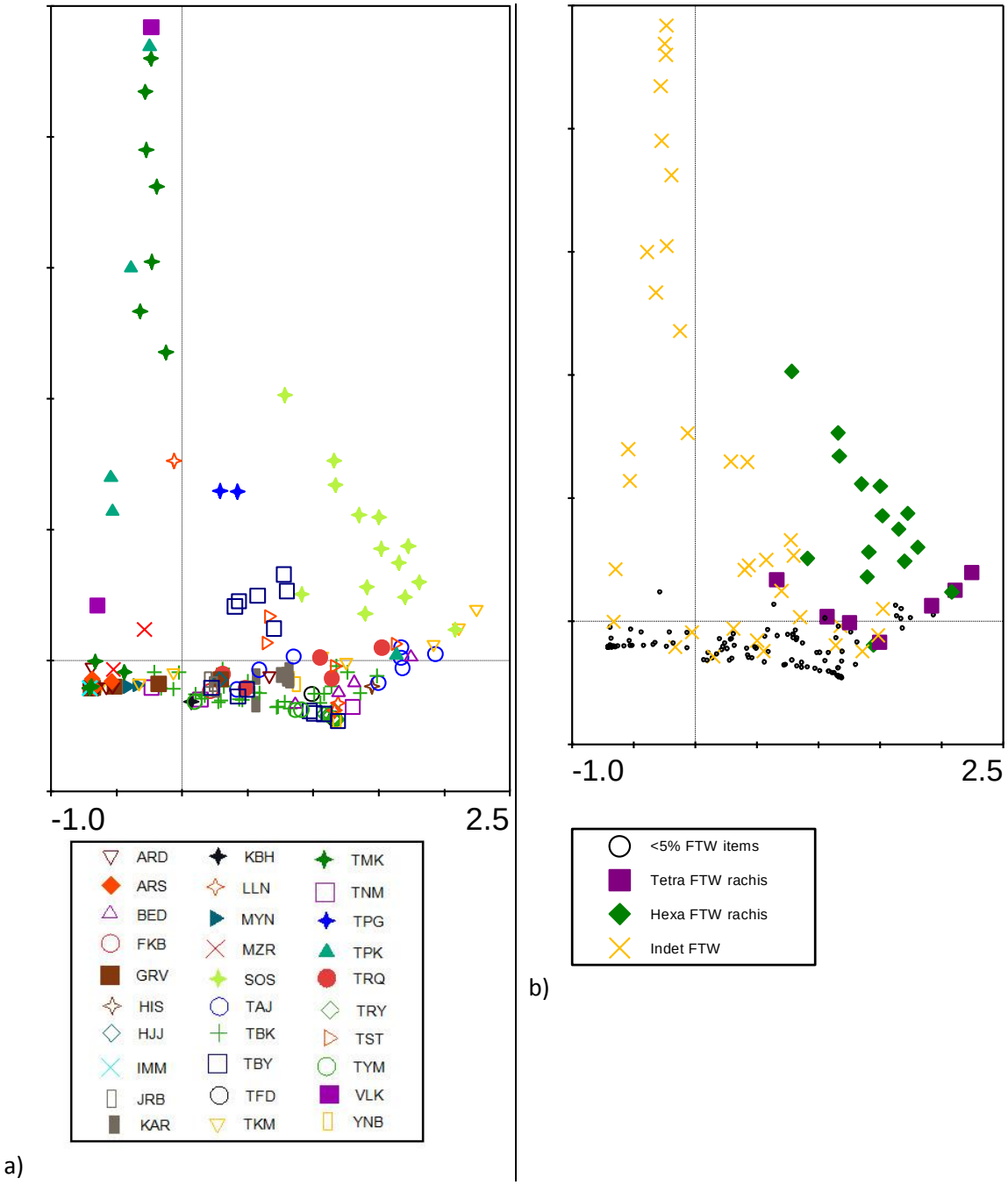


Figure 5.26 Correspondence analysis plot of cereal items from Phase 4 samples with 30 or more cereal items, excluding samples YNB4, YNB6 and YNB7, showing axes 1 (horizontal) and 3 (vertical). a) Plot of samples coded by site, b) plot of samples coded by free threshing wheat identification where the minimum value of free threshing wheat content is equal to 5% or more of items. Hexa FTW = Hexaploid free threshing wheat rachis internodes, Tetra FTW = Tetraploid free threshing wheat internodes, indet FTW = Indeterminate free threshing wheat rachis internodes and grain.

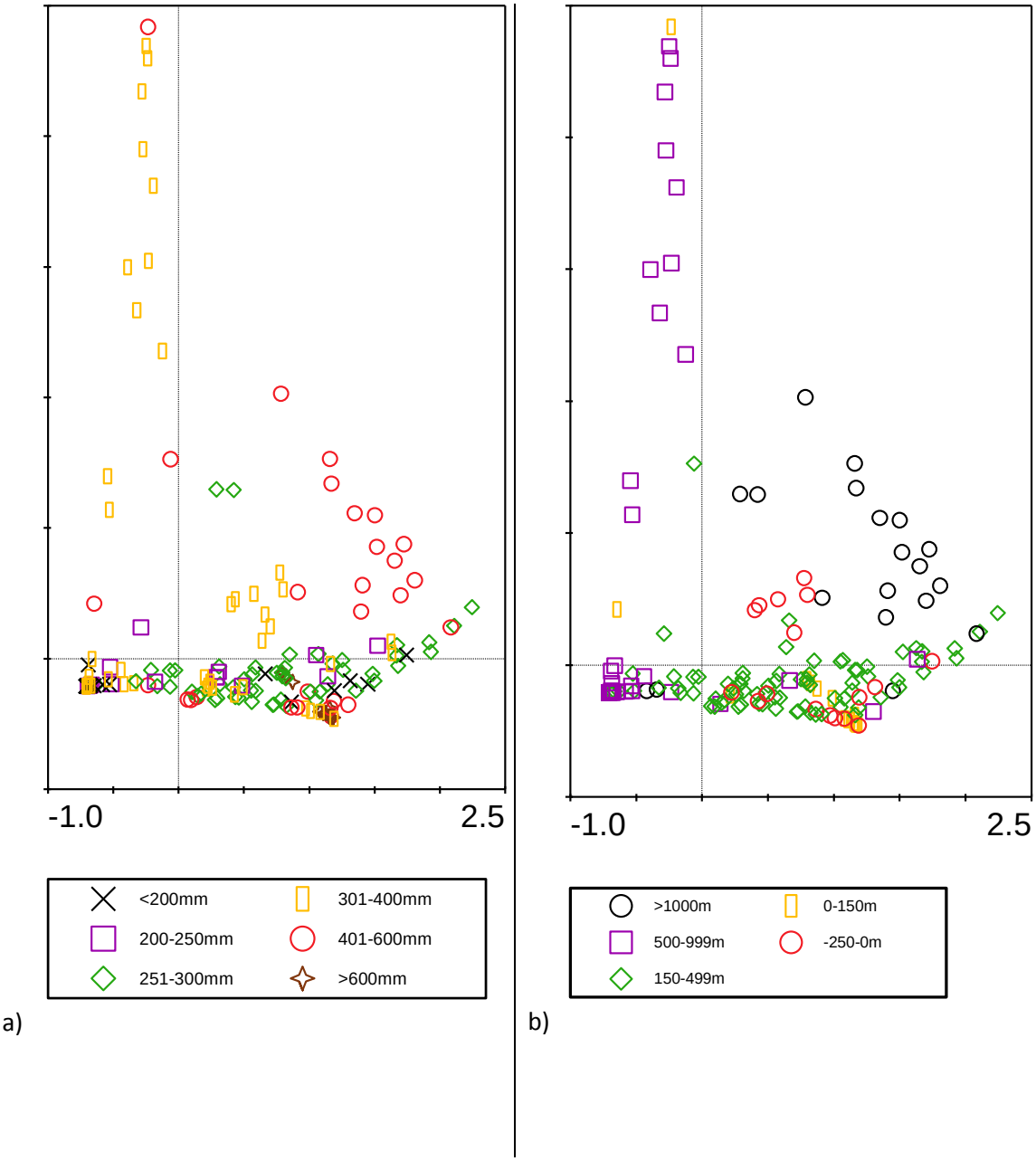
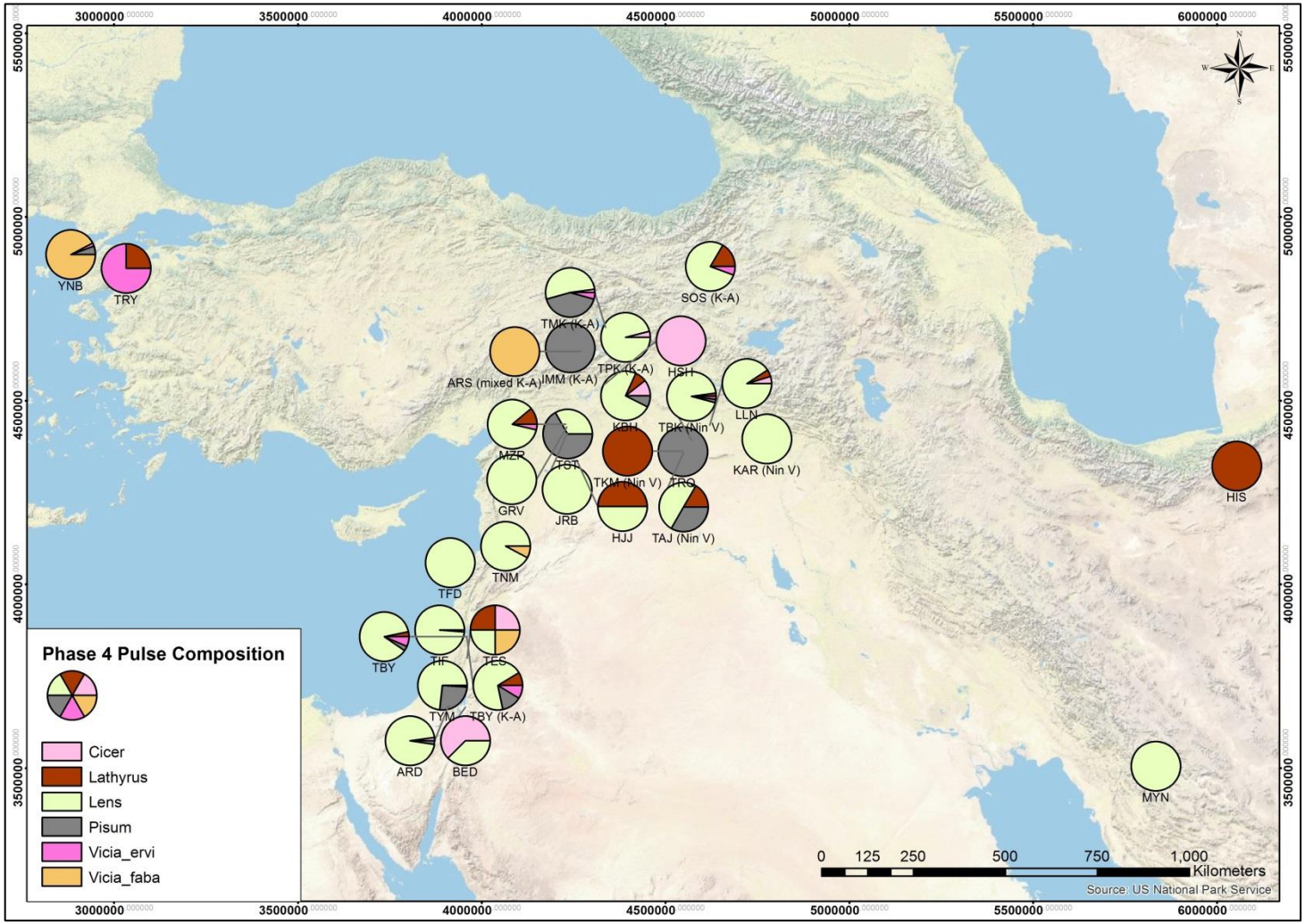


Figure 5.27 Correspondence analysis plot of cereal items from Phase 4 samples with 30 or more cereal items, excluding samples YNB4, YNB6 and YNB7, showing axes 1 (horizontal) and 3 (vertical). a) plot of samples coded by modern annual rainfall, b) plot of samples coded by altitude.



5.28 Map of Phase 4 sites by cultural grouping. Sites represented as pie charts showing the proportion of pulse taxa. Pies based on total items in each site culture phase. Cultural coding: K-A = Kura-Araxes; Mixed K-A = Mixed Kura-Araxes/Local; Nin V = Ninevite V.

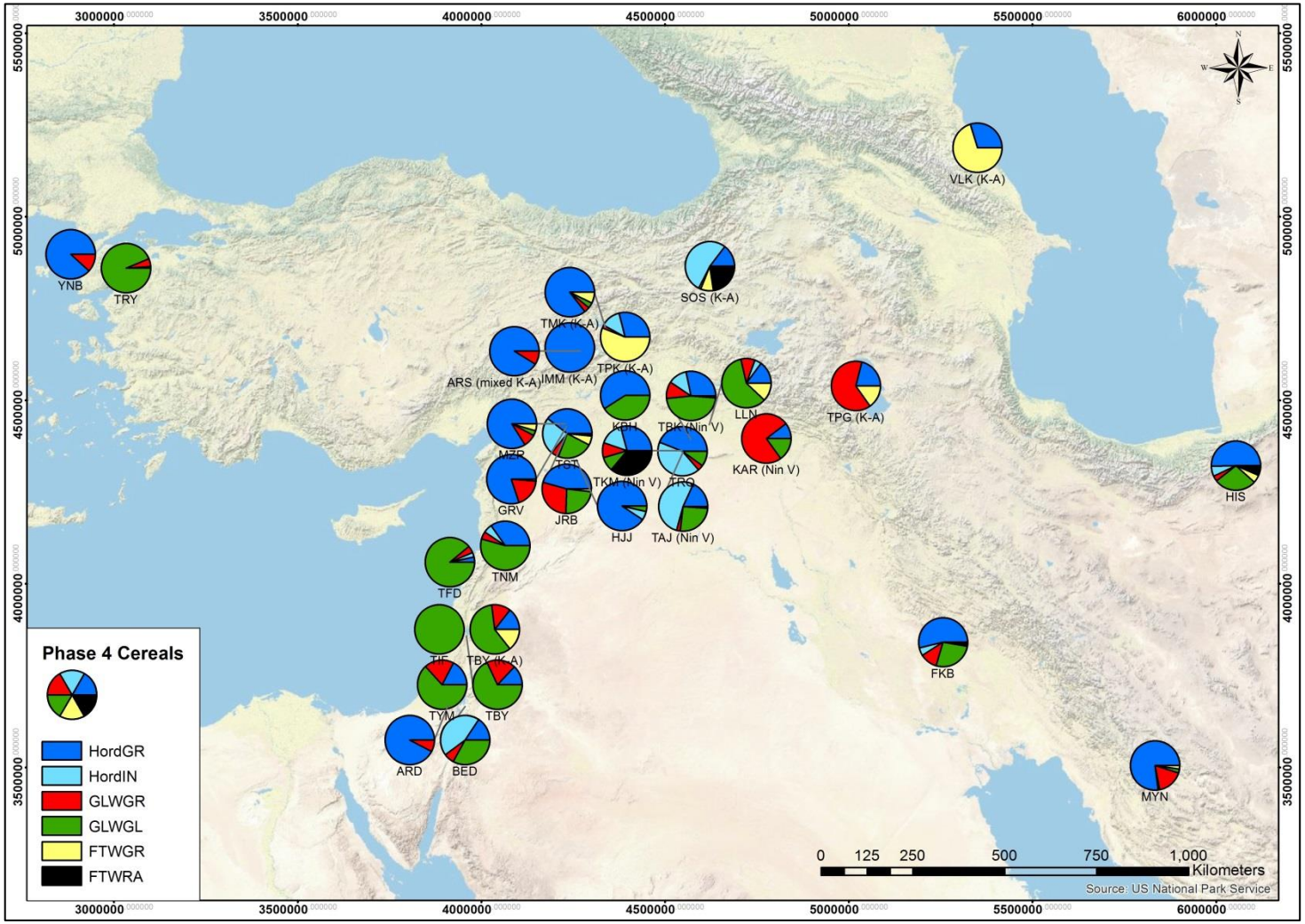
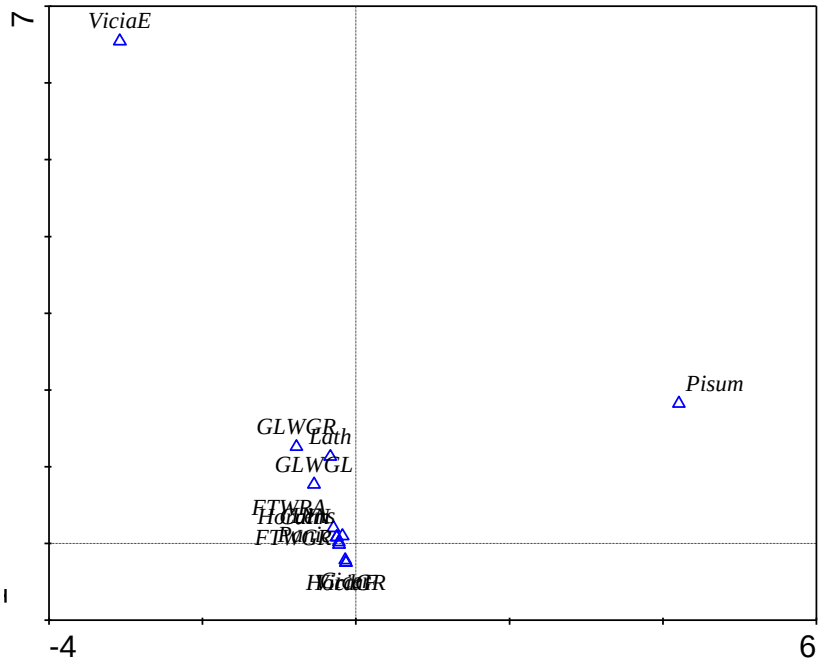
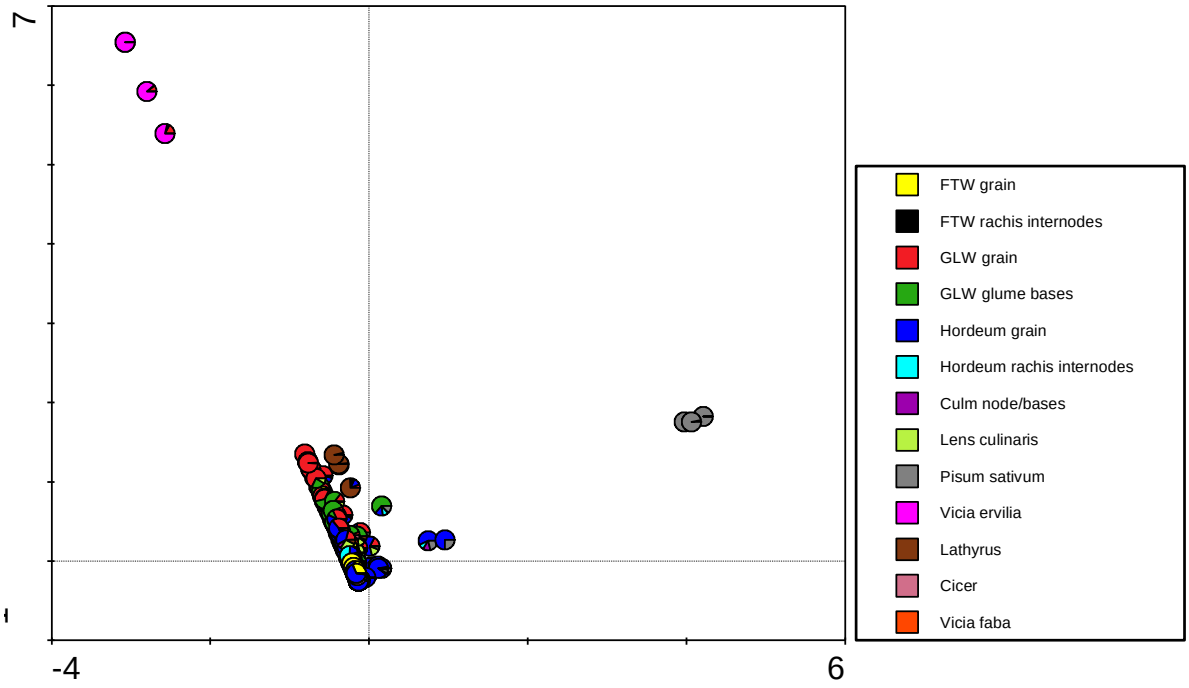


Figure 5.29 Map of Phase 4 sites by cultural grouping. Sites represented as pie charts showing the proportion of cereal items where the total of cereal items for each site cultural group is more than 30 items. Cultural coding: K-A = Kura-Araxes; Mixed K-A = Mixed Kura-Araxes/Local; Nin V = Ninevite V.

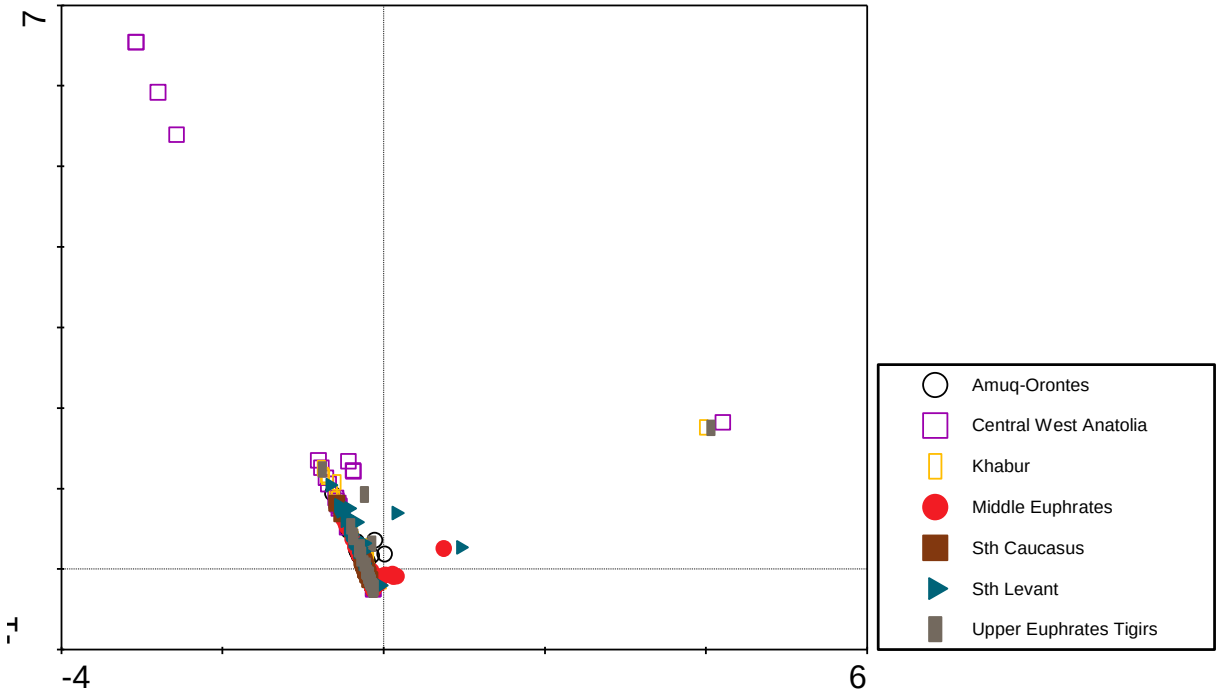


a)

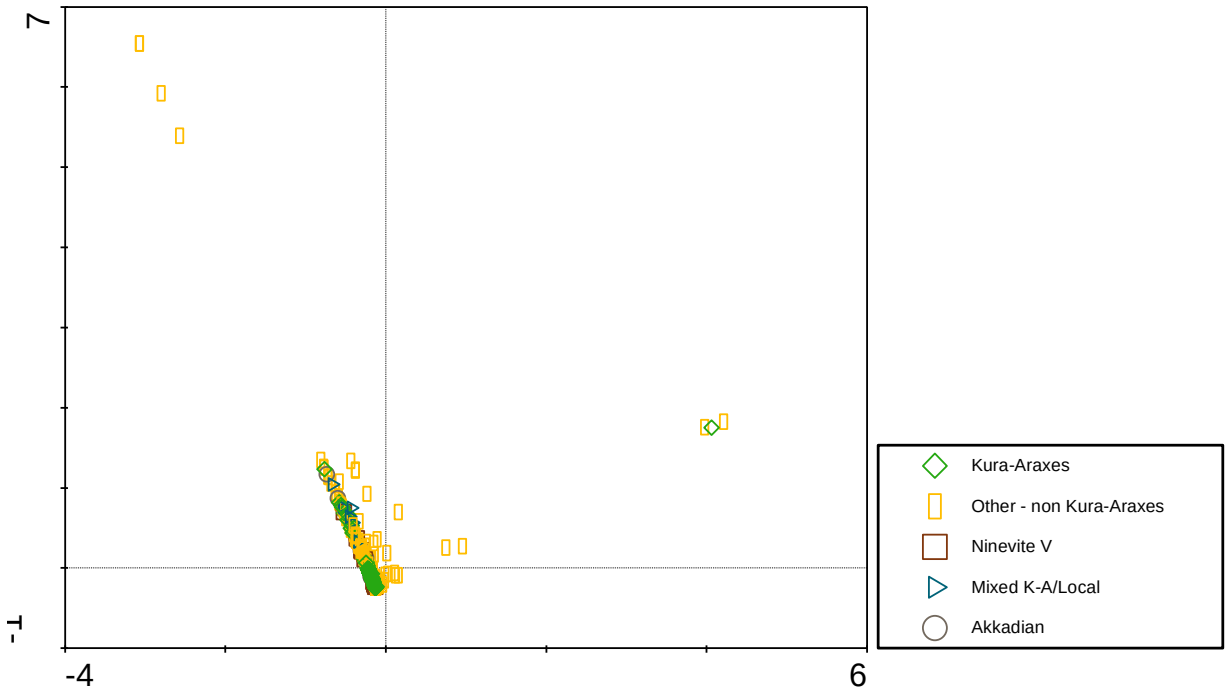


b)

Figure 5.30 Correspondence analysis of crop items from Phase 5 samples with 30 or more crop items a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of crop types.



a)



b)

Figure 5.31 Correspondence analysis plot of crop items from Phase 5 samples with 30 or more crop items. a) samples coded by geographical region, b) samples coded by cultural group.

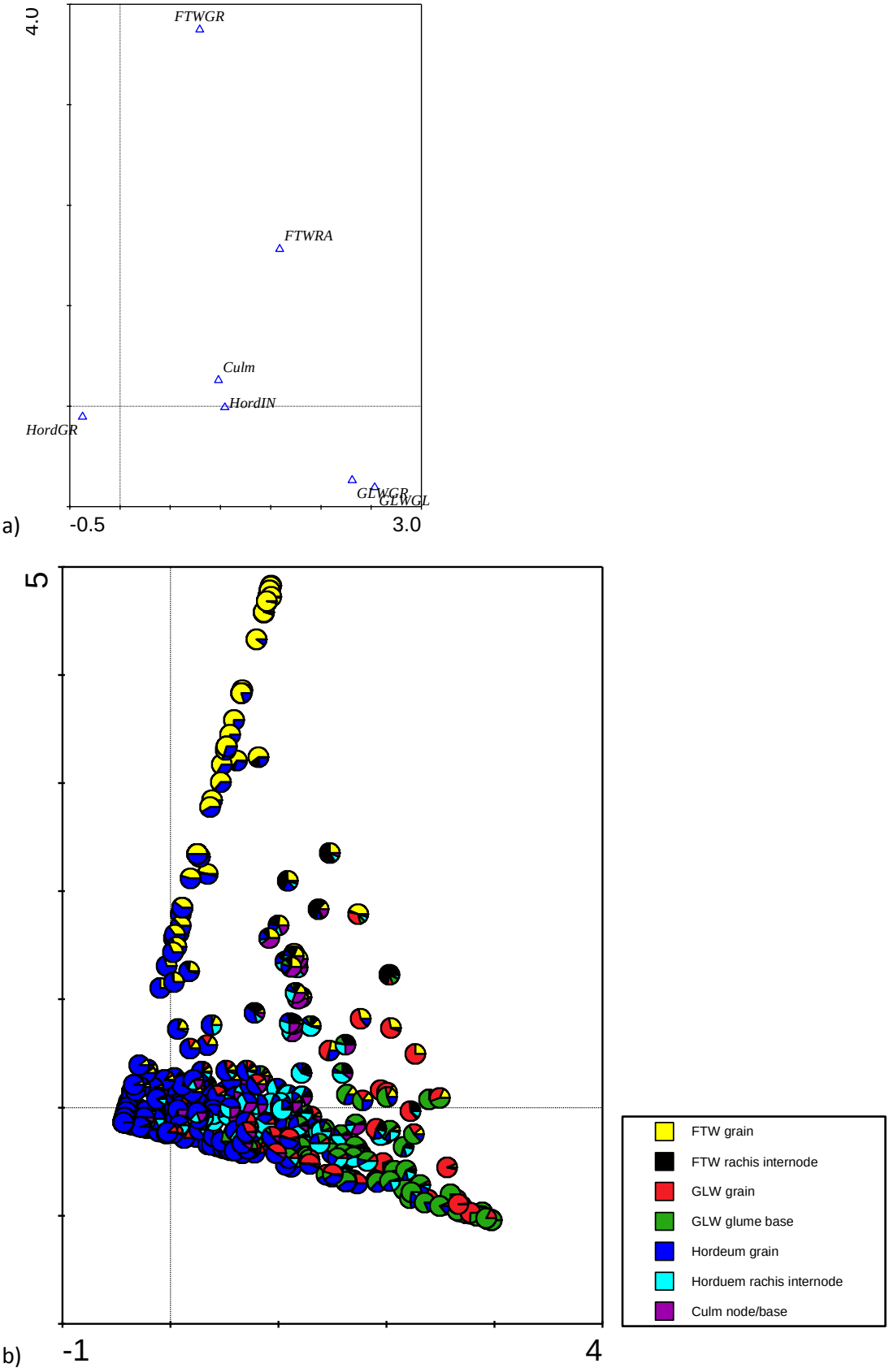
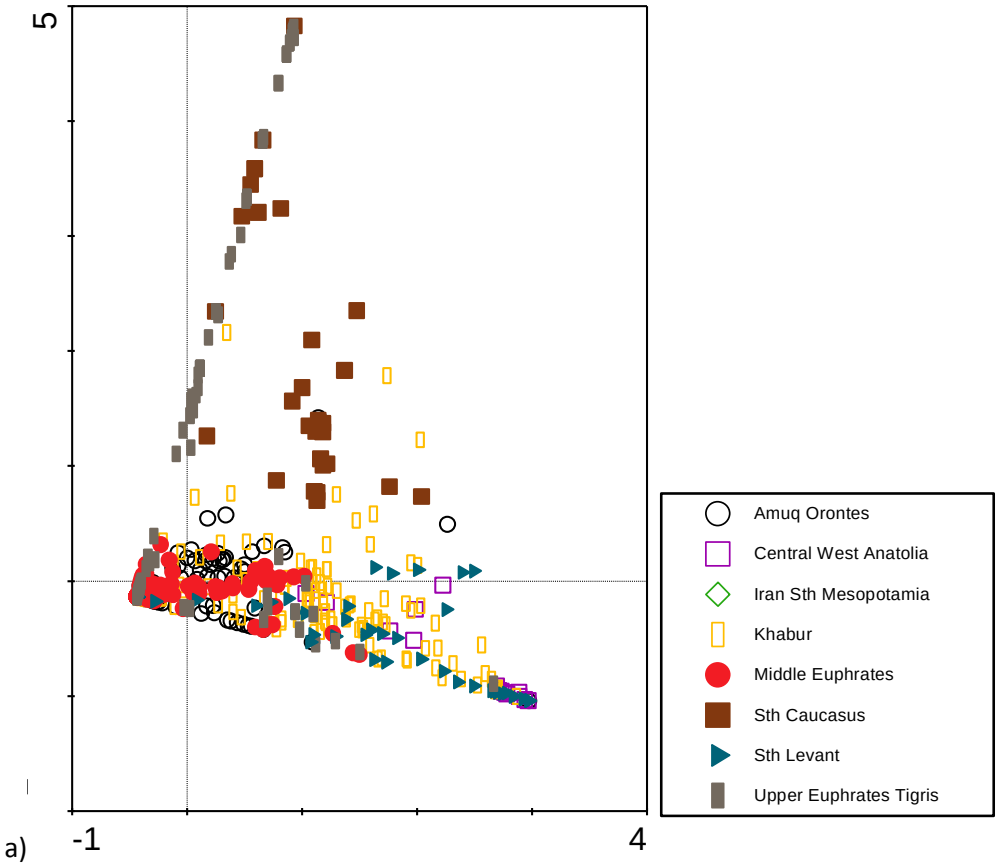
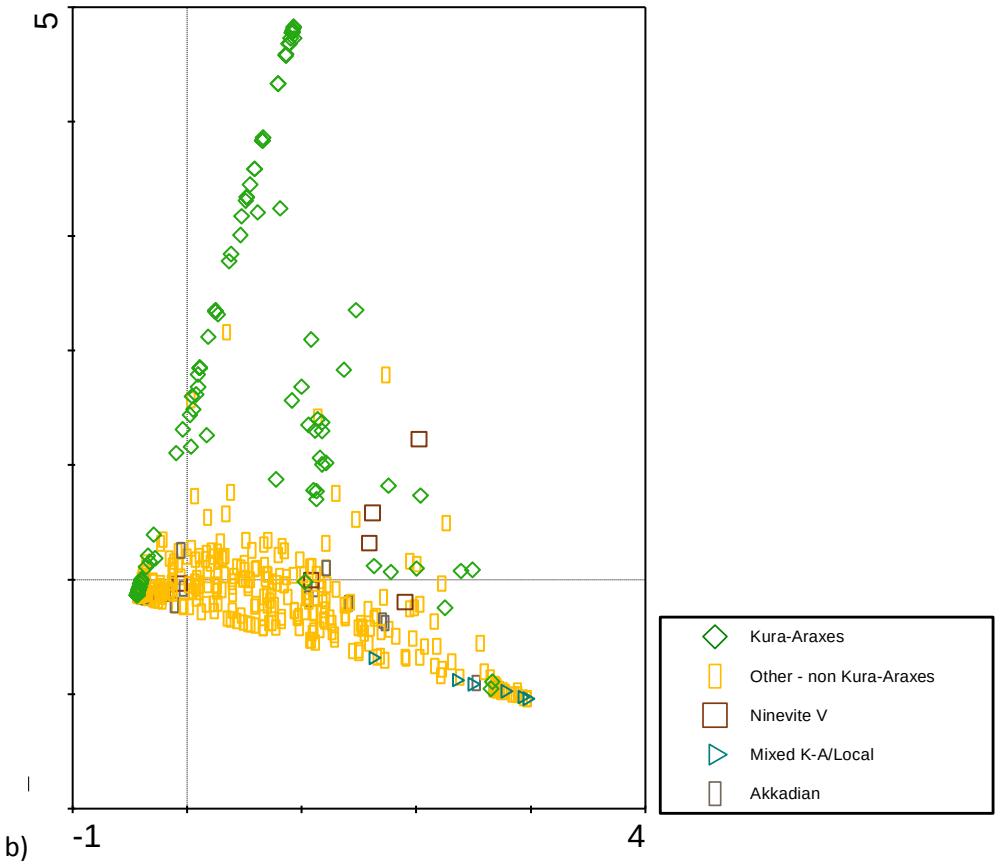


