Plant Production in a Changing Environment: The Archaeobotanical Remains from Tell Mozan

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1 Introduction

1.1 Environmental setting of the Early and Middle Bronze Age settlement of Tell Mozan

The Northeast-Syrian multi-period site of Tell Mozan[1] has been occupied since c. 2800 BC. It is one of the few settlements with continuous habitation between the Early and the Middle Bronze Age,[2] and was a Hurrian capital in the third millennium BC. Excavations of its Early and Middle Bronze Age cultural layers by the team of Prof. Peter Pfälzner are elucidating the processes of urbanization in North-Mesopotamia during the third millennium BC. The site lies about 8 km south of the Turkish-Syrian border, in the north-eastern part of Syria on the Khabur plains,[3] north-east of the west-Syrian mountains that find their eastern extension in isolated ridges of Jebel Abd el Aziz (920 m) and Jebel Sinjar (1.480 m). To the north, elevations increase continuously to more than 1.000 m at Turkish Mardin, 20 km from Tell Mozan.

The diversified climatic situation in Syria is characterized by the east Mediterranean coast in the west, the Anatolian highlands in the north, and the large desert plains in the southeast. The Mediterranean element has hot and mainly rainless summers, and moist winters with moderate temperatures. Summers are considered to have continental characteristics and, winters oceanic characteristics.[4] In summer the subtropic passat zone causes constant weather conditions, while during winter mainly cyclonic activity is responsible for strong regional differences between the coastal area and central Syria, resulting in distinctive climate regions (Figure 1b). Tell Mozan lies in the area of the northeast Syrian steppe climate, with comparatively high precipitation, resulting in only three to four rainless months during the summer.

Precipitation is, due to its regional and seasonal diversity and inter-annual fluctuations in its amount, the most important climatic factor in Syria. Plant survival in arid environments is subject to chronic water limitation and rainfall variability, resulting in the evolution of drought adaptation, for example in wild cereals. Landscape use and agriculture were always more dependent on precipitation than on temperatures, thus demonstrating the key role of precipitation in the cultural development of this territory.[5] January is the month of maximum precipitation in most places, followed by December in the west, and February in the east of the country. The mean actual precipitation in a series of drought years, such as between 1957 and 1961, may be 100 to 200 mm below the long-term mean annual precipitation,[6] causing a continuous sequence of crop failures in areas with long-term mean annual precipitation below the critical 400 mm isometer, if mixed rainfed agriculture with cereals and fruit trees is the main strategy.[7]

Most of Syria's Early and Middle Bronze Age sites lie in an area of 200 to 400 mm of modern mean annual precipitation, while mean annual precipitation at Tell Mozan is above 400 mm (Figure 1d).

Recent research on the variation in the amount of precipitation shows reasonable evidence of multi-year to decadal cyclicity in precipitation patterns,[8] i.e., the occurrence of droughts for a duration of three years or longer. Considering a scenario of several drought years during the Early and Middle Bronze Age under the assumption that modern and ancient mean precipitation are more or less equal, the settlements in regions below the critical 400 mm isohyet were under permanent risk of crop failure in occasional drought years, as, e.g., the large settlements along the middle Euphrates, if they had not applied irrigation. Particularly highly drought-resistant cereals, such as barley, may therefore have advanced to the main cereal crops under such climatic conditions.

At Tell Mozan, with its long-term mean annual precipitation of ca. 460 mm,[9] rainfed agriculture should have been possible without serious losses in drought years.

1 37°04' N, 40°59' E; 431 m asl.
2 See Bianchi – Geith – Dohmann-Pfälzner – Pfälzner – Wissing in preparation; Dohmann-Pfälzner – Pfälzner 1999, 2000, 2001; Pfälzner 1998; For younger periods see Buccellati – Kelly-Buccellati 1988, 1997, 1998, 1999; and also Doll this volume.
3 Near the headwaters of Wadi Dar'a.
4 Wirth 1971.
5 Cf. Wilkinson 1997, 2003.
6 E.g. the 250 mm-isohyet in the considered drought years is equivalent to the 400 mm-isohyet of the long-term mean.
7 Wirth 1971.
8 Touchan et al. 2003; Touchan et al. 1999.
9 Qamishli – Wirth 1971.

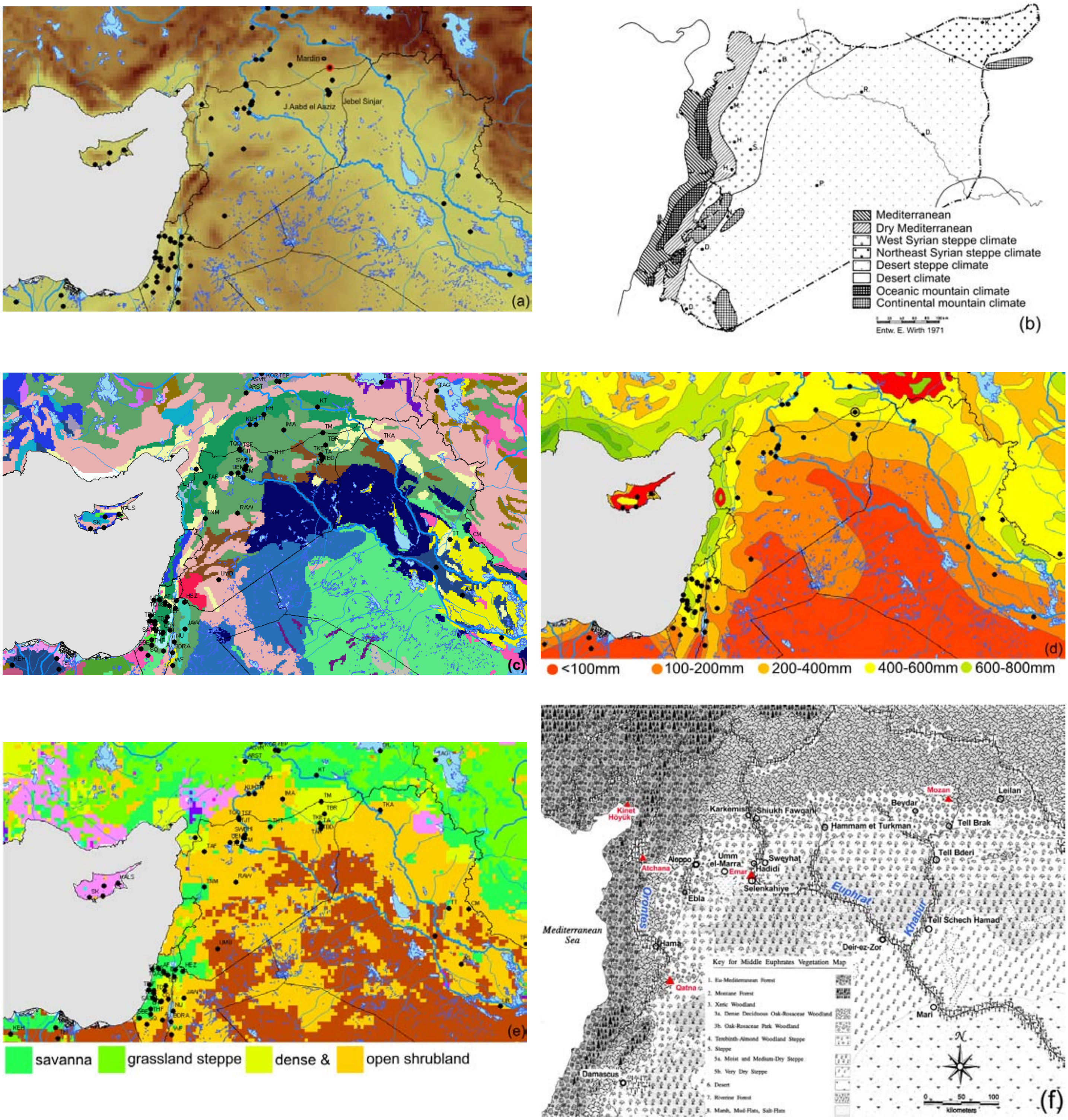


Figure 1: The environmental setting of Tell Mozan in the North-Syrian territory (the black dots in map (a), (c), (d), and (e) show Early and Middle Bronze Age sites with archaeobotanical results); (a) Orographic situation, red circle: Tell Mozan; (b) Climate regions of Syria according to Wirth[10]; (c) Soils; note that almost all the North-Syrian sites are situated on aridic calcisols (greyish green signature), TM: Tell Mozan; (d) Mean annual precipitation, black circle: Tell Mozan; (e) potential vegetation, TM: Tell Mozan; (f) potential vegetation according to Hillman[11].

10 Wirth 1971.

11 Hillman in Moore et al. 2000.

The soil map shows the bulk of the Early and Middle Bronze Age sites lying in the territory of Aridic Calcisols[12], soils of arid and semiarid regions, poor in humus, and, with secondary enrichment in carbonates. They have a high water-holding capacity (high risk of salinization) and good water conductivity but a low biologic activity and sparse plant cover (xerophytes), mainly used for extensive grazing.[13] Once degraded, a recovery of the vegetation is almost impossible in such soils.

Modern global ecosystem models place northern Syria in an area dominated by woody savanna, semi desert shrubs, fields, and grass crops; also, according to the modern potential vegetation, the area is dominated by shrubland, grassland steppe, and desert (Figure 1e). Similarly, the geobotanical assessment classifies almost the whole Syrian territiory into associations of the Mesopotamian steppes of the *Artemisietea herbae-albae mesopotamica.*[14]

A more differentiated reconstruction is available by Hillman[15], placing Tell Mozan into the borderland of a dense deciduous oak-Rosaceae woodland and an oak-Rosaceae park woodland (Figure 1f). Hillman's map is in agreement with basic textual information on the distribution of dense woodland in western Syria.

There is, however, relatively little knowledge of the vegetation development from the mid-Holocene onward from palynological data, due to various methodological problems. Aside from sparse distribution of water bodies suitable for palynological sampling, publications on the Holocene vegetation for the southern Levant, northwestern Zagros, Westanatolia[16], and northwestern Iran[17] suffer from low chronological resolution, particularly for the more recent prehistoric periods.

The later Holocene vegetation development of the Ghab valley (Orontes, Northwest Syria) was investigated by van Zeist and Woldring and Yasuda and colleagues.[18] ^{14}C-data in these investigations are limited and at least partially controversial.[19]

Gremmen and Bottema[20] conclude from palynological research in the Jazirah (northeastern Syria), from fluvial sediments of the Balikh and Khabur rivers, and from archaeological sites in the area (Tell Bderi, Tell Schech Hamad, Tell Hammam) that no significant climate development took place during the last 6.000 years. Change in agricultural technology, however, seems to be documented in their results, suggesting irrigation-induced salinization in the area around Tell Schech Hamad.[21] One of the main problems in palaeo-palynological research, however, is distinguishing between climate-induced and man-made vegetation change, because indicators of aridity may have their origin in both types of impact.[22] Given the limited palaeobotanical data, investigation of woodland development by anthracological analysis is an important element in the bioarchaeological research program at Tell Mozan. It suggests a significant presence of deciduous oak trees in the surroundings of the Early and Middle Bronze Age Tell Mozan.[23]

So far, comprehensive results on the woodland use around Tell Selenkahiye (2400 – 1900 BC) and Tell Hadidi (2400 – 1400 BC) have been published,[24] showing a change from use of trees of riverine habitats (*Populus* sp., *Tamarix* sp.) at Early Bronze Age Tell Selenkahiye to the burning of woody Chenopodiaceae at Middle Bronze Age Tell Hadidi, indicating an increase in steppic habitats from the Early to the Middle Bronze Age in the middle Euphrates region. Further anthracological work in the future will enable reconstruction of the dynamics of woodland development under natural and human impact.

Generally, archaeobotanical investigation of Early Bronze and Middle Bronze Age sites in Syria is still sparse, particularly for the Middle Bronze Age, allowing only preliminary conclusions on crop production developments (Figure 2).

Climate development from the mid-Holocene onwards is best-documented by multidisciplinary research that combines palynological data with other palaeoclimate proxies such as palaeolimnological, isotopic, and other evidence.

Already Bottema and van Zeist[25] have found increasing humidity after the Pleniglacial period until at least 4000 BC, with regional differences such as a later increase of humidity in southeastern Turkey, which is deduced from a later distribution of woodland (oak forests). The former aspect is confirmed at least for the advanced early Holocene until around 5000 BC by many recent proxy records for a number of areas, such as the eastern Mediterranean Sea[26], the Levant[27], the Negev Desert[28], the Konya Plain[29], and Central Anatolia[30]. For the periods after 5000 BC, the interpretation of palaeoclimatic data becomes more complex because of increasing human impact

12 Terminology according to the World Reference Base for Soil Resources (1998).
13 Zech – Hintermaier-Erhard 2002.
14 Zohary 1973.
15 Hillman in Moore et al. 2000.
16 Van Zeist – Bottema 1991; van Zeist – Bottema 1982.
17 Bottema 1986.
18 Van Zeist – Woldring 1980; Yasuda et al. 2000.
19 Cf. Meadows 2005.
20 Gremmen – Bottema 1991.
21 Gremmen – Bottema 1991.
22 Roberts et al. 2004.
23 See Deckers this volume.
24 Van Zeist – Bakker-Heeres 1985.
25 Bottema – van Zeist 1980.
26 Deep-sea pollen cores; Rossignol-Strick 1999.
27 Stable isotopic composition of speleothem calcite in the Soreq Cave; Bar-Matthews et al. 1997; Bar-Matthews – Ayalon 1998.
28 Stable isotopic composition of shell calcite in land snails; Goodfriend 1999.
29 Terrestrial sediment sequences; Fontugne et al. 1999.
30 Pollen and geochemical cores from Lake Eski Acigöl; Roberts et al. 2001.

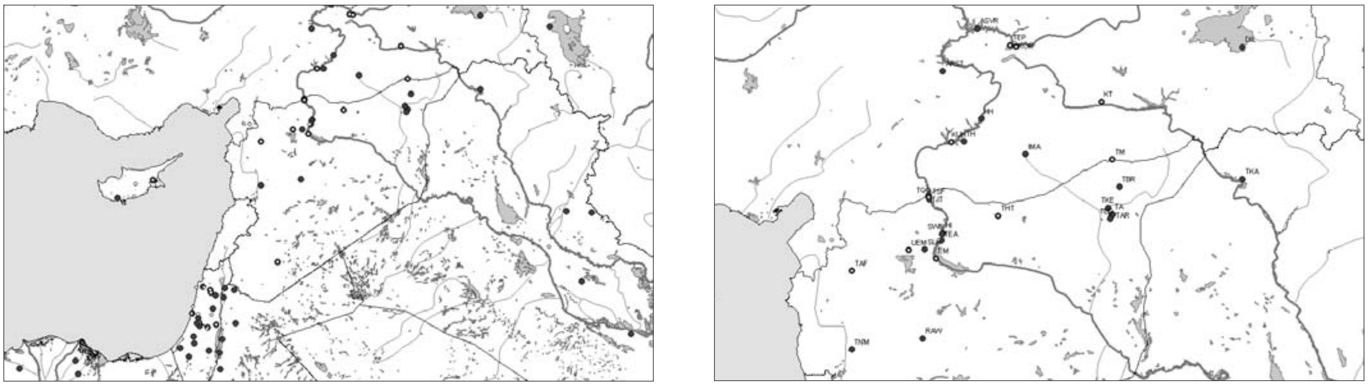


Figure 2: Early and Middle Bronze Age sites with archaeobotanical results (left: overview, right: northern Syria and southern Turkey): ARST (Arslantepe), ASVR (Asvan region), DIL (Dilkaya Höyük), EM (Emar), HH (Hassek Höyük), HI (Hajji Ibrahim), IMA (Imamoglu), KOR (Korucutepe), KT (Kenan Tepe), KUH (Kurban Höyük), RAW (Tell al-Rawda), SLK (Tell Selenkahiye), SWE (Tell es-Sweyhat), TA (Tell Atij), TAF (Tell Afis), TAR (Tell al-Raqa'i), TBD (Tell Bderi), TBR (Tell Brak), TEA (Tell el'Abd), TEP (Tepecik), TH (Titris Höyük), THT (Tell Hammam et-Turkman), TJT (Tell Jerablus Tahtani), TKA (Tell Karrana), TKE (Tell Kerma), TM (Tell Mozan), TNM (Tell Nebi Mend (Kadesh), TQQ (Tell Qara Quzaq), TSF (Tell Shiukh Fawqani), UEM (Umm el-Marra).

on the environment, which is, at least for the vegetation cover, difficult to distinguish from increase in aridity and which may in fact be interrelated.[31] Most scholars, however, agree on an increase in aridity from the mid-Holocene onward as a general trend (Table 1).

Palaeoclimatic research on more recent Holocene periods confirms earlier statements of an abrupt climate change around 4200 BP in many regions of the Old and the New World.[32]

This was discussed as early as the 1960s, and was assumed to be related to globally increased volcanic activity.[33] In this hypothesis sulfur dioxide emitted by volcanoes is converted to sulfate aerosols, sub-micron droplets in the Junge layer (stratospheric aerosol layer), containing about 75% sulfuric acid. The resulting variations of transparency of the atmosphere have a long enough life and correct properties to affect the climate by cooling due to a reduced amount of solar radiation reaching the earth's surface. The increased short-term cooling caused by the volcanoes of the 4200 BP event changed the atmospheric circulation patterns by expanding the circum-polar vortex.[34] Additional problems may have been caused by the acid rain formed by the reaction of sulfur dioxide with atmospheric moisture, which may have been of crop-damaging nature (significant biomass decrease in cereals occurs at soil pH 3.5).[35] This aspect, however, is little investigated at the moment, and generally researchers consider the contribution of sulfur dioxide from volcanoes to acid rain to be negligible.

31 Roberts et al. 2004.
32 See various contributions in Dalfes et al. 1997; Arz et al. 2005; Staubwasser et al. 2003.
33 See the "Indus event" in Bryson 1994.
34 Pers. com. R. A. Bryson; Bryson 1997; Bryson 1998.
35 Lorenzini – Materazzi 1984.

Numerous climate proxies show increasing aridity after this event,[36] which is related by some archaeologists to the collapse of the Akkadian Empire due to a catastrophic drought.[37] There is indeed an extraordinary high number of settlement abandonments at the end of the Early Bronze Age. Sites with settlement continuity, such as Tell Mozan, are therefore of special interest.

As the precipitation of Israel, Syria and Iraq is mainly a function of winter storms associated with cyclonic activity related to the southern branch of the Eurasian jetstream system, the analysis of their relationship was used by Bryson[38] to simulate the history of precipitation at several Syrian locations.[39] Modeled precipitation history can add to the available information of general climate development during the Near Eastern Early and Middle Bronze Age.

According to the modeled precipitation curve, the beginnings of the Early Bronze Age settlement would have been in a phase with comparatively low mean annual precipitation at Tell Mozan, however, with values above 450 mm (Figure 3). Precipitation values would have continuously increased until the end of the final Early Bronze Age phase Early Jazirah V.[40]

36 Bar-Matthews – Ayalon 1998; Wick et al. 2003.
37 Weiss 1997; Weiss et al. 1993; Ristvet – Weiss 2005.
38 Climate Research Unit at Wisconsin University.
39 Bryson 1997 and Bryson 1992.
40 The naming of the phases is according to Pfälzner 1998; Bianchi et al. in preparation; Bianchi – Wissing 2009, with the following starting dates. Early Bronze Age: EJ IIIa (ca. 2550 BC), EJ IIIb (ca. 2350 BC), EJ IV (ca. 2250 BC), EJ V (ca. 2100 BC), Middle Bronze Age: OJ I (ca. 2000 BC), OJ II (ca. 1850 BC). It has to be noted, that the dating of layer C5 has slightly changed after a thourough study of the ceramics. The pottery study was only finished after the archaeobotanical report has been accomplished. Layer C5 now belongs to the phase Old Jazirah I and not as assumed earlier to Old Jazirah II. As both, Old Jazirah I and II have been mostly analysed together in the archaeobotanical data the change in dating has no effect on the archaeobotanical results.

AD/cal.BC	cal.BP	BP	Hematite-stained grains and icelandic glass (VM 29-191) (Bond 1997)	Israel (estimated rainfall) (Bar-Matthews 1998)	Lake Van - palynology (Wick 2003)	Lake Van - d180, Mg/Ca (Wick 2003)	SO Turkey (Pustovoytov 2005)	Assyria and Babylon (Neumann 1987)	Egypt (abrupt shifts of Nile regime) (Butzer 1995)	Indus Valley (Staubwasser 2003)	settlement history, Syria	Tell Mozan	modeled precipitation Qamishli (Bryson)	modeled evapotranspiration Qamishli (Bryson)	modeled temperature (July) Qamishli (Bryson)
1400	3350	3119						wet				Mittani-Zeit			
1450	3400	3170											460		
1500	3450	3255													
1550	3500												470	**1250**	32,7
1600	3550	3313													
1650	3600												475	**1240**	32,6
1700	3650	3450				higher aridity									
1750	3700												487	1230	32,4
1800	3750	3506										**MBA**			
1850	3800				GRAZING							Old-Jazirah II	500	1200	32,2
1900	3850	3581									MBA				
1950	3900										repopulation		**512**	1180	31,7
2000	3950	3620										Old-Jazirah I			
2050	4000				reduced spring rainfall decrease in oak		aridification	arid					**512**	1150	31,4
2100	4050	3697										Early-Jazirah V			
2150	4100			dry		increasing aridity			low		EBA depopulation		**512**	1130	31
2200	4150	3789									collapse of				
2250	4200			**wet**							Akkadian Empire	Early-Jazirah IV	**512**	1100	30,7
2300	4250	3859													
2350	4300											Early-Jazirah IIIb	500	1140	31
2400	4350	3881				maximum relative humidity and high lake levels									
2450	4400											**EBA**	487	1180	31,9
2500	4450	4075	event 3												
2550	4500											Early-Jazirah IIIa	480	1220	32,2
2600	4550	4101													
2650	4600			dry								Early-Jazirah II	475	1220	32,4
2700	4650	4165													
2750	4700												465	1225	32,5
2800	4750	4208													
2850	4800												475	**1240**	**32,6**
2900	4850	4308													
2950	4900			relatively									**508**	1220	32,4

Table 1: Climatic development in the Near East and cultural history at Tell Mozan.[41]

41 References: Bond et al. 1997; Bar-Matthews – Ayalon 1998; Wick et al. 2003; Pustovoytov 2005; Neumann – Parpola 1987; Butzer 1995; Staubwasser et al. 2003.

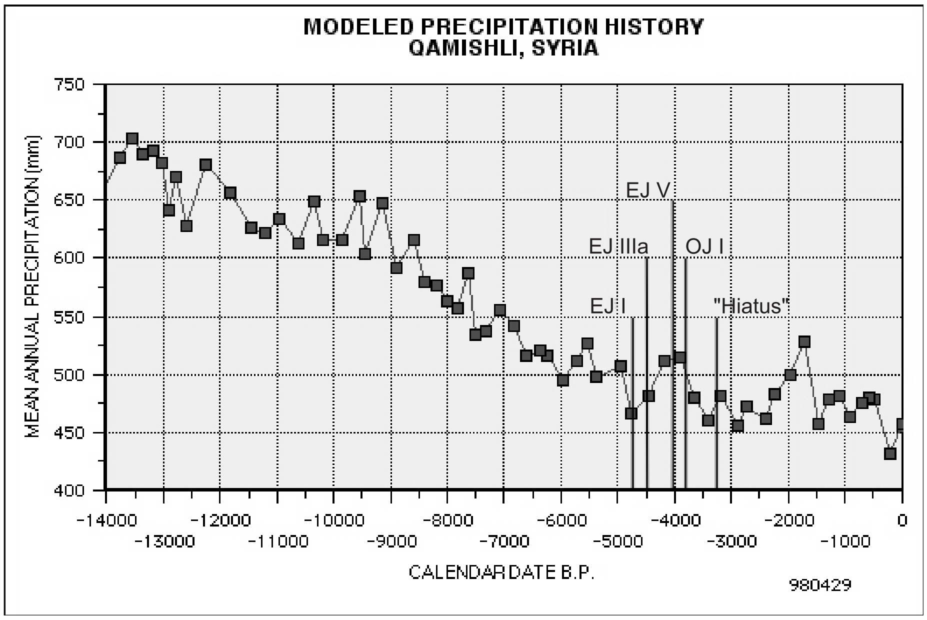


Figure 3: Modeled precipitation for Qamishli[42], EJ, OJ.

After 4000 BP, modeled precipitation values continuously decrease, while at the same time evaporation values increase until the settlement hiatus occuring at the end of the Late Bronze Age. Considering the different values of modern mean precipitation for Qamishli and Jerusalem, the trends in modeledprecipitation visible for the settlement period at Tell Mozan are in good agreement with the palaeoclimatic results from Soreq Cave/Israel.[43] Generally, the peak in modeled precipitation values around Early Jazirah V seem to be of global nature and correlate also with those reconstructed, e.g., at the middle Euphrates settlements. In the latter region, however, mean annual precipitation may have hardly reached the 400 mm (see Table 7).