Figure 5.32 Correspondence analysis of cereal items from Phase 5 samples with 30 or more cereal items excluding YNB4, YNB6, YNB7, and YNB8. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of cereal types.



a)



b)

Figure 5.33 Correspondence analysis plot of cereal items from Phase 5 samples with 30 or more cereal items excluding YNB4, YNB6, YNB7, and YNB8. a) samples coded by geographical region, b) samples coded by cultural group.

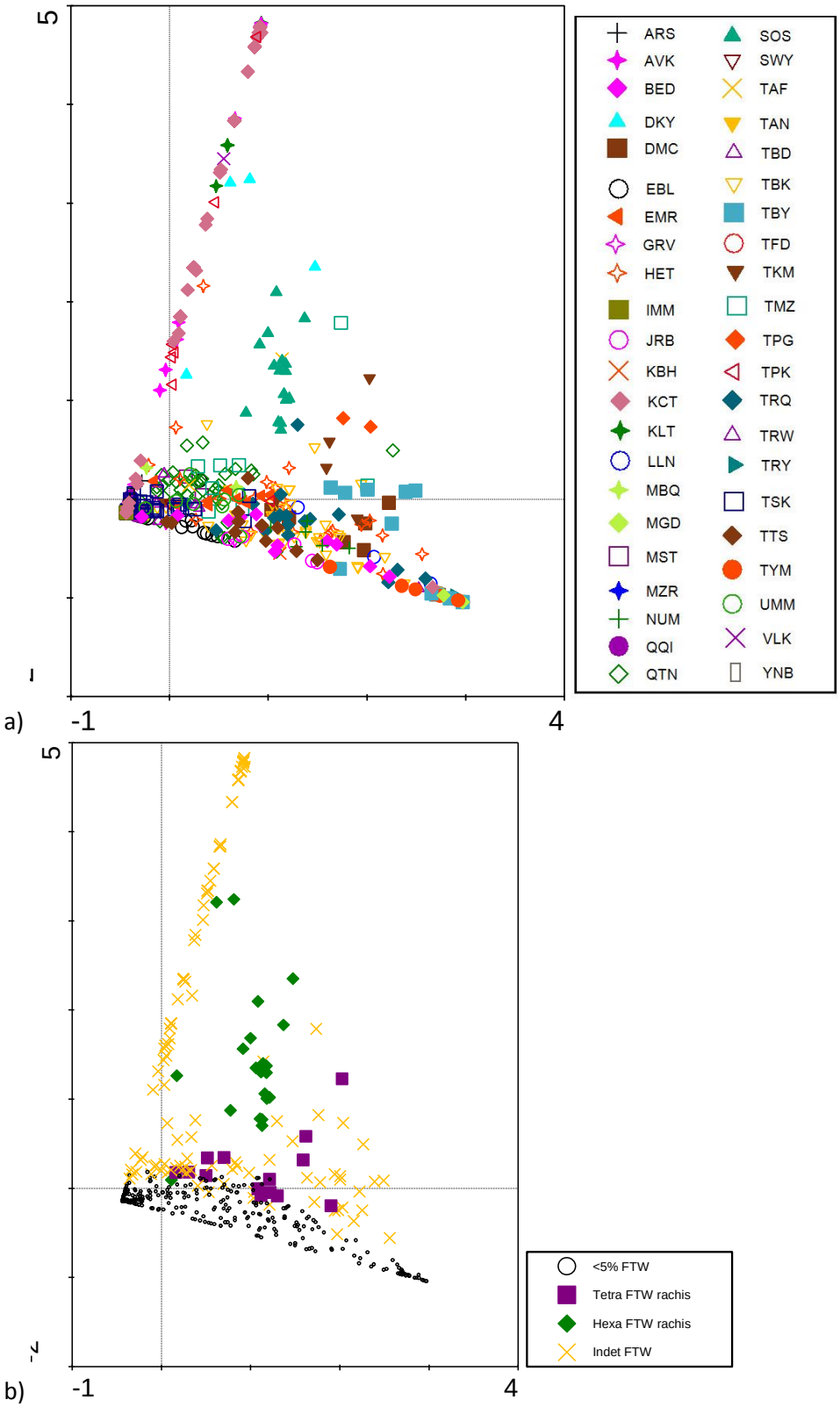
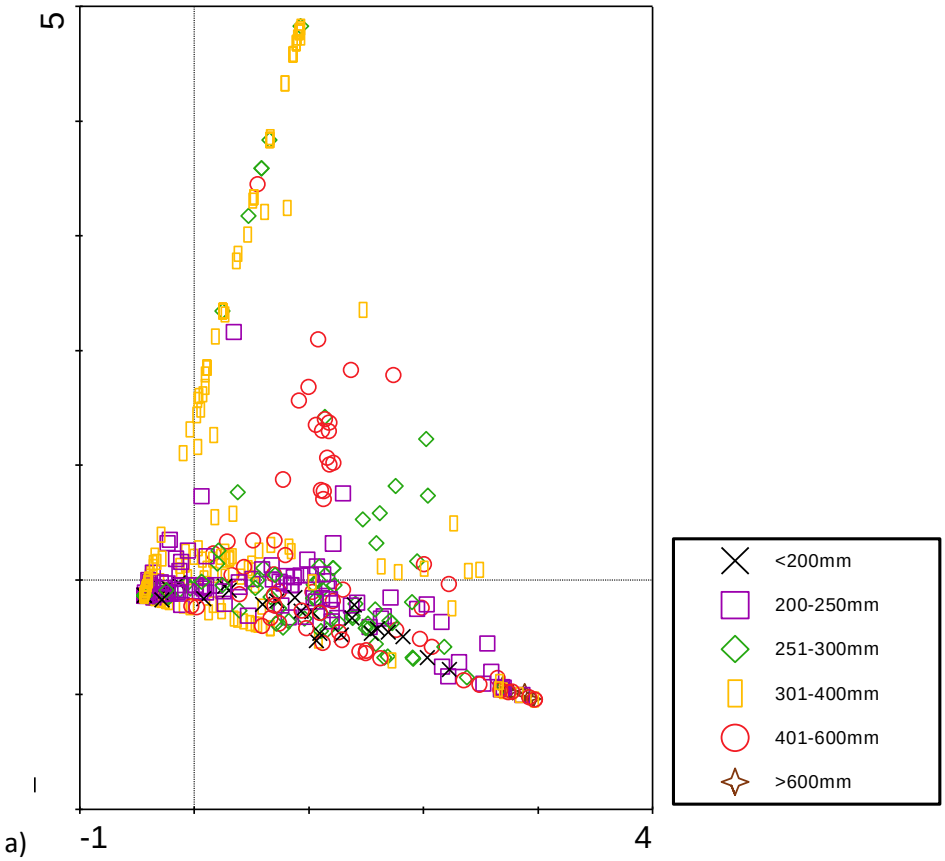


Figure 5.34 Correspondence analysis plot of cereal items from Phase 5 samples with 30 or more cereal items excluding YNB4, YNB6, YNB7, and YNB8. a) Samples coded by site, b) Plot of samples coded by free threshing wheat identification where the minimum value of free threshing wheat content is equal to 5% or more of items. Hexa FTW = Hexaploid free threshing wheat rachis internodes, Tetra FTW = Tetraploid free threshing wheat internodes, indet FTW = Indeterminate free threshing wheat rachis internodes and grain.



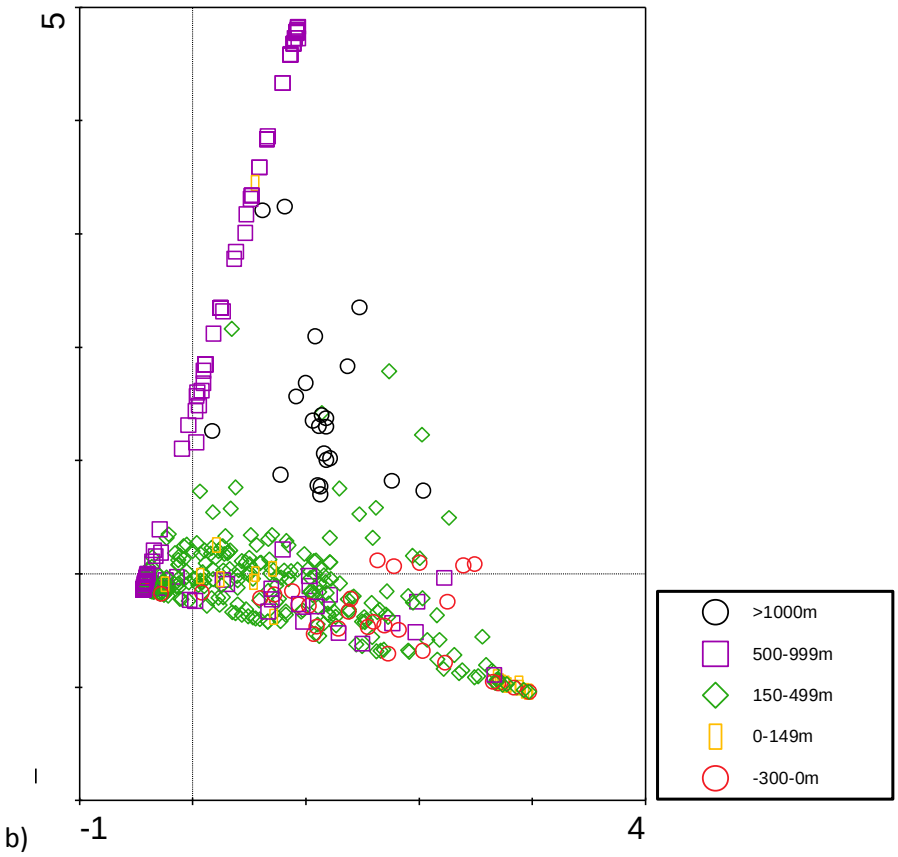


Figure 5.35 Correspondence analysis plot of cereal items from Phase 5 samples with 30 or more cereal items excluding YNB4, YNB6, YNB7, and YNB8. a) samples coded by modern annual precipitation, b) samples coded by altitude.

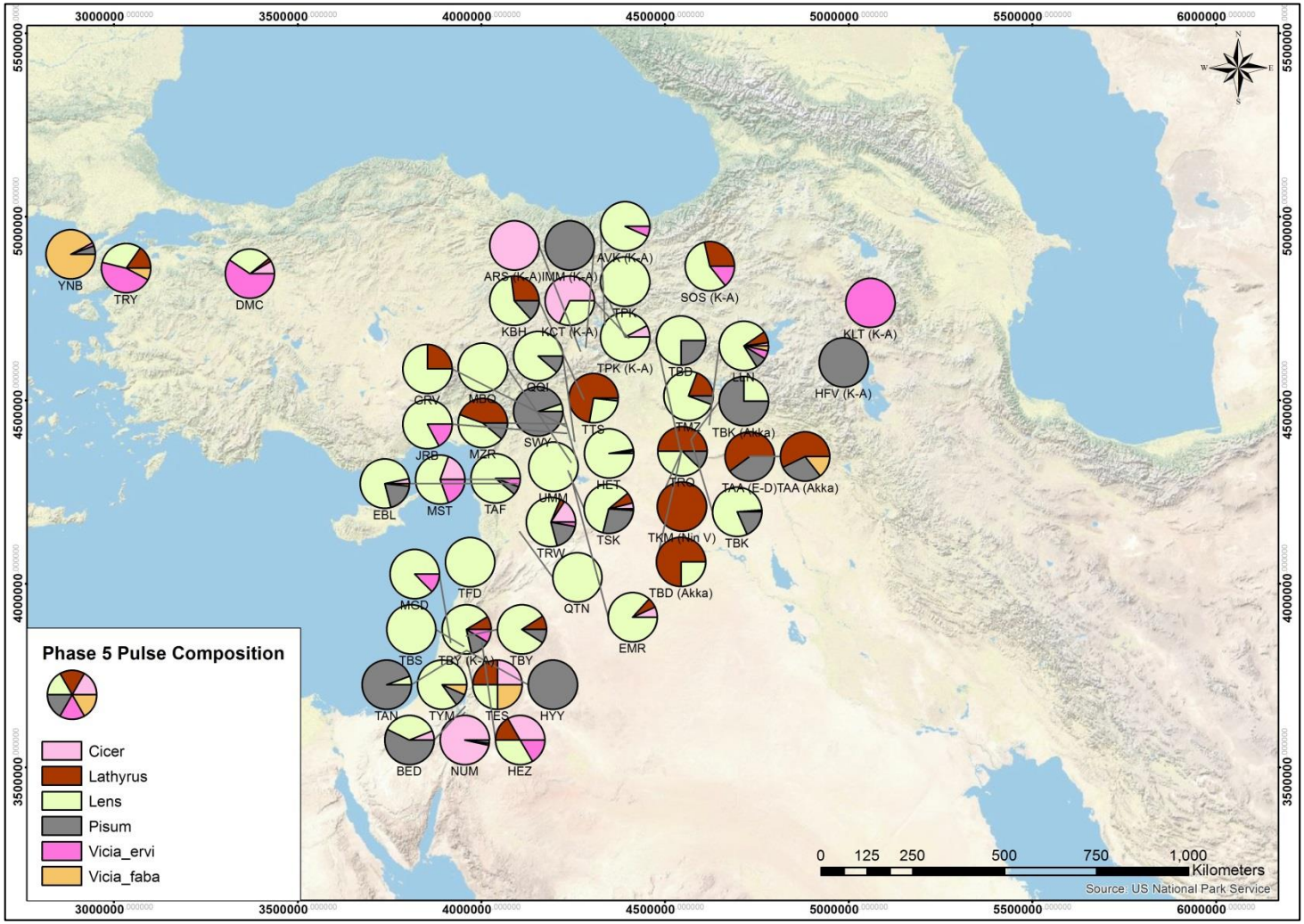


Figure 5.36 Map of Phase 5 sites by cultural grouping. Sites represented as pie charts showing the proportion of pulse taxa. Pies based on total items in each site culture phase. Cultural coding: Akka = Akkadian; E-D = Early Dynastic; K-A = Kura-Araxes; Nin V = Ninevite V.

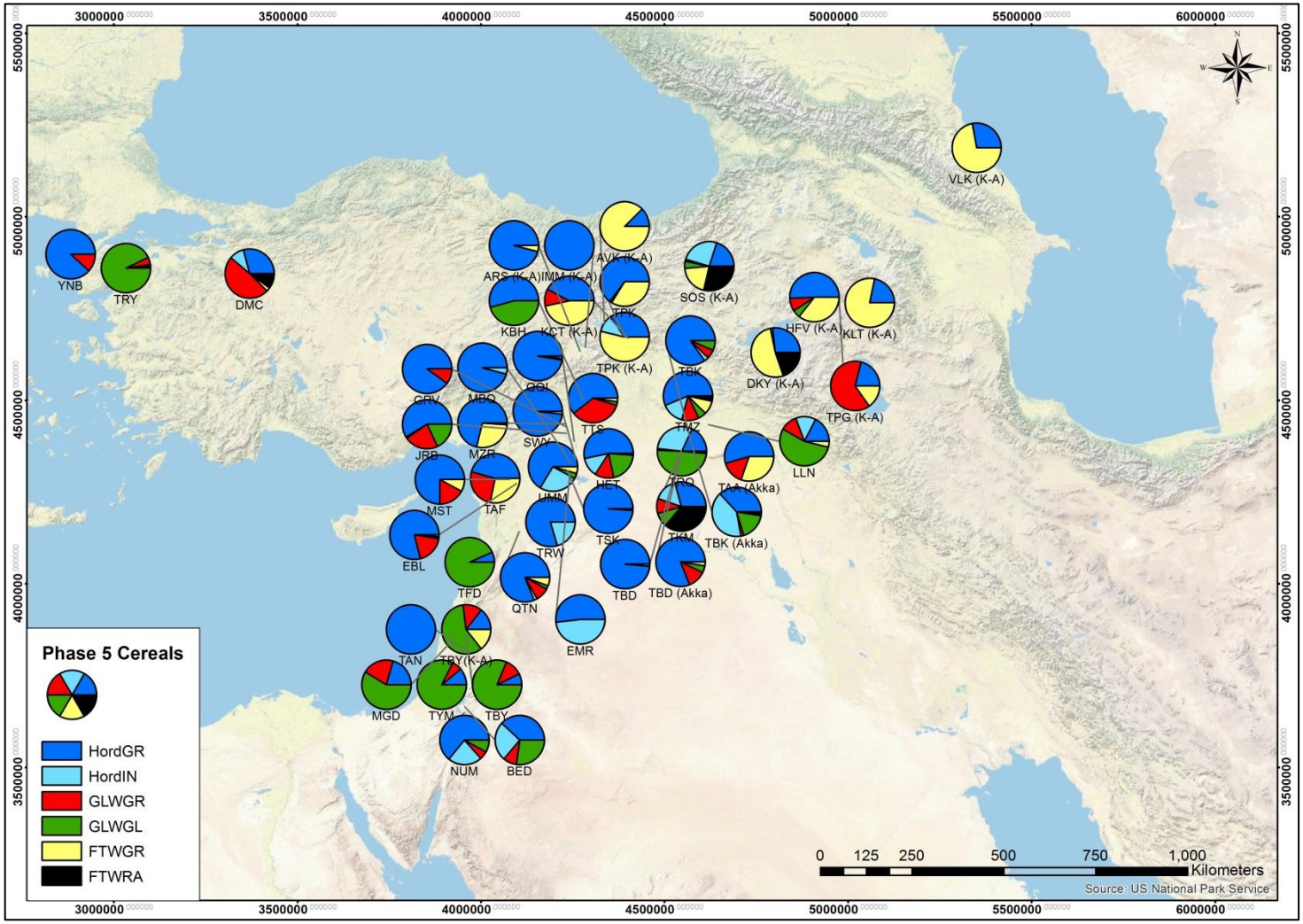


Figure 5.37 Map of Phase 5 sites by cultural grouping. Sites represented as pie charts showing the proportion of cereal items where the total of cereal items for each site cultural group is more than 30 items. Cultural coding: Akka = Akkadian; E-D = Early Dynastic; K-A = Kura-Araxes; Nin V = Ninevite V.

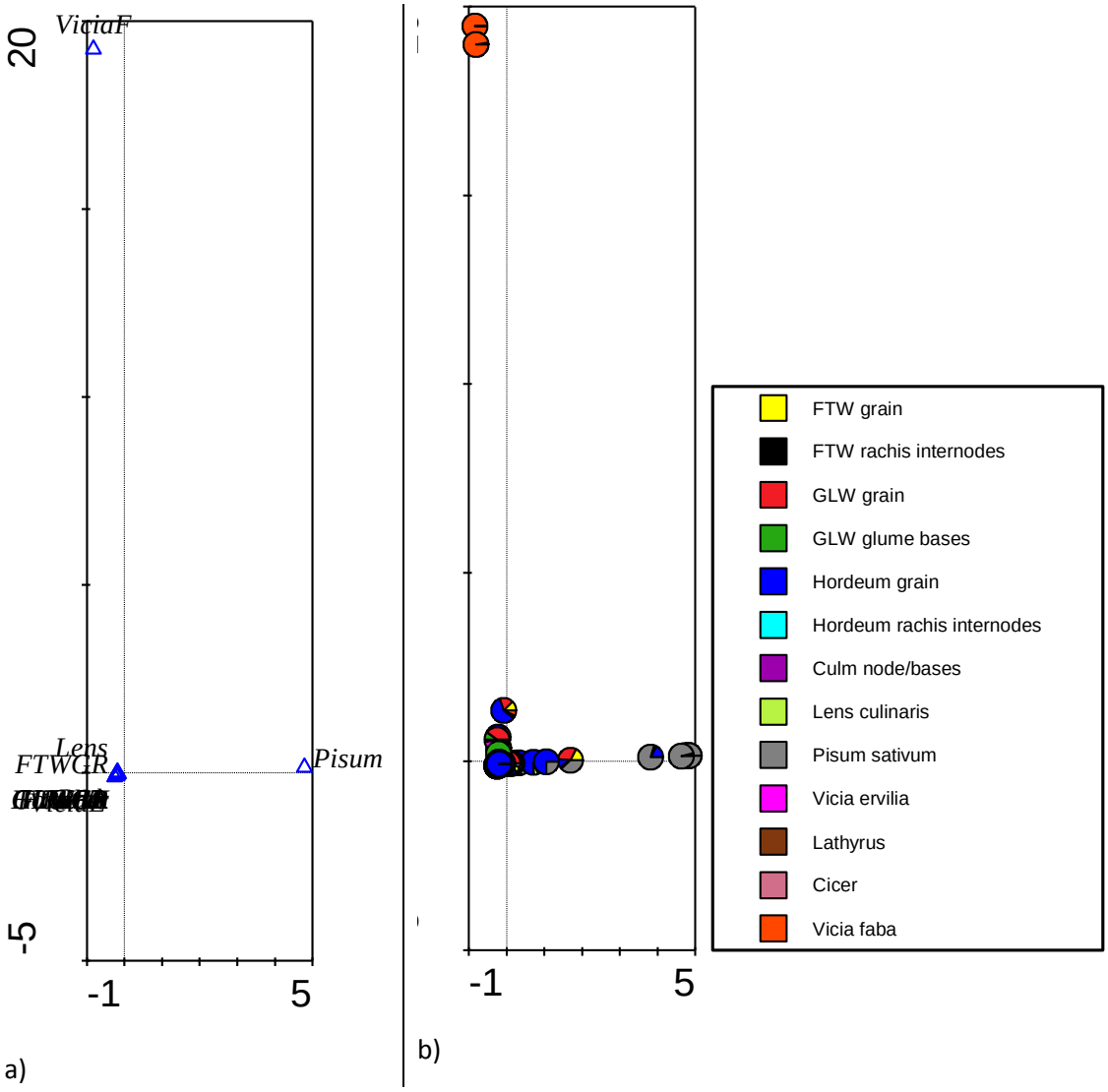
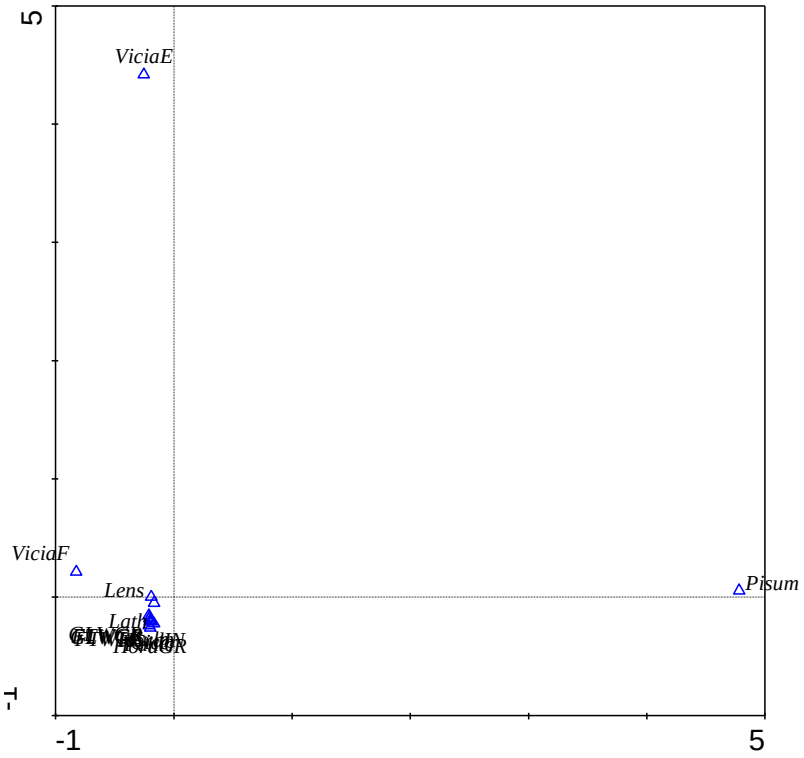
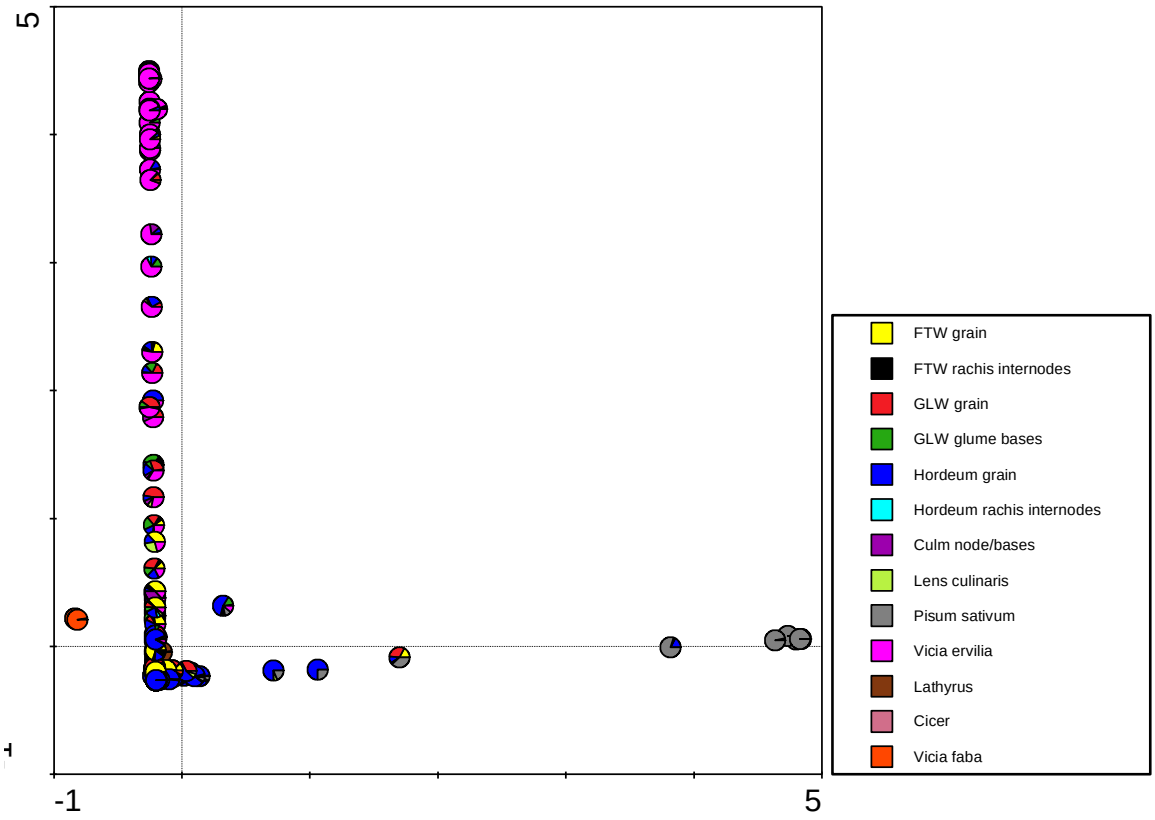


Figure 5.38 Correspondence analysis of crop items from Phase 6 samples with 30 or more crop items. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of crop types.

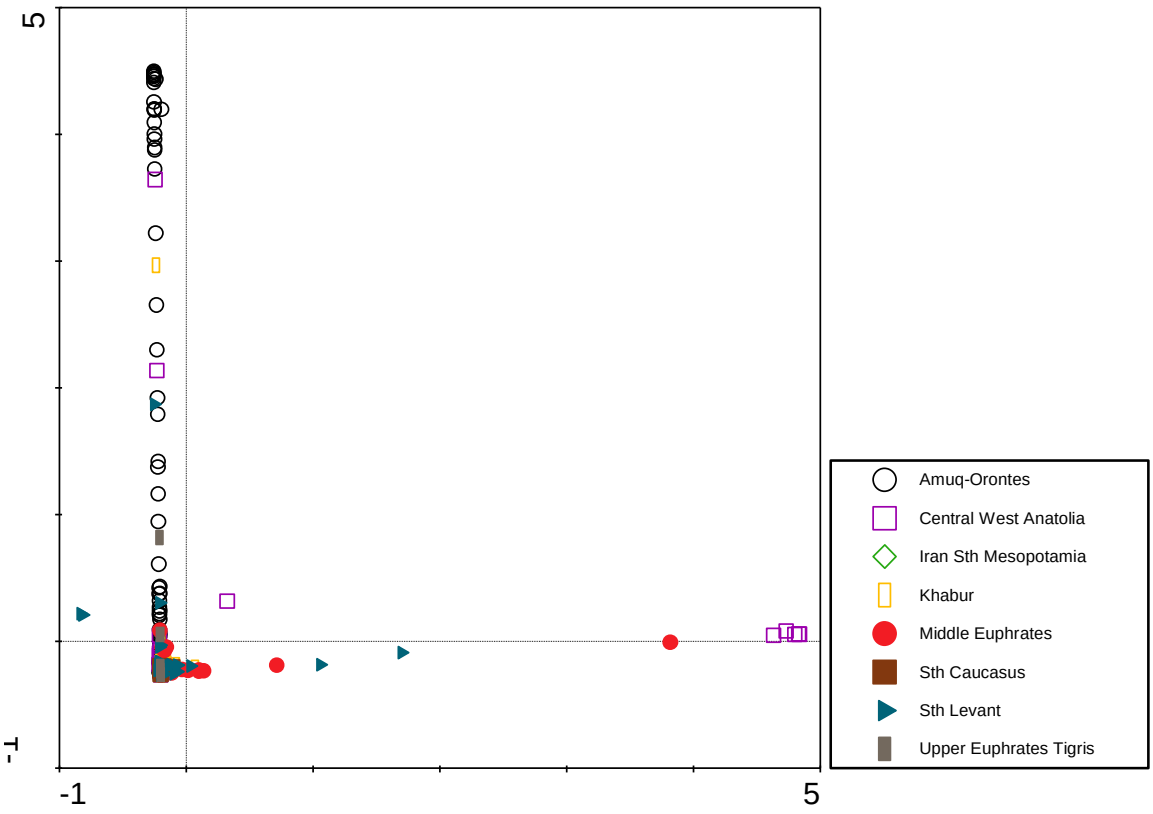


a)

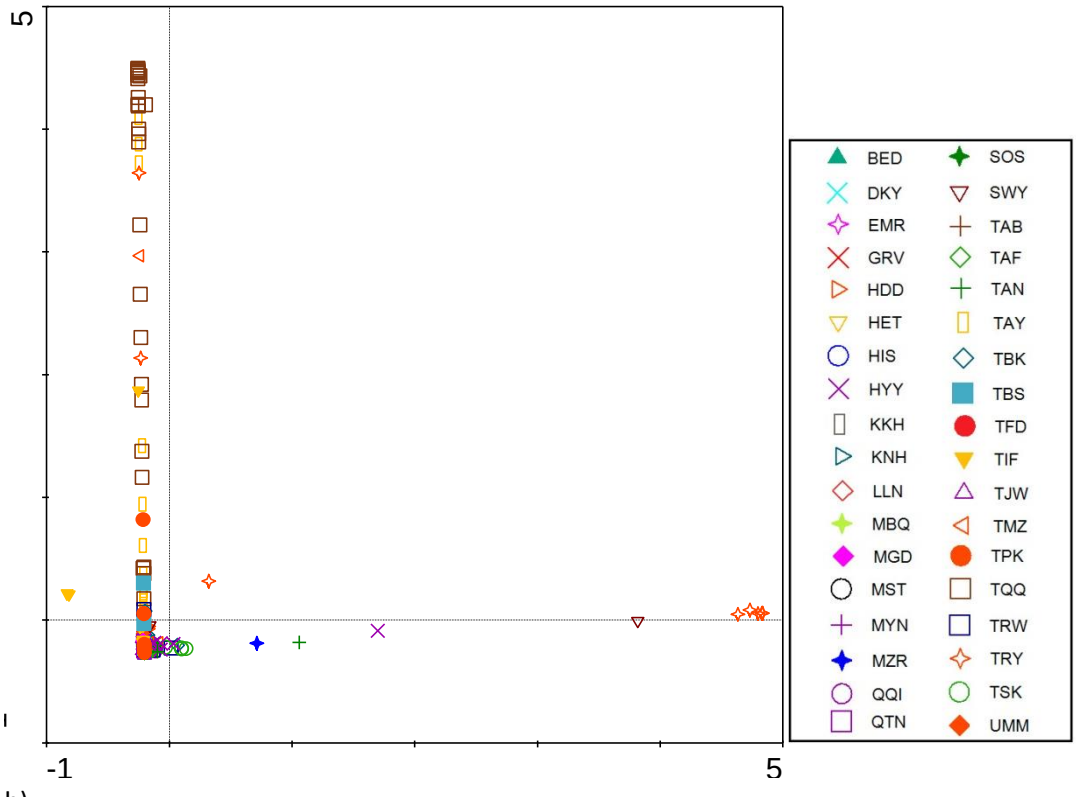


b)

Figure 5.39 Correspondence analysis of crop items from Phase 6 samples with 30 or more crop items showingaxes 1 (horizontal) and 3 (vertical). a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of crop types.

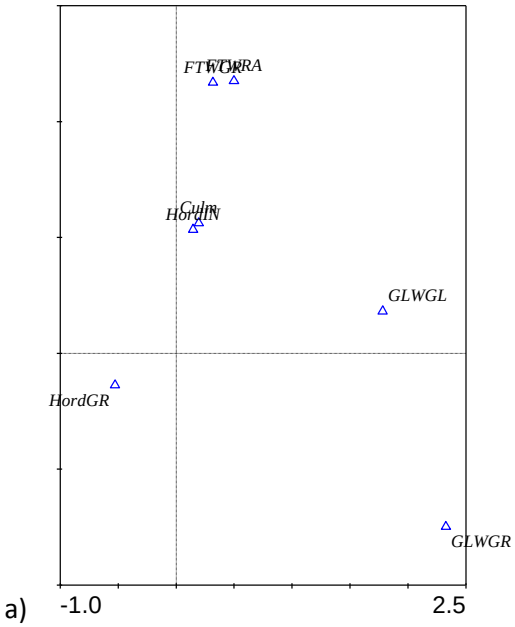


a)

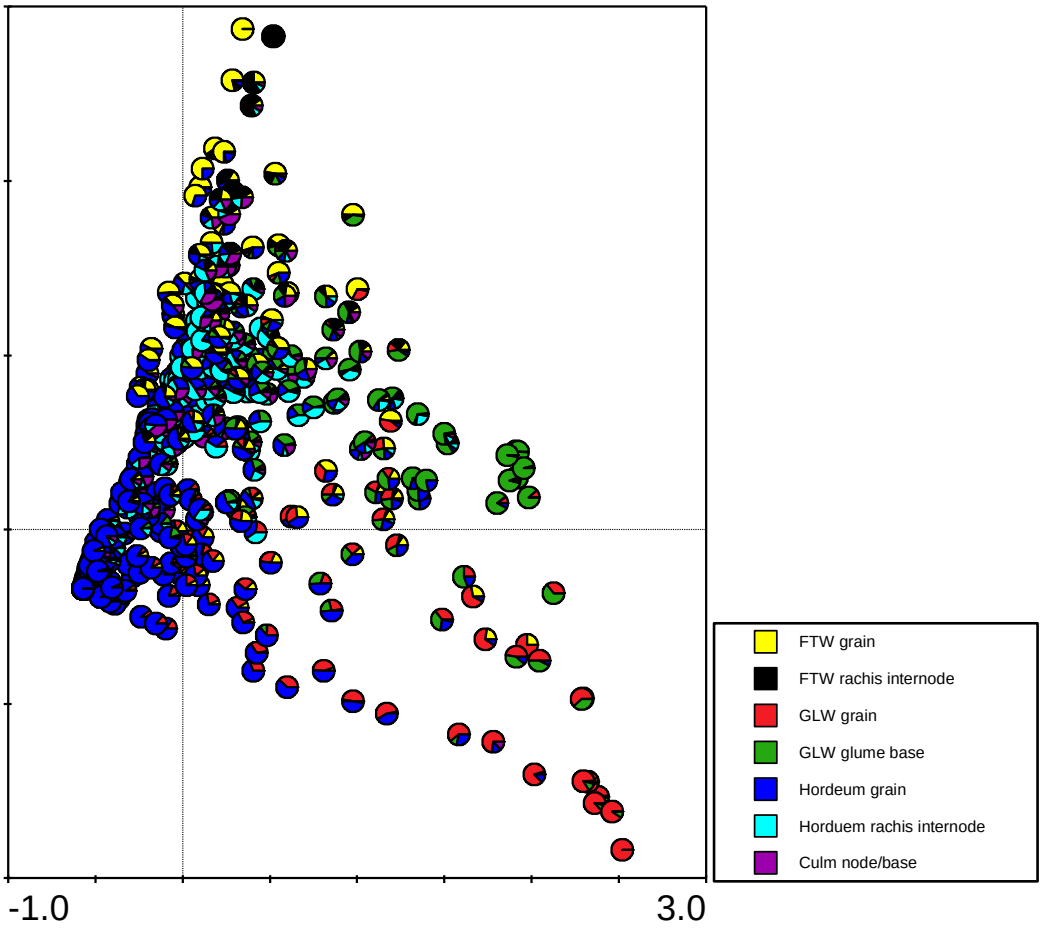


b)

Figure 5.40 Correspondence analysis plot of crop items from Phase 6 samples with 30 or more crop items showingaxes 1 (horizontal) and 3 (vertical). a) samples coded by region, b) samples coded by sites.

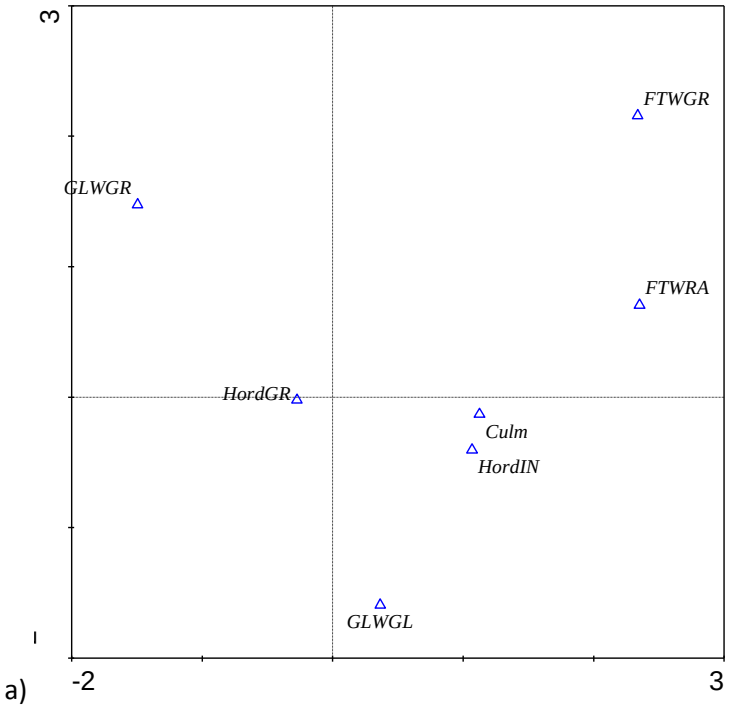


a)



b)

Figure 5.41 Correspondence analysis of cereal items from Phase 6 samples with 30 or more cereal items. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of cereal types.



b)

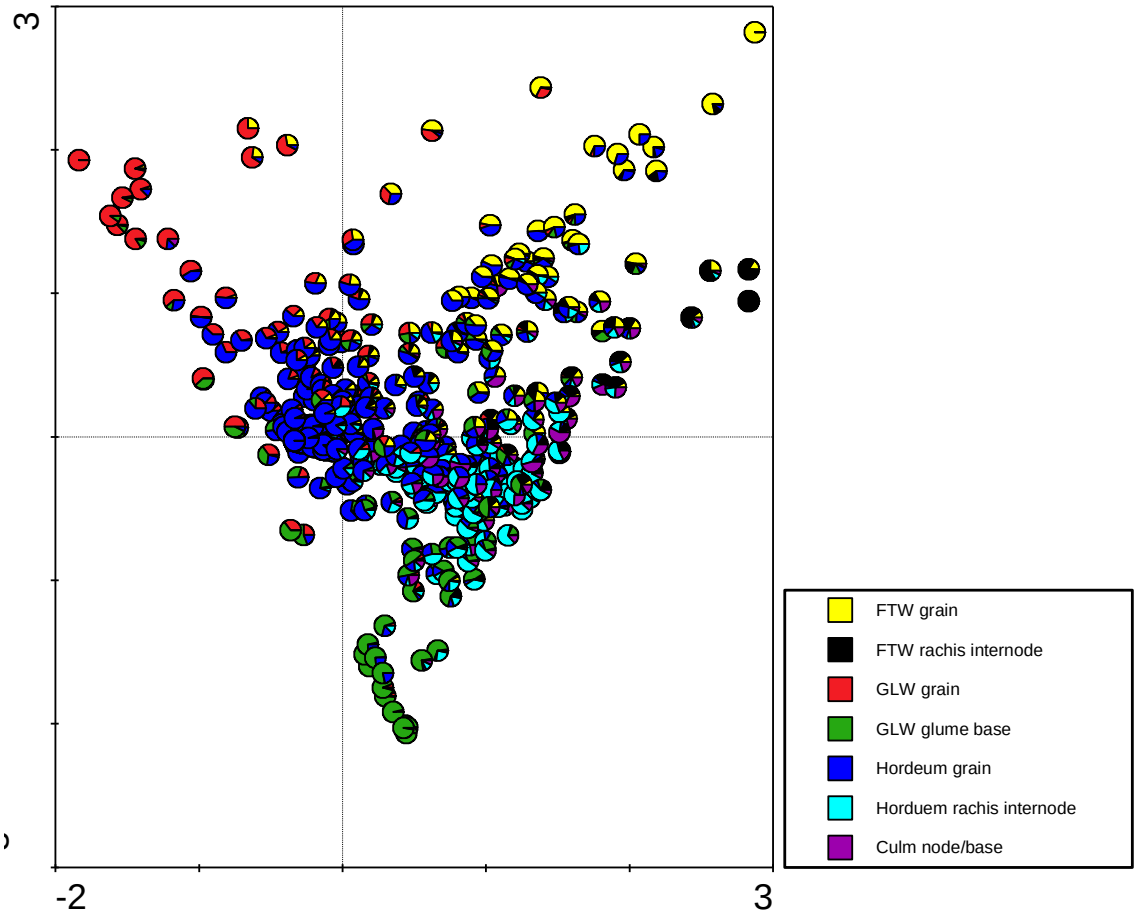


Figure 5.42 Correspondence analysis of cereal items from Phase 6 samples with 30 or more cereal items showing axes 2 (horizontal) and 3 (vertical). a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of cereal types.

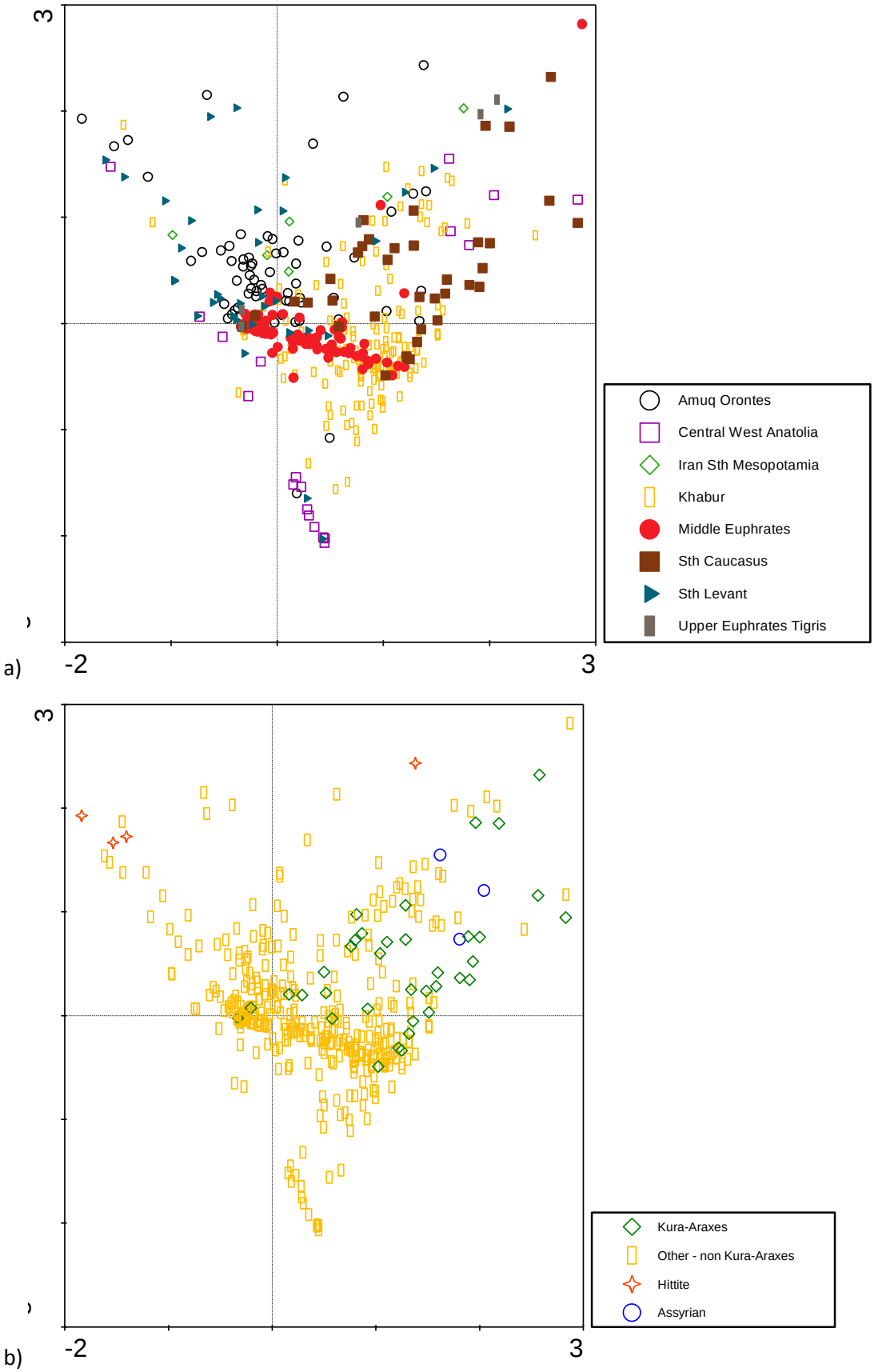
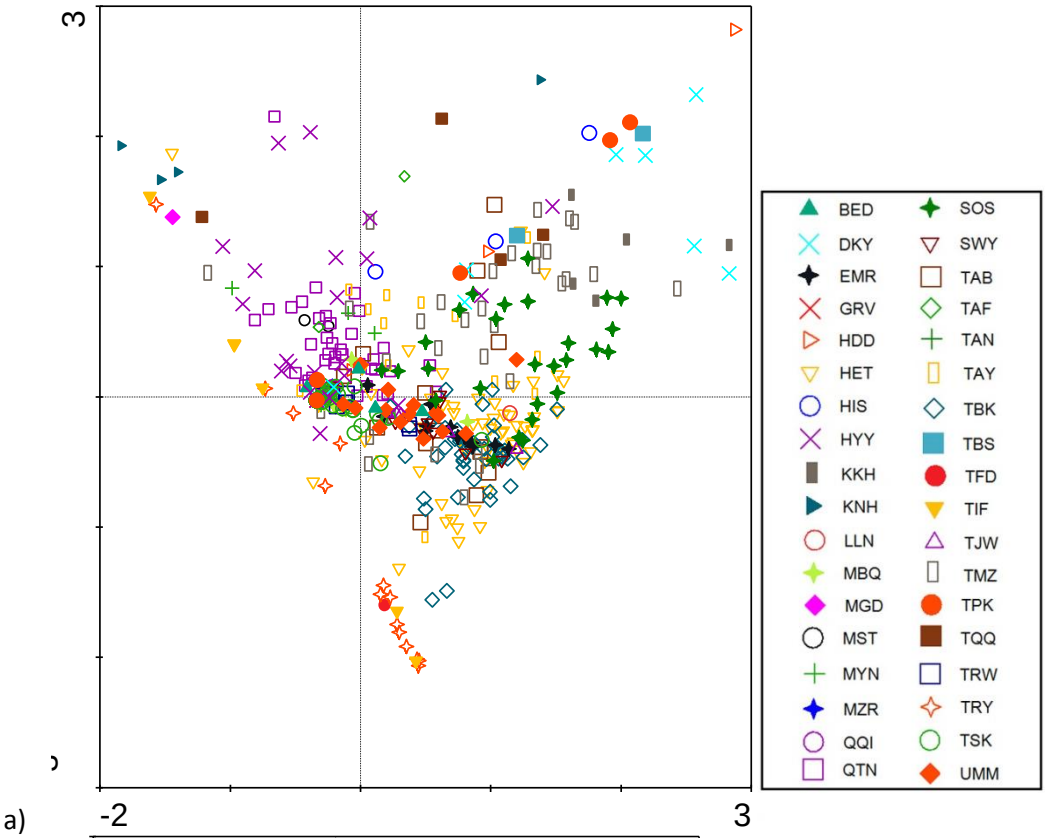
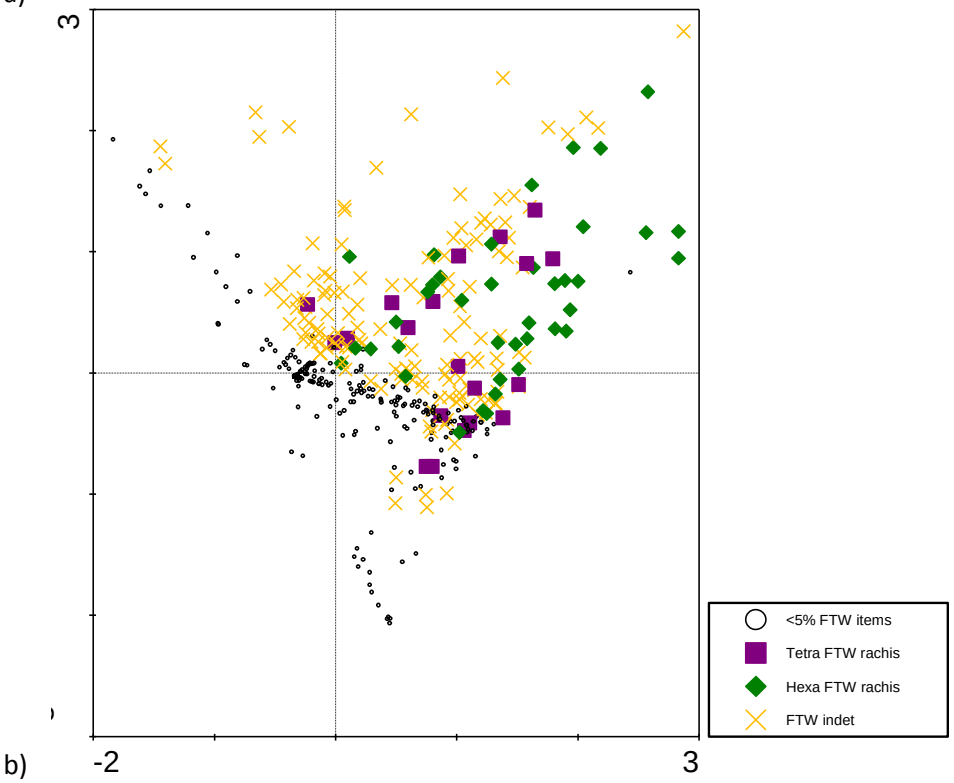


Figure 5.43 Correspondence analysis plot of cereal items from Phase 6 samples with 30 or more cereal items showing axes 2 (horizontal) and 3 (vertical). a) samples coded by geographic region, b) samples coded by cultural group.



a)



b)

Figure 5.44 Correspondence analysis plot of cereal items from Phase 6 samples with 30 or more cereal items showing axes 2 (horizontal) and 3 (vertical). a) samples coded by site, b) Plot of samples coded by free threshing wheat identifications where the minimum value of free threshing wheat content is equal to 5% or more of items. Hexa FTW = Hexaploid free threshing wheat rachis internodes, Tetra FTW = Tetraploid free threshing wheat internodes, indet FTW = Indeterminate free threshing wheat rachis internodes and grain.

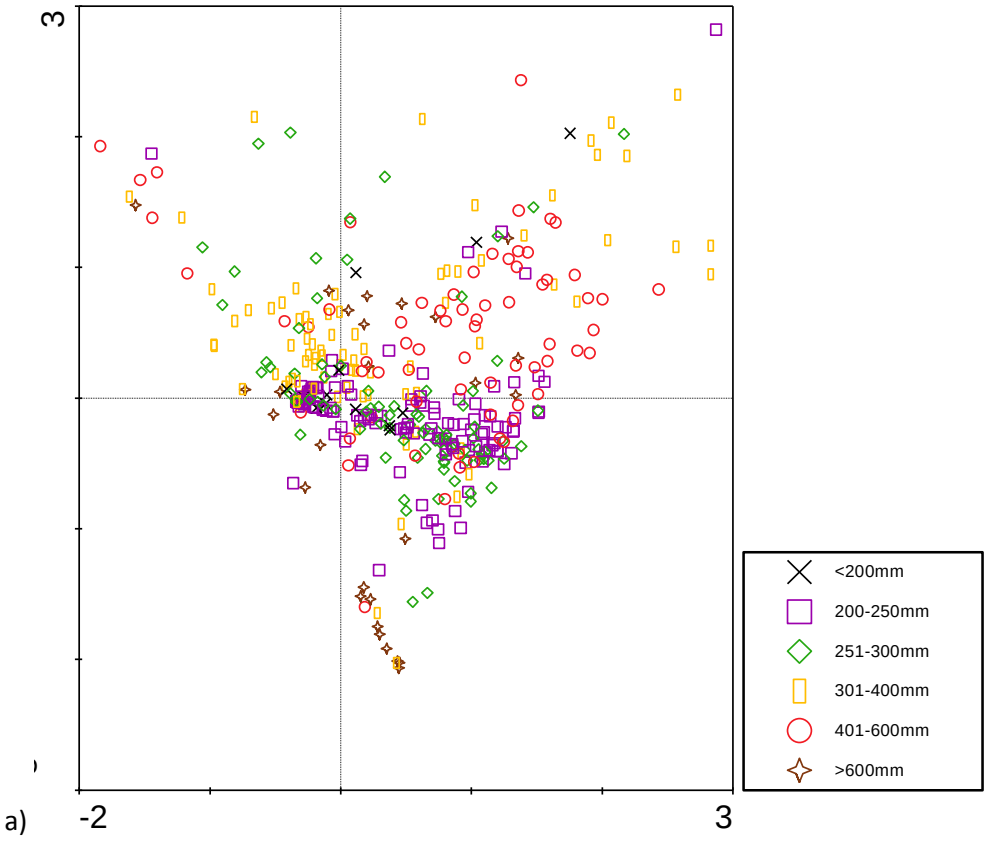


Figure 5.45 Correspondence analysis plot of cereal items from Phase 6 samples with 30 or more cereal items showing axes 2 (horizontal) and 3 (vertical). a) samples coded by modern annual precipitation.