Bioarchaeological research enables the understanding of the agricultural economy, the basis of political entities in the region. One of the main goals of this project is to investigate the organization of agricultural production, and to detect reasons for either continuity or changes in crop production patterns.

Bearing in mind the climatic preconditions and climate history of the area, the consideration of crop plant production in a changing environment becomes crucial for the understanding of any political and cultural development. This is even more of interest in relation to the numerous abandonments of Early Bronze Age settlements in the wider area. The site of Tell Mozan is amongst the few sites with settlement continuity throughout the Early and the Middle Bronze Age, and it enables the analysis of the sequential development of the town while other settlements failed to persist.

Therefore, the bioclimatic assessment of archaeobotanical crop plant assemblages as a criterion in agricultural decision-making is another research goal in this study of the archaeobotanical remains from Tell Mozan, embedded in the author‘s larger project on the development of crop production and wild-plant floras in the Near East and the Eastern Mediterranean from the Chalcolithic onward.[44]

To summarize the three main research questions:

1. Which trends can be recognized comparing Early to Middle Bronze Age crop production?

2. Is there a causal relation between climate change and developments in crop plant production?

3. With which strategies did the ancient inhabitants react to the changed conditions?

1.2 Methods and methodological problems

Archaeobotanical sampling was conducted between 1999 and 2001, sampling as many different contexts as possible in the light of judgement as to which were richest in plant remains.[45] Systematic sampling was not realized due to other preferences in the excavation process.

In all, 214 samples of several thousand litres of sediment were processed by hand-flotation and partially sorted in the field, resulting in almost 22.000 seed and chaff remains.

42 Data and basic diagram by R. A. Bryson, Center for Climate Research, Wisconsin University.

43 Bar-Matthews and Ayalon 1998.

44 Significant parts of the laboratory analysis of the samples from Tell Mozan were financially supported by the German Research Council (DFG, RI 1193/2-1) and the Structural Fond of Tübingen University.

45 Riehl 2000.

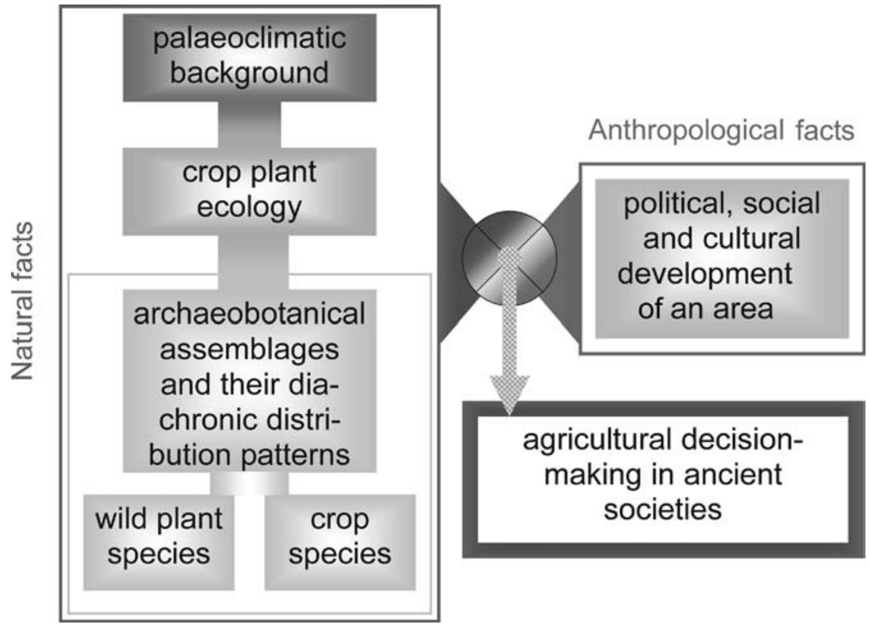


Figure 4: The multi-proxy approach to the understanding of agricultural decision-making.

About 15% of the samples are not considered in the data analysis, as they appeared to derive from mixed contexts; i.e., it is not possible to attribute them either to Early or to Middle Bronze Age contexts. Seed densities were comparatively high. With 65 seed/chaff items per litre of sediment, they are higher in the Early Bronze Age samples than in the Middle Bronze Age samples, which had a mean of 26 items per litre of sediment.

Analysis of the seeds was conducted at the archaeobotanical laboratory of the Institute of Prehistory and Quaternary Ecology, Tübingen University. Standard laboratory methods are described elsewhere.[46]

The interpretation of the archaeobotanical data in this study is based on three main preassumptions:

1. The environment as stress factor - environmental change is an impetus for agricultural decision-making:

The whole field of plant ecology centers around plant reaction to stress factors. The effects of biotic and abiotic environmental factors depend on their quantity, resulting in the dominance of one or several stress factors depending on the specific characteristics of the environment, e.g., the geographic region. In arid and semi-arid environments water availability is one of the main stress factors to plant survival. Environmental change leading to too much stress on the system[47] would force changes in crop production and would thus reflect agricultural decision-making based on environmental change.

2. Agricultural decision-making is based on complex interrelationships of environmental conditions, environmental change, cultural traditions, economic interests, and political goals:

Environmental change leading to more favourable conditions,[48] such as increased precipitation for several years must not necessarily release a change in agricultural production but would probably be visible in the composition of the field flora. Although environmental change may be visible in the wild plant assemblage, people may decide for various cultural and economic reasons to continue their agricultural strategies without any change.

Therefore, ancient plant floras mirror agricultural decision-making and/or environmental change.

3. A multi-proxy diachronic approach helps to resolve complex relationships:

The evaluation of the crop and the wild plant assemblages under plant ecological aspects and consideration of the palaeoclimatic and socio-political background in their overall development throughout time enables the understanding of reasons for agricultural continuity or change (Figure 4).

Data evaluation was conducted with the following tools: Proportion and ubiquity of different botanical taxa and groups of taxa throughout the different phases were considered with Microsoft Excel. For the associations of samples or taxa and the pattern searching in plant assem-

46 Riehl 1999b.
47 E.g. crop damage after a series of drought years.
48 I.e. allowing the plant to approach its "physiological normal type"; Schulze et al. 2002.

blages of different sites, canonical correspondence analysis was conducted with Canoco for Windows vers. 4.5.

Precondition for the comparability of samples from different periods or sites is their similarity in different aspects, amongst them the diversity is the most predicative for the composition of a plant assemblage. Shannons entropy is the most widely used index of diversity.[49] If there are many taxa evenly distributed in the assemblage, the index indicates high diversity. Problems occur, if not additionally evenness is considered, as many species and low evenness can have the same diversity as few species and high evenness. Highest diversity values, however, are produced by many species and high evenness. At Tell Mozan diversity and evenness for the samples are very similar comparing the different periods and phases (Shannon index between 2.0 and 2.4), implying comparable results for the analysis of single phases.

The ecological assessment of the botanical taxa in order to identify different types of environments and their development throughout time is mainly based on Mouterde, Post, Zohary, Grime and Davis.[50] Specific information on crop plant reaction to stress factors is cited in chapter 2.1.1 (see also Table 2). Maps of archaeobotanical taxa with their proportions and ubiquities for the principal assessment of Early and Middle Bronze Age plant distribution patterns were produced using the *Archaeobotanical database of the Near East and the Eastern Mediterranean*[51].

The archaeobotanical data used in the distribution maps were taken from the original archaeobotanical publications.[52] While working with databases, there is a series of methodological problems, which are discussed elsewhere.[53] Only three very basic methodological issues are mentioned here.

1. Archaeobotanical publications are of very variable quality concerning the sampling strategy, amount, and representativeness of data. Publications of a few samples are hardly comparable to large-scale systematic analyses.

2. The number of archaeological sites is very unevenly distributed throughout the different periods. There are more than twice as many archaeobotanically investigated sites for the Early Bronze Age than for the Middle Bronze Age, resulting in further problems in the visibility of geographical patterns. These differences, however, correlate to the general decrease in the settled area from the third to the second millennium BC.[54]

3. Any fine resolution of the periods into phases, which would be necessary for tracing small-scale variability, is extremely difficult to realize. There is a lack of accurate dating in general and of well-dated archaeobotanical samples, although it would be easy to achieve by AMS dating of seeds. Therefore, distribution maps are shown only for the Early and Middle Bronze Age periods and not for single phases within these periods.

49 Legendre – Legendre 1983.

50 Mouterde 1966; Post 1932; Zohary 1973; Grime 1990; Davis 1965 – 1988.

51 Riehl – Kümmel 2005.

52 For the Early Bronze Age: Abu Salabikh (Charles 1993), ʾAfula (Melamed 1996; Zaitschek 1955), Arad (Hopf 1978), Arslantepe (Follieri – Coccolini 1983), Asvan region (Hillman 1973a and b; Willcox 1974), Bab‘edh Dhra (McCreery 1981), Beth Shean (Liphschitz 1989), Çadir Höyük (Chernoff – Harnischfeger 1996), Choga Mami (Helbaek 1972), City of David (Liphschitz – Waisel 1992), Dilkaya Höyük (Nesbitt 1992), Emar (Riehl 2001), En Besor (Liphschitz 1989), Hajji Ibrahim (Miller 1997b), Hassek Höyük (Gregor 1992), Hirbet ez-Zeraqon (Riehl 2004), Ikiztepe (van Zeist 1988), Imamoglu (Oybak – Demirci 1997), Jawa (Willcox 1981), Jericho (Hopf 1983; Western 1971), Kenan Tepe (Ekstrom 2003), Kom el-Hisn (Moens – Wetterstrom 1988), Korucutepe (van Zeist – Bakker-Heeres 1975), Kurban Höyük (Miller 1986), Lachish (Helbaek 1958; Liphschitz – Waisel 1975), Malyan (Miller 1982, 1985, 1996), Numeira (McCreery 1981), Saqqara (Helbaek 1953; Lauer et al. 1950), Sataf (de Vartavan 1991), Shiqmim (Kislev 1987), Sotira Kaminoudhia (Hansen 2003), Tel Dalit (Liphschitz 1996), Tell Abu al-Kharaz (Holden 1994), Tell Afis (Wachter-Sarkady 1998), Tell al-Raqa‘i (van Zeist 1999/2000 (2001)), Tell al-Rawda (Herveux 2004), Tell Atij (McCorriston 1995), Tell Bderi (Engel 1993, 1995; van Zeist 1994, 1999/2000 (2001)), Tell Brak (Charles – Bogaard 2001; Colledge 2003), Tell el Ifshar (Chernoff 1988; Chernoff – Paley 1998), Tell el‘Abd (Riehl in prep.), Tell el-Fara‘in (Thanheiser 1997), Tell el-Handaquq (Mabry – Donaldson 1995), Tell el-Hayyat (Metzger 1984), Tell el-Iswid (de Roller 1989), Tell Esh-Shuna (Holden 1999), Tell es-Sa‘idiyeh (Cartwright 1993, 1994, 1996, 1997, 2002), Tell es-Sweyhat (Miller 1997b; van Zeist – Bakker-Heeres 1985), Tell Gezer (Liphschitz 1989), Tell Halif (Laustrup – Seger 1990), Tell Hammam et-Turkman (van Zeist et al. 1988), Tell Ibrahim Awad (Thanheiser 1992; van Zeist 1988), Tell Jerablus Tahtani (Murray 1995, 1996), Tell Kerma (McCorriston 1995), Tell Nebi Mend/Kadesh (Moffett 1989), Tell Qara Quzaq (Matilla Séiquer – Rivera Núñez 1994), Tell Qashish (Liphschitz 1989), Tell Qurtass (Helbaek 1960), Tell Selenkahiye (van Zeist – Bakker-Heeres 1985), Tell Shiukh Fawqani (Pessin – Klesly in press), Tell Taannach (Liphschitz 1989), Tell Taya (Waines 1973), Tepecik (van Zeist – Bakker-Heeres 1975), Umbashi (Willcox 1999), Umm el-Marra (Miller et al. 2000), Ur (Ellison et al. 1978), and Wadi Fidan (Colledge 1994, 2001; Meadows 1996).
For the Middle Bronze Age: ʾAfula (Melamed 1996; Zaitschek 1955), City of David (Liphschitz – Waisel 1992), Emar (Riehl 2001), Ikiztepe (van Zeist 1988), Jericho (Hopf 1983), (Western 1971), Kalavasos village (Hansen – Todd 1979), Kenan Tepe (Ekstrom 2003), Korucutepe (van Zeist – Bakker-Heeres 1975), Kurban Höyük (Miller 1986), Manahat (Kislev 1998), Marki-Alonia (Adams – Simmons 1996), Shiloh (Kislev 1993), (Liphschitz 1993), Tel Michal (Liphschitz – Waisel 1989), Tel Nami (Kislev et al. 1993), (Lev-Yadun et al. 1996), Tell Afis (Wachter-Sarkady 1998), Tell Aphek (Liphschitz 1989), Tell Atchana (Riehl in press b), Tell Brak (Charles – Bogaard 2001; Colledge 2003), Tell ed-Der (van Zeist 1984), Tell el Ifshar (Chernoff 1988; Chernoff – Paley 1998), Tell Gerisa (Liphschitz 1989), Tell Hadidi (van Zeist – Bakker-Heeres 1985), Tell Hammam et-Turkman (van Zeist et al. 1988), Tell Qara Quzaq (Matilla Séiquer – Rivera Núñez 1994), Tell Taannach (Liphschitz 1989), Tell Yoqneam (Liphschitz 1989), Tepecik (van Zeist – Bakker-Heeres 1975), Umbashi (Willcox 1999), and Umm el-Marra (Miller et al. 2000).

53 Riehl in press a.

54 Wilkinson 2003, 2004; Ristvet – Weiss 2005.

Crop species	**Drought tolerance**	**Salinity tolerance**	**Economic value**	**Diachronic production patterns in EBA and MBA Near Eastern sites**
Two-row barley (*Hordeum distichum*)	high (more than *H. vulgare*)	high	high (higher yields than *H. vulgare*, higher starch content, thus preferred for beer fermentation)	main crop
Six-row barley (*Hordeum vulgare*)	high	high	high (higher protein content than *H. distichum*)	rare
Free-threshing wheat, tetraploid (*Triticum turgidum* spp.)	good (high water-holding capacity)	no data	not as labour-intensive as emmer wheat	very common (but in lower proportions than barley)
Free-threshing wheat, hexaploid (*Triticum aestivum*)	moderate (low water-holding capacity); better response to increased rainfall than *T. turgidum* ssp. in areas with >400 mm annual precipitation, but *T. aestivum* is little flooding-tolerant	no data		rare
Emmer wheat (*Triticum turgidum* ssp. *dicoccum*)	good (high water-holding capacity); high resistance to poor soils and fungal diseases if stored within the glumes	probably high	hulled wheat, labour-intensive in processing for consumption	common during the EBA (although in low proportions); rare in the Middle Bronze Age
Einkorn wheat (*Triticum monococcum*)	low (drought-susceptible)		hulled wheat, labour-intensive in processing for consumption, low yield	present during the EBA (in some sites); abandoned in the Middle Bronze Age
Lentil (*Lens culinaris*)	moderate; rainfall accounts for most of the variance in mean seed yield		high economic and dietary value	common during the EBA (although in low proportions), present in fewer sites during the MBA
Grass pea (*Lathyrus sativus*)			"poisonous"	ubiquitous in NE Syria during the EBA; rare in the MBA
Garden pea (*Pisum sativum*)	moderate to low; linear decrease of pea yield with an increase in the soil moisture deficit	high to moderate	high economic and dietary value	ubiquitous during the EBA; rare in the MBA
Bitter vetch (*Vicia ervilia*)	high		"poisonous"	present during the EBA (in some sites); present during the MBA
Flax (*Linum usitatissimum*)	low	low	high value for fibre and oil production	present during the EBA (in some sites with higher ubiquity); absent during the MBA
Safflower (*Carthamus tinctorius*)	high	high		ubiquitous in some EBA sites; reduced during the MBA
Grape (*Vitis vinifera*)			high value for consumption, storage and vine fermentation	ubiquitous during the EBA; rare during the MBA
Fig (*Ficus carica*)			nutrious, storable	rare

Table 2: Some crop ecological data and diachronic production patterns.

2 Results

2.1 The botanical taxa in their geographical, historical, economic, environmental, and taphonomic context

2.1.1 Crops

2.1.1.1 Cereals

Barley (*Hordeum spp.*)

With almost 100% frequency in all the sampled phases and with proportions ranging from 40 to more than 80%, barley is the dominant crop over the whole Early and Middle Bronze Age settlement sequence of Tell Mozan. This is not a unique phenomenon, as barley, which also belongs to the founder crops of the Neolithic Fertile Crescent, was the main cereal crop in most of the Near Eastern sites during the Bronze Age (Figures 5 and 6).

This dominance of barley is a common feature in arid and semi-arid environments, due to a higher tolerance of unfavorable growing conditions such as drought stress and salinity of soils and due to a shorter reproduction cycle compared to wheat species. In contrast to Aegean sites, most of the Near Eastern barley belongs to the two-row variety (*Hordeum vulgare* convar. *distichon* L.), which is, according to some authors, the cereal species with the highest drought tolerance.[55] Other characteristics of modern two-row barley include a generally higher yield than six-row barley, more uniform grain sizes, and differences in the composition of the grains, relevant for modern beer fermentation.[56] None of the grains at Tell Mozan, however, showed signs of germination.

Morphological distinction of the two-row and the six-row form (*Hordeum vulgare* convar. *vulgare* L.) is difficult for grains, as the recognition of originally twisted grains, which are typical for the six-row forms, may be prevented by taphonomic processes or preservation conditions. Distinction on the basis of rachis remains is unequivocal if the glume bases are still visible in cross section (Figure 7).

At Tell Mozan there is high probability that all the barley represents the two-row variety. As preservation of the rachis internodes from the site is bad, they had to be classified as *Hordeum vulgare* convar. *distichon/vulgare*, which includes both forms.[57]

Wheats (*Triticum spp.*)

At Tell Mozan hulled and free-threshing wheat is present.

55 Choi – Min 1982.
56 Franke 1992.
57 This identification criterion was observed by Dr. Delwen Samuel, London (pers. com. M. Nesbitt).

Free-threshing wheat / naked wheat (*Triticum turgidum* spp.)

Free-threshing wheats were intensively cultivated in the Near Eastern Bronze Age and reached high proportions, in contrast to the continuing preference for emmer wheat in the Aegean.[58]

At Tell Mozan free-threshing wheat is represented with proportions of less than 20% of the crops in most of the phases but with ubiquities of up to 100%, at least in the middle (Early Jazirah IIIa/b) and the final (Early Jazirah V) phases of the Early Bronze Age. During the final phase of the Early Bronze Age (Early Jazirah V), however, the crop is present in the crop assemblage as more than 50% of crop remains.

Identification to the ploidy level on the basis of grains is not reliable due to the considerable intraspecific variability of grain size and dimensions.[59] The rachis internodes of free-threshing wheat were mainly identified as belonging to the tetraploid form (*Triticum turgidum* spp.). A relatively high proportion could not be definitely classified (free-threshing wheat tetraploid/hexaploid), but none of the rachis remains were assigned to hexaploid wheat. If problems in differentiating the hexaploid from the tetraploid rachis remains occur, they are usually due to bad preservation. Erosion of the chaff remains may result in a reduction of distinctive characters. These are, in the case of Tell Mozan erosion of the lower part of the glume (Figure 10 b), resulting in a lack of the lump beneath the glume bases as well as erosion of the lower part of the rachis internode, leaving features that render the differentiation of these remains from hexaploid genotypes difficult.

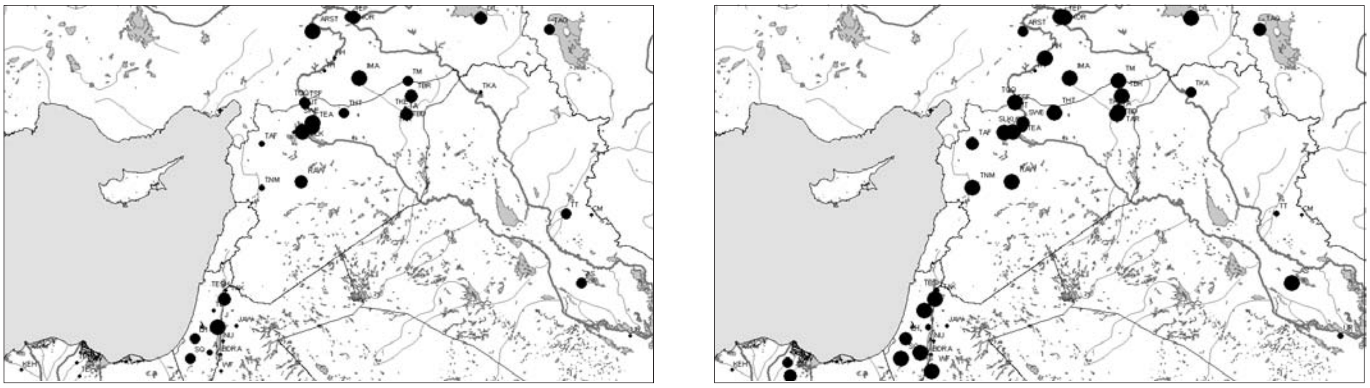
In most cases, however, it was possible to use other criteria, enabling a designation at least to a probable tetraploid genotype (cf. tetraploid). The main criterion in this case is the distance between the two glume bases, which appears to be wider in the tetraploid genotypes compared to the hexaploid.

Generally, all the free-threshing wheat remains at Tell Mozan belong with high probability to the tetraploid genotype.

Grain size was very variable, ranging from 5 to 2 mm in length (Figure 11), which is in good agreement with general grain variability in prehistoric sites, although the small grains are in the minority and may represent apical grains or the uppermost grain in spikelets with more than three grains.[60]

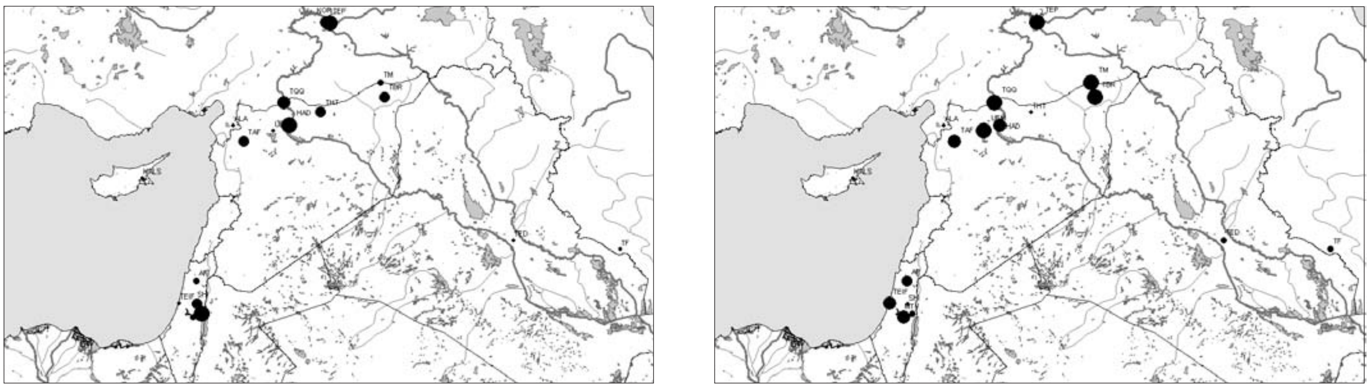
The overall appearance of the free-threshing wheat at Tell Mozan is also in agreement with the morphology attributed to *Triticum parvicoccum* Kislev, an extinct tetraploid genotype whose criteria were set out by Kislev.[61] An interesting point brought into discussion by Kislev, not least for a better understanding of wheat evolution, is his assumption that earlier

58 Riehl – Nesbitt 2003.
59 Hillman 2001.
60 Cf. Maier 1996.
61 Kislev 1979/80.



(a) proportions (b) ubiquities

Figure 5: Barley proportions and ubiquity in Early Bronze Age Near Eastern sites. Note the larger number of settlements in comparison to the Middle Bronze Age, Figure 6.



(a) proportions (b) ubiquities

Figure 6: Barley proportions and ubiquity in Middle Bronze Age Near Eastern sites.