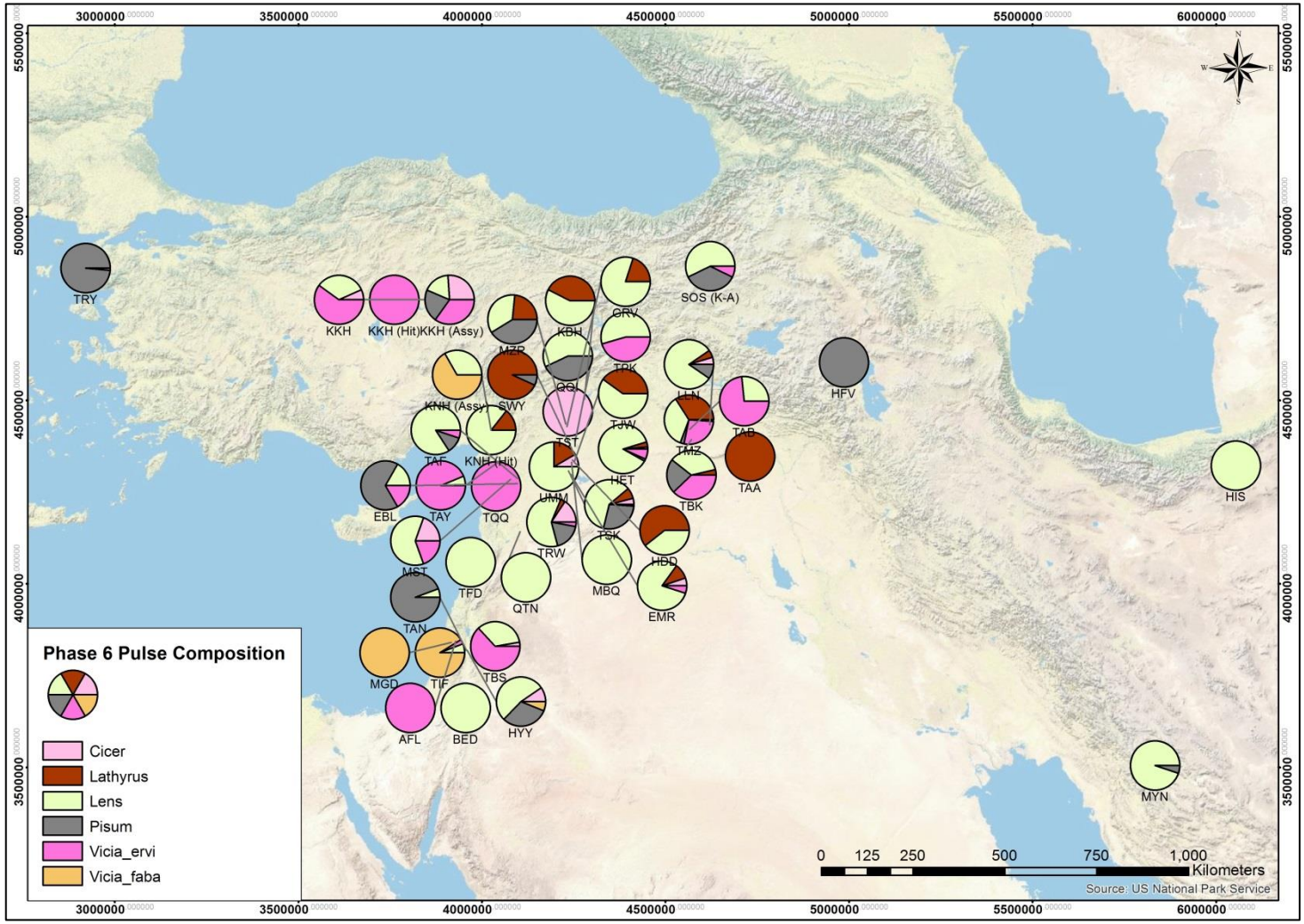


Figure 5.46 Map of Phase 6 sites by cultural grouping. Sites represented as pie charts showing the proportion of pulse taxa. Pies pased on total items in each site culture phase. Cultural coding: Ass = Assyrian; Hit = Hittite; K-A = Kura-Araxes

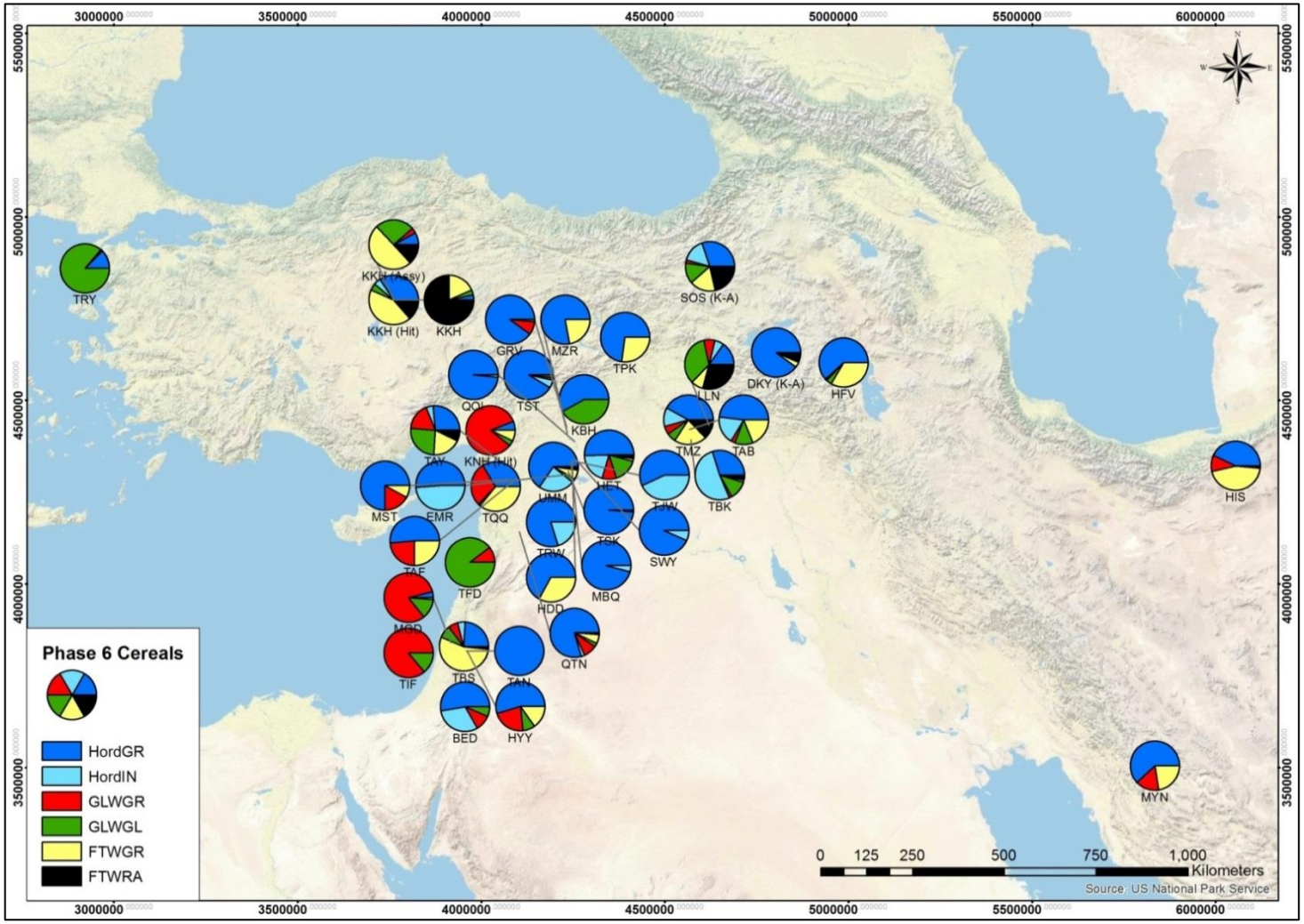


Figure 5.47 Map of Phase 6 sites by cultural grouping. Sites represented as pie charts showing the proportion of cereal items where the total of cereal items for each site cultural group is more than 30 items. Cultural coding: Ass = Assyrian; Hit = Hittite; K-A = Kura-Araxes

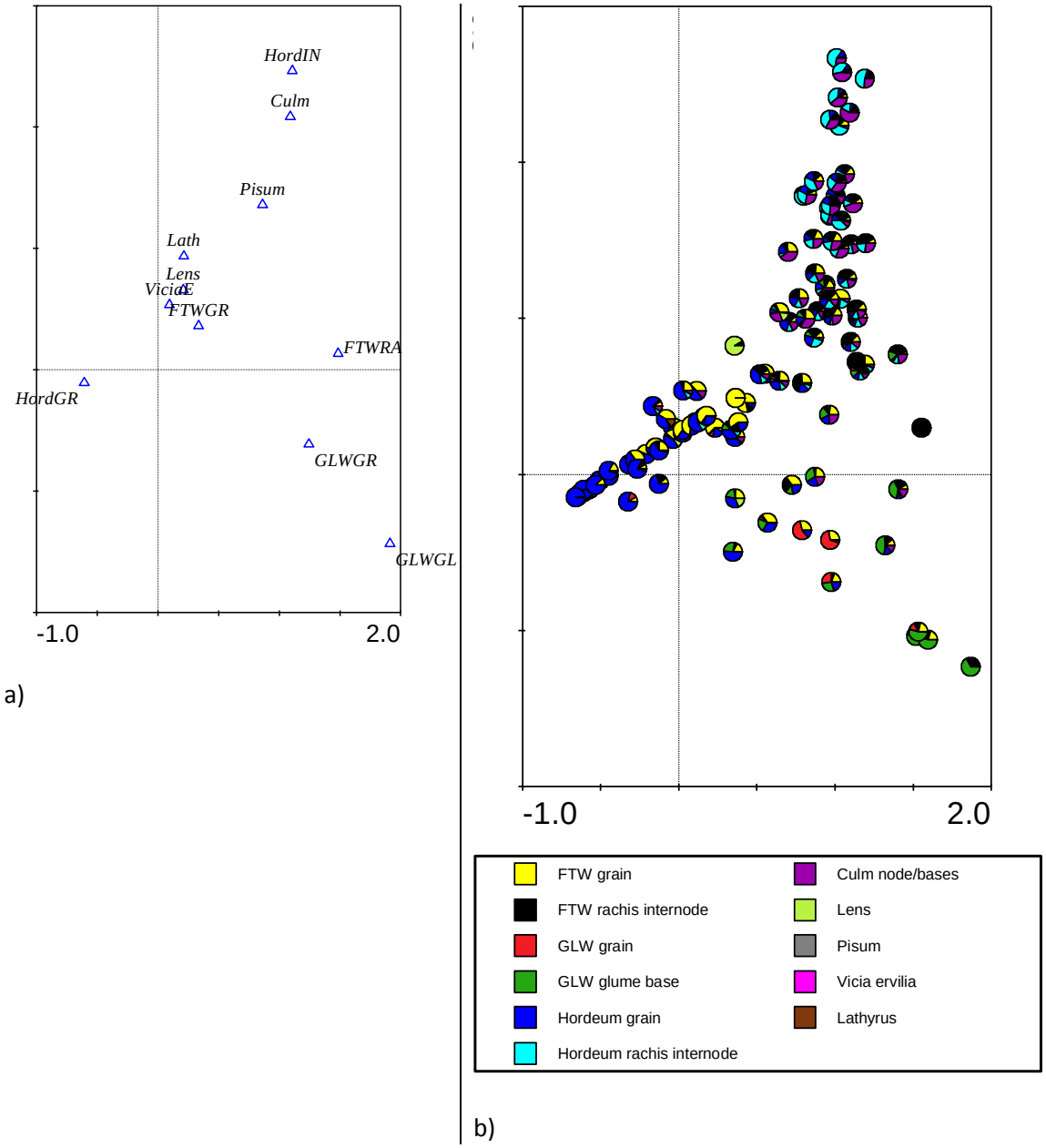


Figure 5.48 Correspondence analysis of crop items from Southern Caucasus samples with 30 or more crop items. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of crop types.

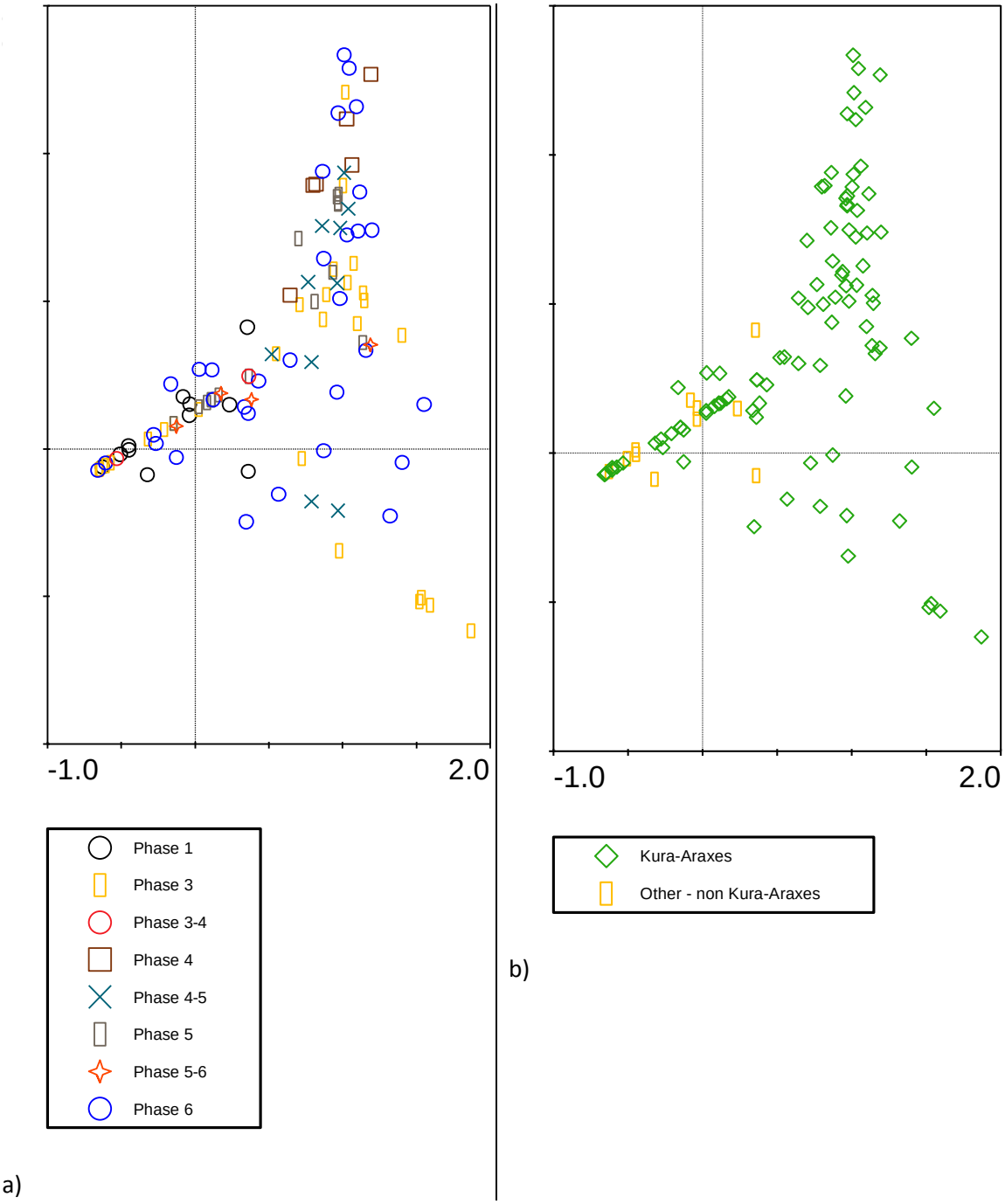


Figure 5.49 Correspondence analysis plot of crop items from Southern Caucasus samples with 30 or more crop items. a) samples coded by phase, b) samples coded by culture.

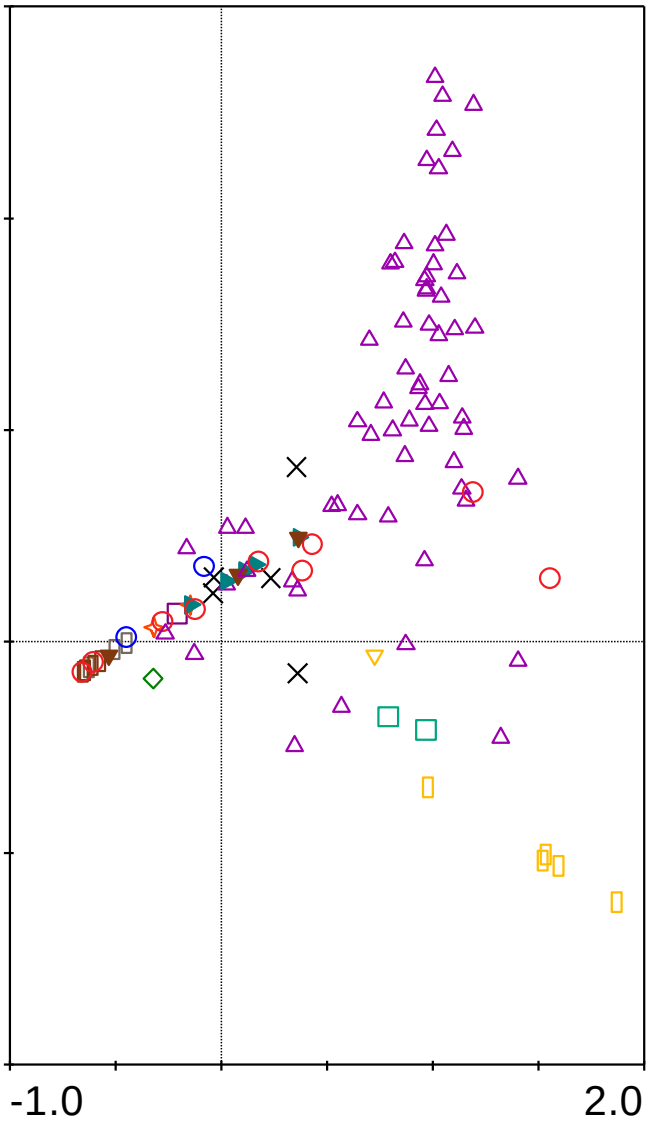


Figure 5.50 Correspondence analysis plot of crop items from Southern Caucasus samples with 30 or more crop items and samples coded by site.

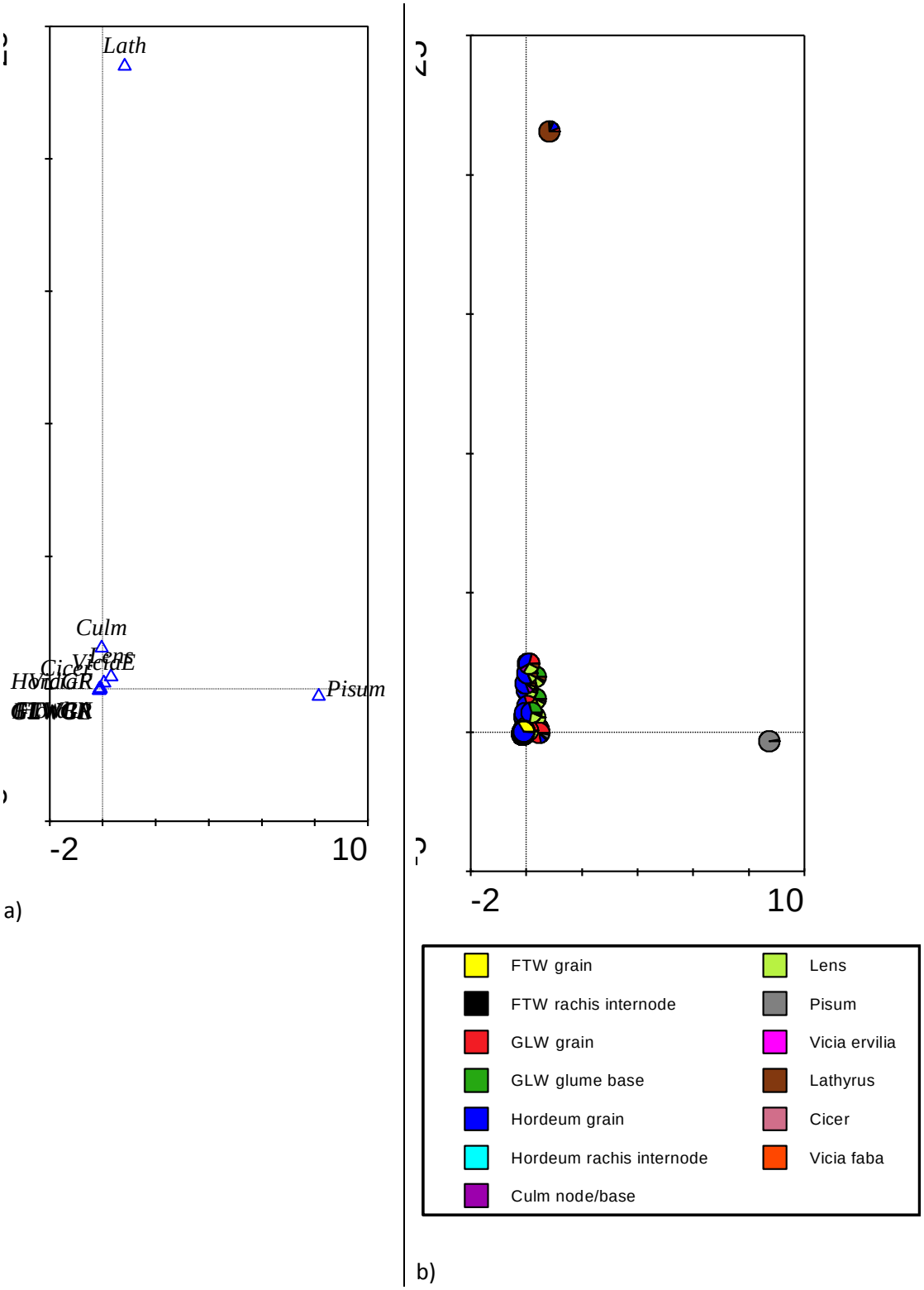
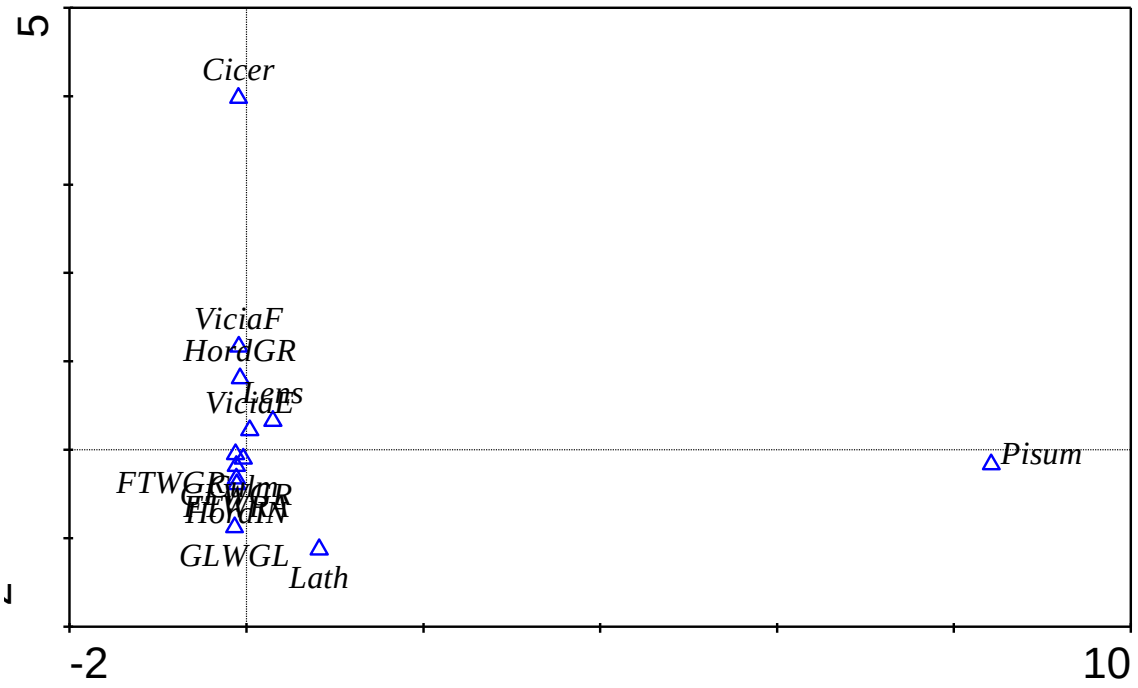
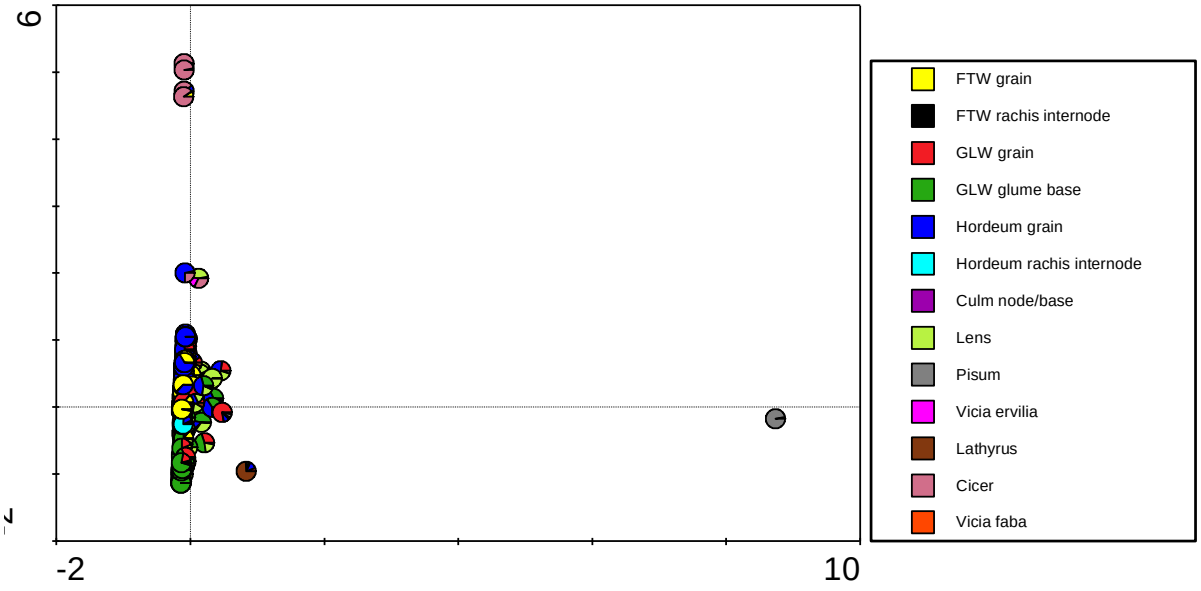


Figure 5.51 Correspondence analysis of crop items from Upper Euphrates and Tigris samples with 30 or more crop items. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of crop types.

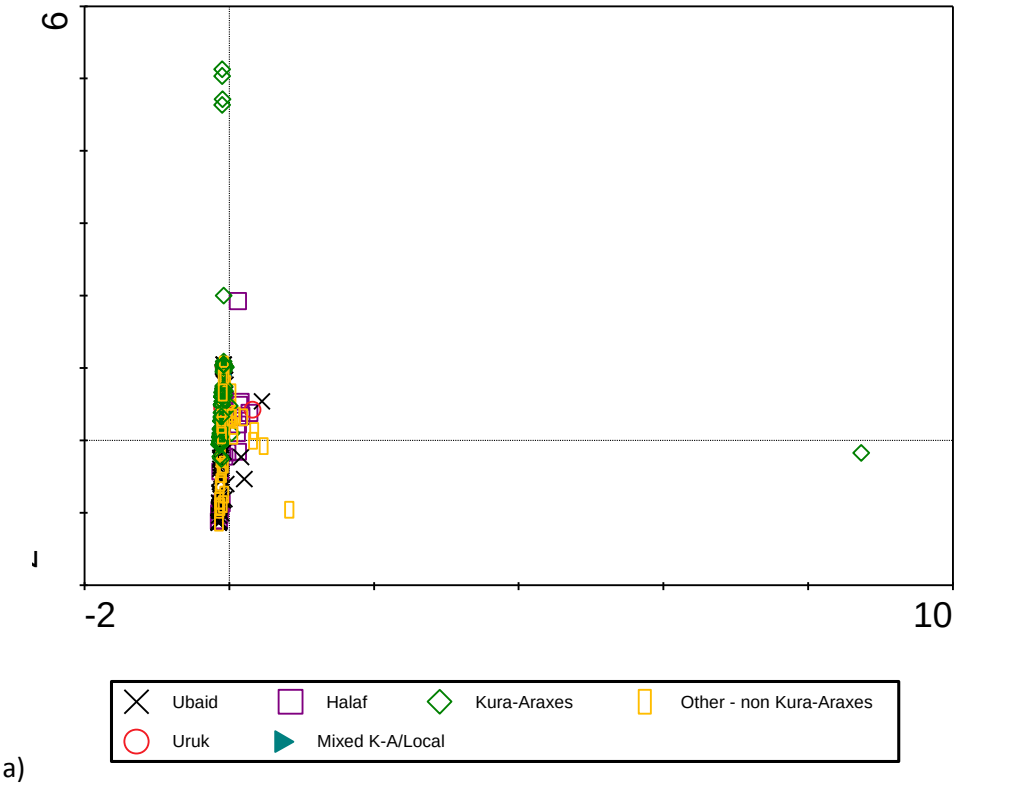


a)

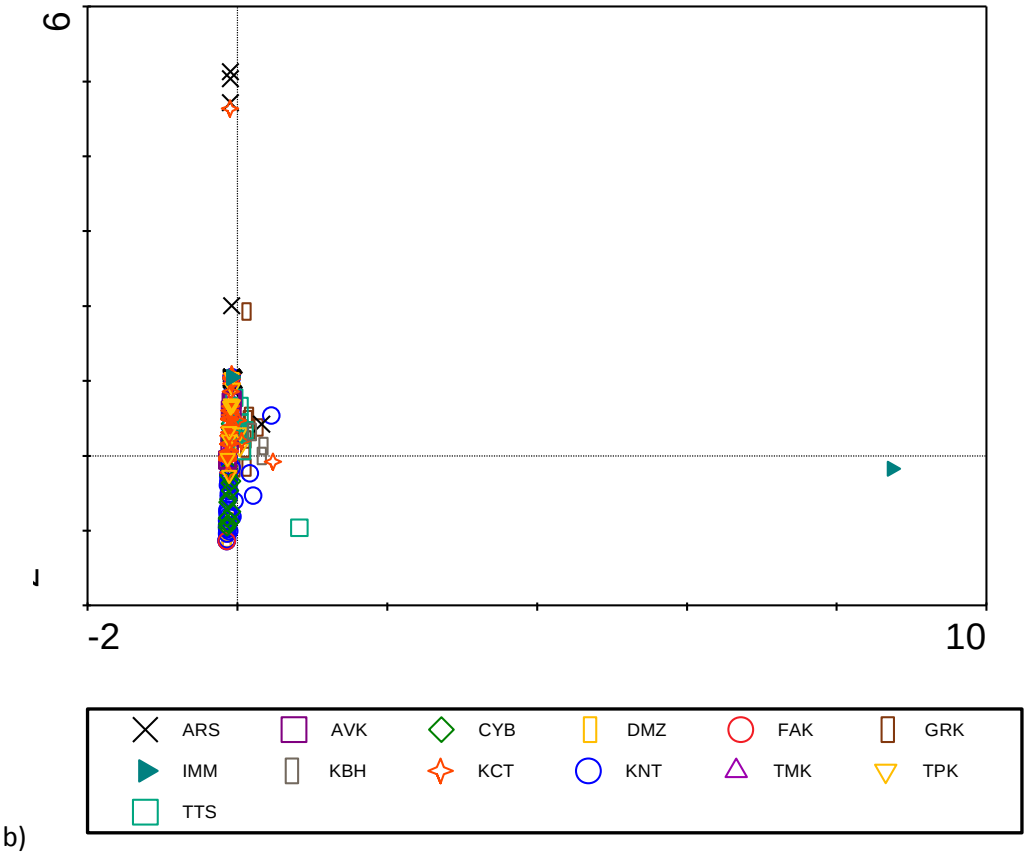


b)

Figure 5.52 Correspondence analysis of crop items from Upper Euphrates and Tigris samples with 30 or more crop items showing axes 1 (horizontal) and 3 (vertical). a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of crop types.

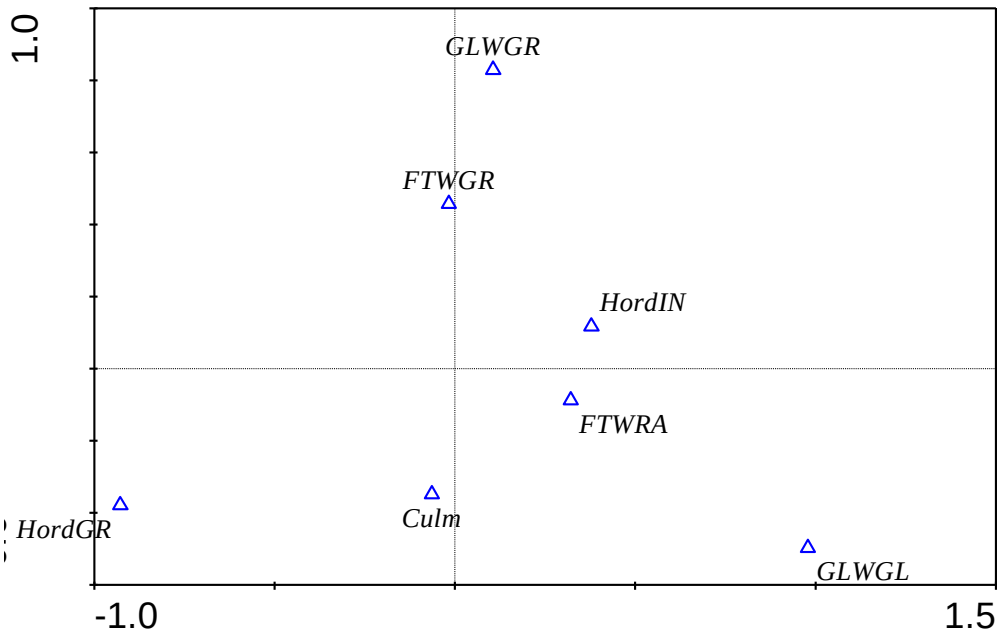


a)

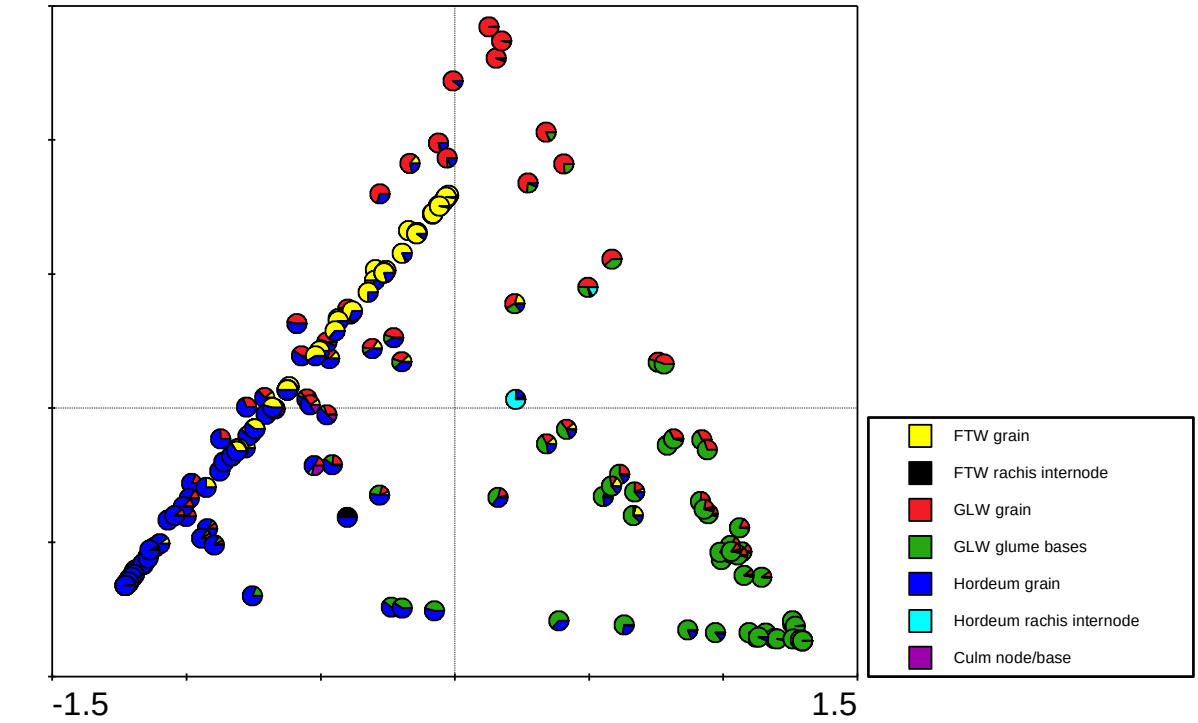


b)

Figure 5.53 Correspondence analysis plot of crop items from Upper Euphrates and Tigris samples with 30 or more crop items showing axes 1 (horizontal) and 3 (vertical). a) samples coded by cultural group, b) samples coded by site.

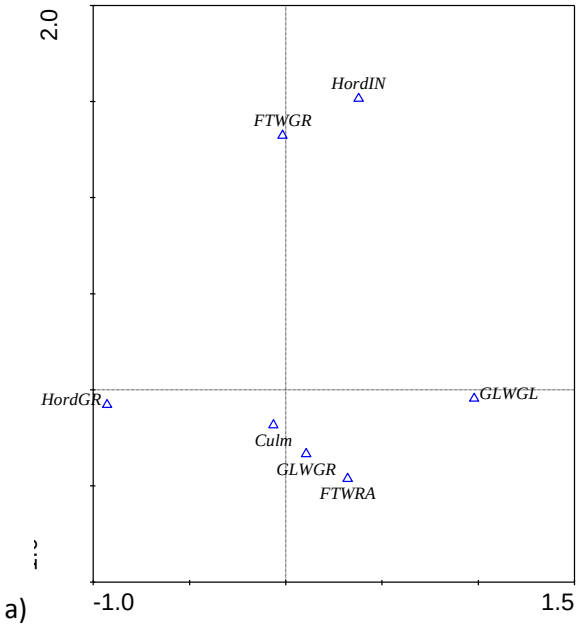


a)

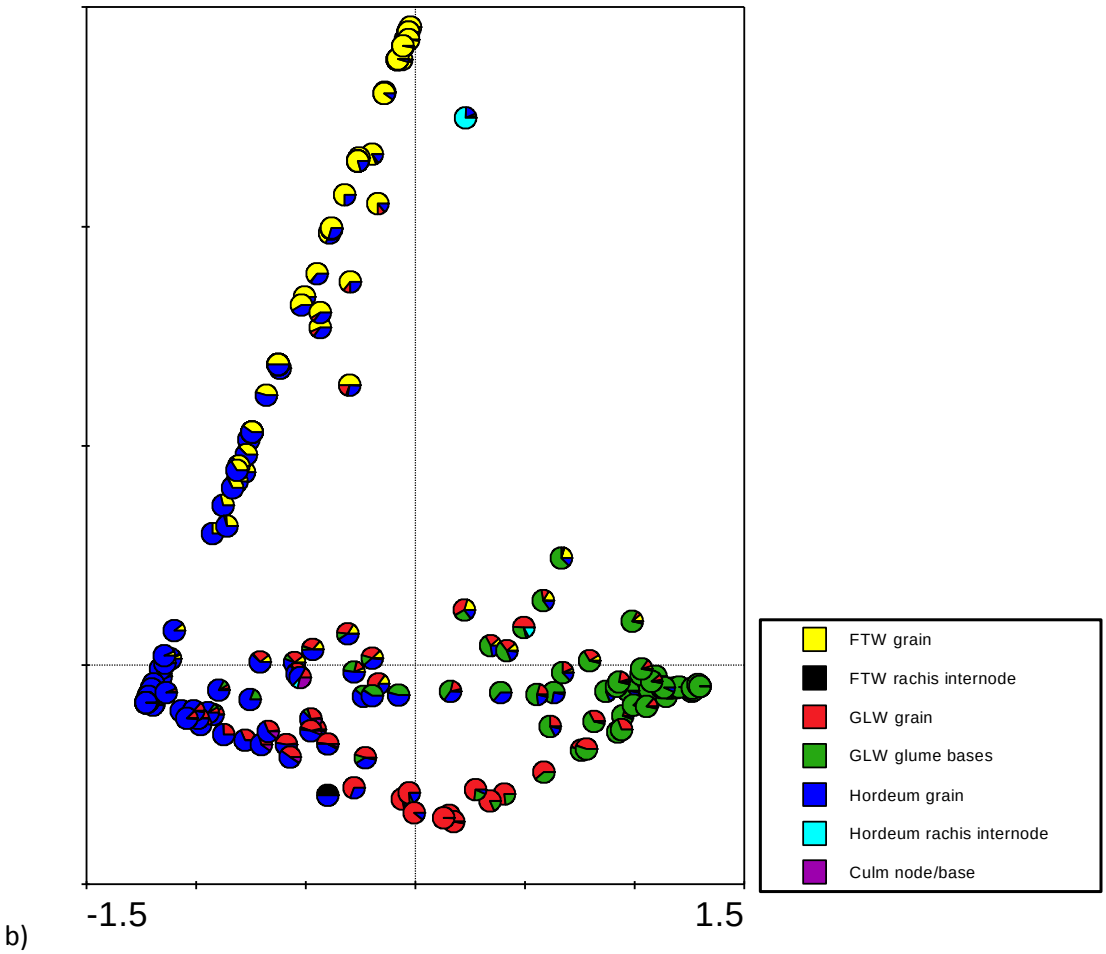


b)

Figure 5.54 Correspondence analysis of cereal items from Upper Euphrates and Tigris samples with 30 or more cereal items. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of cereal items.

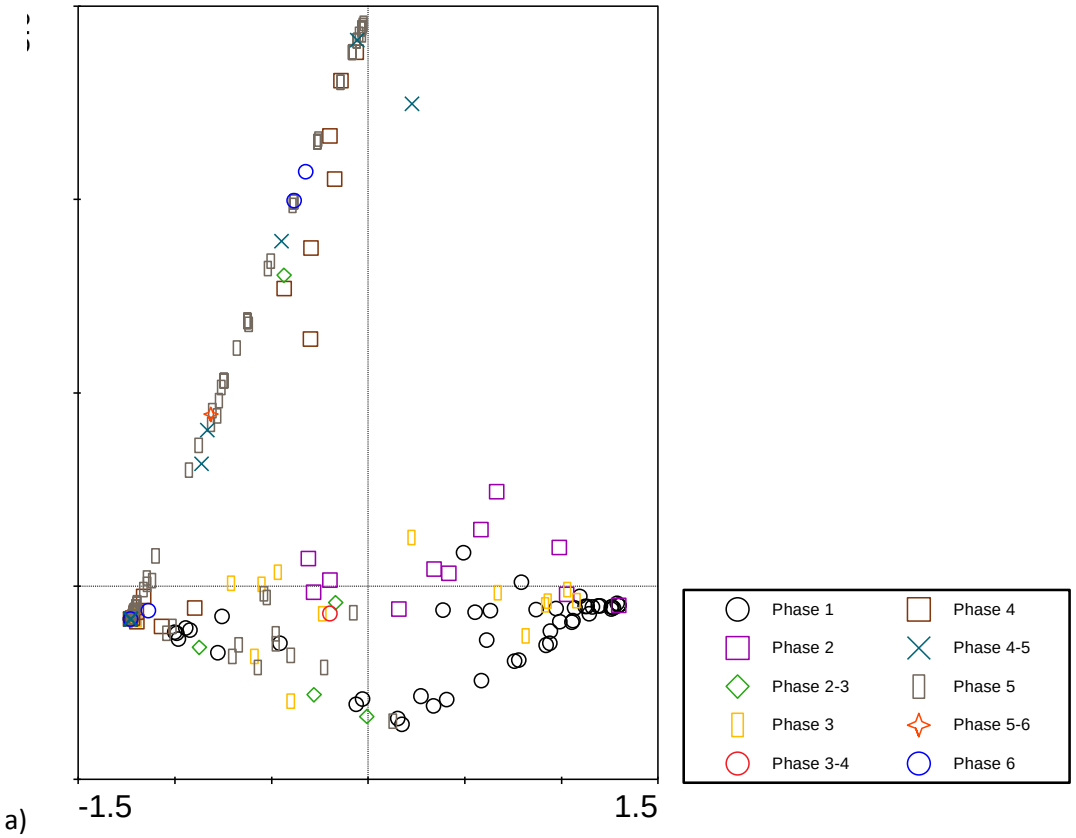


a)

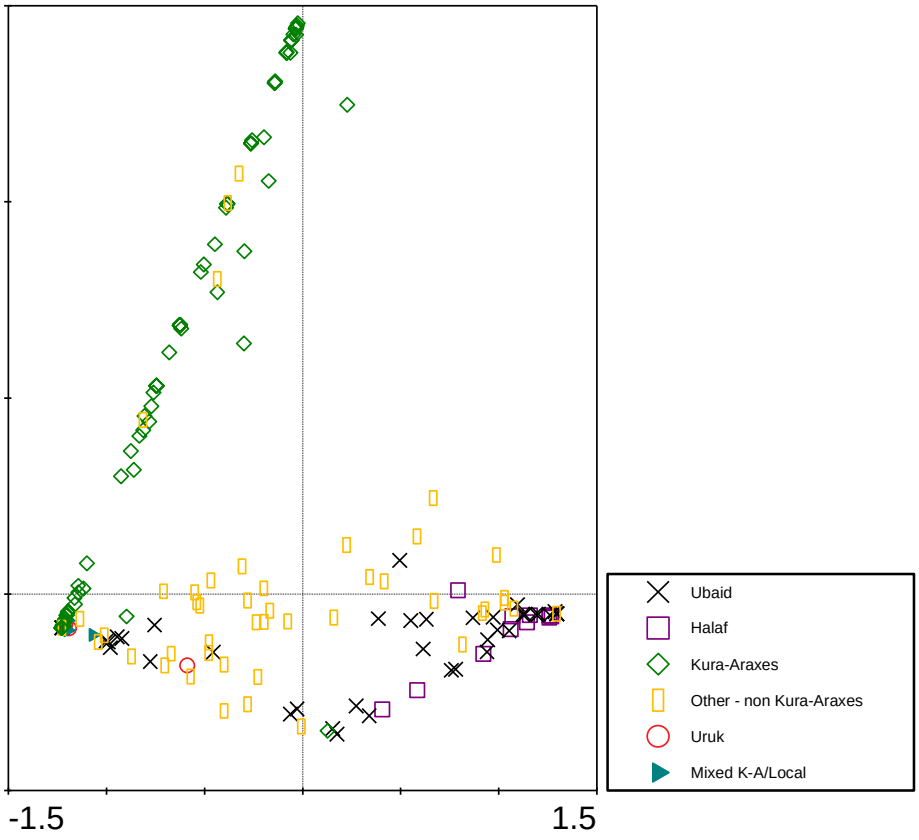


b)

Figure 5.55 Correspondence analysis of cereal items from Upper Euphrates and Tigris samples with 30 or more cereal items showing axes 1 (horizontal) and 4 (vertical). a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of crop items.



a)



b)

Figure 5.56 Correspondence analysis plot of cereal items from Upper Euphrates and Tigris samples with 30 or more cereal items showing axes 1 (horizontal) and 4 (vertical). a) samples coded by phase, b) samples coded by cultural group.

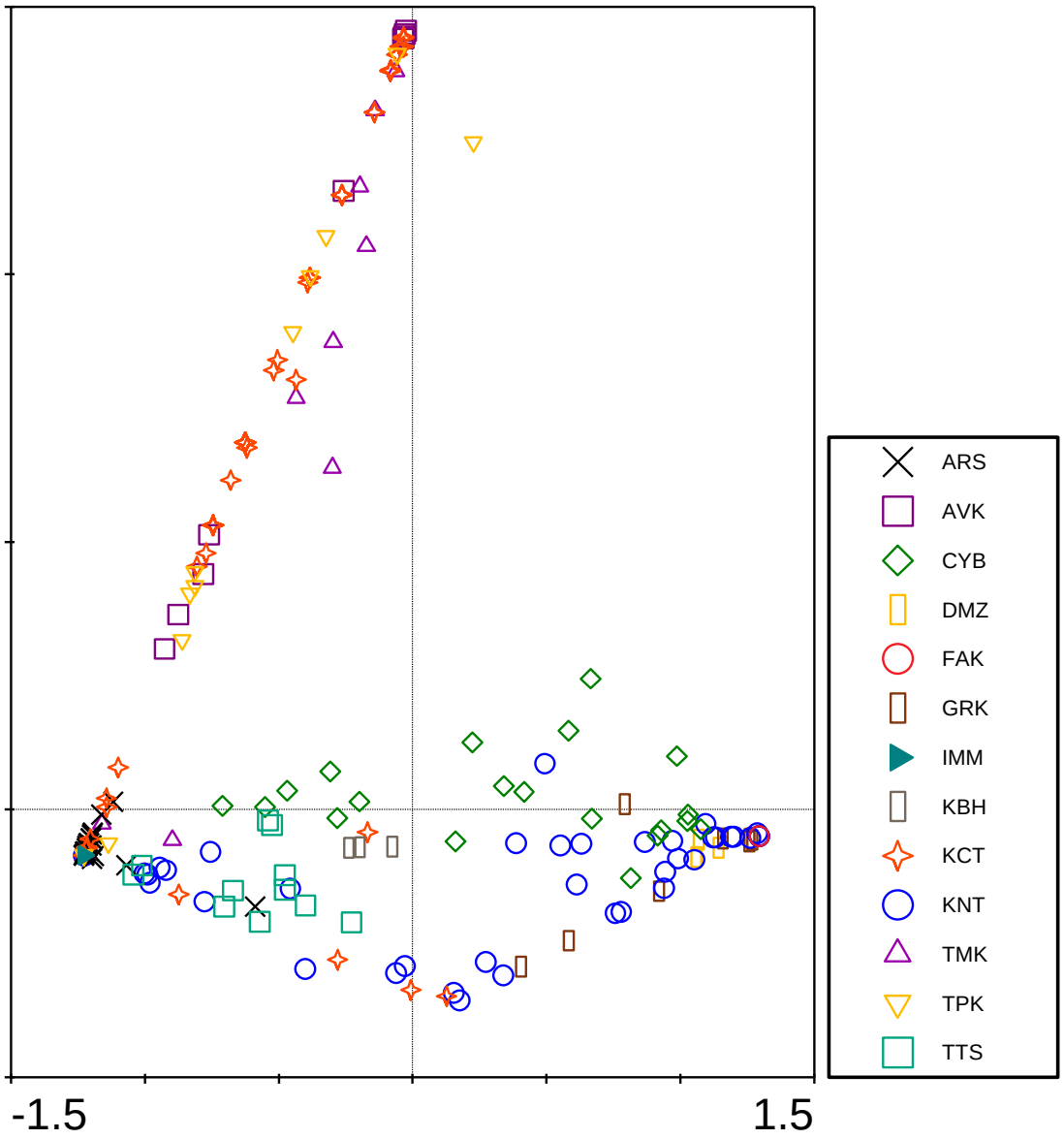
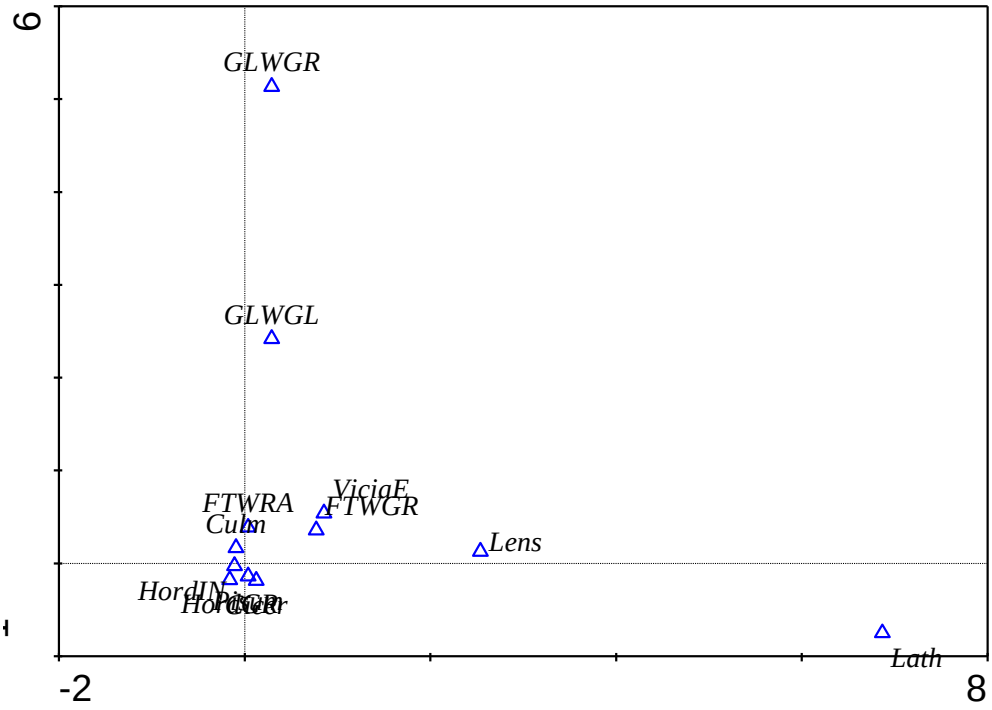
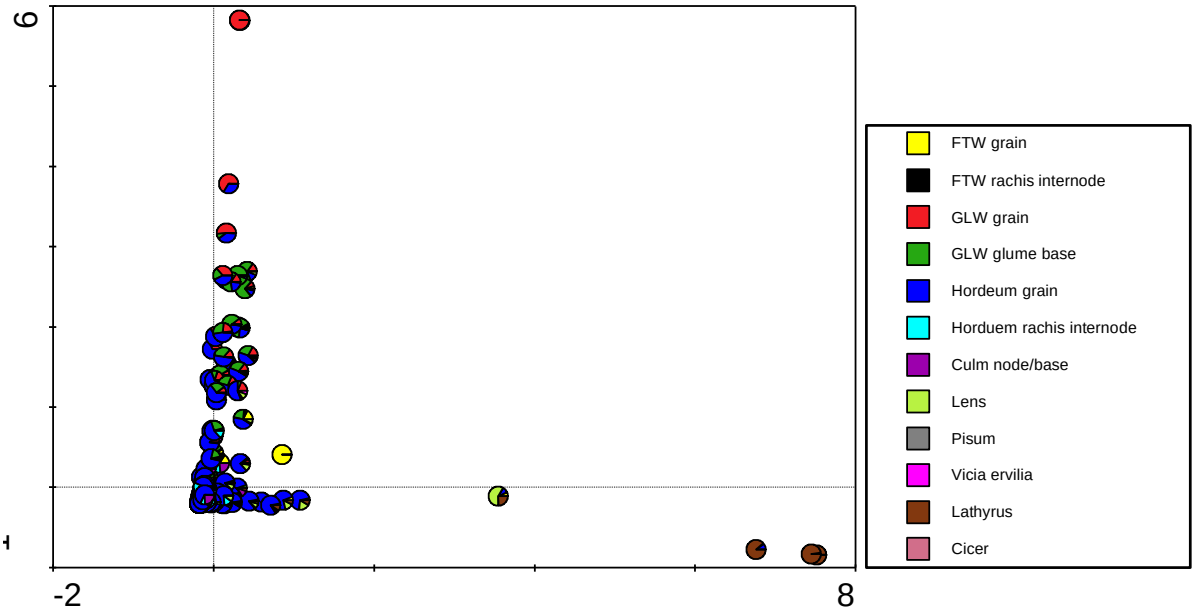


Figure 5.57 Correspondence analysis plot of cereal items from Upper Euphrates and Tigris samples with 30 or more cereal items showing axes 1 (horizontal) and 4 (vertical). Samples coded by site.



a)



b)

Figure 5.58 Correspondence analysis of crop items from Middle Euphrates samples with 30 or more crop items. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of crop types.

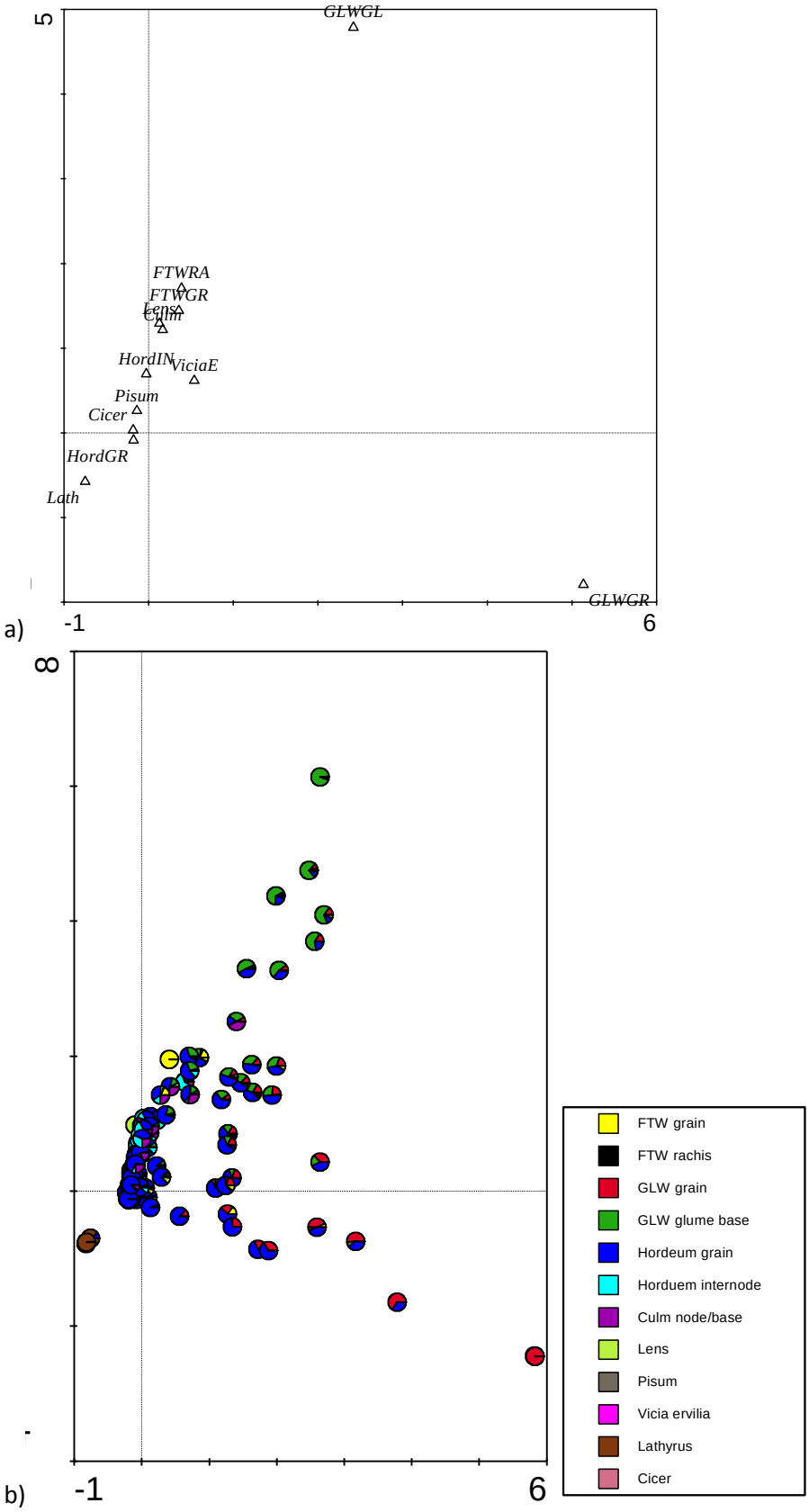


Figure 5.59 Correspondence analysis of crop items from Middle Euphrates samples with 30 or more crop items showing axes 2 and 3. a) species plot, b) samples plot.

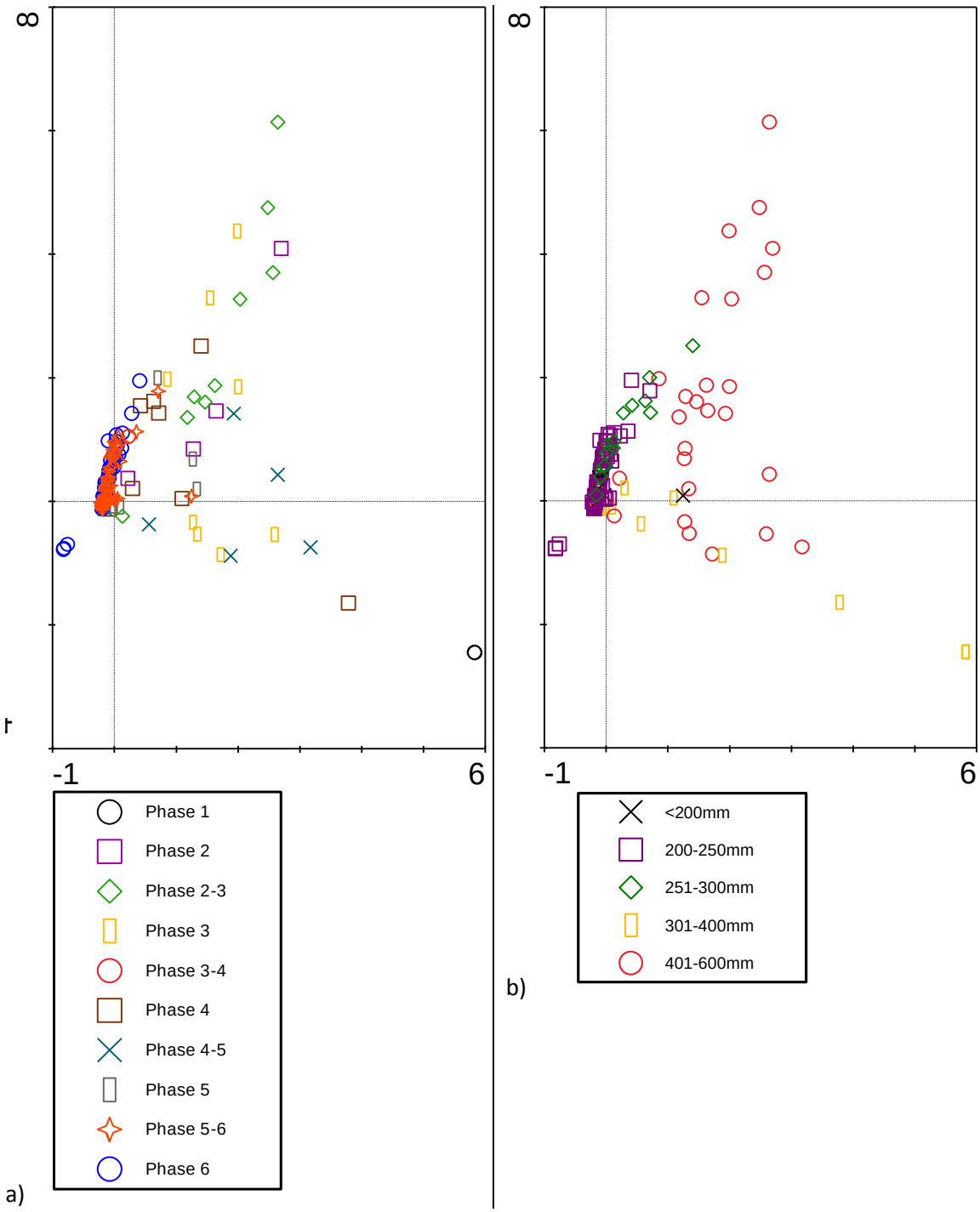


Figure 5.60 Correspondence analysis plot of cereal items from Middle Euphrates samples with 30 or more crop items showing axes 2 and 3. a) samples coded by phase, b) samples coded by modern annual site precipitation.