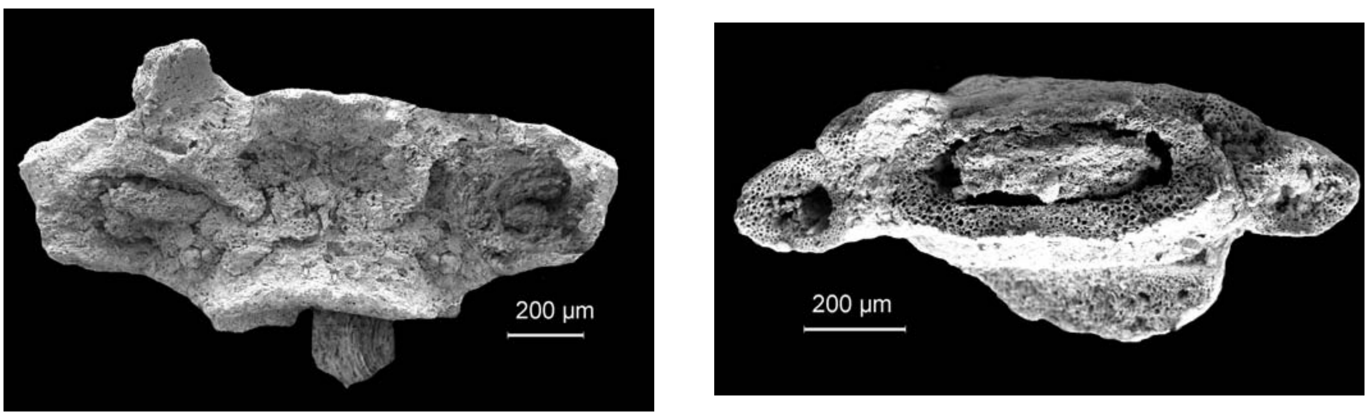
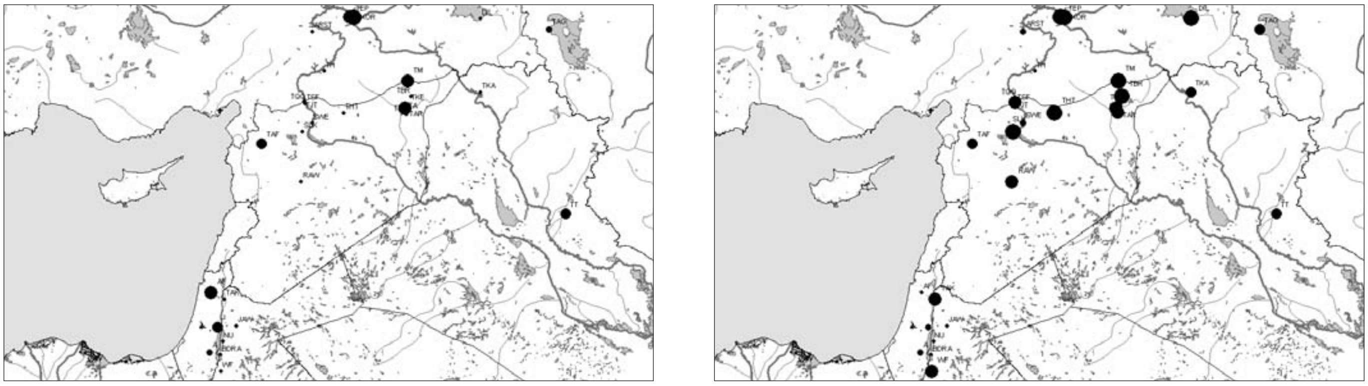


Figure 7: Cross section of the upper part of the glume basis in barley rachises (left: *Hordeum vulgare* convar. *vulgare* from Late Bronze Age Troy, right: *Hordeum vulgare* convar. *distichon* from Early Bronze Age Tell Mozan); Note the small lateral spikelets in the two-row variety due to infertile grains in contrast to the three bases of similar size in *Hordeum vulgare* convar. *vulgare*.[62]

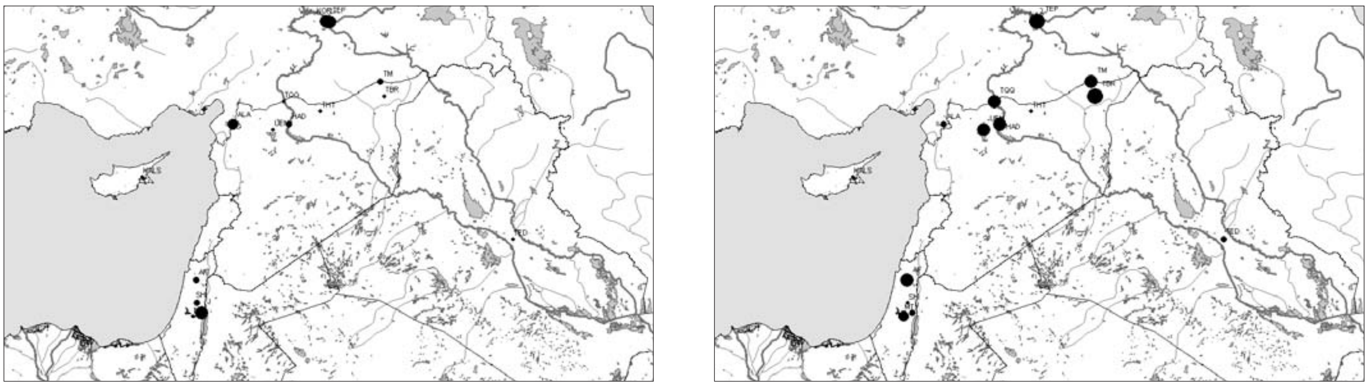
identifications of hexaploid wheats in the Near East in fact represent tetraploid genotypes. The verification of this argument can only be realized by a re-analysis of chaff remains from older excavations, and continuous attempts to properly distinguish ploidy levels in wheat rachises from future excavations.

62 All photographs were taken by the author. The find spot is specified only when different from Tell Mozan.



(a) proportions (b) ubiquities

Figure 8: Free-threshing wheat proportions and ubiquity in Early Bronze Age Near Eastern sites. Note the larger number of settlements in comparison to the Middle Bronze Age, Figure 9.



(a) proportions (b) ubiquities

Figure 9: Free-threshing wheat proportions and ubiquity in Middle Bronze Age Near Eastern sites.

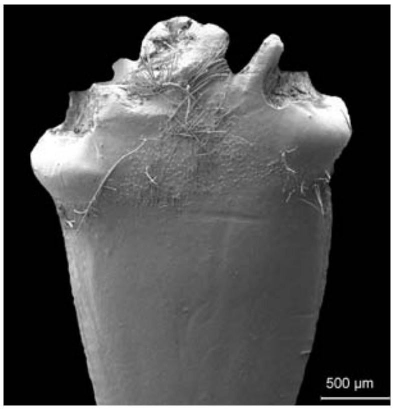
If this pattern is true, crop ecology may explain the prefe-rence, in drier areas for tetraploid rather than hexaploid free-threshing wheat species in the Near East, although the response of crops to drought is very complex and a result of the cumulative action of various physiological processes not yet fully under-stood. Percival and many other scholars consider tetraploid genotypes of wheat more tolerant to drought stress in arid environments than hexaploid wheat genotypes.[63] This feature seems to be very important in geographical areas with Aridic Calcisols and occasionally occurring droughts, as in the Near East. The hexaploid genotypes seem to have a comparatively low water-holding capacity,[64] which is, according to Sairam and colleagues, best in durum wheat (tetraploid free-threshing wheat), followed by emmer wheat (tetraploid hulled wheat).[65] At the same time, other agronomists report that hexaploid wheat species are the better candidates in semi-arid environ-ments, i.e., > 400 mm annual rainfall, due to a better response to increased rainfall.[66] However, *Triticum aestivum* seems not to be very flooding-tolerant.[67]

Emmer wheat (*Triticum dicoccon* Schrank, syn. *Triticum turgidum* ssp. *dicoccum*)

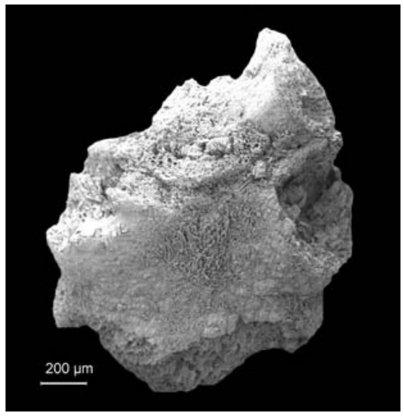
Another founder crop is the hulled emmer wheat; it also belongs to the tetraploid species but in contrast to free-threshing wheat it is non-shattering, i.e., the grains remain invested by the glumes and pales, thus being more time-consuming in processing as, compared with free-threshing wheat,[68] but at the same time better resistant to poor soils, fungal diseases, pests, and storage moisture if stored in its glumes.[69]

Its importance amongst the first cereals and staple crops in the Late Neolithic decreased continuously in the Near East until the end of the Early Bronze Age, while it remained of importance farther west (e.g., in the Aegean) at least until the

63 Percival 1974.
64 Oleinikova 1976.
65 Sairam et al. 2001.
66 Amar 1998.
67 Davies – Hillman 1988.
68 Excluding parching as part of the dehusking sequence.
69 Cf. Hillman 1984; Nesbitt – Samuel 1996.

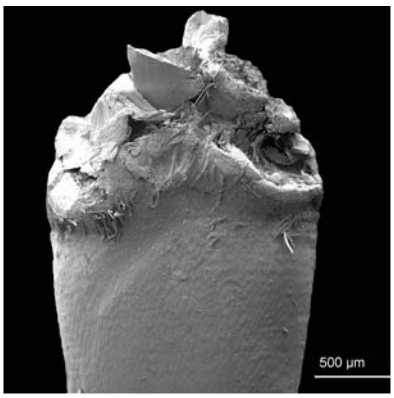


(a) *Triticum turgidum* ssp. *durum* (tetraploid free-threshing wheat rachis, modern)

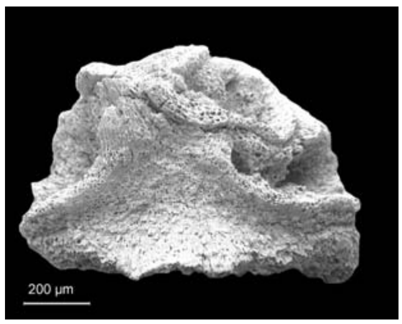


(b) *Triticum turgidum* spp. (cf. tetraploid free-threshing wheat rachis, Tell Mozan)

(c) *Triticum turgidum* spp. (tetraploid free-threshing wheat rachis, Tell Mozan)



(d) *Triticum aestivum* var. *creticum* (hexaploid free-threshing wheat rachis, modern)



(e) *Triticum aestivum* (hexaploid free-threshing wheat rachis, Middle Bronze Age Troy)

(f) *Triticum turgidum* spp. (tetraploid free-threshing wheat rachis, Tell Mozan)

Figure 10: Comparison of modern and prehistoric free-threshing wheat rachises of different ploidy levels.

end of the Late Bronze Age.[70] As is visible in Figure 13, cultivation of emmer was almost abandoned in the Near East with the beginning of the Middle Bronze Age.
Besides the commonly accepted translation of Sumerian "ZÍZ" as emmer wheat and its use for making beer and groats, there are major difficulties in using the textual evidence to identify most hulled wheat products.[71]

At Tell Mozan the ubiquity of emmer remains reaches 100% from Early Jazirah IIIa until including Early Jazirah IV and in the Middle Bronze Age samples (Old Jazirah I and II), while emmer occurs in only 40% of the samples in the final phase of the Early Bronze Age (Early Jazirah V). Considering the proportions, emmer never accounts for more than 20% of the crops in any of the phases, but it is less than 1% during

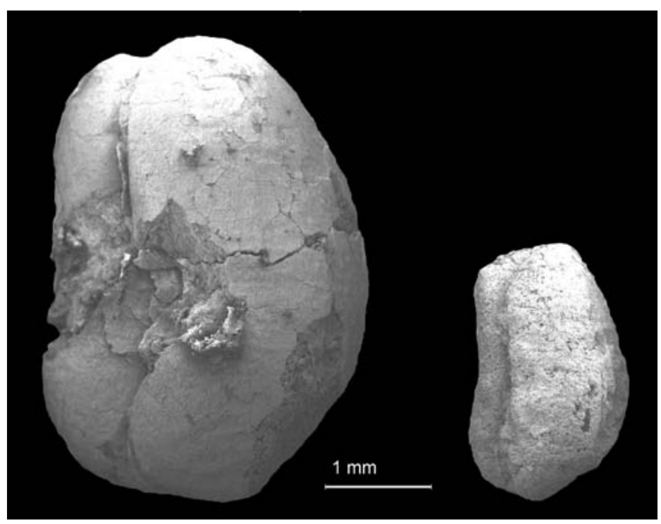
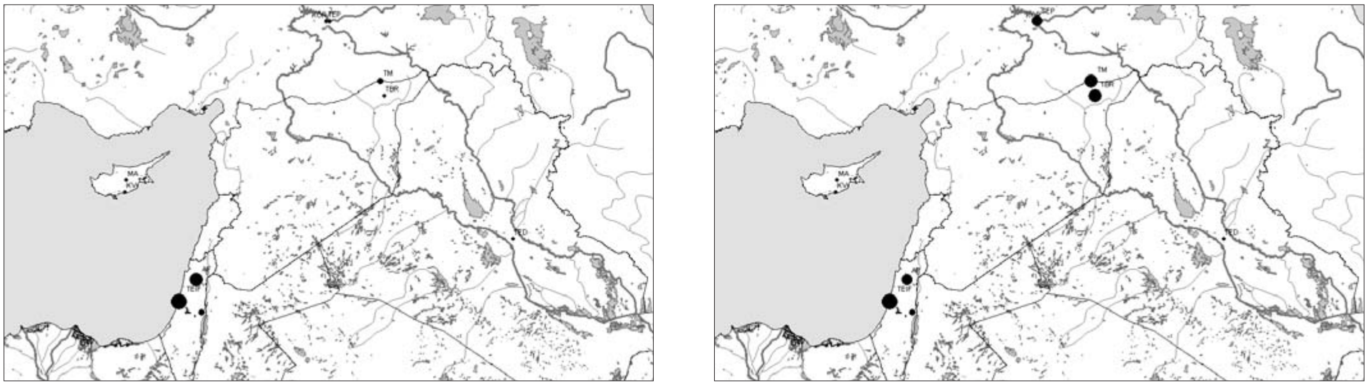


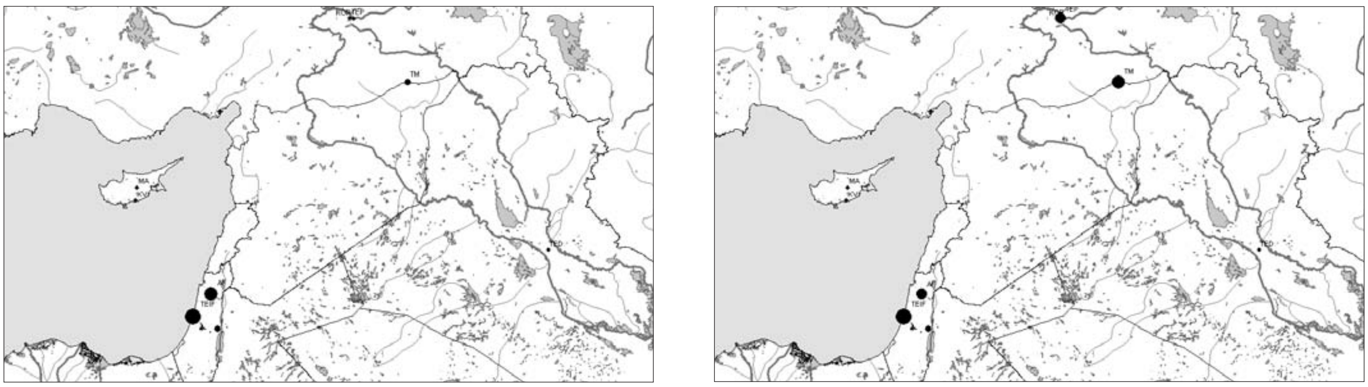
Figure 11: *Triticum aestivum/turgidum* (free-threshing wheat).

70 Riehl – Nesbitt 2003.
71 Nesbitt – Samuel 1996.



(a) proportions (b) ubiquities

Figure 12: Emmer wheat proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

Figure 13: Emmer wheat proportions and ubiquity in Middle Bronze Age Near Eastern sites.

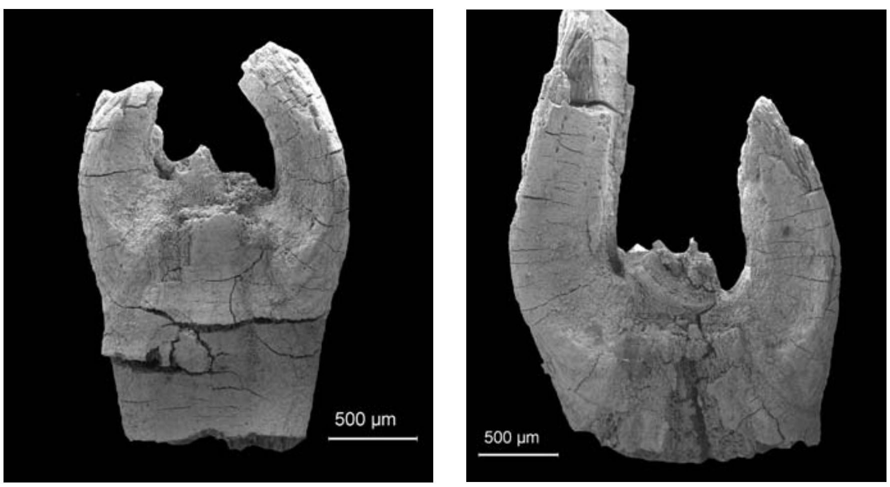


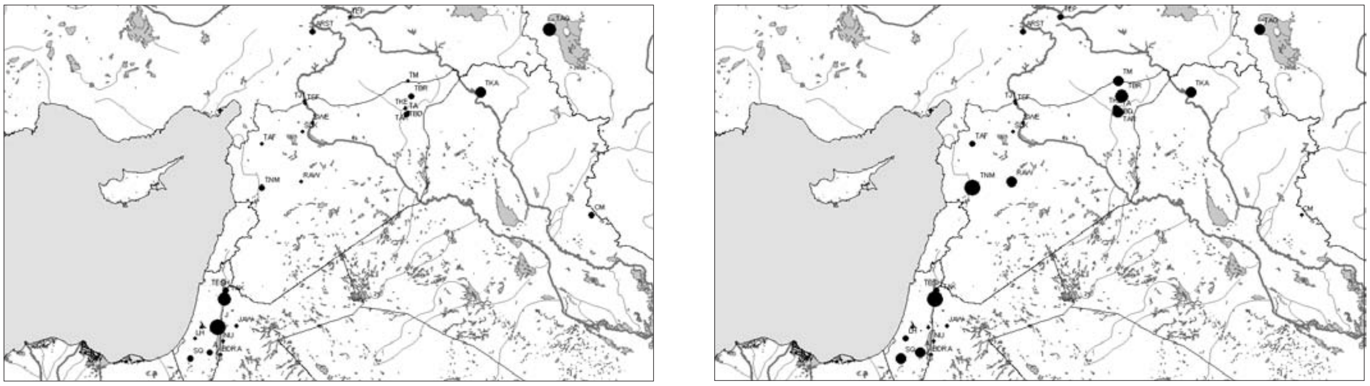
Figure 14: Spikelet forks of emmer wheat (*Triticum dicoccum*).

the final Early Bronze Age (Early Jazirah V). Its reappearance in the Middle Bronze Age is in some contrast to the general pattern in the Near East (Figures 12 and 13).

Emmer is considered a highly drought-resistant species due to its high water-holding capacity,[72] and it can also be considered with high probability a salt-tolerant species[73] and therefore a very useful cereal crop for arid environments. In relation to its general abandonment in the Middle Bronze Age at many sites, economic, political, and probably also cultural (dietary) reasons should be considered rather than reasons related to environmental change.

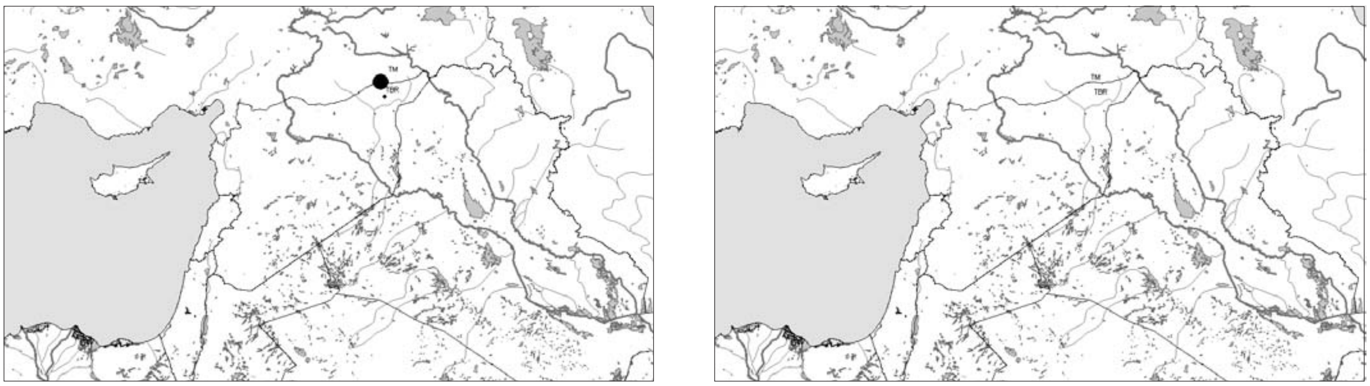
72 Oleinikova 1976.

73 Hunshal et al. 1990.



(a) proportions (b) ubiquities

Figure 15: Einkorn wheat proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

Figure 16: Einkorn wheat proportions and ubiquity in Middle Bronze Age Near Eastern sites.

Einkorn (*Triticum monococcum* L.)

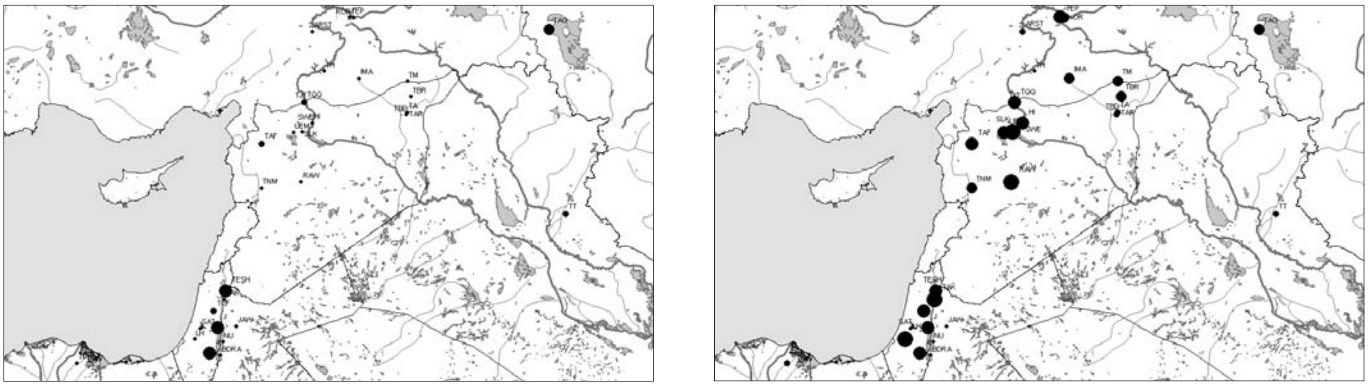
Another founder crop of Neolithic agriculture is einkorn, which belongs like emmer to the hulled wheat group but which lost its importance even earlier than emmer. Einkorn, a common crop in the Khabur area during the Early Bronze Age, was almost completely abandoned until the Middle Bronze Age in the Near East (Figures 15 and 16).

Einkorn ubiquity at Tell Mozan decreases continuously until the Middle Bronze Age phase Old Jazirah I – II. The cereal never occurred with more than 10 grains in any of the phases and thus cannot be considered as a crop of importance; more precisely, its limited presence advocates for its characterization as a tolerated crop weed rather than as a crop.

The general decline of the species is often related to the low yield structure of this mostly one-grained cereal in comparison with free-threshing wheat, and also to the fact that its flour, if used for bread-baking, has poor rising quality.[74] An assumed uselessness for braed-baking, however, may not have been the main reason for its abandonment in the Near East. According to Oleinikova[75], einkorn belongs to a group of species with low water-holding capacity, which makes it drought-susceptible. Zhao and colleagues demonstrated that water uptake ability of the wheat root system at the whole-plant level was increased with chromosome ploidy during evolution, and is lowest in *Triticum monococcum.*[76] This is supported by the work of Kishitani and Tsunoda,[77] who compared photosynthetic response to water stress of the genotype of wild einkorn (*Triticum boeoticum*) and domesticated einkorn, showing that the leaf water potential of wild einkorn was always higher than that of domesticated einkorn.