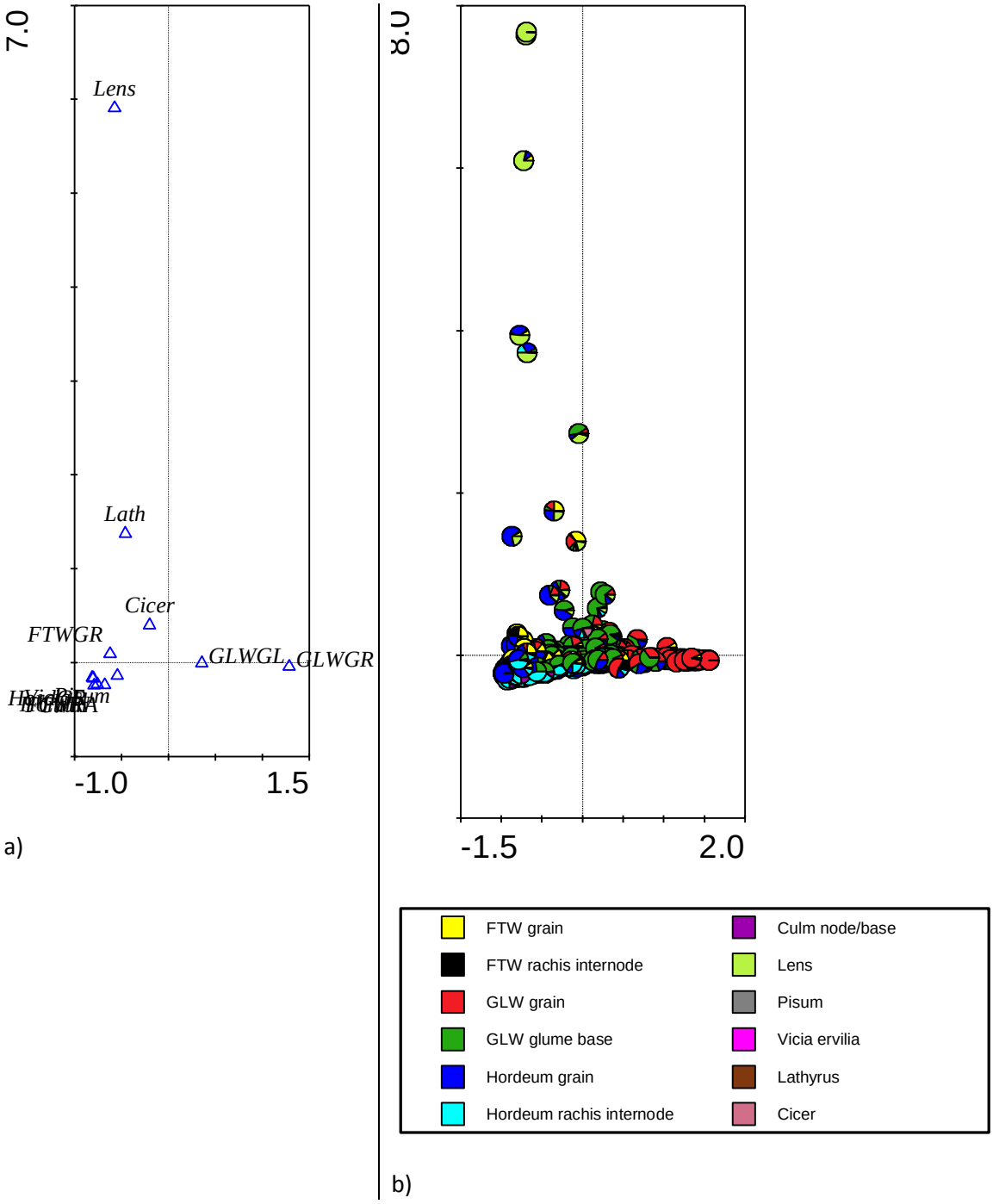
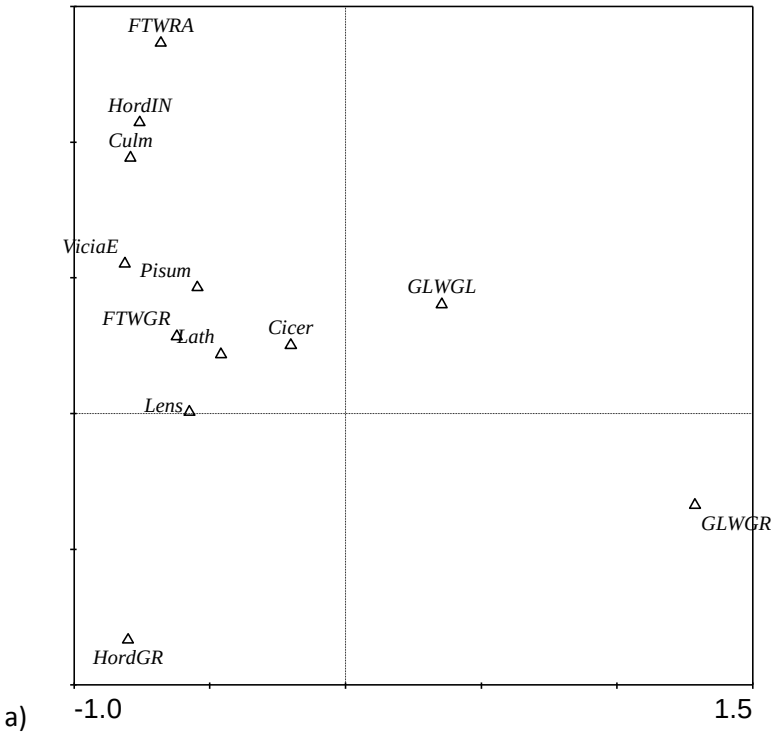
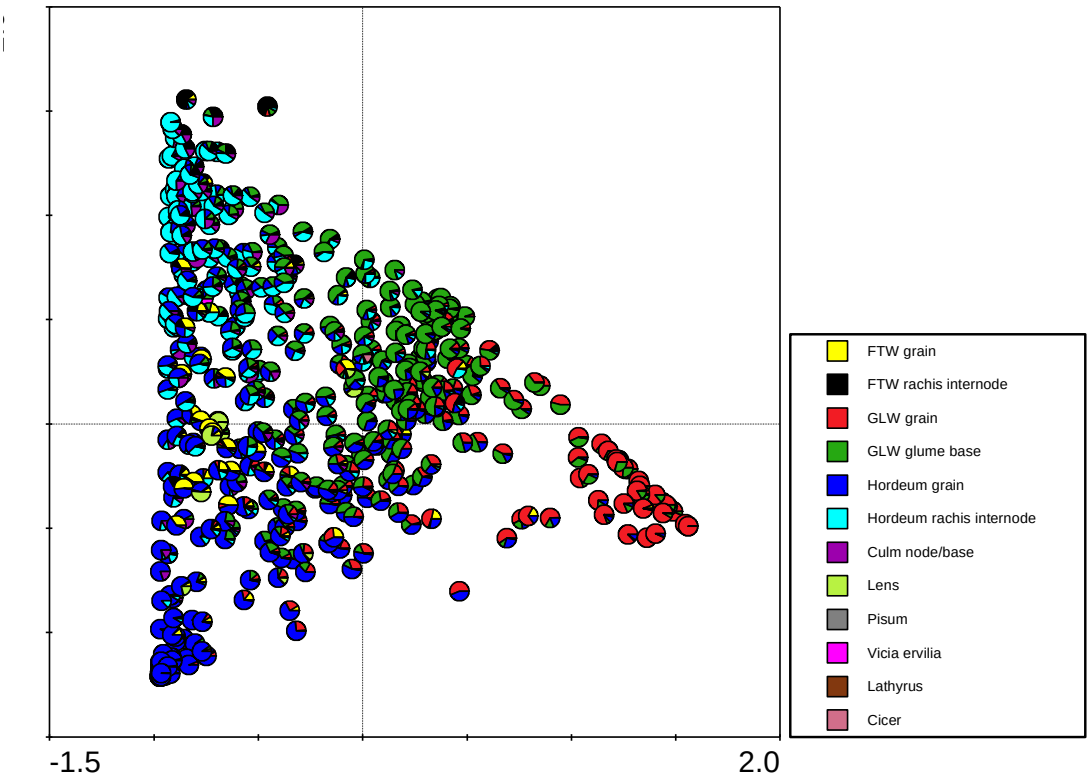


Figure 5.61 Correspondence analysis of crop items from Khabur samples with 30 or more crop items excluding TBK16. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of crop types.

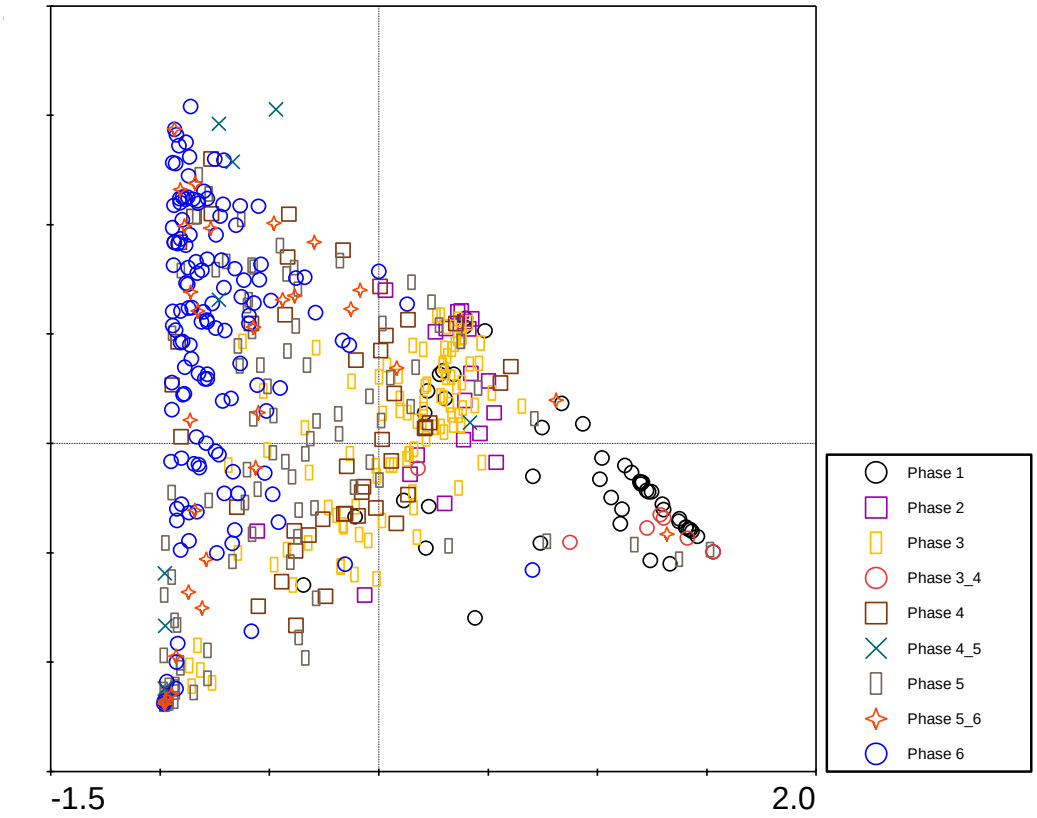


a)

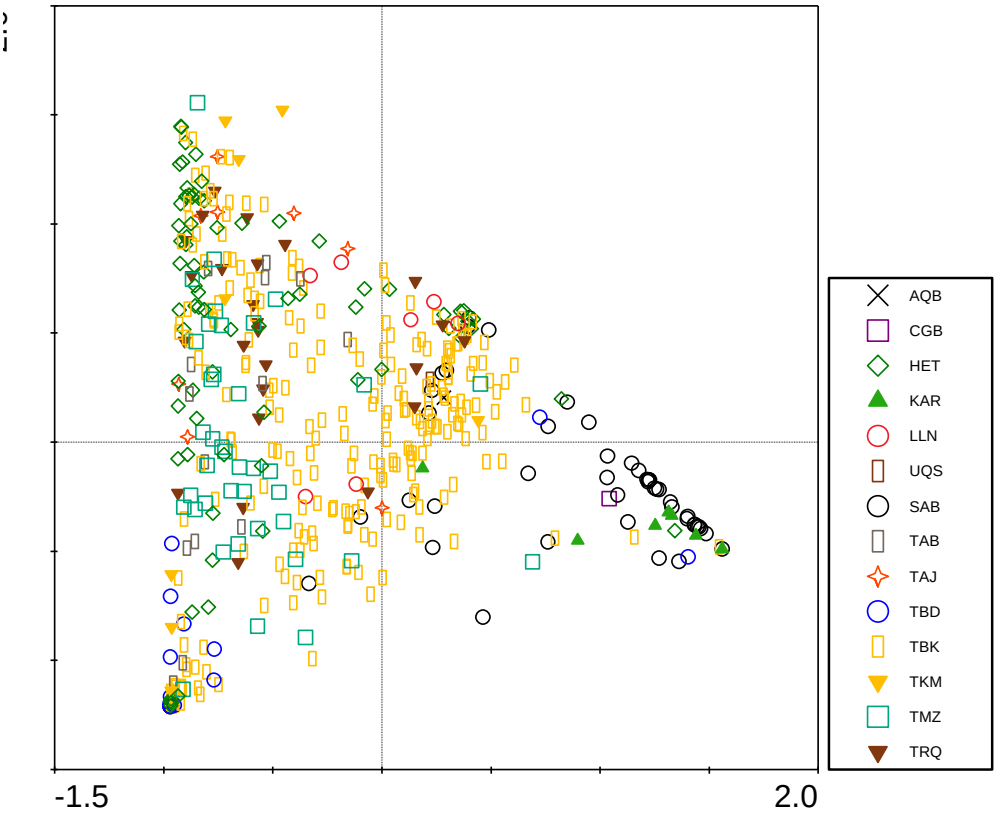


b)

Figure 5.62 Correspondence analysis of crop items from Khabur samples with 30 or more crop items showing axes 1 and 3 (excluding TBK16). a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of cereal items.



a)



b)

Figure 5.63 Correspondence analysis plot of crop items from Khabur samples with 30 or more crop items showing axes 1 and 3 (excluding TBK16). a) samples coded by phase, b) samples coded by site.

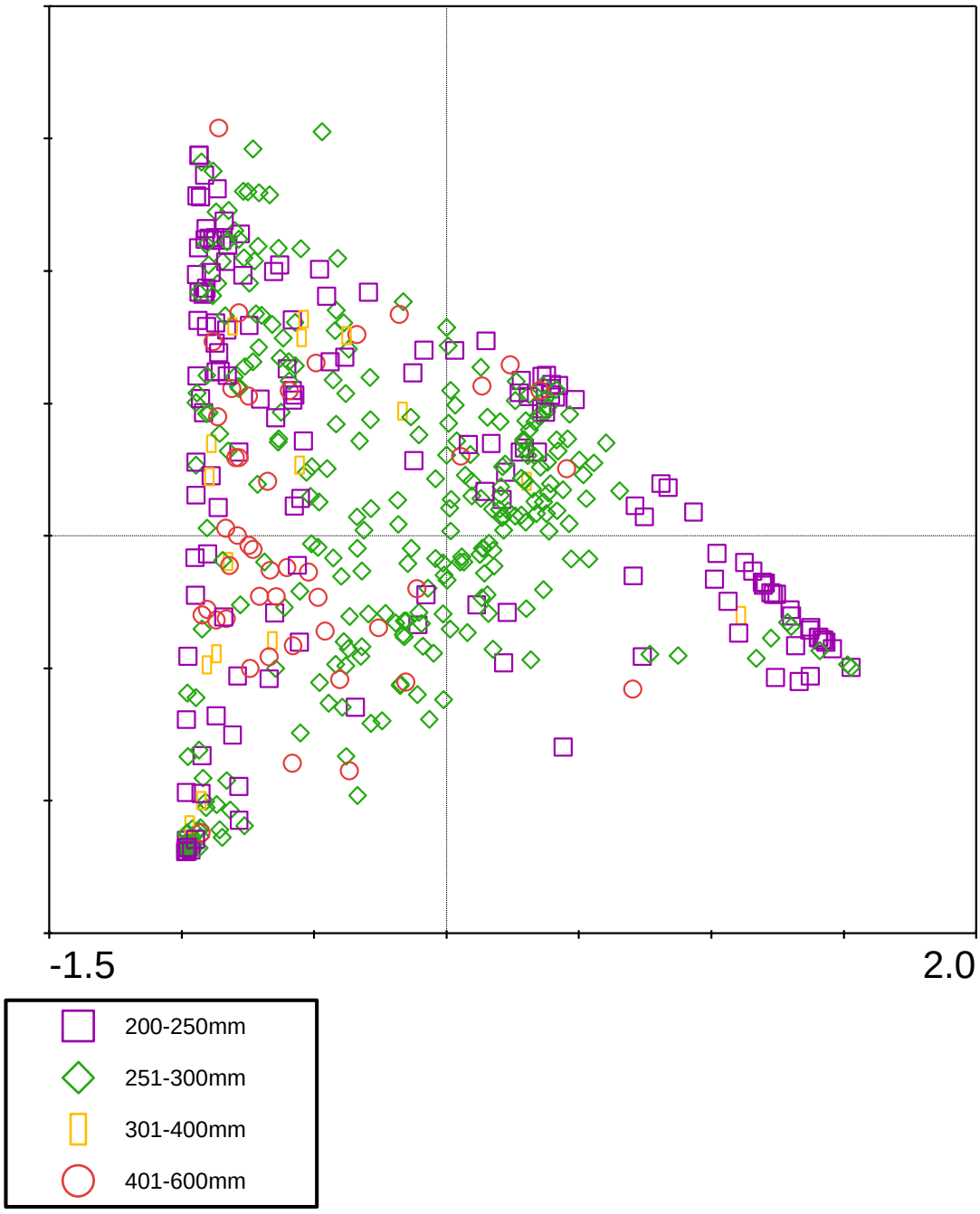
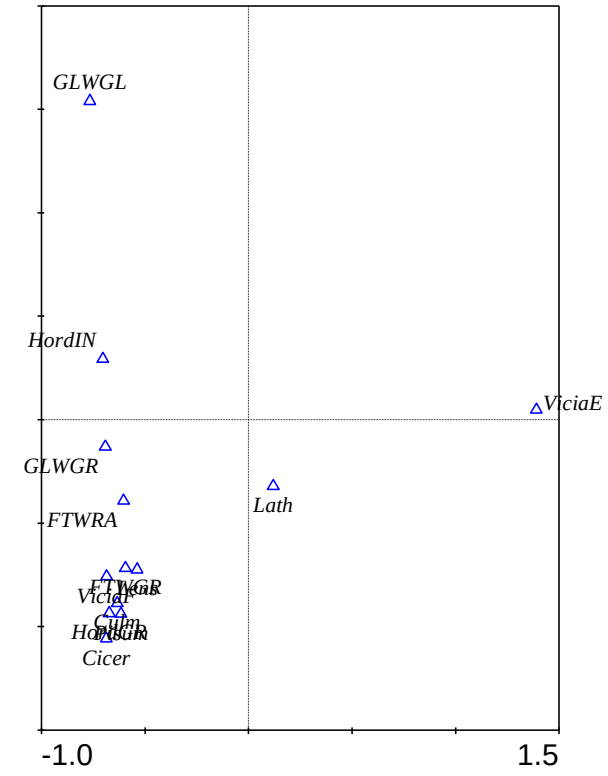


Figure 5.64 Correspondence analysis plot of crop items from Khabur samples with 30 or more crop items showing axes 1 and 3 (excluding TBK16) with samples coded by modern annual rainfall.



b)

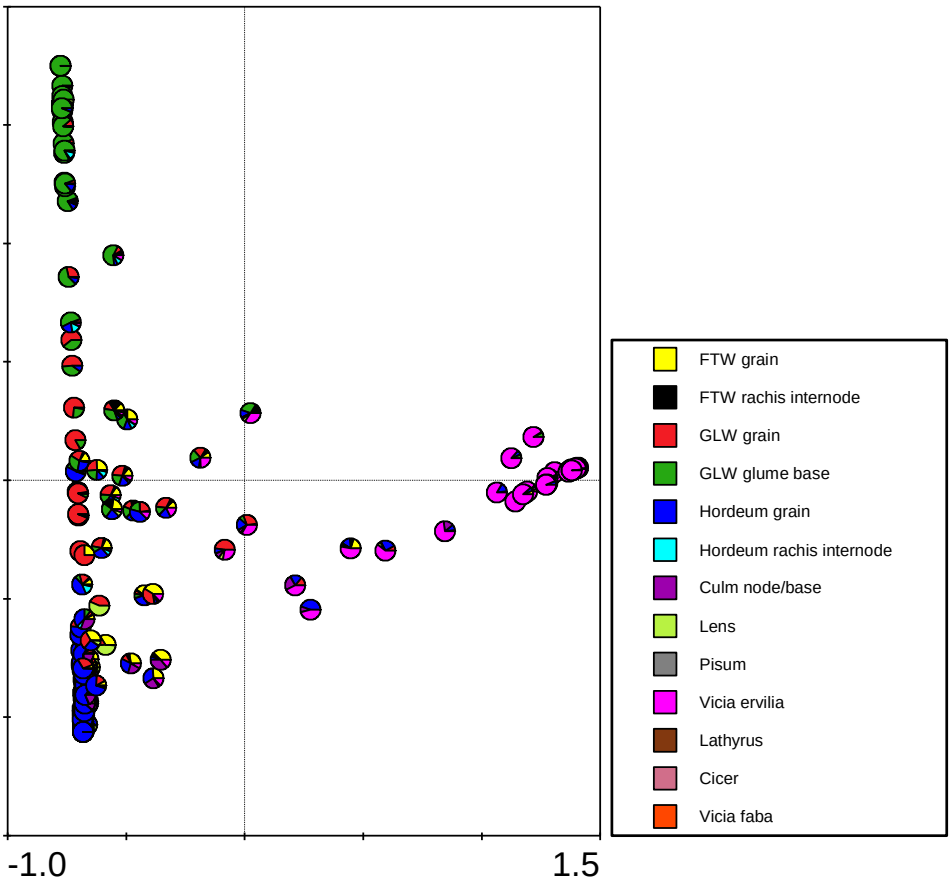
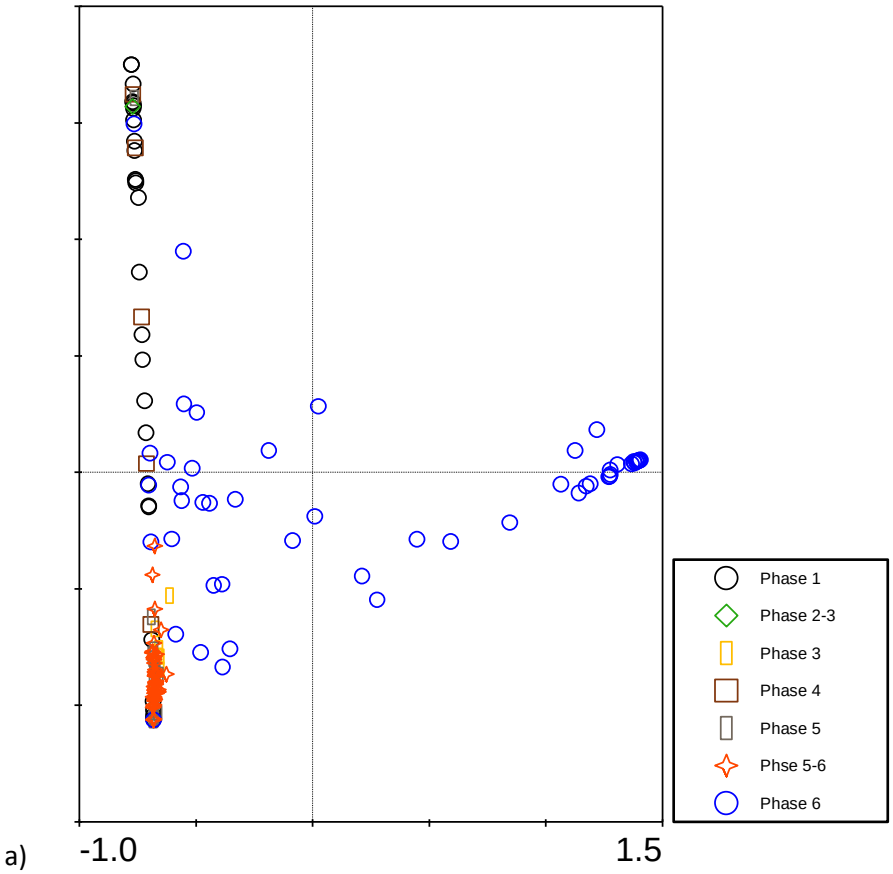


Figure 5.65 Correspondence analysis of crop items from Amuq-Orontes samples with 30 or more crop items. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of crop types.



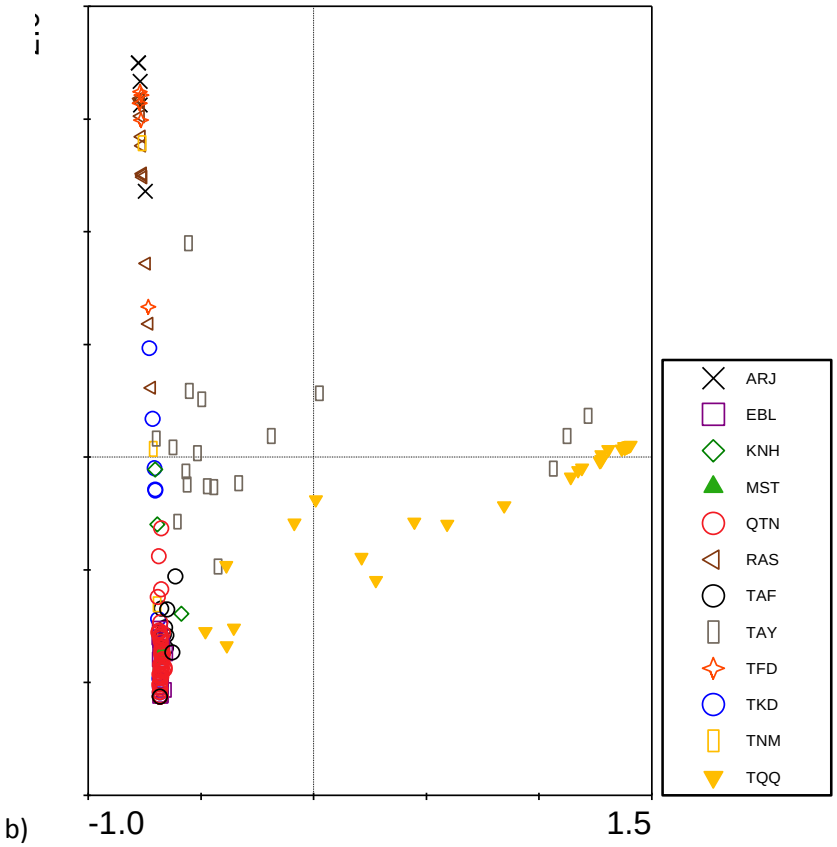
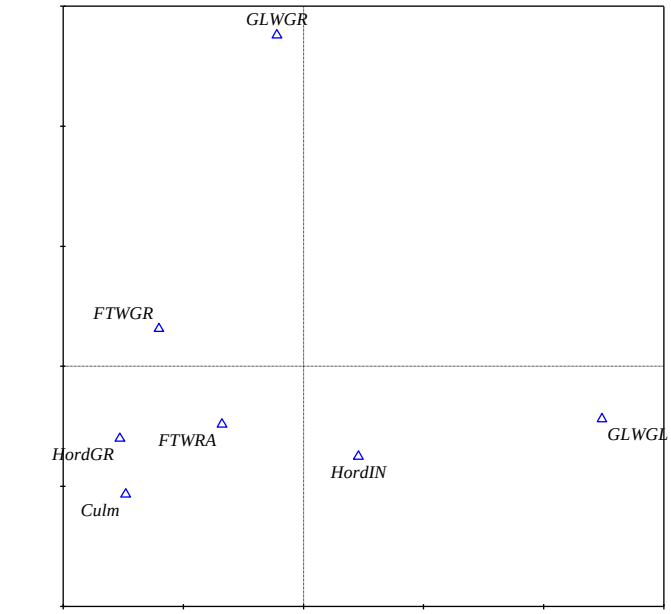
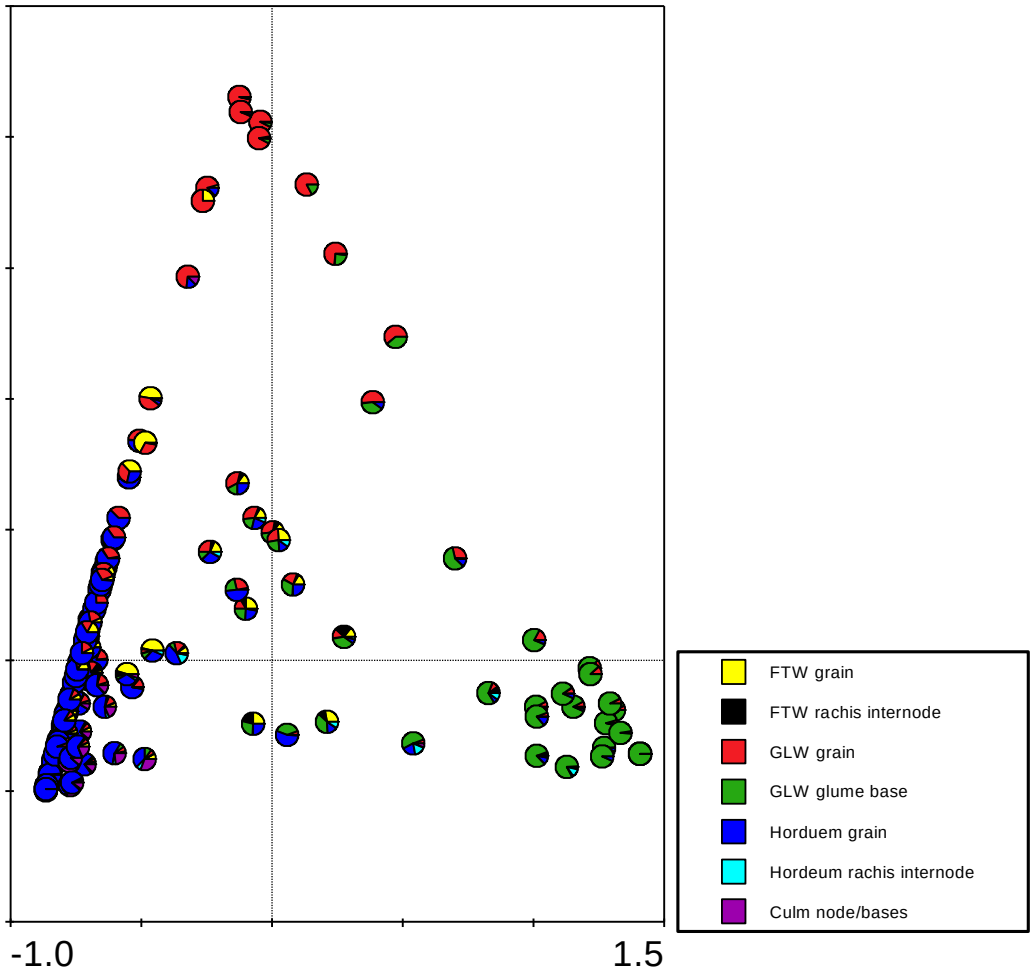


Figure 5.66. Correspondence analysis plot of crop items from Amuq-Orontes samples with 30 or more crop items. a) samples coded by phase, b) samples coded by site.