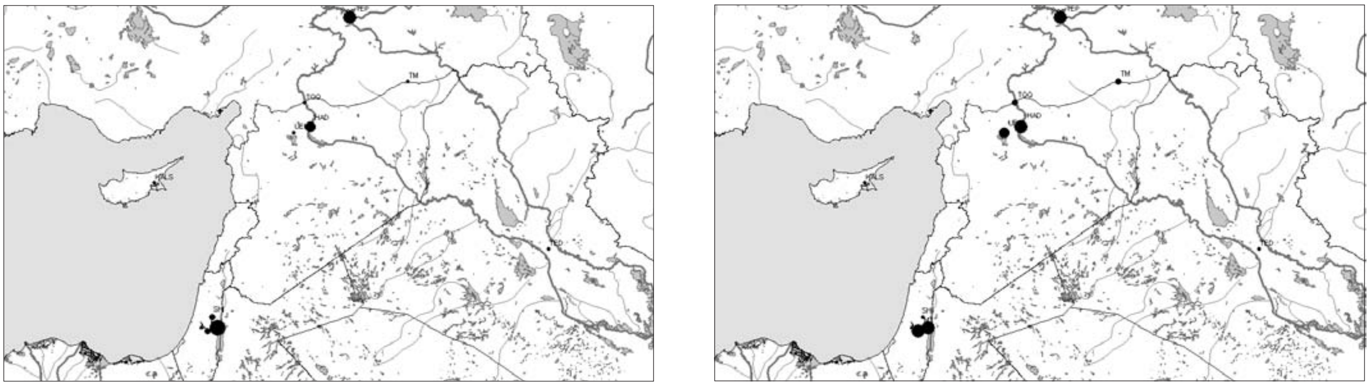
Arid bioclimatic conditions in many areas of the Near East may therefore have had an unfavourable effect on the cultivation of einkorn, thus giving the impetus to human preference of other cereal species.

74 Cf. Zohary – Hopf 2000.
75 Oleinikova 1976.
76 Zhao et al. 2005.
77 Kishitani – Tsunoda 1981.



(a) proportions (b) ubiquities

Figure 17: Lentil proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

Figure 18: Lentil proportions and ubiquity in Middle Bronze Age Near Eastern sites.

2.1.1.2 Pulses

With their complementary nutritional value in a diet mainly based on cereals, pulses occur in rather limited numbers at Tell Mozan, constituting in none of the phases more than 10% of the crop remains.

The most ubiquitous species is lentil, followed by grass pea and garden pea, while lentil occurs in higher proportions, followed by bitter vetch and grass pea.

Two pulses occurred with only two or one record, respectively, and could not be definitely identified due to bad preservation. These are broad bean (cf. *Vicia faba* L.) and chick pea (cf. *Cicer arietinum* L.), which both occurred in a Middle Bronze Age sample only.

Lentil *(Lens culinaris* Medik.)

Lentil belongs to the most valued pulse crops due to its taste and high protein content (ca. 25%).[78] The crop occurs in high ubiquity during the Early Bronze Age in a number of Near Eastern sites, but it seems to be somewhat reduced to the Euphrates area during the Middle Bronze Age, even when the lower number in analysed sites from this period are considered (Figures 17 and 18).

At Tell Mozan lentil becomes particularly rare in numbers during the Middle Bronze Age phases (Old Jazirah I – II). The same applies for the ubiquity.

Experiments on the effect of seasonal rainfall and low winter temperatures on lentil yield show that rainfall accounts for most of the variance in mean seed yield, in contrast to temperature, which has only a low effect on the yield.[79]

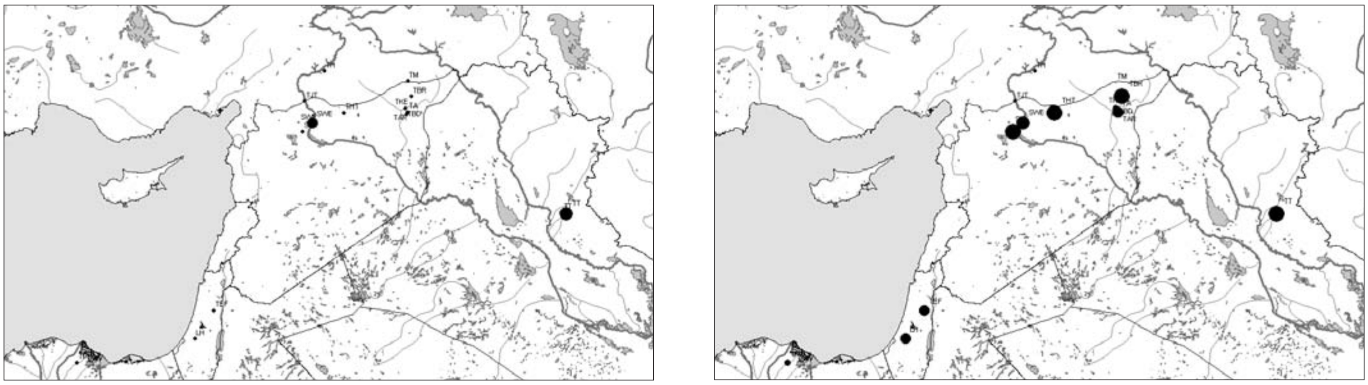
Grass pea *(Lathyrus sativus / cicera)*

Grass pea is a crop of minor occurence, probably due to its poisonous character when consumed in large proportions.[80] The irreversible disease has been known as neurolathyrism since ancient times, and it occurs whenever food consumption for a period of two to six months consists of one third to

78 Franke 1992.

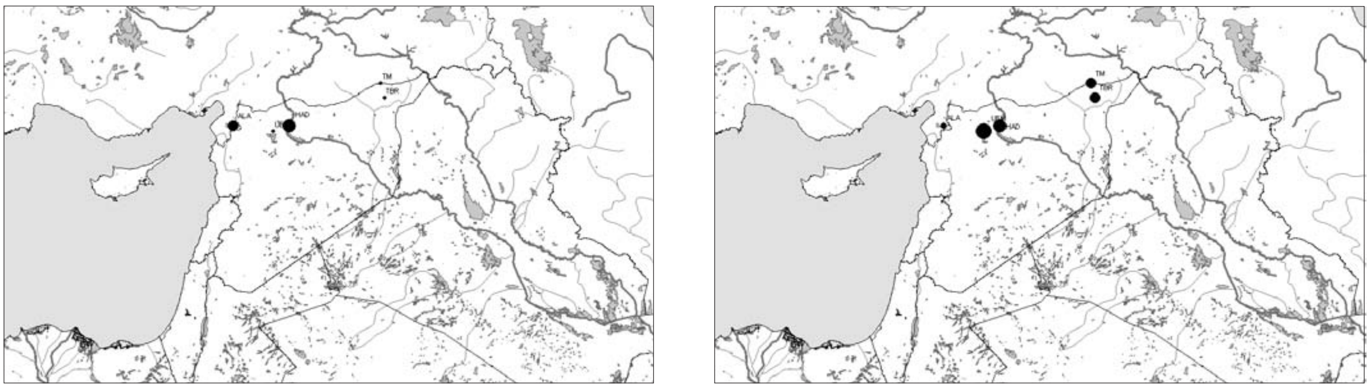
79 Erskine – El 1993.

80 Zohary – Hopf 2000.



(a) proportions (b) ubiquities

Figure 19: Grass pea proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

Figure 20: Grass pea proportions and ubiquity in Middle Bronze Age Near Eastern sites.

one half of grass pea seeds, which may only occur in times of shortage in alternative resources.[81]

Finds of grass pea seemed to be mostly limited to northern Syria during the Early Bronze Age, with a few find spots in the southern Levant, and even more limited during the Middle Bronze Age and restricted to North-Syria (Figures 19 and 20).

At Tell Mozan the species occurs with only a few seeds, although its ubiquity is high, particularly during the early phases of the Early Bronze Age (Early Jazirah IIIa-b).

Garden pea (*Pisum sativum* L.)

Garden pea belongs to the earliest and most highly valued grain legumes in the Old World. It still occurs in widespread high ubiquity during the Early Bronze Age, although in small proportions, particularly in the Syrian areas with mean annual precipitation below 400 mm (Figure 21). Its area of distribution in archaeological settlements is decreased during the Middle Bronze Age.

81 Kislev – Cohn 1987.

At Tell Mozan garden pea is only recorded in Early Bronze Age samples, and there only with some single records per phase.

Experiments on the effect of timing and intensity of drought on the growth and yield of *Pisum sativum* resulted in a linear decrease of pea yield with an increase in the soil moisture deficit.[82] Therefore, garden pea has to be considered as particularly drought-intolerant, although at the same time relatively tolerant to salinity.[83] The retreat of this valuable crop in the Middle Bronze Age toward the Mediterranean region may have bioclimatic reasons.

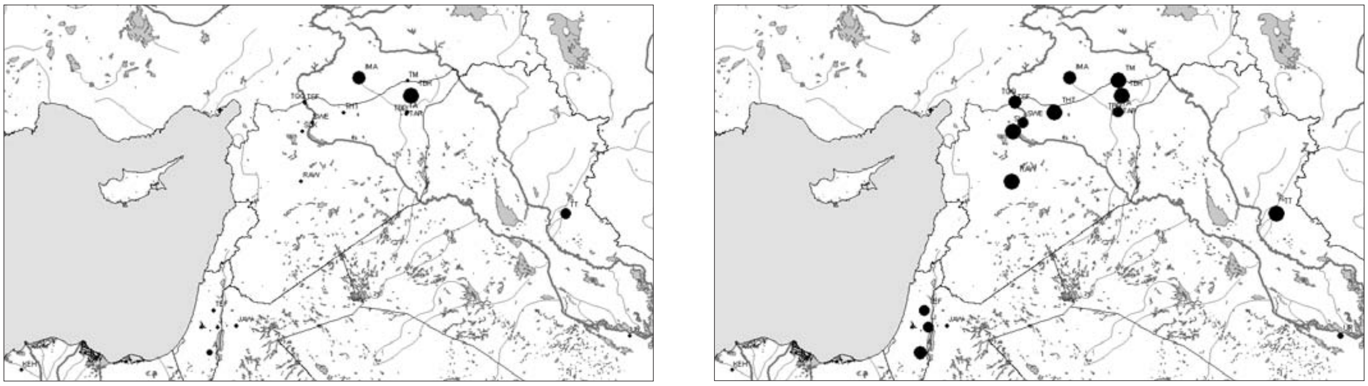
Bitter vetch (*Vicia ervilia* (L.) Willd.)

Bitter vetch is a minor crop due to its toxicity to humans and some animals, and it requires soaking in water to remove the poisonous substances.[84] Therefore, the species has been primarily considered as animal feed at least since Roman times. Considerable amounts have been found in some sites; however, it occured in low proportions and moderate ubi-

82 Martin – Jamieson 1996.

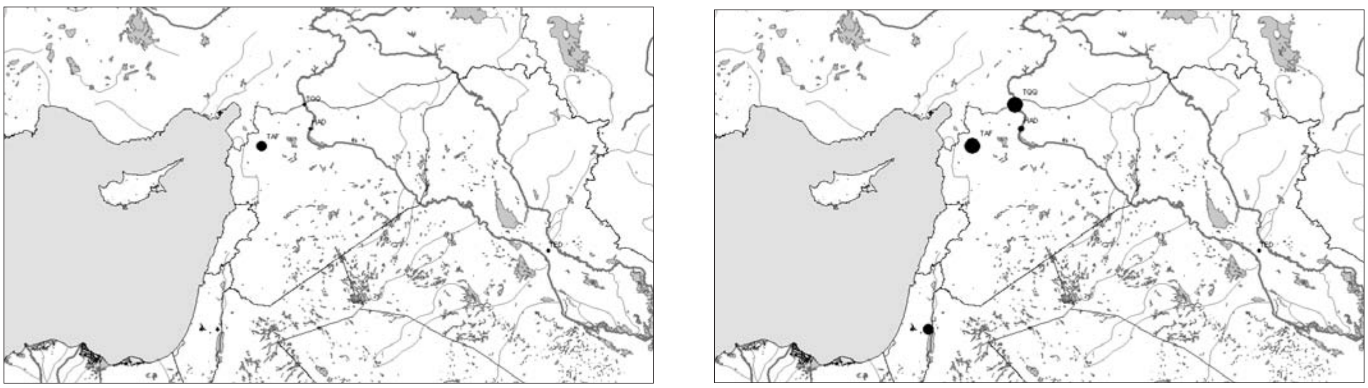
83 Guerrier 1983.

84 Cf. Zohary – Hopf 2000.



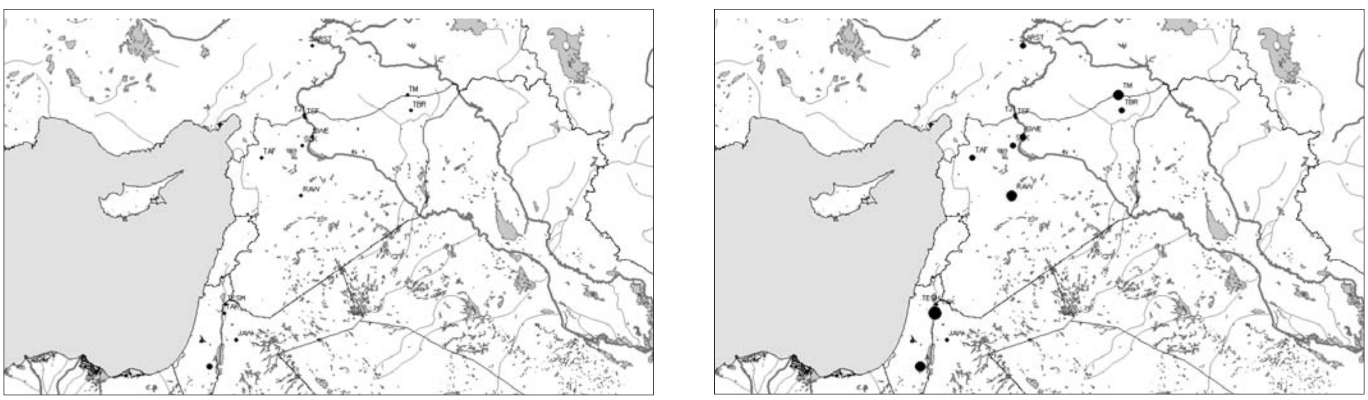
(a) proportions (b) ubiquities

Figure 21: Garden pea proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

Figure 22: Garden pea proportions and ubiquity in Middle Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

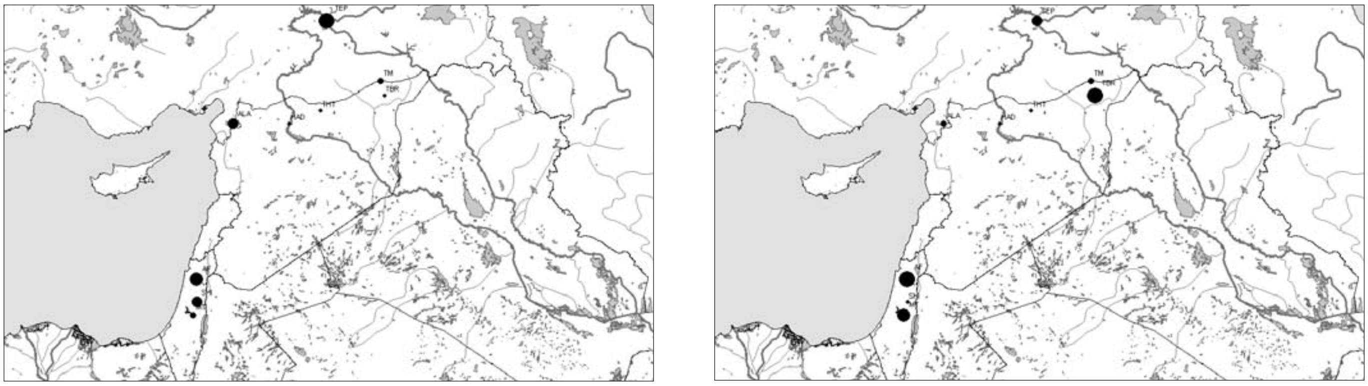
Figure 23: Bitter vetch proportions and ubiquity in Early Bronze Age Near Eastern sites.

quity in the Near East during the Early Bronze Age (Figure 23).

Bitter vetch occured at Tell Mozan with relatively high proportions only during the Middle Bronze Age period, while it is not recorded during the Early Bronze Age phases Early Jazirah IIIa-IV.

Vicia ervilia is reported as a crop with a high potential of drought adaptation.[85] In this relation higher proportions of this species in some Near Eastern Middle Bronze Age sites may be significant (Figure 24).

85 Enneking et al. 1995.



(a) proportions (b) ubiquities

Figure 24: Bitter vetch proportions and ubiquity in Middle Bronze Age Near Eastern sites. Note the reduced numbers of investigated sites during the Middle Bronze Age.

(a) (b)

Figure 25: Two poisonous pulse crops: (a) *Vicia ervilia*; (b) *Lathyrus sativus*.

2.1.1.3 Oil crops

Oil crops are generally weakly represented in Near Eastern archaeological sites of the Early and Middle Bronze Age, which may indicate a major role of animal fat in human diet, particularly during the Middle Bronze Age and in the Euphrates region in general (Figures 26 and 27).

Linseed / Flax (*Linum cf. usitatissimum L.*)

Flax is the oldest crop used for textile production. The oil of linseed is of many uses and contains diverse fatty acids, such as oleic and linoleic acids, amongst the main components.[86] Besides this, the seed contains up to 20% protein and is of high caloric value (ca. 500 kcal / 100 g).

While the cultivation of olive is relatively restricted to an area close to the Mediterranean coast, flax occurred in higher ubiquity during the Early Bronze Age also farther to the east in northern Mesopotamia, although the general lack of oil crops in the Euphrates region during that time is striking. During the Middle Bronze Age, flax is not recorded at any of the sites. Even when considering the general poor preservation of charred flax seeds, it seems clear that flax was substituted by other resources, such as wool for fiber.

At Tell Mozan flax is only represented by two remains, one seed in a final Early Bronze Age sample (Early Jazirah V) and one in the following Middle Bronze Age (Old Jazirah I; Figure 28).

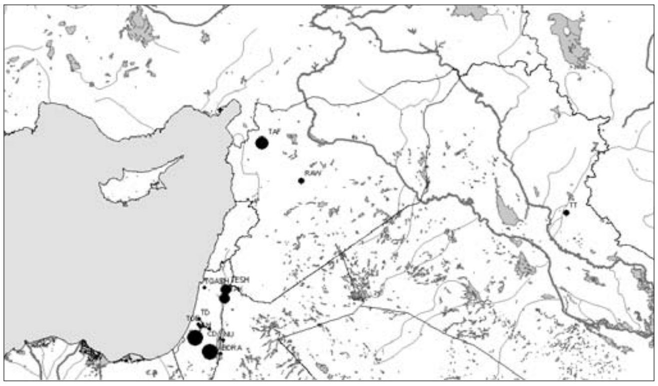
Seed flax can be grown under a wide range of conditions, but it is particularly intolerant of salinity and high temperatures in terms of normal seedling growth, while fibre flax requires abundant moisture[87] during the growing season.[88]

The abandonment of flax at least during the Middle Bronze Age may be explained by either economic and/or cultural preferences for other fibers, such as wool, after the Early Bronze Age or by changed bioclimatic conditions during the Middle Bronze Age. A combination of both factors seems to be most likely.

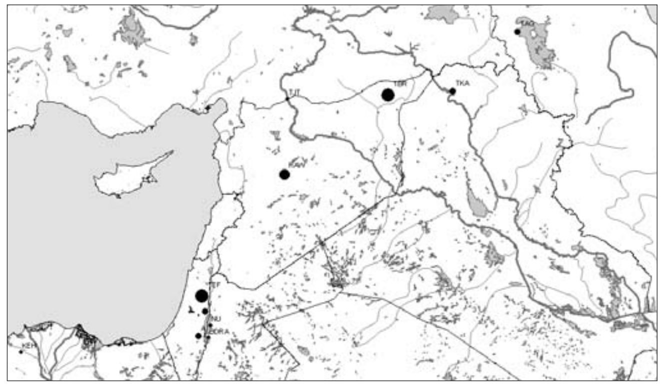
86 Franke 1992.

87 Not below 300 mm, but 710 mm as a mean of 76 cases.

88 El-Nakhlawy – El-Fawal 1989; Abaza et al. 1974.

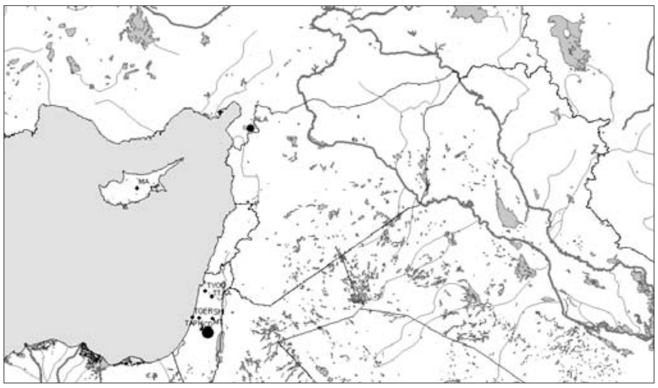


Olea europea

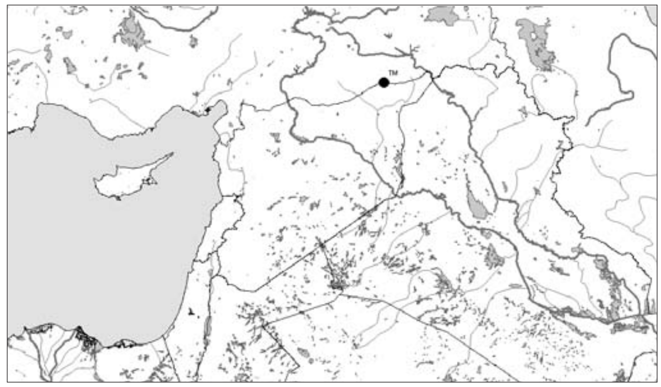


Linum usitatissimum

Figure 26: Oil crop ubiquity in Early Bronze Age sites.



Olea europea



Linum usitatissimum

Figure 27: Oil crop ubiquity in Middle Bronze Age sites.

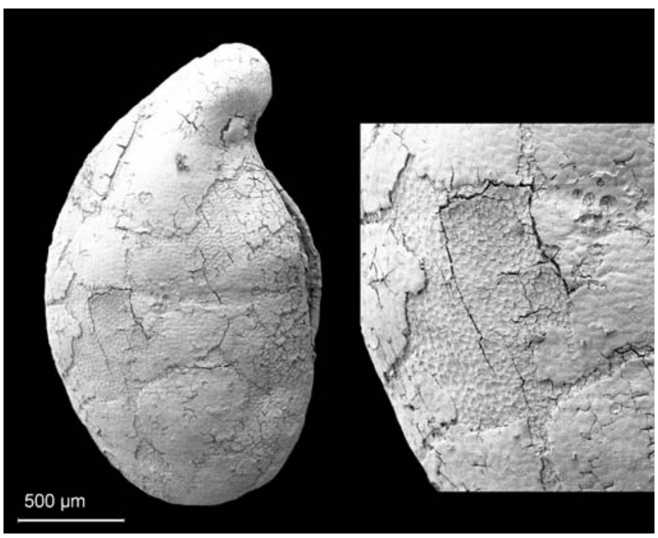


Figure 28: *Linum* cf. *usitatissimum* L.

2.1.1.4 Fruit trees

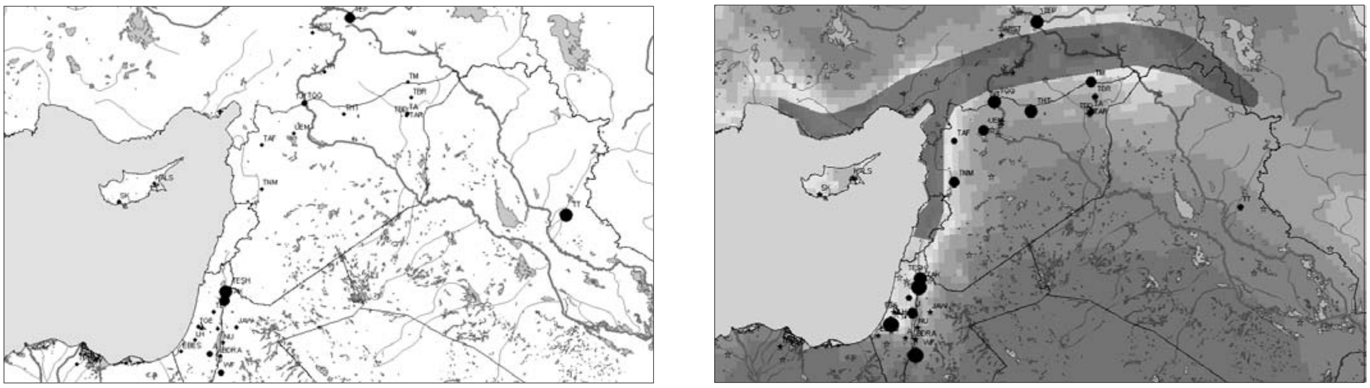
Grape (*Vitis vinifera L.*)

Grape is considered to have significantly contributed to food production in the Old World at least since the Early Bronze Age.[89] The fruit is rich in carbohydrates, the raisins are a valuable storable food, and the juice serves for the fermentation of wine.