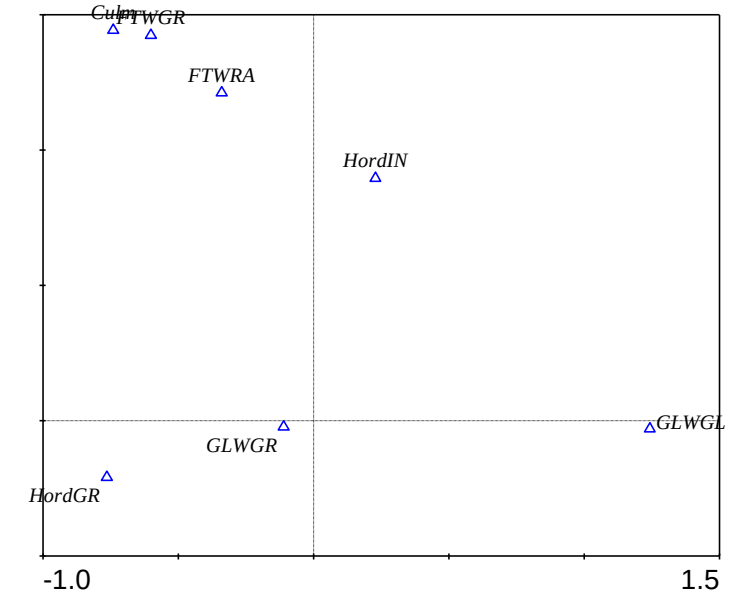


a)

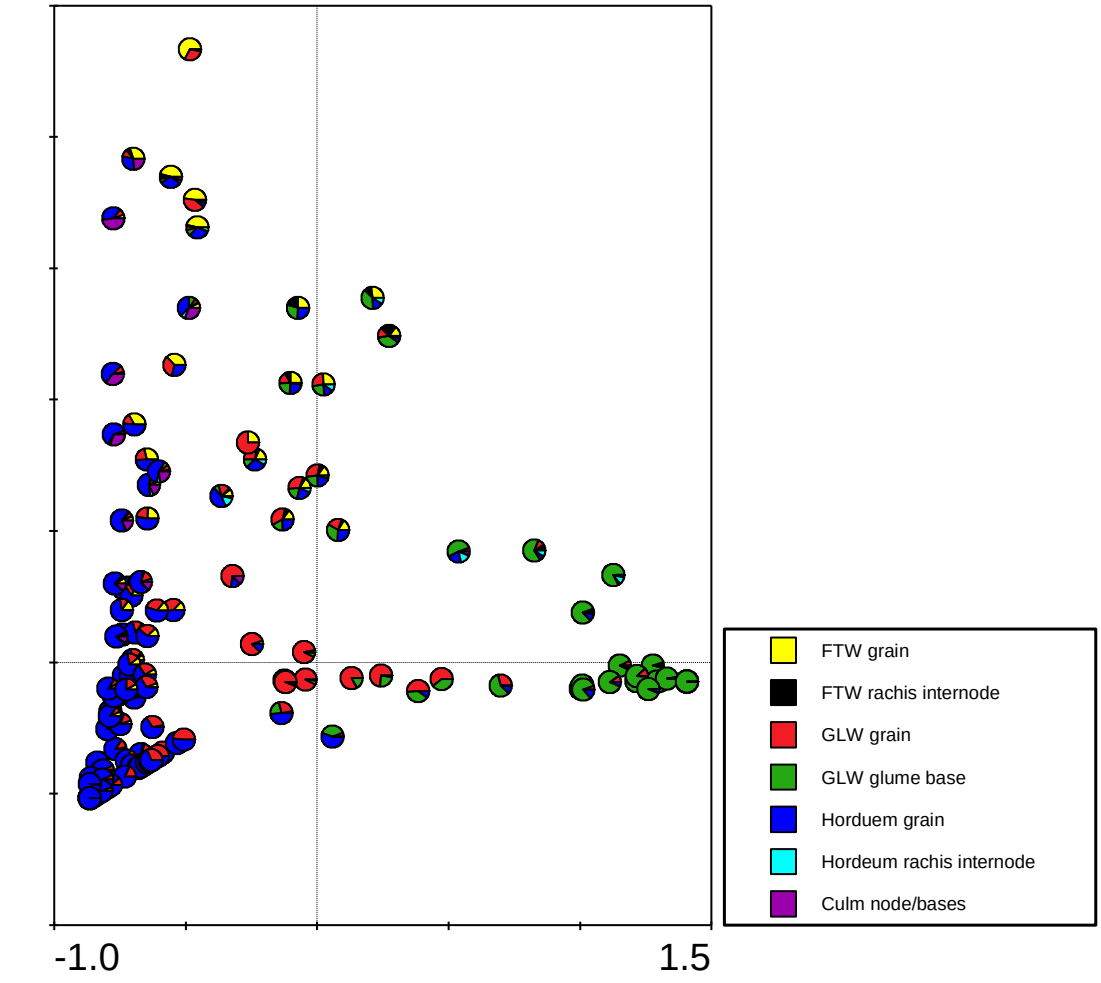


b)

Figure 5.67 Correspondence analysis of cereal items from Amuq-Orontes samples with 30 or more cereal items. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of cereal items.

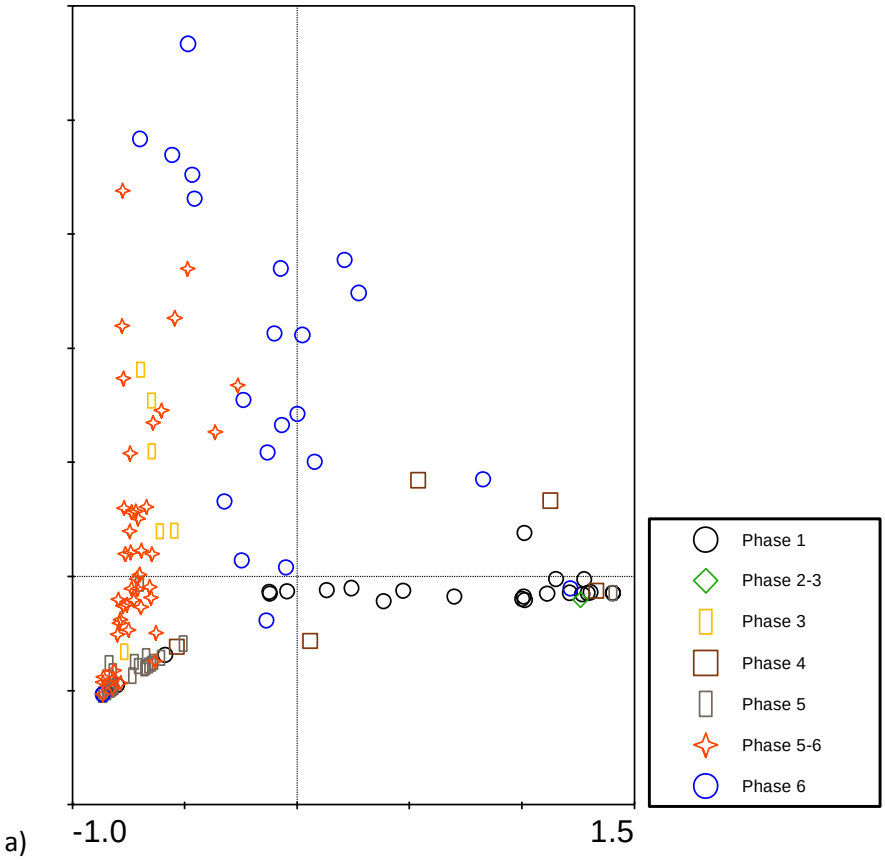


a)

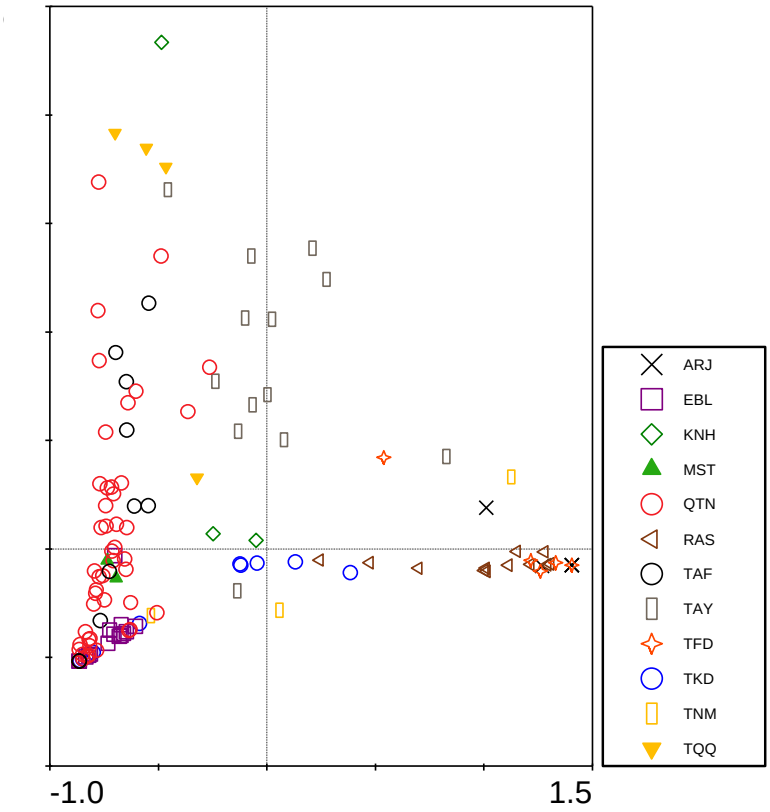


b)

Figure 5.68 Correspondence analysis of cereal items from Amuq-Orontes samples with 30 or more cereal items showing axes 1 (horizontal) and 3 (vertical). a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of cereal items.



a)



b)

Figure 5.69 Correspondence analysis plot of cereal items from Amuq-Orontes samples with 30 or more cereal items showing axes 1 (horizontal) and 3 (vertical). a) coded by phase, b) coded by site.

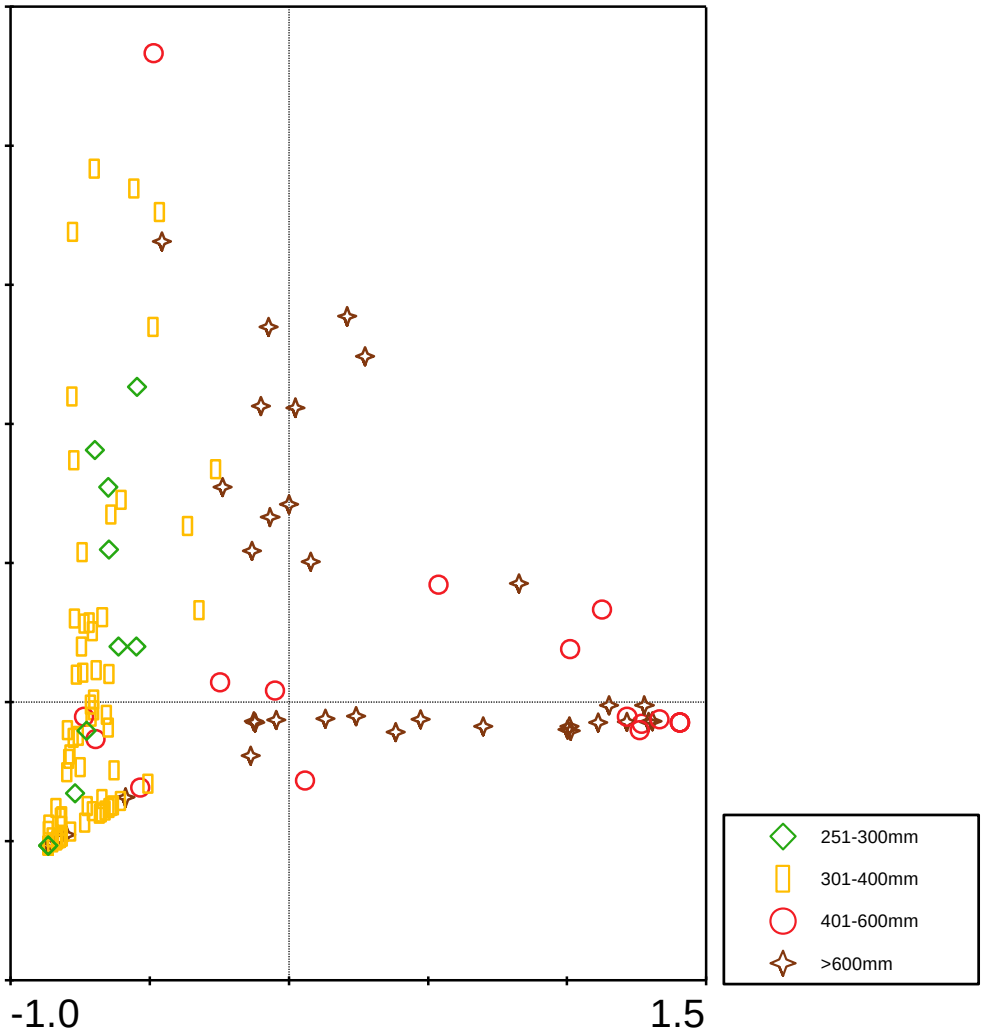
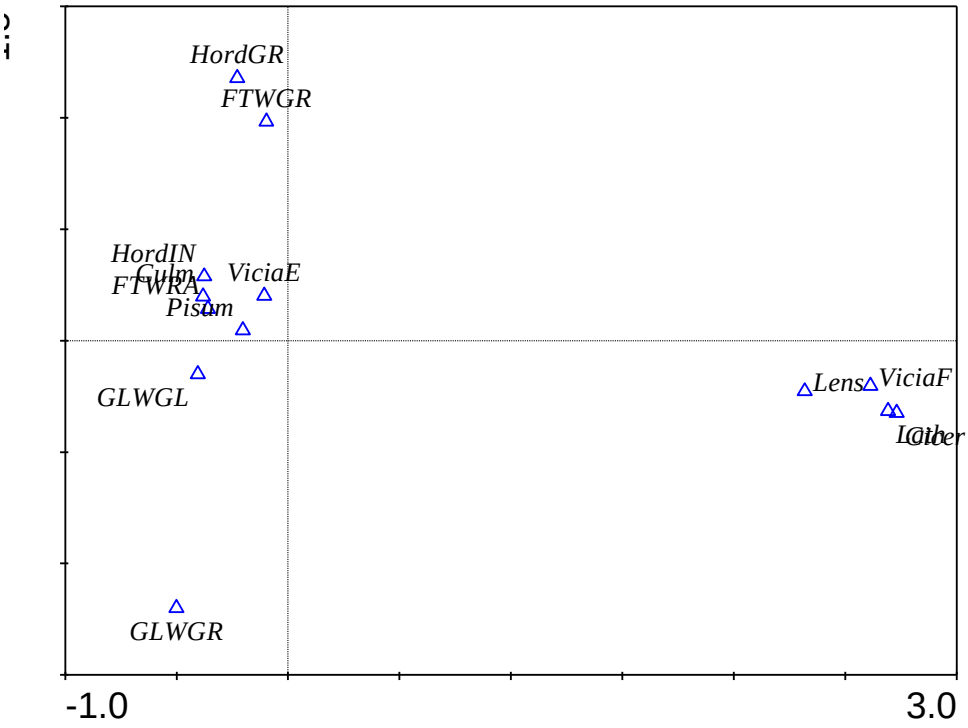
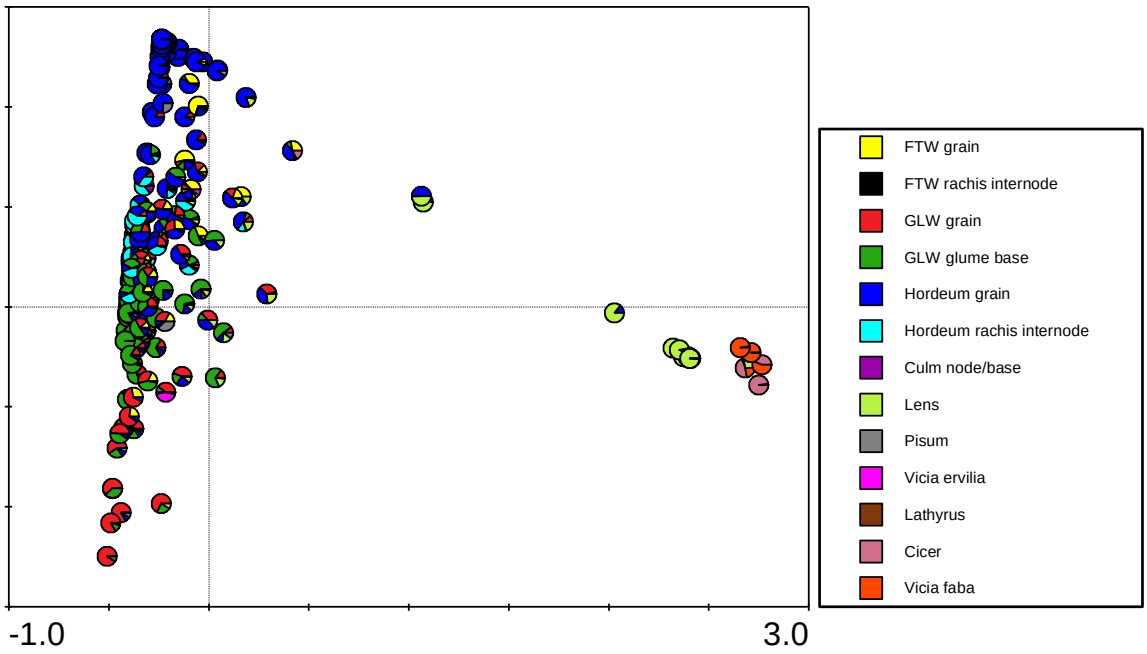


Figure 4.70 Correspondence analysis plot of cereal items from Amuq-Orontes samples with 30 or more cereal items showing axes 1 (horizontal) and 3 (vertical). Samples coded by modern annual rainfall.

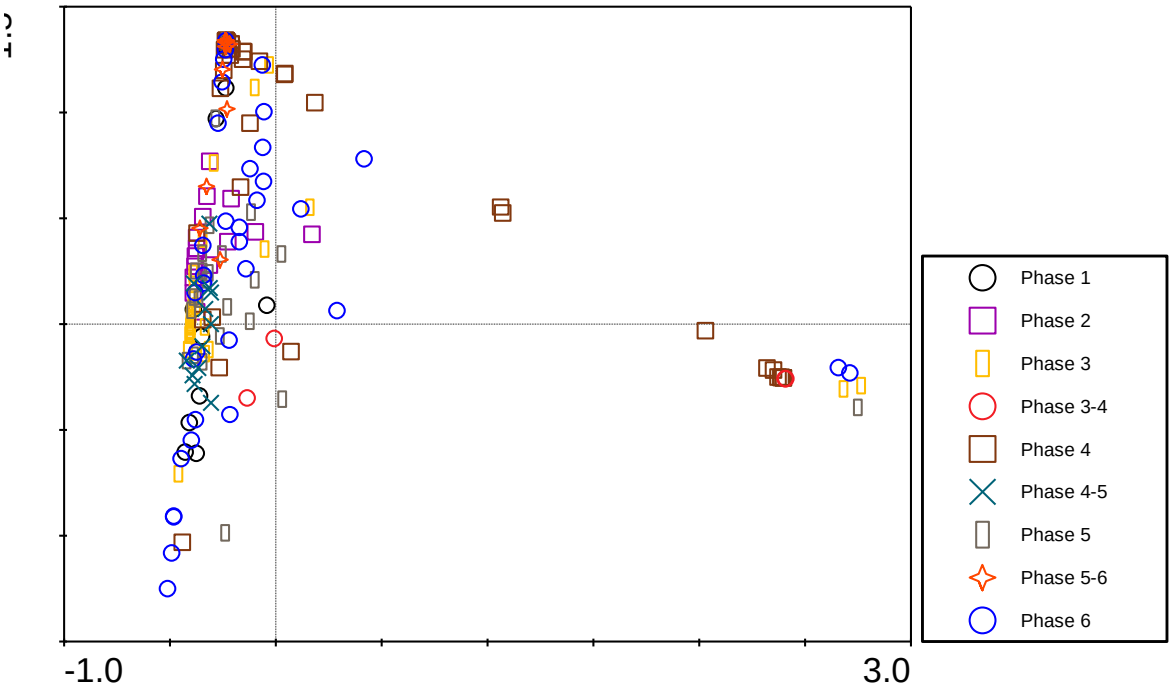


a)



b)

Figure 5.71 Correspondence analysis of crop items from Southern Levant samples with 30 or more crop items. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of crop types.



a)

b)

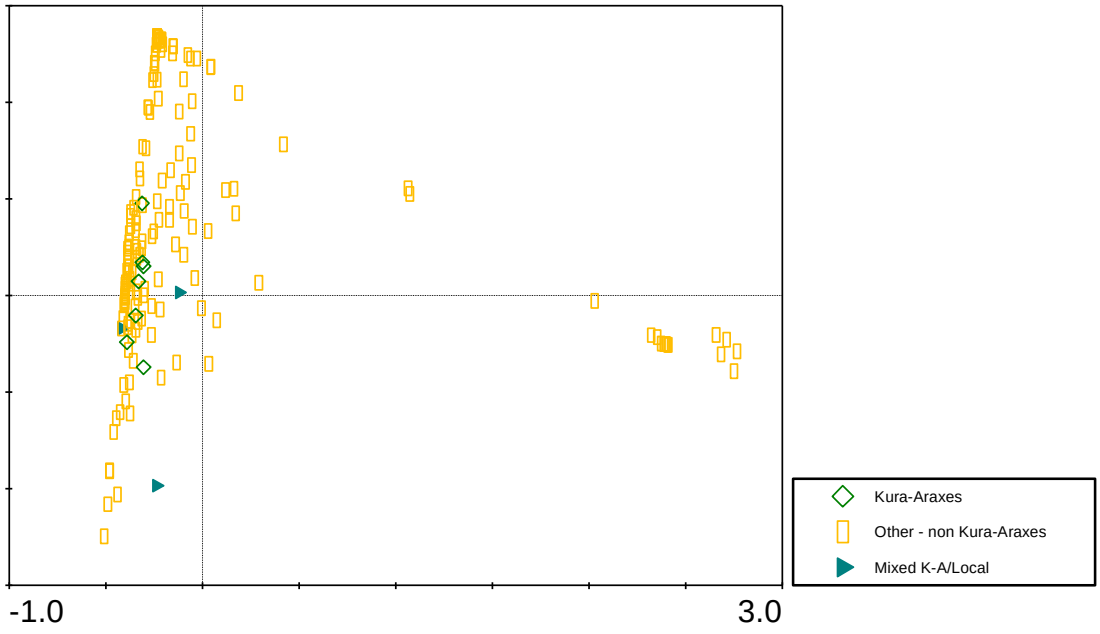
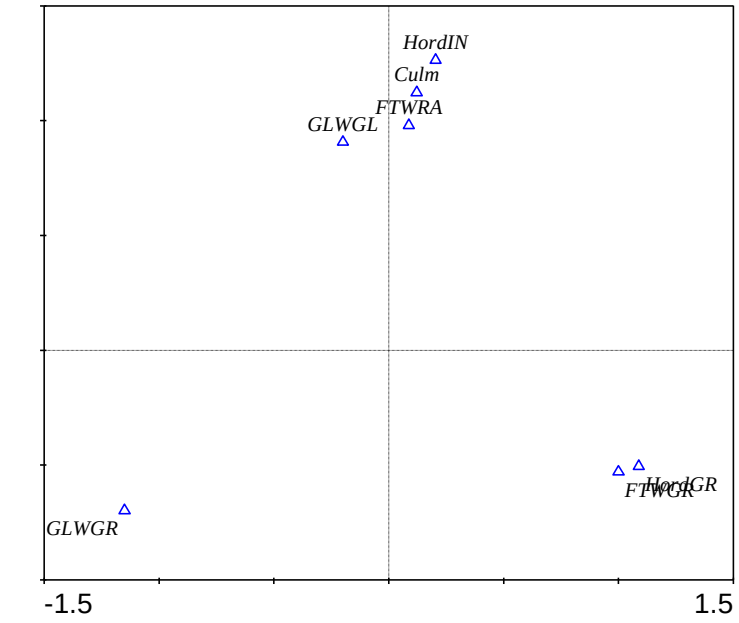
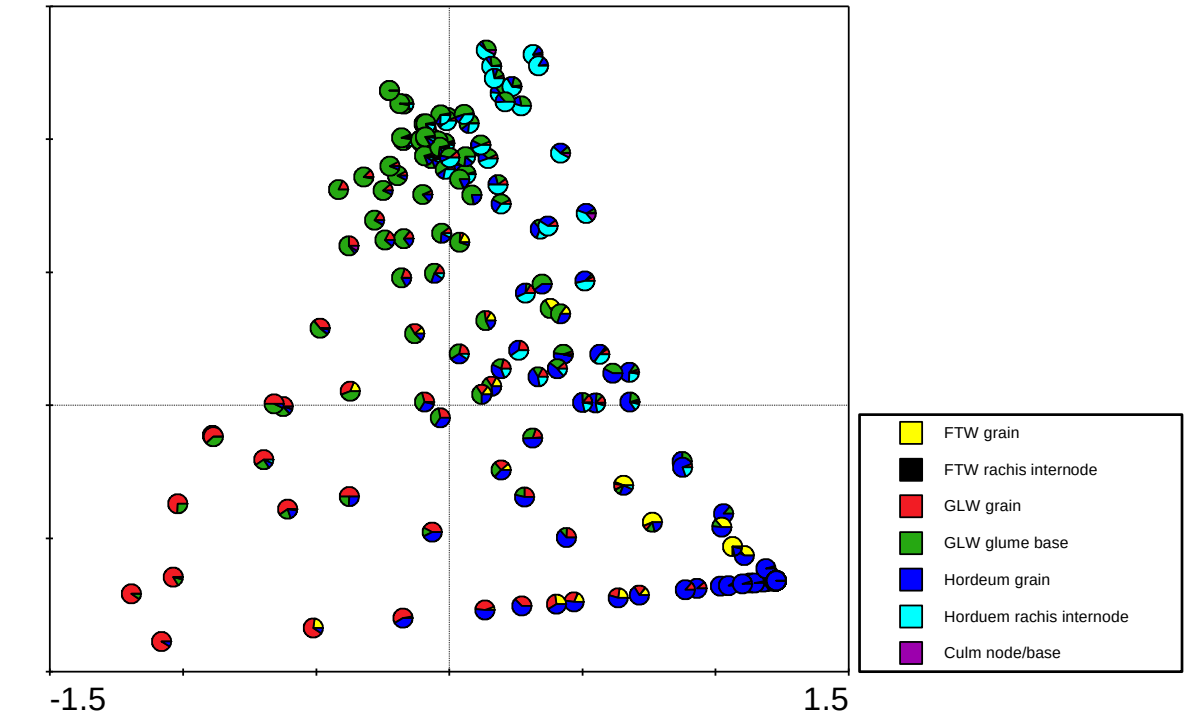


Figure 5.72 Correspondence analysis plot of crop items from Southern Levant samples with 30 or more crop items. a) samples coded by phase, b) samples coded by cultural grouping.



a)



b)

Figure 5.73 Correspondence analysis of cereal items from Southern Levant samples with 30 or more cereal items. a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of cereal types.

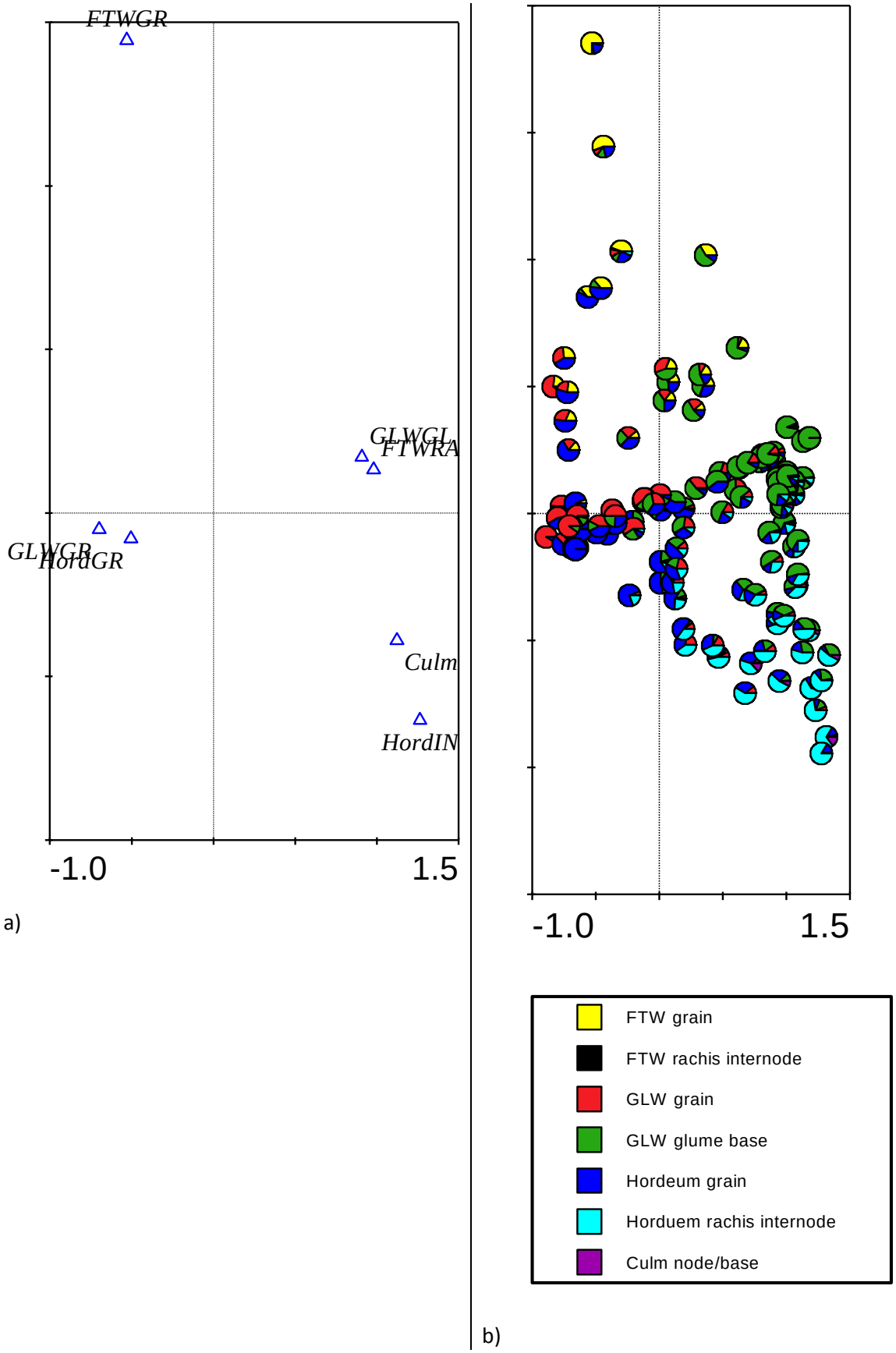
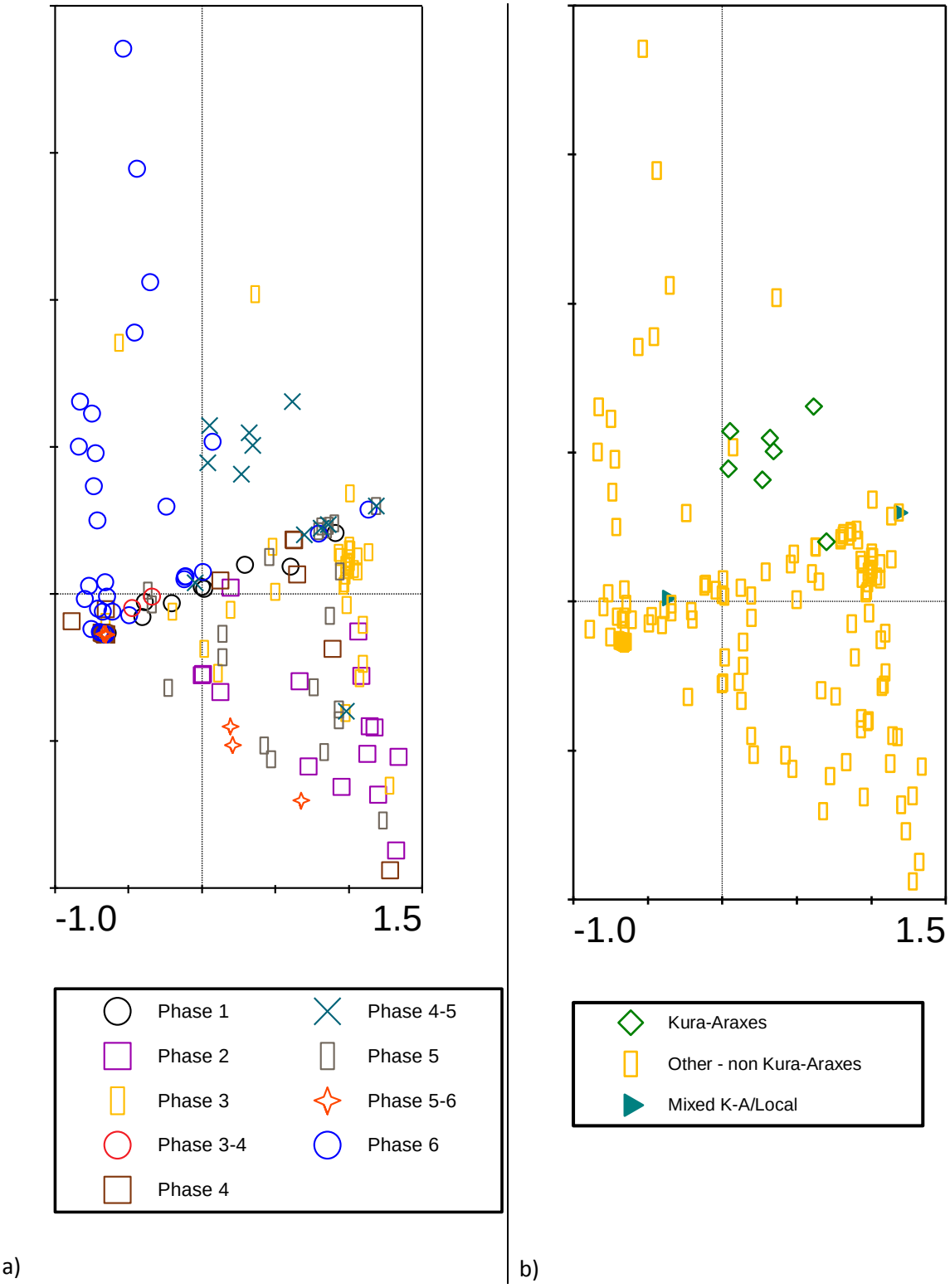


Figure 5.74 Correspondence analysis of cereal items from Southern Levant samples with 30 or more cereal items showing axes 2 (horizontal) and 3 (vertical). a) plot of species, b) plot of samples with sample points represented as pie charts showing the proportions of cereal types.



a)

b)

Figure 5.75 Correspondence analysis plot of cereal items from Southern Levant samples with 30 or more cereal items showing axes 2 (horizontal) and 3 (vertical). a) samples coded by region, b) samples coded by cultural group.

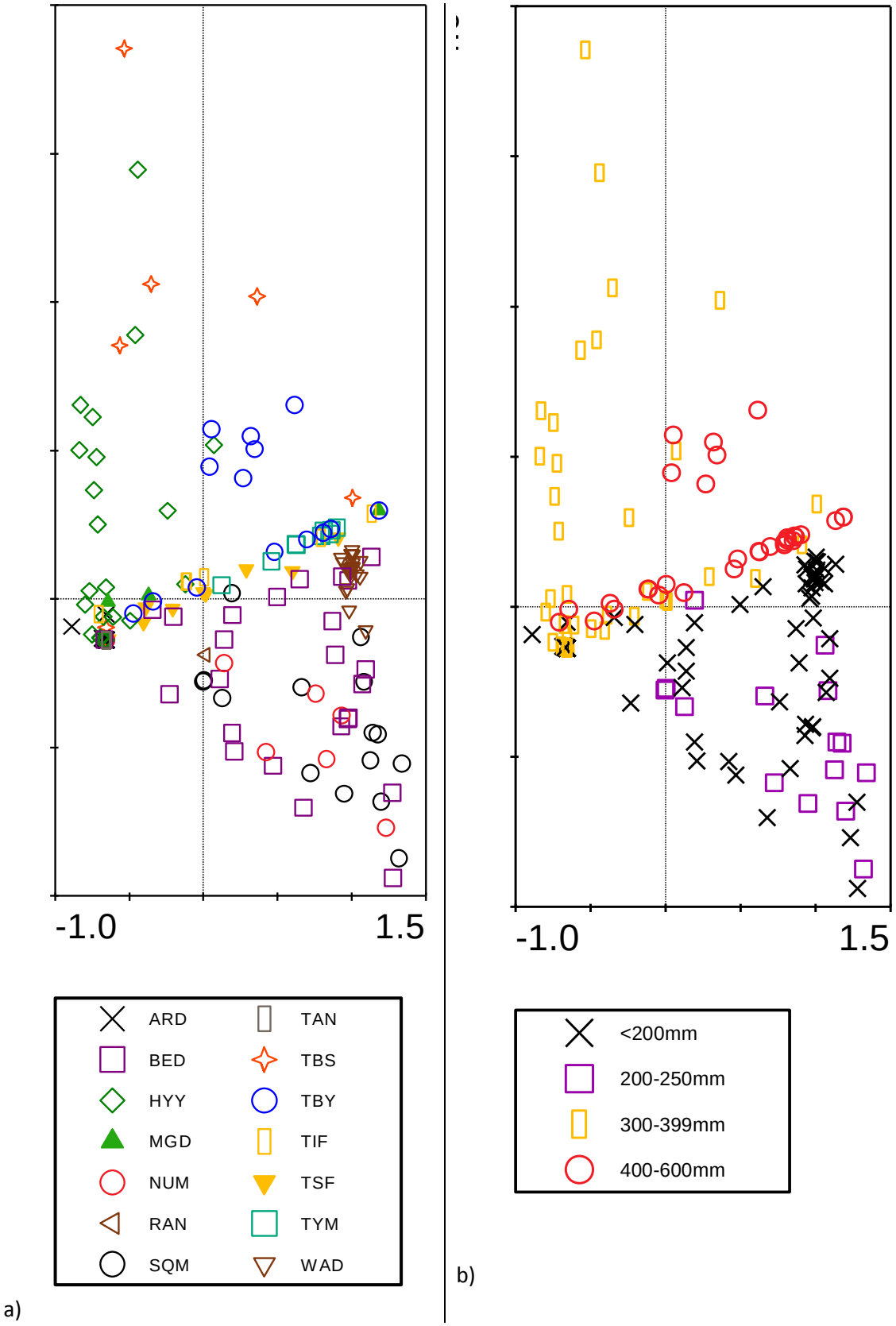


Figure 5.76 Correspondence analysis plot of cereal items from Southern Levant samples with 30 or more cereal items showing axes 2 (horizontal) and 3 (vertical). a) samples coded by site, b) samples coded by modern annual rainfall.

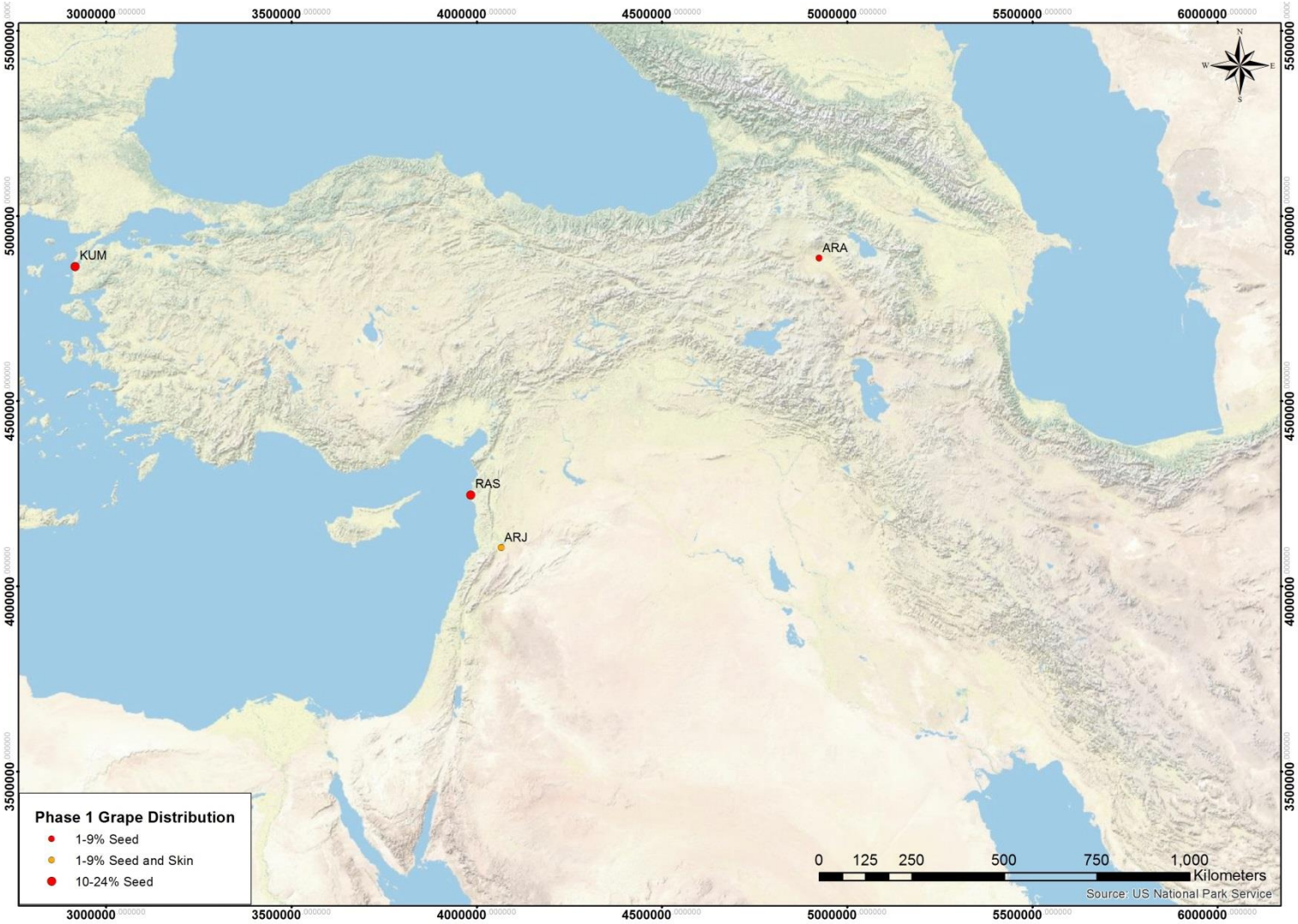


Figure 5.77 Map of grape distribution for Phase 1 (6100-4300B.C.) showing ubiquity of grape remains by plant part at each site.

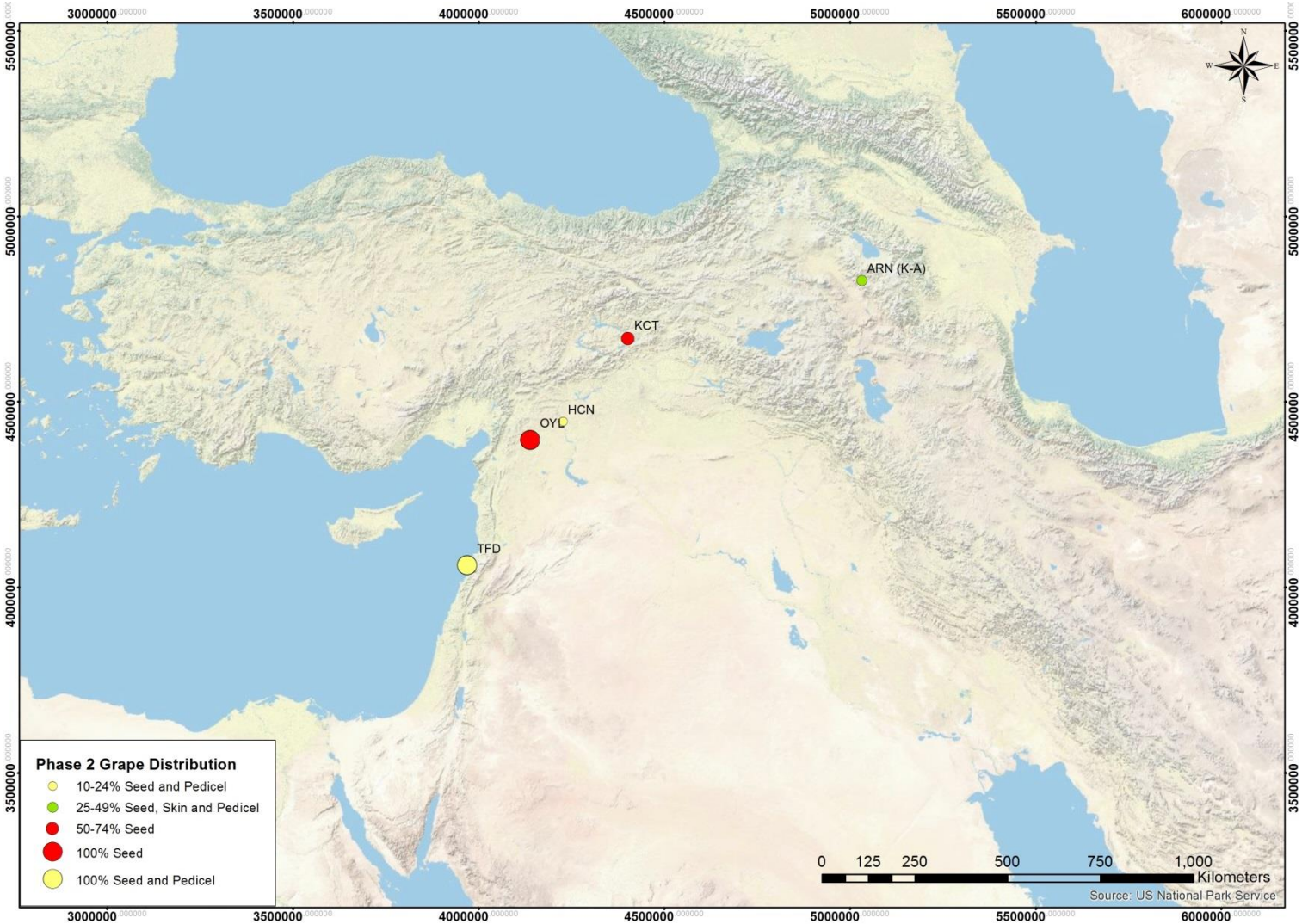


Figure 5.78. Map of grape distribution for Phase 2 (4300-3600BC) showing ubiquity of grape remains by plant part at each site. K-A = possible Kura-Araxes.

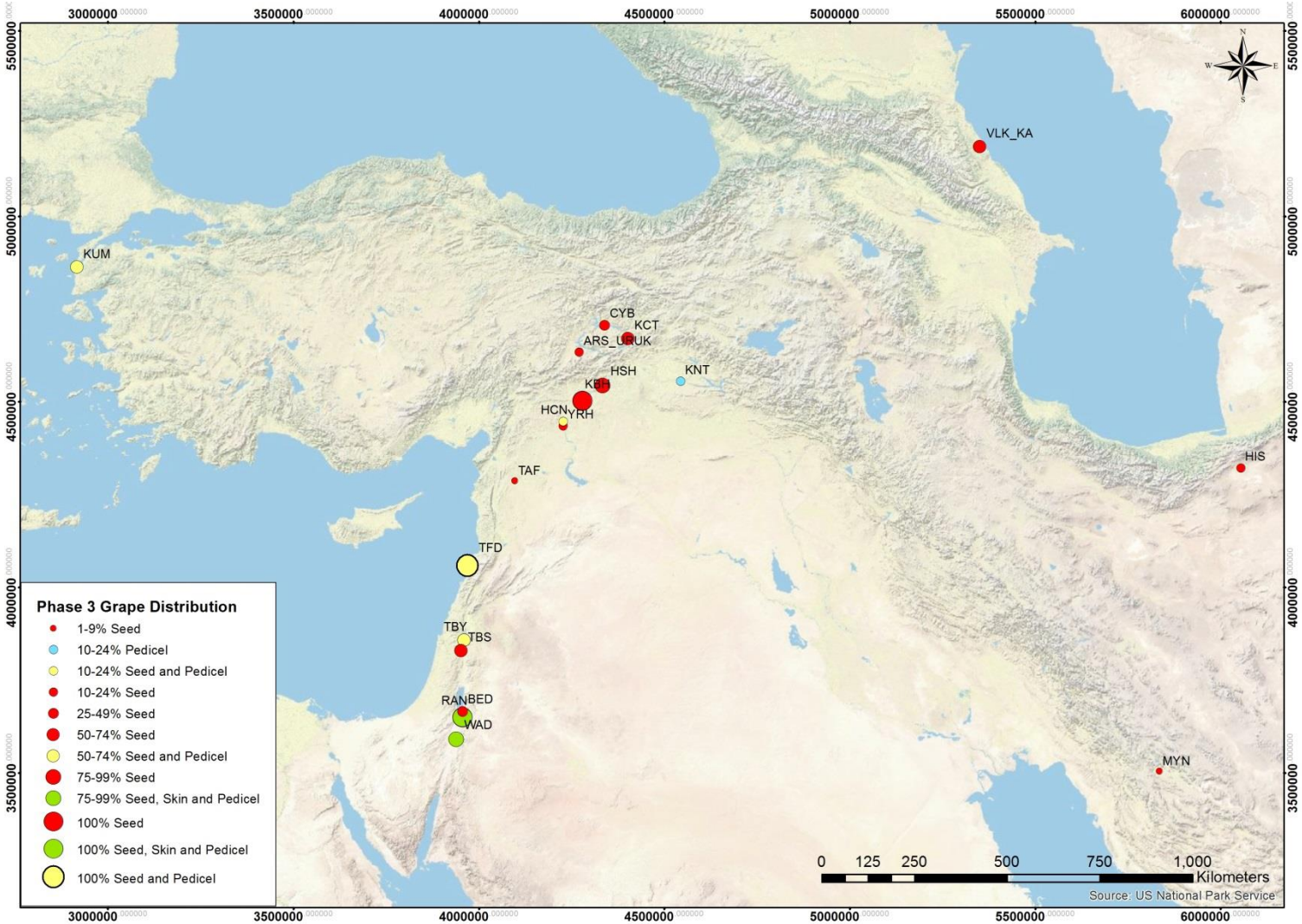


Figure 5.79. Map of grape distribution for Phase 3 (3600-3000B.C.) showing ubiquity of grape remains by plant part at each site. KA = Kura-Araxes site

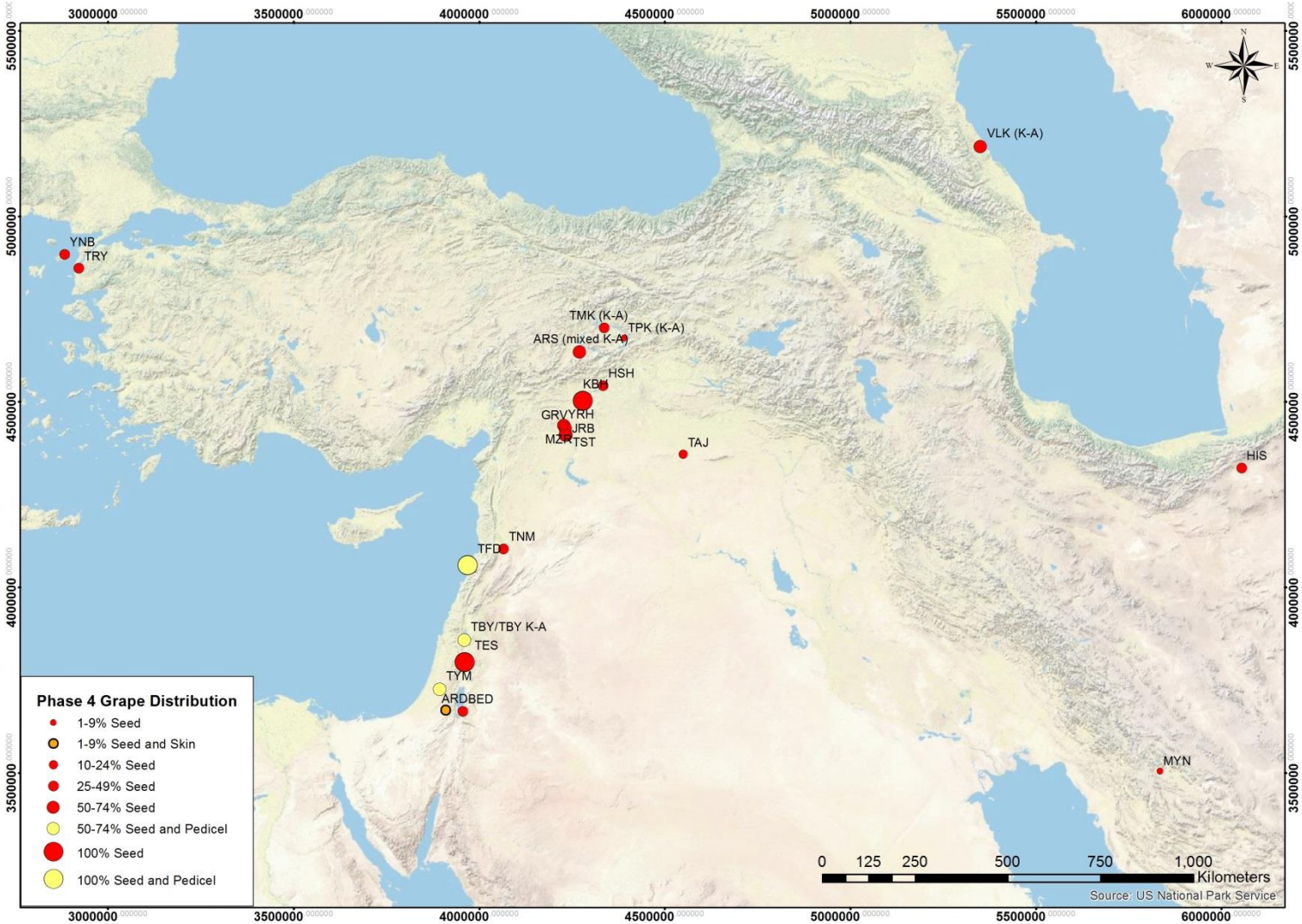


Figure 5.80. Map of grape distribution for Phase 4 (3000-2700B.C.) showing ubiquity of grape remains by plant part at each site. K-A = Kura-Araxes site

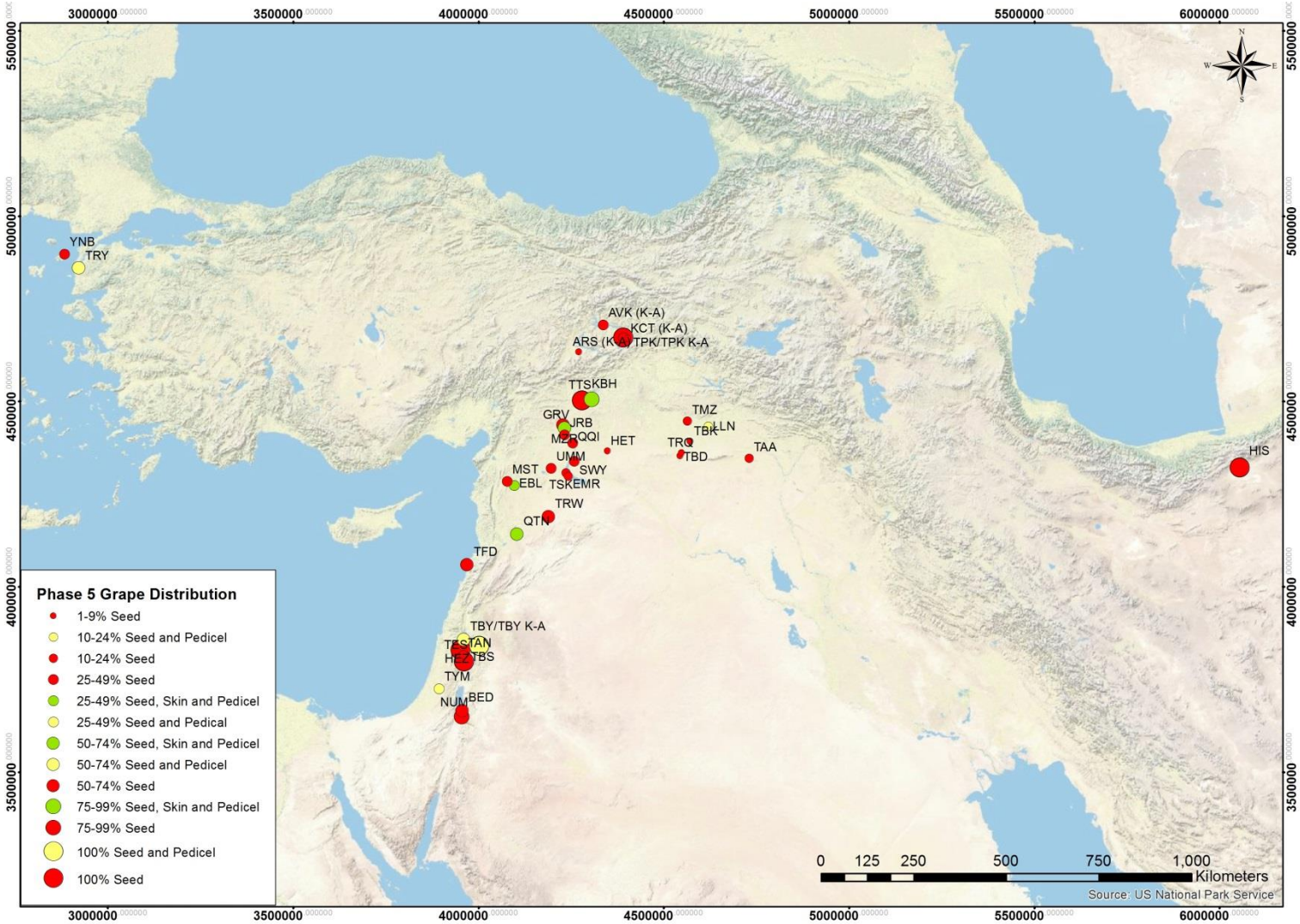


Figure 5.81. Map of grape distribution for Phase 5 (2700-2200B.C.) showing ubiquity of grape remains by plant part at each site. K-A = Kura-Araxes site

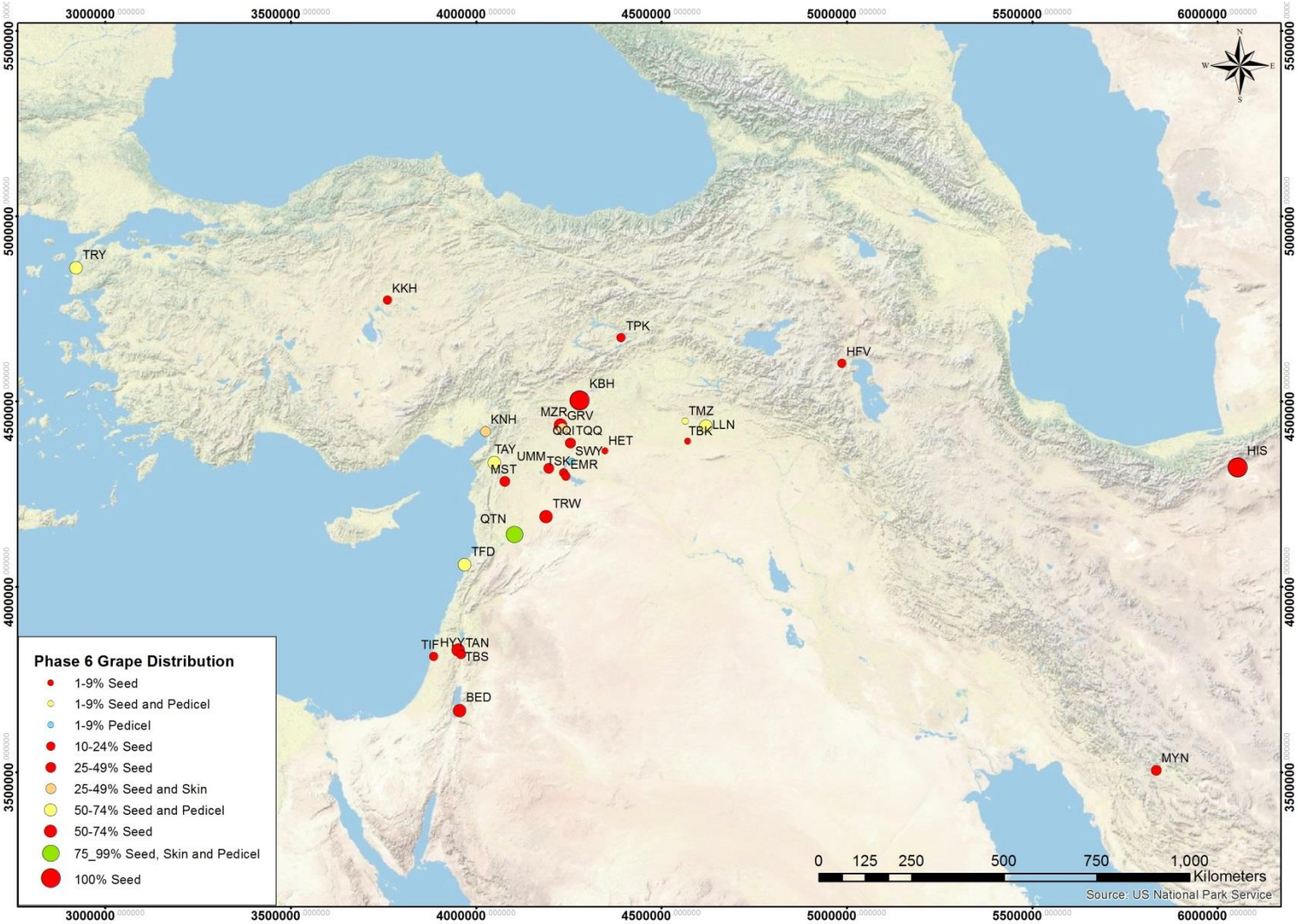


Figure 5.82. Map of grape distribution for Phase 6 (2200-1500B.C.) showing ubiquity of grape remains by plant part at each site.