Grape vine is adapted to Mediterranean-type environments, and cultivation during the Early Bronze Age seems to have been practiced considerably southward of the natural distribution of the wild progenitor (*Vitis vinifera* ssp. *sylvestris*; Figure 29). Even allowing for the fewer analyzed Middle Bronze Age sites, grape cultivation generally seems to be reduced during this period (Figure 30).

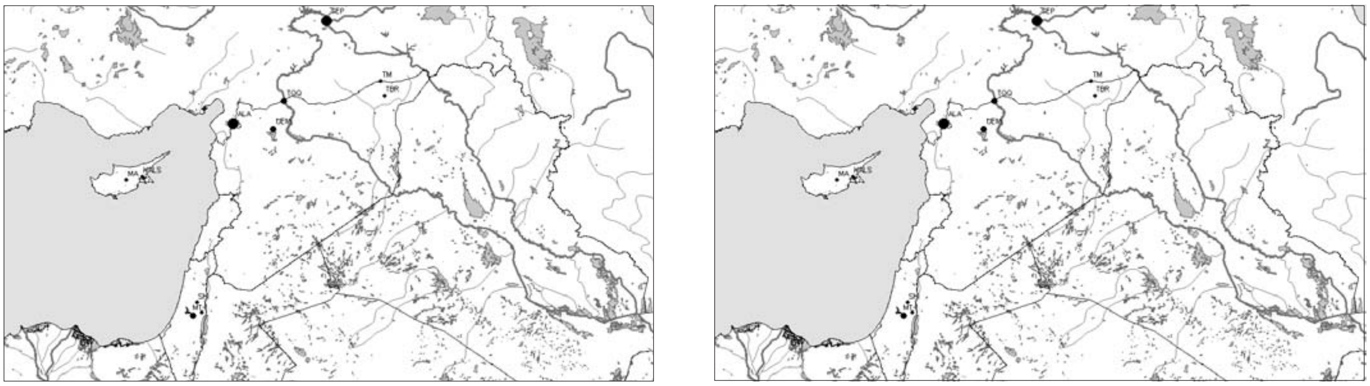
At Tell Mozan there are single finds of grape pips in the Early Bronze Age samples. In the Middle Bronze Age (Old Jazirah I-II) samples they occur in slightly higher numbers, which is in contrast to the general picture. As the ubiquity of grape at Tell Mozan is also low, there is, however, indication that the crop was not intensively cultivated around the settlement.

89 Zohary – Hopf 2000.



(a) proportions (b) ubiquities (shadows: natural distribution of *V.v.* ssp. *sylvestris*)

Figure 29: Grape proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

Figure 30: Grape proportions and ubiquity in Middle Bronze Age Near Eastern sites.

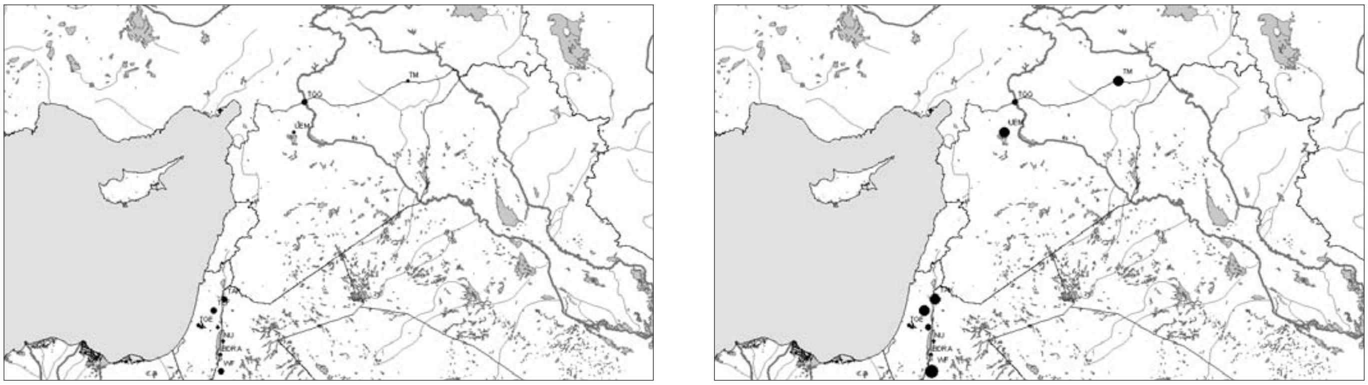
Figure 31: Grape pips and stalks (M 20:1).

Fig (*Ficus carica L.*)

Together with grape, fig belongs to the fruit trees associated with the beginnings of horticulture.[90] High in carbohydrates, it is also well-suited to storage. Primarily adapted to Mediterranean environments, its natural distribution in northern Syria is congruent with that of grape, and with the archaeological sites where fig was recorded.

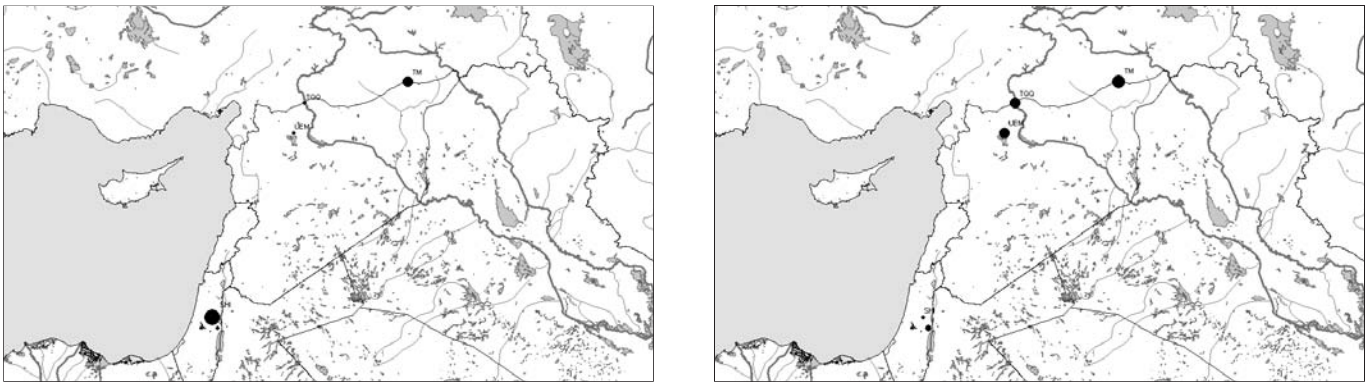
Fig was not much cultivated in Early and Middle Bronze Age Syria. No specific change is recognizable for this area in the transition from the Early to the Middle Bronze Age either (Figures 32 and 33).

90 Zohary and Hopf 2000.



(a) proportions (b) ubiquities

Figure 32: Fig proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

Figure 33: Fig proportions and ubiquity in Middle Bronze Age Near Eastern sites. Note the reduced numbers of investigated sites during the Middle Bronze Age.

In correlation with the general pattern of Near Eastern fig proportions and ubiquity during the Early and the Middle Bronze Age, the species is only present with single seeds at Tell Mozan, without any pattern in relation to the different phases, and it was very probably only occasionally consumed.

2.1.1.5 Other crops

Safflower (*Carthamus cf. tinctorius L.*)

Finds of safflower seeds in Near Eastern archaeological sites are usually interpreted as being related to dyeing, based on textual evidence from Egypt of the second millennium BC. Only in the 50s of the 20th century AD is the crop mentioned in relation with oil production.[91] With 74% the seed contains, however, more unsaturated oil acids than any other oil crop.[92]

In contrast to flax, safflower is a crop well adapted to arid conditions, with a strong tolerance to drought and salinity.[93]

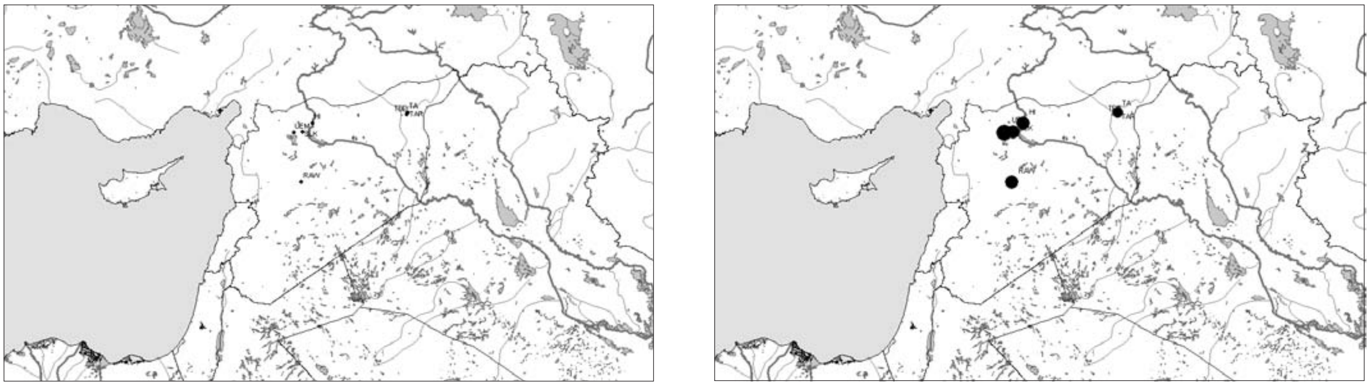
The center of domestication is northern Syria, and although its use as an oil crop during the Near Eastern Bronze Age cannot be proved at the moment, its use for this purpose seems very plausible in consideration of its distribution pattern in comparison with flax (Figures 26, 34 and 35).

At Tell Mozan safflower is recorded with 20 seeds, although mainly from mixed contexts (EBA – MBA) and only with one seed in a Middle Bronze Age sample; therefore nothing can be said about its use in relation to the different phases of the site.

91 Cf. Zohary – Hopf 2000; Marinova – Riehl 2009.

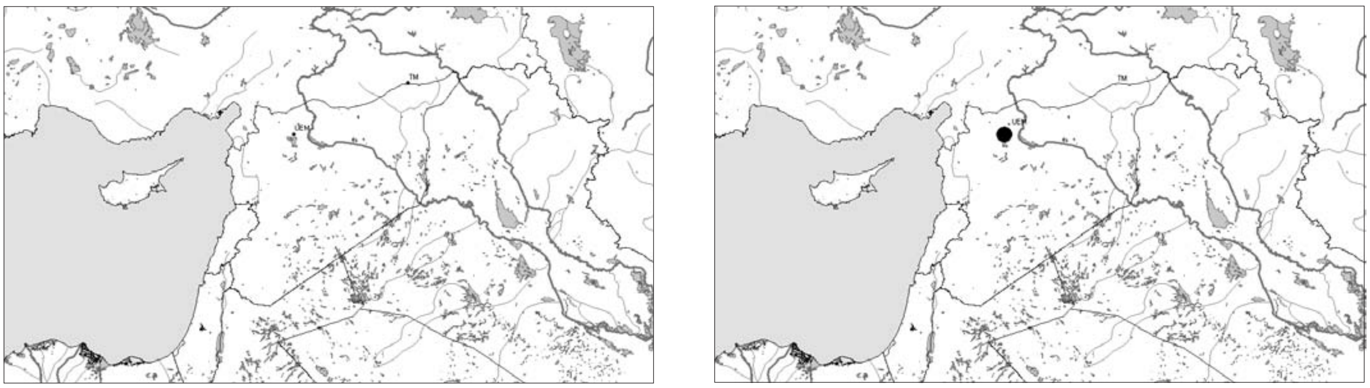
92 Franke 1992.

93 Quiroga et al. 2001; El-Nakhlawy 1989.



(a) proportions (b) ubiquities

Figure 34: Safflower proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

Figure 35: Safflower proportions and ubiquity in Middle Bronze Age Near Eastern sites. Note the reduced numbers of investigated sites during the Middle Bronze Age.

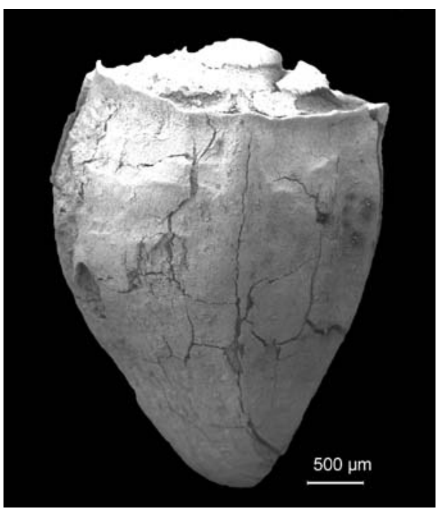


Figure 36: *Carthamus tinctorius*.

2.1.2 Gathered plants

In principal, almost all wild plants may be gathered and processed for various purposes, and in fact Near Eastern villagers still rely on intensive gathering of a large variety of wild plants for consumption, medicine and crafts-related purposes.[94] Aside from being environmentally determined, the assemblage of wild plants used by a group of people may also be distinctive of their ethnicity and could be a valuable tool for the investigation of cultural aspects in ancient societies. However, this approach is still far from being well developed, all the more as the number of people able to supply enthnographic researchers with the necessary information severely decreased during the last ten years.[95] Another problem is, that plants collected for their green parts are hardly preserved in archaeological sites. The seeds of wild plant assemblages usually derive at the site with a background other than for consumption.

94 Ertug 2000; Ertug-Yaraş 1995.
95 Cf. Ertug-Yaraş 1997.

Ertug-Yaraş observed that although medicinal plants and their usage in Anatolia are better known and investigated than other useful plants, there are still species not recorded in the literature. Including crops (linseed, wheat and barley grain, and grape leaves), which are also used for medicinal purposes, about 36% of the 44 species listed by Ertug-Yaraş have so far been identified at archaeological sites[96] (Table 3). This appears to be a high proportion, considering the fact that the plants are, except for *Peganum harmala,* mainly collected for their vegetative parts (leaves, roots, etc.) well before the seeds are mature. These species usually occur in small seed numbers in archaeological sites, and only in large amounts would their presence justify the interpretation of intentional use by humans, as is the case for the large number of seeds of *Peganum harmala* from Tell Selenkahiye[97] or for the *Plantago lanceolata* seeds from Kastanas in Greece[98]. If not found in storage contexts, they may, however, represent dung remains.

Useful species present at Tell Mozan, mainly present in small numbers, are *Ammi majus* L. (bishop's flower), *Astragalus* L. sp. (milk vetch), *Centaurea solstitialis* - type (yellow star thistle), *Cheiranthus* - type (Cheiranthus), *Cichorium* cf. *intybus* L. (chicory), *Daucus carota* L. (carot), *Epilobium* - type (willowherb), *Eragrostis* N.M.Wolf sp. (Eragrostis), *Hordeum* cf. *spontaneum* Koch (wild barley), *Lepidium* L. sp. (*sativum*?) (garden cress), *Lithospermum arvense* L. (field gromwell), *Malva* L. sp. (mallow), *Ornithogalum* sp./cf. *Muscari* (*neglecta*) (ornithogalum), *Plantago* L. sp. (plantain), *Prosopis* cf. *farcta* (Banks & Sol.) (mesquite), *Quercus* L. sp., fruit (oak) (Figure 69), *Rumex* L. sp. (dock), *Thymelaea* Miller sp. (Thymelaea), *Vaccaria* cf. *pyramidata* Medik. (cow soapwort), *Valerianella dentata* (L.) Pollich (corn salad), *Verbascum* L. sp. (mullein), *Verbena* cf. *officinalis* L. (vervain) and *Ziziphora* Dumort. sp. (ziziphora). Amongst them are many edibles that are still consumed today (e.g., edible greens such as chicory, garden cress, mallow, the vitamin C-rich dock, corn salad, roots such as carrot, or wild fruits such as acorns.

At Tell Mozan no seed remains of gathered fruits and berries of the Rosaceae family (e.g. *Amygdalus* spp., *Cerasus* spp., *Cotoneaster* spp., *Crataegus* spp., *Malus* spp., *Prunus* spp., *Pyrus* spp., *Rubus* spp., *Sorbus* spp.) were found, and neither was *Pistacia* sp. (Anacardiaceae), although it may have grown in the closer surroundings of the site (see Deckers, this volume).

Generally, most of the useful plants alternatively represent weeds. As none of these taxa occurred in large seed numbers, an assumption of their cultivation or large-scale gathering is not justified. Therefore, they are not classified here as food plants, but are considered as weeds or other wild plant taxa of surrounding plant associations.

The wood remains from Tell Mozan and their relevance for fuel, building, and other purposes are discussed by Katleen Deckers (this volume).

taxon	family	traditional use / indication *	site	location	period	reference	number
Cerato-cephalus falcatus	Ranunculaceae	leaves pounded raw / inflammated wounds	Tell Atij	Syria	Early Bronze Age	McCorriston 1995	4
Cichorium intybus L.	Asteraceae	roots boiled as tea / weakness	Tell Brak	Syria	Late Bronze Age	Colledge 2003	4
Hibiscus esculentus	Malvaceae	flowers dried and boiled as tea / shortness of breath	Samos Heraion	Greece	Archaic period	Kucan 1995	1
			Tel Gezer	Israel	Early Bronze Age	Liphschitz 1989	present
Juglans regia L.	Juglandaceae	leaves boiled / wounds in mouth and nostril	Tel Michal	Israel	Arab period	Liphschitz and Waisel 1989	1
			En Boqeq	Israel	Byzantine, Late Roman period	Liphschitz and Waisel 1993	present
			Abi'or cave	Israel	Roman period	Kislev 1992	3

96 Riehl – Kümmel 2005.
97 Van Zeist – Bakker-Heeres 1985.
98 Kroll 1983, 1984.

taxon	family	traditional use / indication *	site	location	period	reference	number
Peganum harmala L.	Zygophyllaceae	seeds pounded and eaten with honey / stomach pains	Tell al-Rawda	Syria	Early Bronze Age	Herveux 2004	29
			Hajji Ibrahim	Syria	Early Bronze Age	Miller 1997	14
			Umm el-Marra	Syria	Early and Late Bronze Age	Miller, et al. 2000	1
			Tell al-Raqa'i	Syria	Early Bronze Age	van Zeist 1999/2000, 2001	1
			Tell es-Sweyhat	Syria	Early Bronze Age	van Zeist and Bakker-Heeres 1985	141
			Tell Selenkahiye	Syria	Early Bronze Age	van Zeist and Bakker-Heeres 1985	1500
			Tell Hammam et-Turkman	Syria	Early Bronze Age	van Zeist et al. 1988	1
			Kaman-Kalehöyük	Turkey	Medieval, Ottoman period	Fairbairn 2002, Nesbitt 1993, Nesbitt 1995	12
Plantago lanceolata type	Plantaginaceae	leaves cut or pounded / skin wounds, rheumatism, boils	Kastanas	Greece	Early Bronze Age	Kroll 1983, Kroll 1984	3
			Kastanas	Greece	Early Iron Age	Kroll 1983, Kroll 1984	19
			Kastanas	Greece	Late Bronze Age	Kroll 1983, Kroll 1984	3653
			Kalapodi	Greece	Early Iron Age	Kroll 1993	6
			Troy	Turkey	Middle Bronze Age	Riehl 1999a, b	15
Reseda lutea L.	Resedaceae	roots eaten raw / stomach pains	Emar	Syria	Late Bronze Age	Riehl 2001	5
Rubus sanctus	Rosaceae	roots boiled as tea / pain, aches	Umm Qseir	Syria	Chalcolithic	McCorriston 1992	2
Rumex crispus	Polygonaceae	leaves pounded or boiled / skin wounds, hemorrhoids	Tell el-Iswid	Egypt	Early Bronze Age, Predynastic period	de Roller 1989	2
			Tell ed-Der	Iraq	Middle Bronze Age	van Zeist 1984	8
			Kuşakli	Turkey	Late Bronze and Iron Age	Segschneider 1995, Pasternak 1998, Pasternak 2000	38
Trigonella aurantiaca Boiss.	Fabaceae	whole plant boiled with others / sterility	Nimrud	Iraq	Hellenistic period	Helbaek 1966	2
Urtica dioica L.	Urticaceae	leaves applied on skin, raw or boiled; used as tea / rheumatism, pain, sterility	Samos Heraion	Greece	Early Archaic period	Kucan 1995	14
			Troy	Turkey	Middle Bronze Age	Riehl 1999a, b	2

Table 3: Potential medicinal plants[99] found in Near Eastern archaeological sites from the Chalcolithic onwards (crops are not listed).

99 Source for the traditional use for medicinal purpose: Ertug-Yaraş 1997.

2.1.3 Weeds and other wild plant taxa

2.1.3.1 Weeds

Most of the plant taxa recovered at Tell Mozan arrived at the site as crop weeds, either directly or indirectly via animal dung. Considering the modern eco-functional classification of wild taxa, there are typical weeds, and also other wild plants that may have grown as accompanying species of the crops in prehistory. Such species can adapt to a wide range of habitats, amongst them fields and gardens, and they are classified here as probable weeds (Table 4: *). Considering the characteristics of their preferred modern ecological habitats, there are some taxa typical of moist to wet environments such as river shores, alluvial and saline flats, irrigation ditches, etc. They contribute only a few seed remains to the whole assemblage, but most of the taxa present during the final Early Bronze Age phase Early Jazirah V. There are also taxa indicative for a more or less open woodland vegetation, which is consistent with the numerous finds of deciduous oak charcoal at the sites.[100]

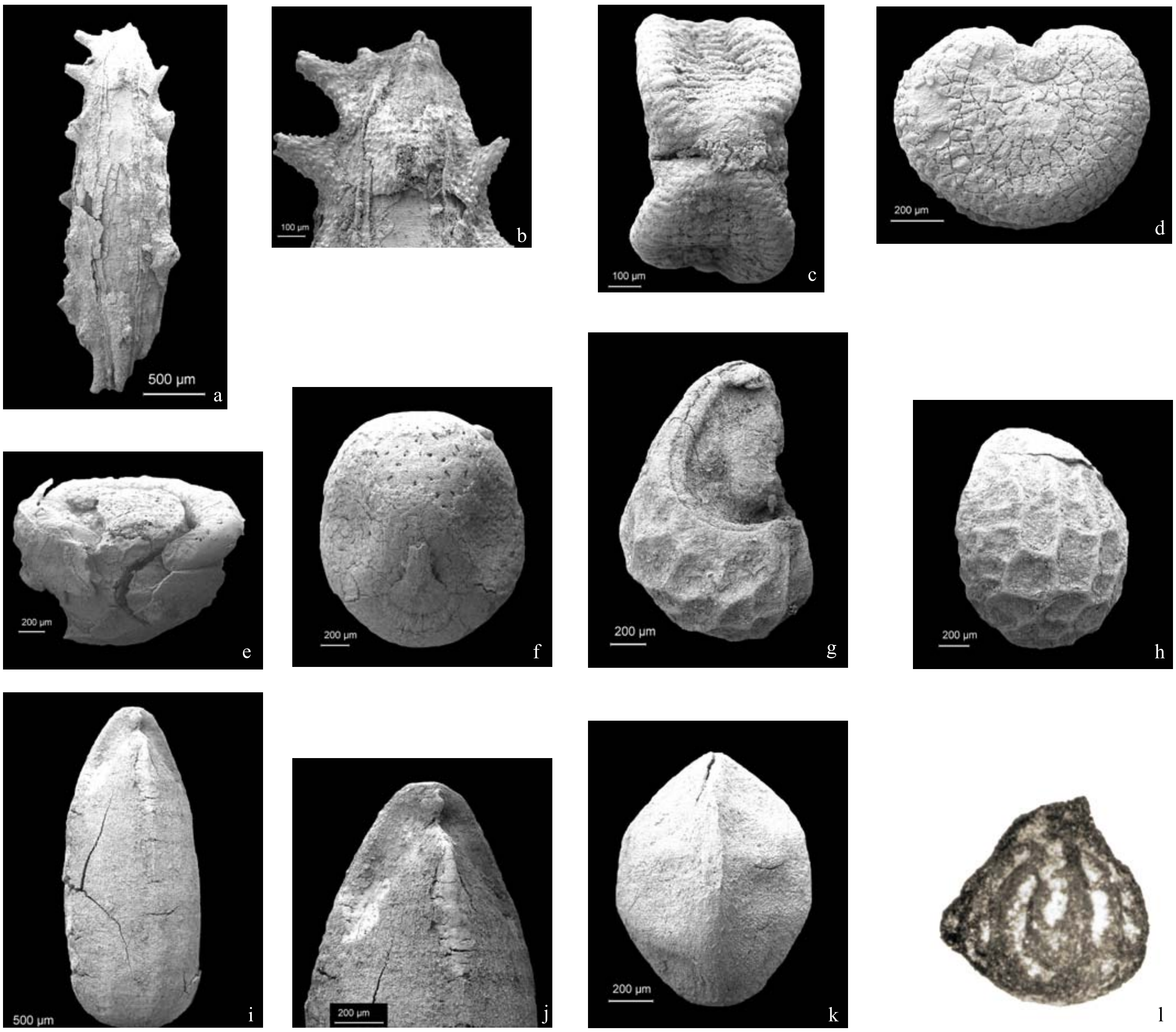


Figure 37: Some typical and probable weed taxa not described in the text (for a list of probable weeds see Table 4): (a) *Torilis leptophylla* (L.) Reichb., (b) *Torilis leptophylla* (L.) Reichb. detail, (c) *Silene* cf. *conica* L. ventral, (d) *Silene* cf. *conica* L. lateral, (e) *Salsola* L. sp., (f) *Calystegia* R.Br. sp., (g) *Ajuga* cf. *salicifolia* (L.) Schreber ventro-lateral, (h) *Ajuga* cf. *salicifolia* (L.) Schreber dorsal, (i) *Lallemantia* Fisch.& Mey. sp., (j) *Lallemantia* Fisch.& Mey. sp. detail, (k) *Anagallis* L. sp., (l) *Adonis* L. sp.

100 See Deckers this volume.

taxa	family	common name	main ecological characteristics	ecological habitat **
Calystegia R.Br. sp.	Convolvulaceae	bindweed	**water-related habitats**	edges of rivers and lakes, climbing in hedges or waste places
Eleocharis R.Br. sp.*	Cyperaceae	spikerush		preferably moist to wet habitats
Scirpus L. sp.*	Cyperaceae	bulrush		mainly in fresh to wet places
Scirpus maritimus L.*	Cyperaceae	club-rush		freshwater or saline marsh with Typha, Juncus and Phragmites, swamps, water meadows with Orchis palustris, streams and rivers, dried up river beds, soda lakes, thermal springs, saline and alluvial flats, beaches, edge of irrigation ditches, ricefields
Setaria verticillata (L.) P. Beauv.*	Poaceae	rough bristle-grass		disturbed ground, irrigated fields and gardens, ditches
Salsola L. sp.*	Chenopodiaceae	russian thistle		mainly in coastal, salty habitats
Alopecurus L. sp.*	Poaceae	foxtail		mainly damp places, often salt tolerant
Centaurea solstitialis - type*	Asteraceae	yellow star thistle	**woodland**	Pinus forests, dry slopes, fallow fields, waste places
Hordeum cf. *spontaneum* Koch	Poaceae	wild barley		Quercus-woodland, bushes, rocky limestone slopes, stony embankments, desert places and cultivated soil
Torilis - type*	Apiaceae	Torilis	**open vegetation**	fields, disturbed habitats
Torilis leptophylla (L.) Reichb.*	Apiaceae	Torilis		slopes, screes, fields, desert places
Carduus cf. *acanthoides* L.	Asteraceae	plumeless thistle		field margins and roadsides, on clay and gravel
Cichorium cf. *intybus* L.	Asteraceae	chicory		cultivated fields, meadows and waste places
Buglossoides tenuiflora (L. fil.) Johnston*	Boraginaceae	stoneseed		limestone slopes, stony places
Heliotropium L. sp.	Boraginaceae	heliotrope		disturbed habitats, ruderal and in fields
Lithospermum arvense L., uncarbonized*	Boraginaceae	field gromwell		limestone slopes, field margins, cornfields, rocky places, fallow fields, steppe
Camelina cf. *microcarpa* Andrz.	Brassicaceae	false flax		near cultivation
Silene cf. *conica* L.*	Caryophyllaceae	campion		sandy places
Vaccaria cf. *pyramidata* Medik.	Caryophyllaceae	cow soapwort		fields, disturbed habitats
Chenopodium L. sp.*	Chenopodiaceae	goosefoot		waste places
Chenopodium murale L.*	Chenopodiaceae	nettle-leaved goosefoot		desert places, road sides, rocks, sea coast
Cephalaria Schrader ex Roemer & Schultes sp.	Dipsacaceae	cephalaria		fields, open places
Coronilla L. sp.*	Fabaceae	crownvetch		mainly in disturbed habitats
Hippocrepis L. sp.	Fabaceae	hippocrepis		open ground
Scorpiurus cf. *muricatus* L.*	Fabaceae	caterpillar-plant		mainly on rocky slopes, especially limestone and fallow fields
Trifolium L. sp.*	Fabaceae	clover		open habitats
Ajuga cf. *salicifolia* (L.) Schreber*	Lamiaceae	bugle		stony slopes; steppe, fallow fields
Malva L. sp.*	Malvaceae	mallow		fields and open places
Fumaria L. sp.	Papaveraceae	fumitory		cultivated soil

taxa	family	common name	main ecological characteristics	ecological habitat **
Papaver L. sp.	Papaveraceae	poppy	**open vegetation**	fields and open places
Plantago cf. *lagopus* L.*	Plantaginaceae	plantain		roadsides, margins of fields, stony hills, rocky places, maquis, meadows, dry grazing land, sandy beaches
Aegilops Section *Vertebrata* Zhuk. emend. Kiharas (glume base)	Poaceae	goatgrass		fallow fields and cornfields
Avena L. sp.	Poaceae	oat		open, often disturbed habitats or in fields
Bromus sterilis L.	Poaceae	brome grass		ruderal habitats, grass hills and as weed
Echinaria capitata (L.) Desf.*	Poaceae	Echinaria		dry rocky limestone slopes in open Quercus ilex and Juniperus scrub, basalt, shallow gullies, disturbed steppe and fallow fields
Eremopyrum (Ledeb.) Jaub.& Spach sp.*	Poaceae	Eremo-pyrum		open habitats, mainly steppe
Lolium sp. (*persicum* - type)	Poaceae	rye-grass		open meadows on basalt, phrygana, corn and barley fields, road sides, embankments, on loam and sand
Phalaris L. sp.*	Poaceae	canary-grass		open, disturbed habitats
Polygonum aviculare L.*	Polygonaceae	prostrate knotweed		desert places
Anagallis L. sp.	Primulaceae	pimpernel		cultivated fields
Adonis L. sp.	Ranunculaceae	pheasant's eye		fields
Galium aparine - type	Rubiaceae	cleavers		weed, bushes, cultivated soil
Galium spurium - type	Rubiaceae	false cleavers		bushes, screes, cultivated and desert places
Valerianella dentata (L.) Pollich*	Valerianaceae	narrow-fruited cornsalad		cultivated soil, wood
Valerianella vesicaria type*	Valerianaceae	cornsalad		rocky slopes, fields
Anthemis L. sp.*	Asteraceae	chamomile	**dry, open vegetation**	dry, mainly open habitats
Melilotus - type*	Fabaceae	sweetclover		disturbed, mainly dry habitats
Bromus L. sp.	Poaceae	brome grass		fields, open (preferably dry) habitats
Centaurea L. sp.*	Asteraceae	corn flower	**indet.**	indet.
Trigonella L. sp.*	Fabaceae	fenugreek		indet.
Ajuga L. sp.*	Lamiaceae	bugle		indet.
Lallemantia Fisch.& Mey. sp.*	Lamiaceae	Lallemantia		indet.
Agrostis type*	Poaceae	bent grass		indet.
Hordeum L. sp. (wild)	Poaceae	barley (wild)		indet.
Poaceae indet. (large to medium)	Poaceae	grass family		indet.

Table 4: List of weed taxa at Tell Mozan from all phases (* probable weeds, ** according to Mouterde, Zohary, and Davis).[101]

101 Mouterde 1966; Zohary 1973; Davis 1965-1988.

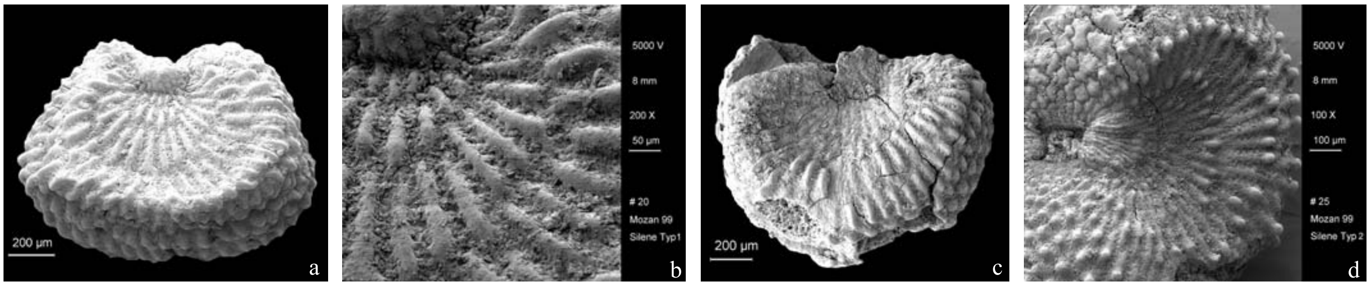


Figure 38: *Silene* type 1: (a-b) and type 2: (c-d) (campion).

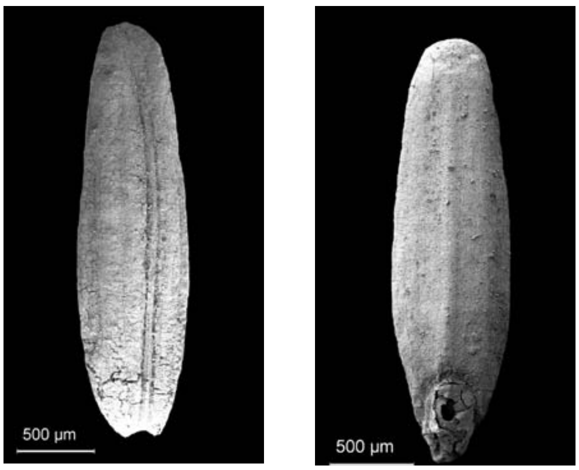


Figure 39: *Eremopyrum* (Ledeb.) Jaub.& Spach sp.
left: ventral, right: dorsal.

Figure 40: *Phalaris* L. sp. (lateral view).

The bulk of the weed taxa from Tell Mozan, however, prefer open habitats like waste places, fallow fields, and field margins. This group contributes 98% of the weed taxa and 42% to the whole seed assemblage.

Amongst the possible weeds were also taxa that could not be identified to the genus or species level either due to bad preservation conditions[102] or lack of comparative material[103] or both[104].

Only the most numerous and ubiquitous weed taxa are described, below in descending order of abundance (for minor species see Table 4 and related figures).

Grass family (Poaceae)

The grasses are usually the best represented group of seed remains amongst wild plant taxa in Near Eastern archaeological sites. It is reasonable to assume that at least the large-seeded types represent mainly cereal weeds.

The best represented taxa at Tell Mozan are *Phalaris* L. sp., *Aegilops* Section *Vertebrata* Zhuk. emend. Kihara, *Lolium* sp. (*persicum* - type), *Bromus* L. sp., *Echinaria capitata* (L.) Desf., and *Hordeum* cf. *spontaneum* Koch. They are described in more detail below.

Other probable weed taxa amongst the grasses are *Agrostis* type, *Alopecurus* L. sp., *Avena* L. sp., *Eremopyrum* (Ledeb.) Jaub. & Spach sp. (Figure 39), and *Setaria verticillata* (L.) P. Beauv. They are described elsewhere[105] and will not be further discussed here.

Canary-grass (*Phalaris* L. sp.)

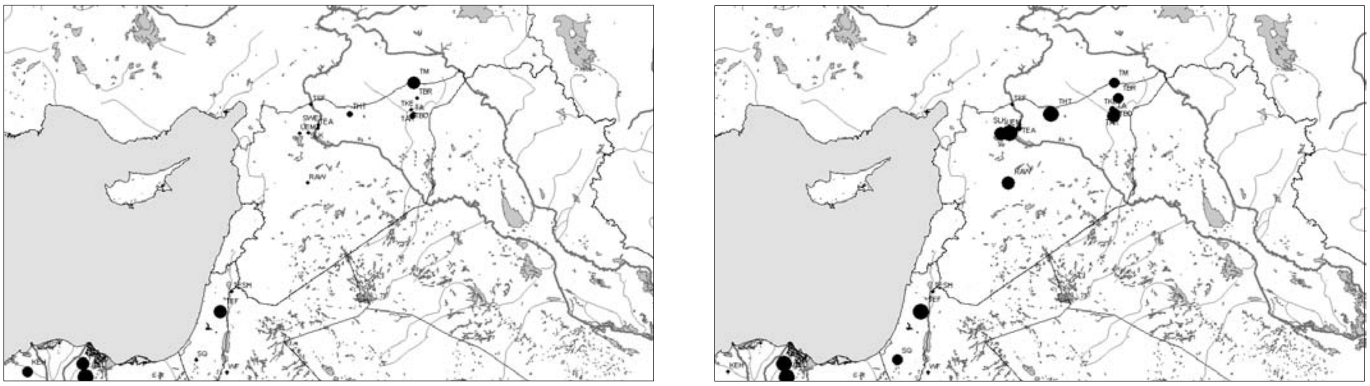
Phalaris sp., not identified to the species level, is a low- to medium-growing (20-150 cm), small-seeded grass, mainly in disturbed, open habitats. Some species of the genus (*Ph. aquatica* L., *Ph. arundinacea* L.) are indicative of moist conditions and irrigated fields.

The plant is amongst the most numerous taxa at Tell Mozan, with the bulk of the seeds deriving from the final Early Bronze Age (Early Jazirah V; Figure 40).

Canary-grass is a very common find in archaeobotanical assemblages. It occured in high ubiquities during the Early Bronze Age and continued into the Middle Bronze Age, particularly in western Syria; this implies its presence as a common weed amongst crops growing under relatively moist conditions during the Early Bronze Age, but with a seeming reduction in frequency in sites east of the Euphrates, during the Middle Bronze Age (Figures 41 and 42).

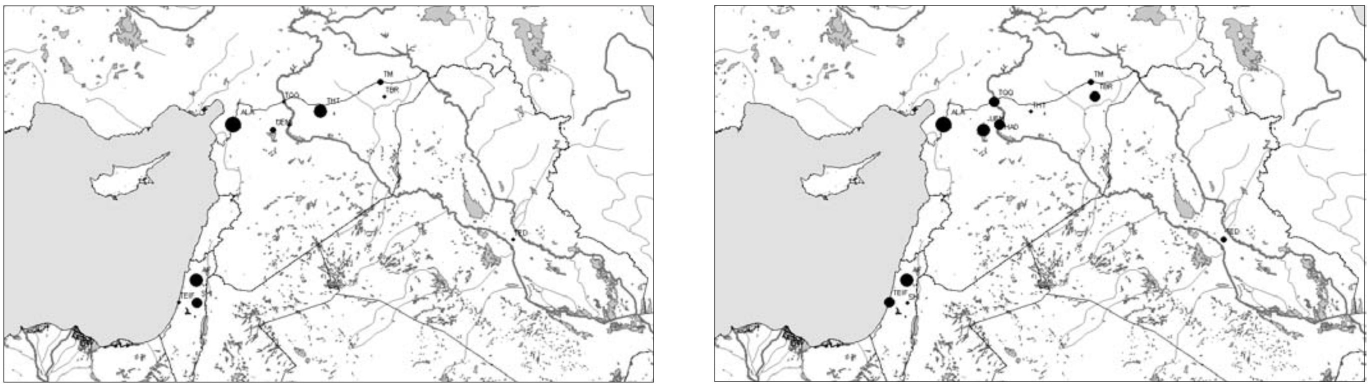
102 E.g. Brassicaceae indet. (unidentifiable members of the cabbage family) or Cyperaceae indet. (endosperms of the sedge family).
103 E.g. *Silene* type 1 and 2 (campion), Figure 38.
104 E.g. Fabaceae indet. (small seeds of the pea family).

105 Riehl 1999a, b, 2000, 2001, 2004.



(a) proportions (b) ubiquities

Figure 41: Canary-grass proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

Figure 42: Canary-grass proportions and ubiquity in Middle Bronze Age Near Eastern sites.[106]

Goatgrass *(Aegilops* Section *Vertebrata* Zhuk. emend. Kihara)

Aegilops is an important weed genus, not least because it delivers genomes to the cultivated wheats. The genus is recently investigated as a valuable genetic reservoir to improve the resistance of wheat species against diverse pests and environmental stress.

At Tell Mozan goatgrass belongs to the taxa with the highest proportions and ubiquities. It is particularly numerous in the Early Bronze Age phase Early Jazirah IV and outnumbers even the cereal remains there. This large-seeded grain might have been a tolerated weed due to its considerable contribution to the cereal harvest.

Several complete spikelets enabled closer identification of this large species group to at least three different species in the section *Vertebrata* Zhuk. emend. Kihara. These are *Aegilops vavilovii* (Zhuk.) Chennav., *Aegilops crassa* Boiss., and *Aegilops juvenalis* (Thell.) Eig[107] (see also Figure 43).

The very distinctive spikelets have an up to 2 mm high glume basis and oblong to ovate, asymmetrical glumes, which are up to 10 mm long, 7-10-veined with a dentate apex, probably awned, although awns were missing.[108]

The species in the section *Vertebrata* are carrying the D-genome and mainly have their greatest diversity in the central part of the Fertile Crescent. Compared to other genotypes of the *Aegilops* genus, the D-genome species are considered to be responsible for the overall poor performance in resisting rust infection.

Goatgrass was a common weed in northern Syria during the Early and the Middle Bronze Age, occurring during the Early Bronze Age in comparatively higher proportions in the eastern part of the country (Figures 44 and 45).

106 Note the reduced numbers of investigated sites during the Middle Bronze Age.

107 Classification according to van Slageren 1994.

108 Helpful keys for identification are provided in: Hammer 1980 and van Slageren 1994.

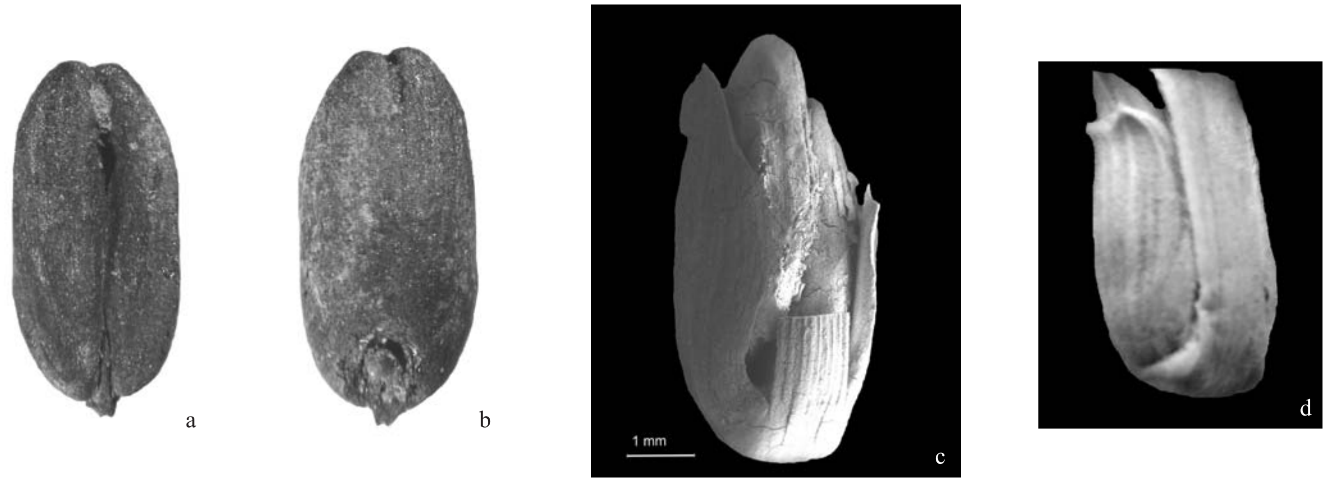
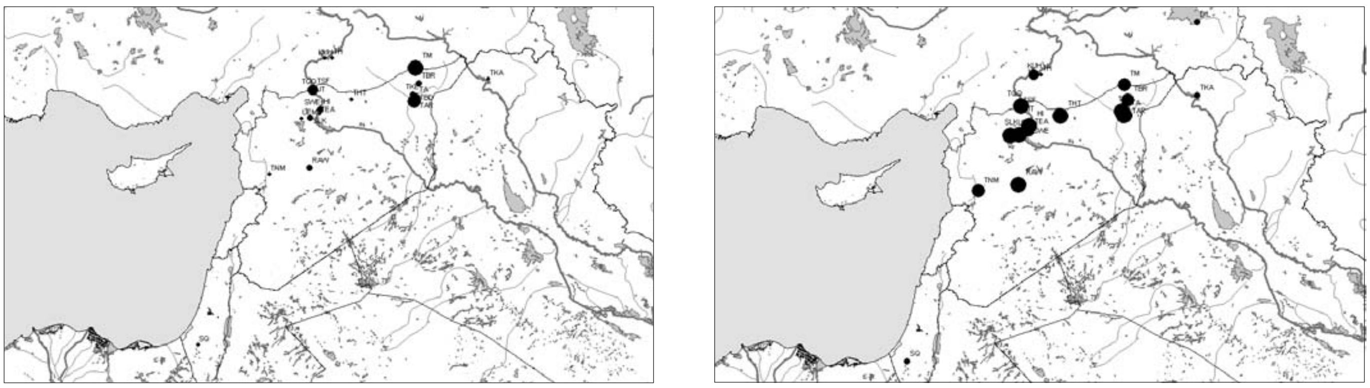
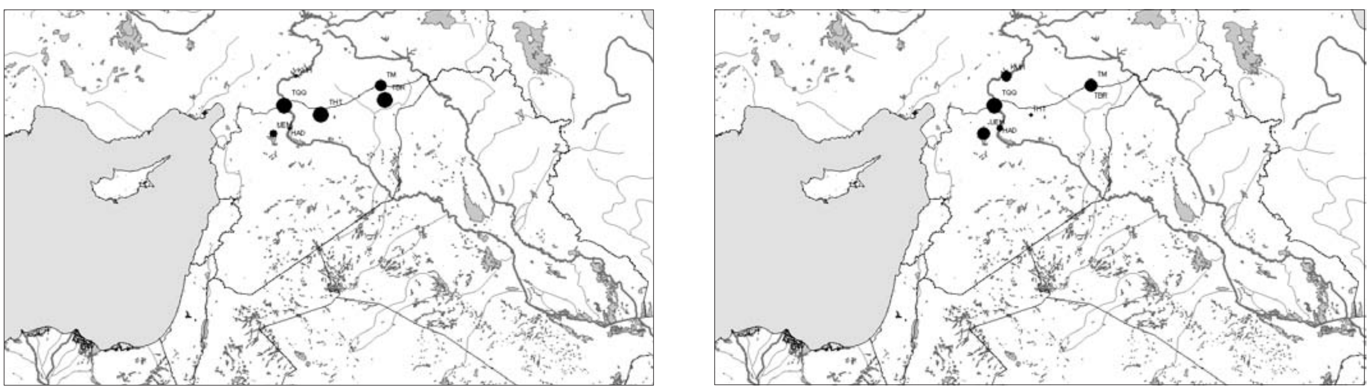


Figure 43: *Aegilops* spp.: (a) grain, ventral view, (b) grain, dorsal view, (c) *Aegilops* Section *Vertebrata* Zhuk. emend. Kihara, spikelet with pair of grains, (d) *Aegilops crassa* Boiss., modern spikelet.



(a) proportions (b) ubiquities

Figure 44: Goatgrass proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

Figure 45: Goatgrass proportions and ubiquity in Middle Bronze Age Near Eastern sites.

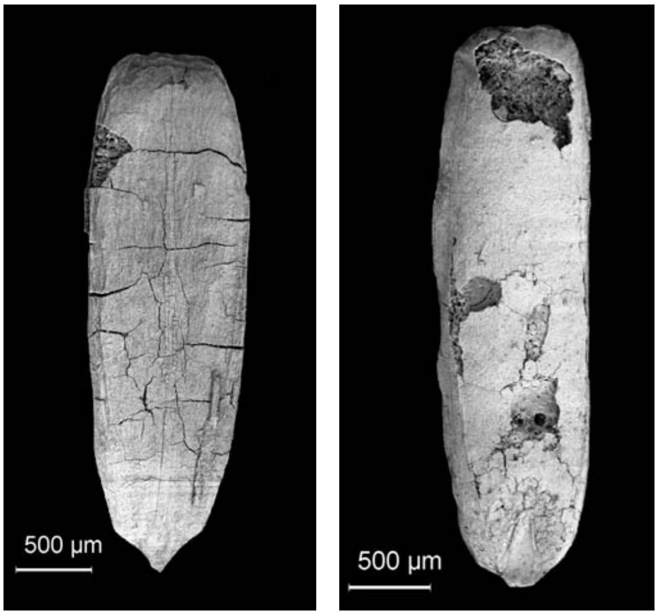


Figure 46: *Lolium* sp. (left: ventral view, right: lateral view).

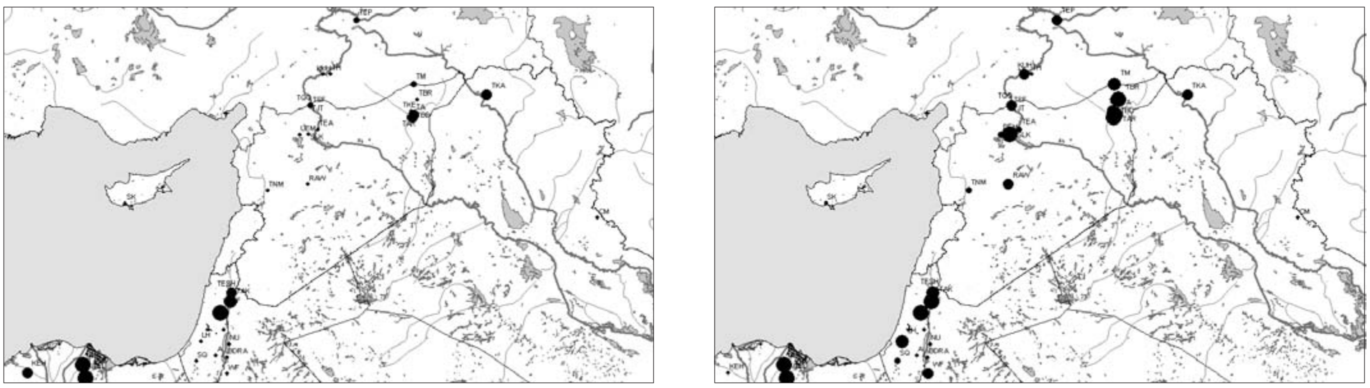
Rye-grass (*Lolium* sp. (*persicum* - type))

Rye-grass is one of the most common crop weeds in Near Eastern and Eastern Mediterranean prehistory. Its typical habitats include open meadows on basalt, phrygana, and barley fields.

Its success as a weed is mainly related to its seed shape adapting to the crop with which it is growing, which causes problems separating its grains from that of the crop during crop-processing.

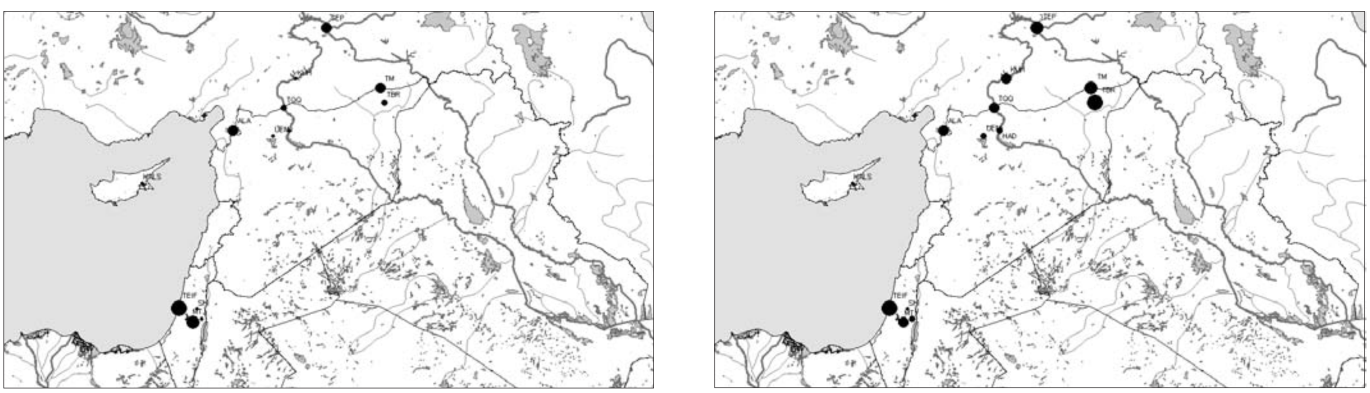
At Tell Mozan rye-grass occurs in lower proportions than canary-grass and goatgrass but is present in all the Early and Middle Bronze Age phases.

Rye-grass ubiquities are particularly high in Early Bronze Age contexts, although by considering the proportions it seems much more prominent in the Mediterranean and the northeastern part of Syria than at the Euphrates sites (Figures 47 and 48).



(a) proportions (b) ubiquities

Figure 47: Rye-grass proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

Figure 48: Rye-grass proportions and ubiquity in Middle Bronze Age Near Eastern sites.

Brome grass (*Bromus* L. sp.)

Other common weed-grasses since prehistoric times are the species of Bromus, although they usually occur in low seed numbers. This may partially relate to the flat shape of the grain, which increases its susceptibility for destruction during and after carbonisation.

At Tell Mozan brome grass is also present with only a few seeds. It appears with several different species, but only *Bromus sterilis* L. could be identified to the species level (Figure 49). It is a typical species of ruderal habitats and weed of winter-sown cereals, with similarities in many ecological respects to *Galium aparine*[109], a member of the Rubiaceae family (see below).

Echinaria (*Echinaria capitata* (L.) Desf.)

Echinaria capitata, with preferred modern habitat on dry rocky limestone slopes in open *Quercus ilex* and *Juniperus* scrub, disturbed steppe and fallow fields, is among the relatively common small-seeded grasses in northern Syrian sites.

It appears with few records at Tell Mozan from the Early Bronze Age phase Early Jazirah IV onward.

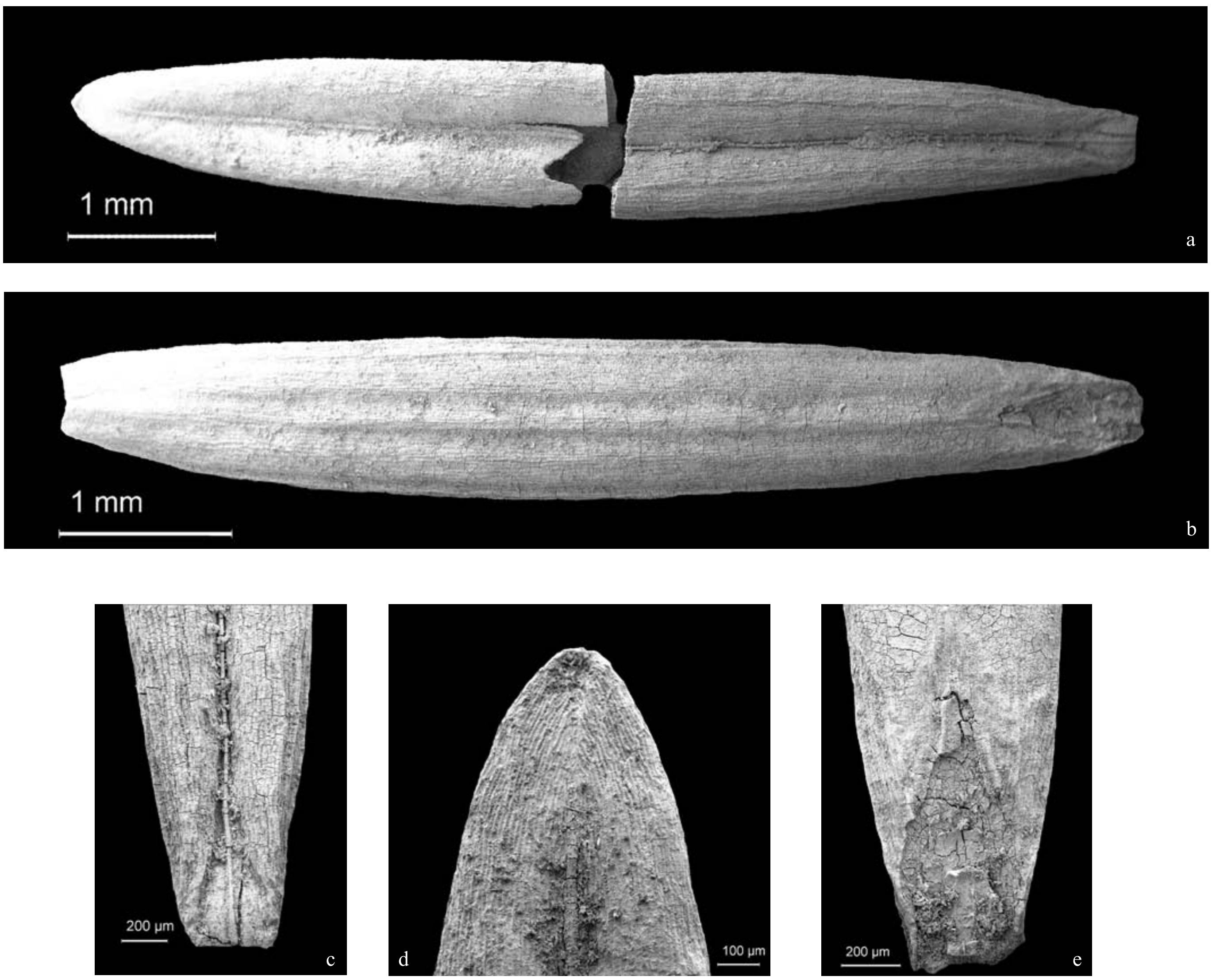


Figure 49: *Bromus sterilis* L.: (a) ventral view, (b) dorsal view, (c) ventral view, basal, (d) ventral view, apex, (e) dorsal view, basal embryo area.

109 Grime 1990.

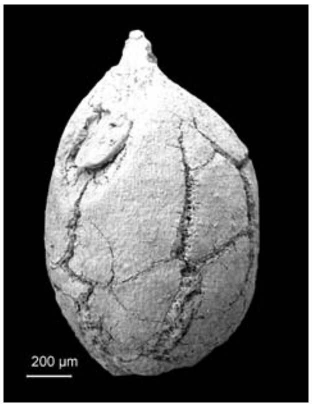


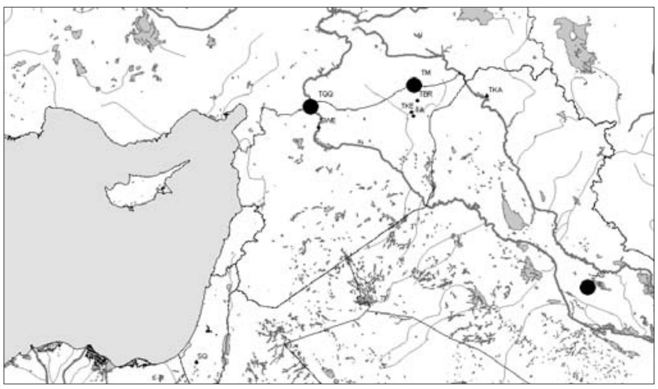
Figure 50: *Echinaria capitata* (L.) Desf.

Figure 51: *Hordeum spontaneum* Koch, rachis.

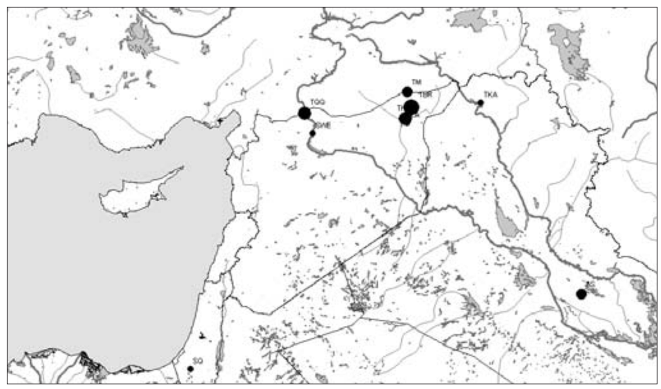
Wild barley (*Hordeum spontaneum* Koch)

Another species occurring in low numbers from Early Jazirah IV onward is wild barley, the progenitor of the domesticated species. Its preferred habitats are *Quercus*-woodland, bushes, rocky limestone slopes, stony embankments, desert places, and cultivated soil.

Wild barley occurs with relatively high presence, at least in Early Bronze Age sites, and in particularly high ubiquities in the upper Khabur area, which may have been a transitional area from dense oak woodland in the North to more open park woodland in the South (Figure 1 f).[110] Both units are preferred habitats of wild barley.

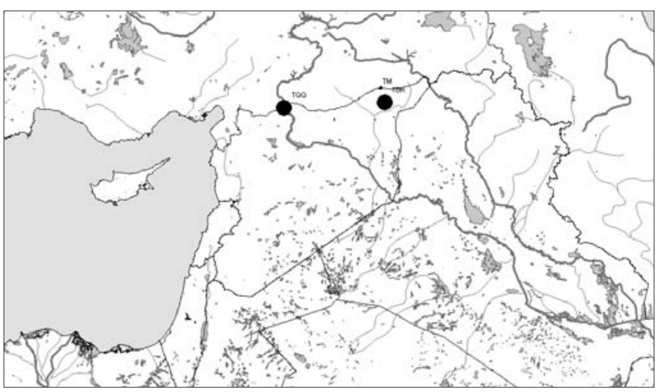


(a) proportions

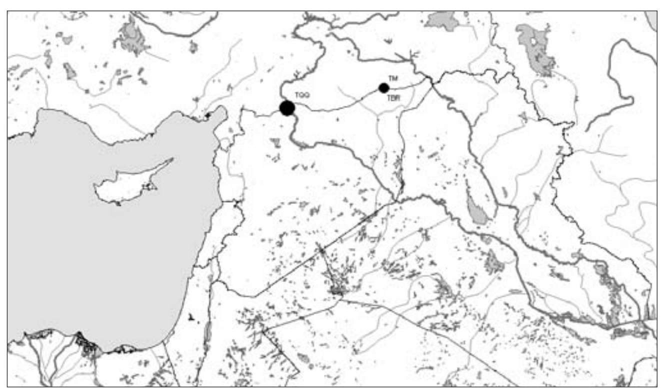


(b) ubiquities

Figure 52: Wild barley proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions



(b) ubiquities

Figure 53: Wild barley proportions and ubiquity in Middle Bronze Age Near Eastern sites.

110 See also Deckers this volume.

Pea family (Fabaceae)

Small-seeded wild representatives of the pea family are very common in Near Eastern archaeological sites and are usually interpreted as crop weeds or alternatively as remnants of dung[111] or gut contents[112] due to their viable seed coat and/or specific indication in archaeological contexts.

Crownvetch (*Coronilla* L. sp.) was the most numerous taxon in the probable weed group and is described below. Other taxa of minor occurrence include *Hippocrepis* L. sp., *Melilotus* – type, *Scorpiurus* cf. *muricatus* L., *Trifolium* L. sp., and *Trigonella* L. sp.

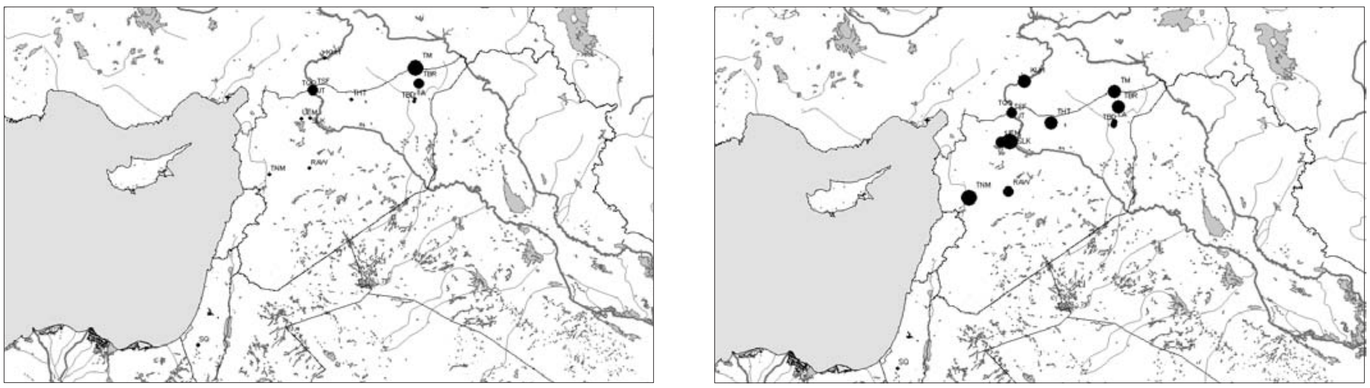
Figure 54: *Coronilla* sp.

Crownvetch (*Coronilla* L. sp.)

The genus occurs with several species in the Near East, mainly in disturbed habitats. The species are impossible to distinguish on the basis of seed morphology.

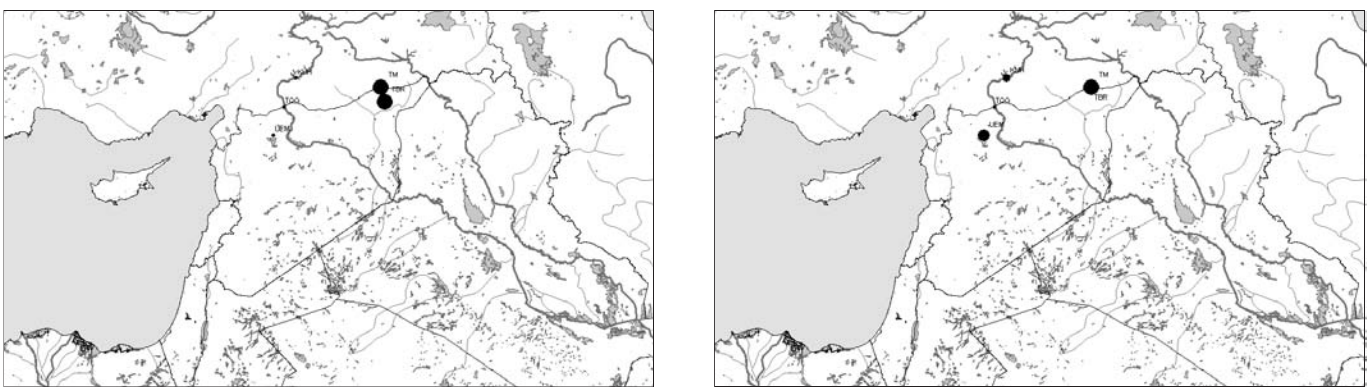
Crownvetch belongs, together with the grasses *Aegilops* sp. and *Phalaris* sp., to the most numerous probable weeds at Tell Mozan. An alternative introduction to the site via animal dung may be feasible, but this cannot be proved at the moment.

The small-seeded legume is very ubiquitous in Early Bronze Age sites throughout Syria. Its decline in Middle Bronze Age sites cannot be explained at the moment, but this may be related to differing agricultural practices.



(a) proportions (b) ubiquities

Figure 55: Crownvetch proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

Figure 56: Crownvetch proportions and ubiquity in Middle Bronze Age Near Eastern sites.

111 E.g. pre-Troy I samples: Riehl 1999: 30, fig. 4.
112 E.g. Riehl 2004.

Bedstraw family (Rubiaceae)

Bedstraw (*Galium* L. sp.)

Another common weed taxon at northern Syrian sites is *Galium* spp. It occurs in higher proportions, particularly north of the modern Lake Assad (Figures 58 and 59). Due to a high infra-specific seed variability and a lack of distinctive cell pattern in the course of unfavourable preservation, it is often impossible to identify the genus to the species level.

At Tell Mozan this was mostly the case. For some seeds, however, it was possible to distinguish two species on the basis of their cell patterns on the dorsal side; cleavers (*Galium aparine* - type) and false cleavers (*Galium spurium* - type; Figure 57).

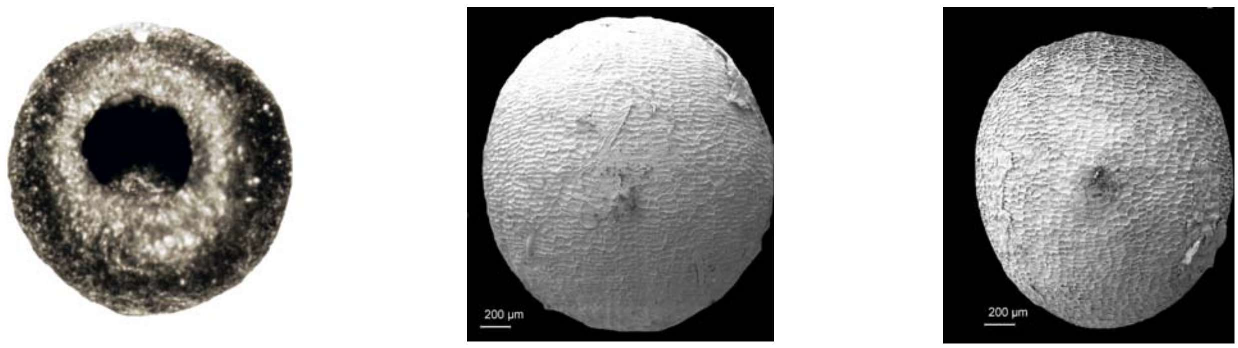
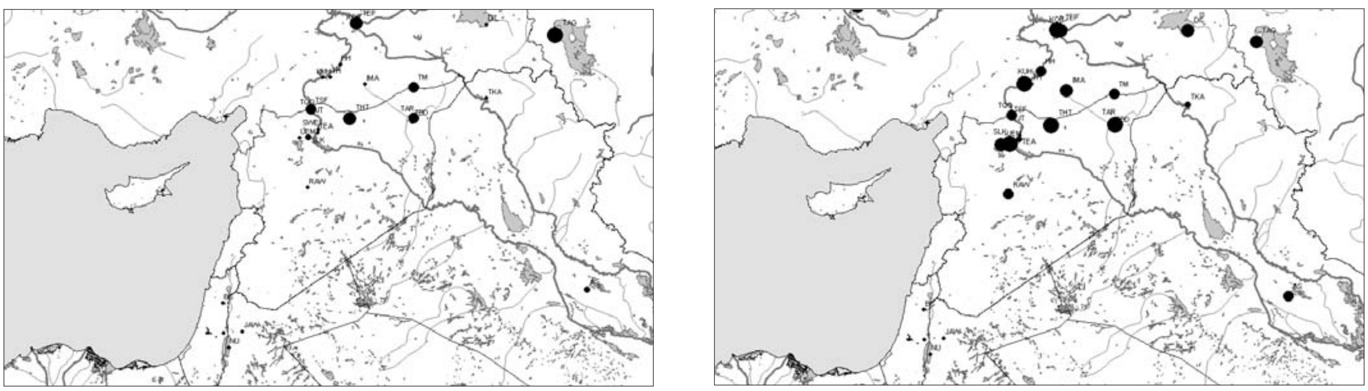
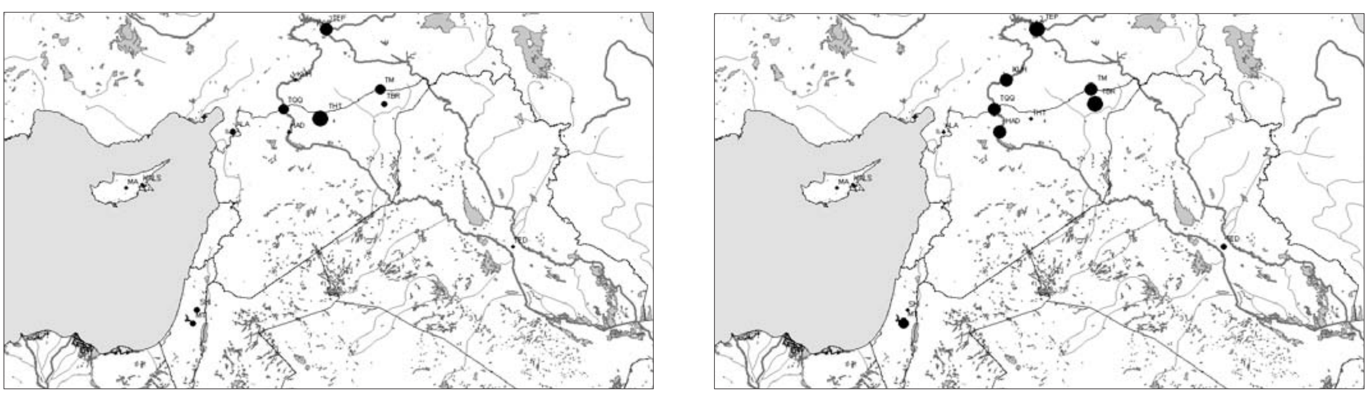


Figure 57: Bedstraw (*Galium* L. sp.) ventral view, modern *Galium aparine* and modern *Galium spurium* dorsal view.



(a) proportions (b) ubiquities

Figure 58: Bedstraw proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

Figure 59: Bedstraw proportions and ubiquity in Middle Bronze Age Near Eastern sites.

Galium aparine is classified today as one of the world's worst weeds.[113] It is able to occur in two different types of vegetation: tall-herb communities and ephemeral assemblages of disturbed land. Seed dispersal takes place in several ways, one of which is by animals, as the mericarps are covered with hooked bristles that easily stick to fur.

At Tell Mozan *Galium* sp. correlates with *Lolium* sp. throughout the phases, and it seems feasible to assume that they grew together amongst the same crops.

Borage family (Boraginaceae)

The seeds of several Boraginaceae genera often occur uncarbonized in archaeological deposits at Near Eastern sites. Amongst them are *Buglossoides tenuiflora* (L. fil.) Johnston, which is described below, and *Lithospermum arvense* L., which occurred in low seed numbers at Tell Mozan. Another taxon, which usually preserves only in carbonized form, is *Heliotropium* L. sp.

Stoneseed (*Buglossoides tenuiflora* (L. fil.) Johnston)

The nutlets of the Lithospermum group, which includes (*Buglossoides tenuiflora* (L. fil.) Johnston, are composed mainly of calcium carbonate, and less than 10% of silicium dioxide, which may be the reason for their high durability in archaeological sediments. As uncarbonised remains they provide the archaeobotanists with the problem of interpretation related to their actual age. Many archaeobotanists consider such remains as modern intrusion, but a recent

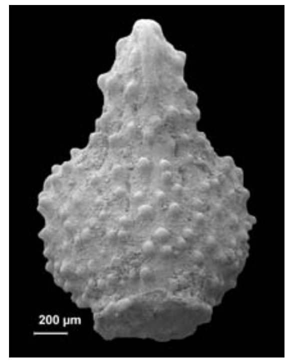
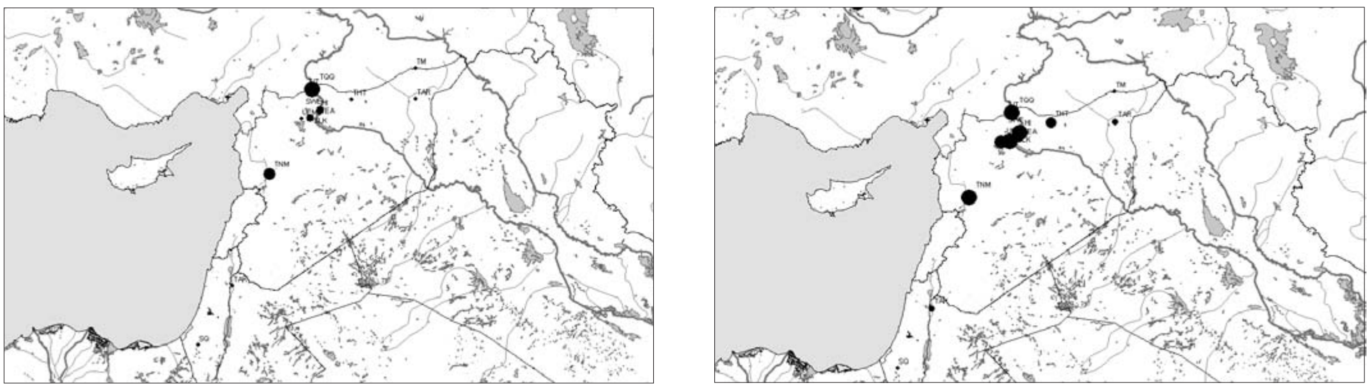
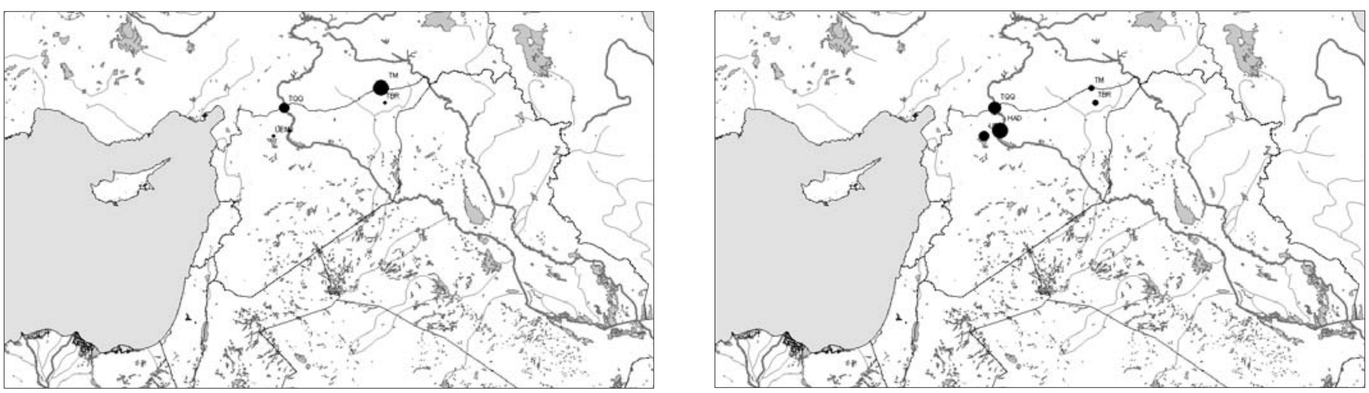


Figure 60: *Buglossoides tenuiflora* (L. fil.) Johnston.



(a) proportions (b) ubiquities

Figure 61: Stoneseed proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

Figure 62: Stoneseed proportions and ubiquity in Middle Bronze Age Near Eastern sites.

113 Grime 1990.

study of carbonate dating demonstrated that the uncarbonised remains may in fact be ancient.[114]

Buglossoides tenuiflora (L. fil.) Johnston has its preferred habitats on limestone slopes and stony places.

At Tell Mozan the species becomes numerous only in the Middle Bronze Age, although its proportion in the whole weed flora is negligible compared to the main weed taxa of grasses and legumes, mentioned above.

Buglossoides tenuiflora (L. fil.) Johnston is most frequently found in the North-Syrian Euphrates sites of the Early Bronze Age. It occurs in somewhat lower ubiquities during the Middle Bronze Age, although it is still mainly concentrated in sites around the Euphrates (Figures 61 and 62).

Daisy family (Asteraceae)

Aside from numerous remains of *Centaurea solstitialis* - type some other weedy members of the daisy family were found in small numbers. These are *Anthemis* L. sp., *Carduus* cf. *acanthoides* L., and *Cichorium* cf. *intybus* L., which were only found in Middle Bronze Age samples at Tell Mozan.

Corn-flower species (*Centaurea* L. sp.) – Yellow star thistle (*Centaurea solstitialis* - type)

Corn-flower species, and particularly yellow star thistle (*Centaurea solstitialis* - type), are the most numerous species of the daisy family at Tell Mozan, mainly contributing to the late Early Bronze Age (Early Jazirah IV and V) weed assemblages.

Today *Centaurea solstitialis* L. is a noxious weed all over the world. The specific epithet *solstitialis* means „pertaining to the longest day of the year“. This is in reference to the ability of the species to flower very late into the summer.

Centaurea solstitialis is a winter annual (sometimes biennial), mostly to 1 m tall with spiny yellow-flowered heads, that can form dense, impenetrable stands that displace desirable vegetation in natural areas and other places (Figure 63 a - c). It is best adapted to open grasslands with deep, well-drained soils and average annual precipitation between 25 and 150 mm per year.

The species typically begins flowering in late May and continues through September, sometimes into December or later. The time period from flower initiation to the development of mature viable seed is only eight days. The pappus-bearing seeds are usually dispersed soon after flowers senesce and drop their petals.

114 Pustovoytov et al. 2004.

Taproots grow vigorously early in the season to soil depths of 1 m or more, giving plants access to deep soil moisture during the dry summer and early fall months. The deep root system allows *Centaurea solstitialis* to thrive under full sunlight in hot and dry conditions. Heavy infestations of *C. solstitialis* in grasslands with loamy soils can use as much as 50% of annual stored soil moisture.[115] The species significantly negatively affects soil moisture reserves in grasslands.[116]

Because of its high water usage, it threatens both human economic interests as well as native plant ecosystems.[117]

Sheep, goats, or cattle are effective in reducing *Centaurea solstitialis* seed production when grazed after plants have bolted but before spines form on the plant. Goats will eat starthistle even in the spiny stage.

When ingested by horses, *Centaurea solstitialis* causes a neurological disorder of the brain called nigropallidal encephalomalacia or "chewing disease." Continued feeding results in brain lesions and ulcers in the mouth. There is no known treatment for horses that have been poisoned by *Centaurea solstitialis*. In most cases poisoning destroys the animal's ability to chew and swallow, and death occurs through starvation or dehydration.[118] *Centaurea solstitialis* poisoning is generally most dangerous when it is the only feed available or when it is a significant contaminant of dried hay.

It appears that only horses are affected by ingesting *Centaurea solstitialis*. Other animals, including mules, are not susceptible to the toxic effect of the weed; however, all grazing animals can sustain damage to their eyes from the plant's long, sharp spines.[119]

Yellow star thistle was particularly common during the Early Bronze Age and seemed to become more rare during the Middle Bronze Age (Figure 65). Obviously, the species was more successfully prevented from developing seeds and could not become widespread during the Middle Bronze Age, possibly by increased grazing activity on the juvenile plants.

Sedge family (Cyperaceae)

The sedge family contains quite a few taxa that grow in habitats with high moisture availability. At Tell Mozan records of members of the sedge family are principally rare and mainly represented by club-rush (*Scirpus maritimus* L.), but spike-rush (*Eleocharis* R.Br. sp.) is also present with a few records (Figure 66 b).

115 DiTomaso – Gerlach 2000.
116 Benefield et al. 2001; Borman et al. 1991.
117 Dudley 2000.
118 Panter 1991.
119 Carlson et al. 1990.

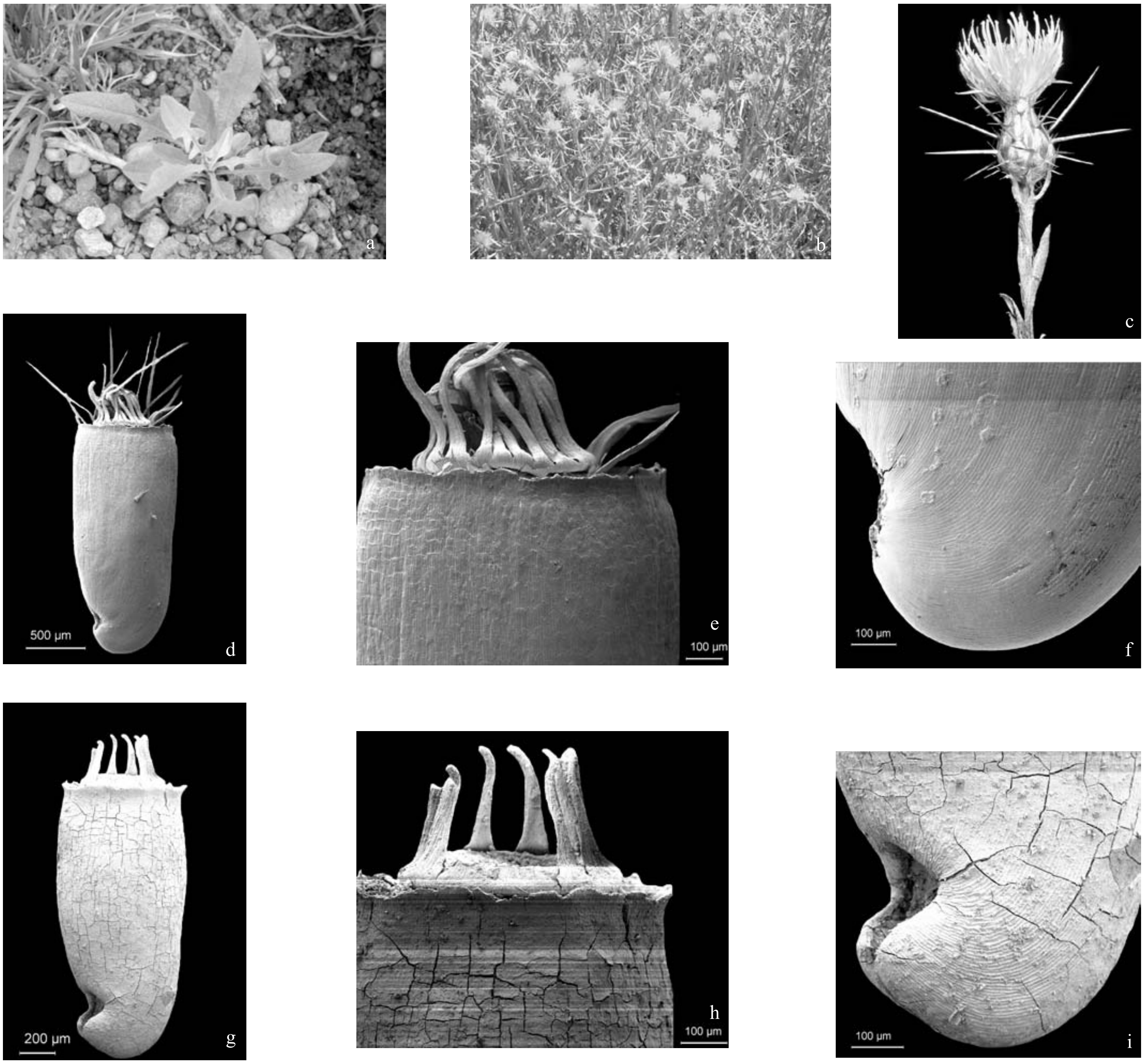


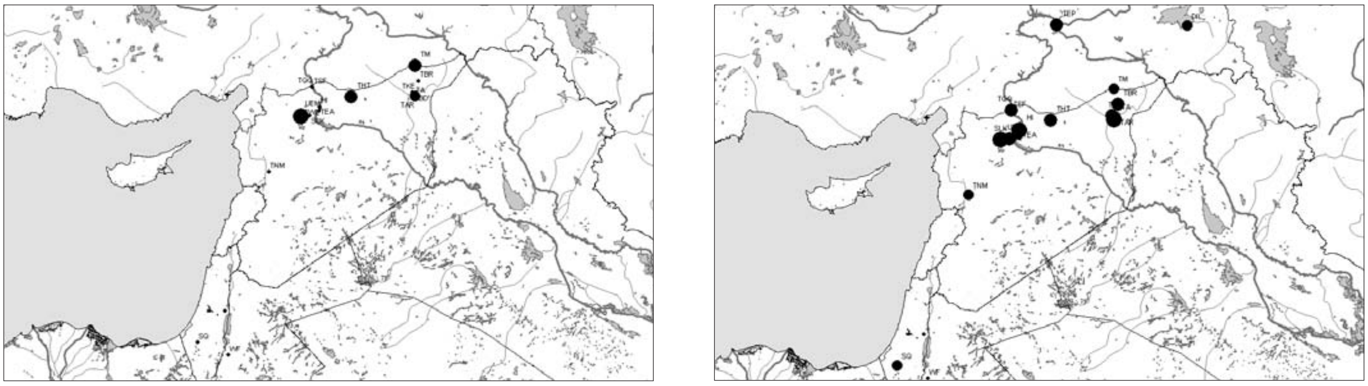
Figure 63: *Centaurea solstitialis* L.: (a) juvenil plant, (b) flowering aspect, (c) flower head, (d) modern seed, (e) modern seed pappus, (f) modern seed, basal part, (g) Early Bronze Age seed, (h) Early Bronze Age seed pappus, (i) Early Bronze Age seed, basal part.

Club-rush (*Scirpus maritimus* L.)

Club-rush occurs today as a weed of irrigated crops. It is highly adaptive to changing environmental conditions and tolerates changing water levels as well as slightly saline soils. It is often found at the edge of irrigation ditches.

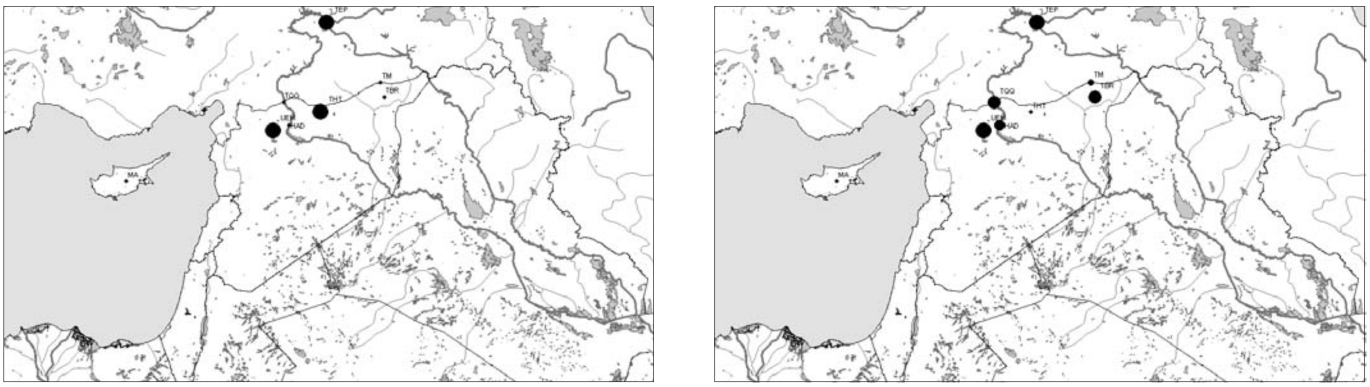
At Tell Mozan club-rush is the best represented weed of the sedge family, with main occurrence in the final Early Bronze Age phase (Early Jazirah V).

Club-rush was a frequent species throughout the Early and Middle Bronze Age periods (Figure 67 and 68). As an indicator of changing water levels, its high ubiquity along the rivers Khabur and Euphrates is apparent.



(a) proportions (b) ubiquities

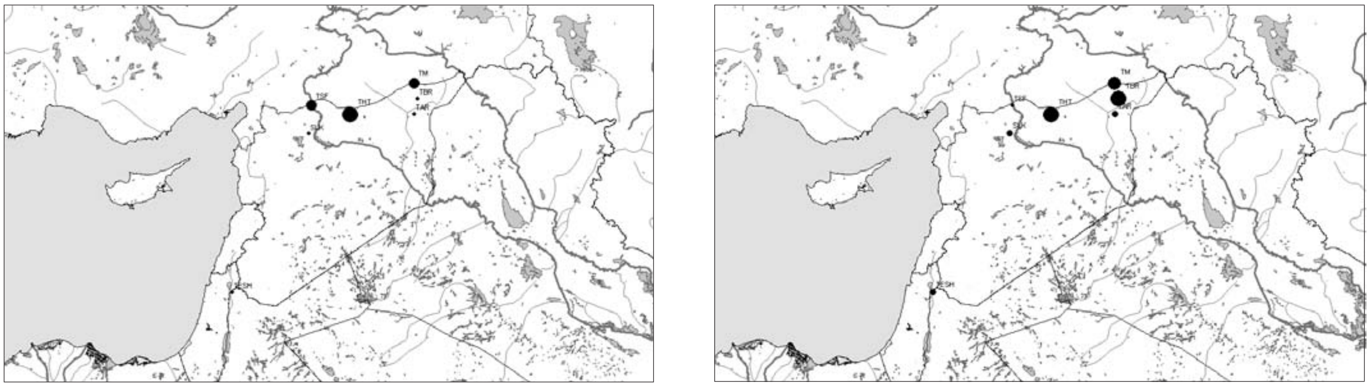
Figure 64: Yellow star thistle proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

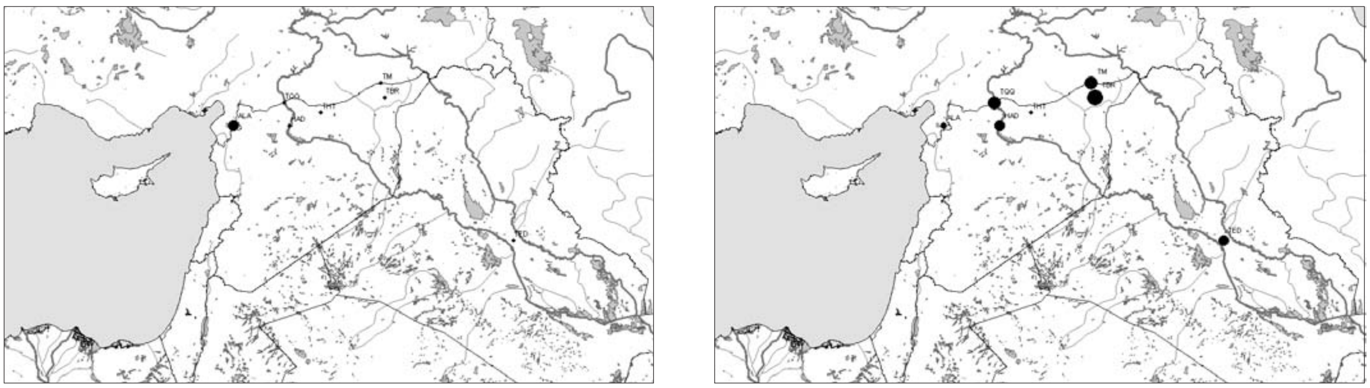
Figure 65: Yellow star thistle proportions and ubiquity in Middle Bronze Age Near Eastern sites.

Figure 66: (a) *Scirpus maritimus* L., (b) *Eleocharis* R.Br. sp.



(a) proportions (b) ubiquities

Figure 67: Club-rush proportions and ubiquity in Early Bronze Age Near Eastern sites.



(a) proportions (b) ubiquities

Figure 68: Club-rush proportions and ubiquity in Middle Bronze Age Near Eastern sites.

2.1.3.2 Wild plants of possibly non-weedy character

Some of the taxa could neither be classified as crops nor as typical weeds and also were not classifiable with certainty as gathered plants, not least because an identification to the species level was impossible in some cases. Amongst them are woody plants and shrubs, such as acorns of *Quercus* L. sp. (oak, Figure 69 i - l), *Astragalus* L. sp. (milk vetch), or *Prosopis* cf. *farcta* (Banks & Sol.; mesquite, Figure 69 d), or taxa that are unlikely to represent weeds due to their habitats (e.g., the submerged algae *Chara* sp.). They could have arrived by different means at the site, i.e., either by humans via direct transport for unknown purpose (e.g., *Chara* sp., *Verbascum* L. sp.) or in relation with animal dung (e.g., *Rumex* L. sp., *Poa* sp.; Table 5, Figure 69).

Amongst the listed taxa *Poa* sp. is the most dominant in seed numbers, and it is abundant in all the phases at Tell Mozan; in fact, it is the most numerous wild plant taxon in terms of seed numbers. Two possibilities of entry into the settlements may be considered. The first possible way of entry is with the harvested crop as crop-processing by-product, although the species of this genus present in this area are not amongst the typical weeds. In this case complete ears of *Poa* sp. might have been harvested with the crop, allowing the tiny seeds to be deposited after various sieving activities (Figure 69 a, b). The ears of the wild grass taxon also should have been harvested before seed maturity; otherwise, the caryopses would have fallen to the ground. All the recovered seeds of *Poa* sp., however, were carbonised fully mature. The second possibility of entry would be through animal dung. The only restricting factor in the explanation as dung remains would be one of preservation, i.e. whether the caryopses can survive digestion by sheep, goat or cattle.

Seeds of other wild taxa of questionable weedy character occur only in smaller numbers.

Verbascum L. species may grow as weeds, but the genus is more typical in forest-steppe and semi-steppe vegetation of the borderland between the Mediterranean and the Irano-Turanian territories.[120] The genus is particularly common in heavily over-grazed landscapes due to its anti-grazing properties. At Tell Mozan the seeds of *Verbascum* L. sp. are parti-

120 Zohary 1973.

taxa	family	common name	main ecological characteristics	ecological habitat
Chara L. sp.	Characeae	Chara	water-related habitats	submerged algae, in freshwater and small ponds or meandering river beds
Epilobium - type	Onagraceae	willowherb		herbaceous perennials in mainly fresh to damp places
cf. *Catabrosa aquatica* (L.) P. Beauv.	Poaceae	whorl-grass		grass in marshes, ditches, swamps, damp places
Eragrostis N.M.Wolf sp.	Poaceae	love-grass		grasses in mainly fresh habitats
Phleum L. sp.	Poaceae	cat's-tail		grasses in often fresh to moist habitats
Quercus L. sp., fruit	Fagaceae	oak	woodland and shrubs	tree or shrub in more or less open woodland
Asperula involucrata Wahlenb.	Rubiaceae	woodruff		herb in broad-leaved mixed forest, clearings
Astragalus L. sp.	Fabaceae	milk vetch		shrub in disturbed, dry, mainly open habitats
Prosopis cf. *farcta* (Banks & Sol.)	Fabaceae	mesquite		shrub in dry, desert places, dunes, browsed by sheep and goat
Thymelaea Miller sp.	Thymelaeaceae	Thymelaea		small shrub in disturbed habitats
Rumex L. sp.	Polygonaceae	dock	open vegetation	herb in mainly open, often fresh habitats
Ammi majus L.	Apiaceae	bishop's flower		herb in fields, ditches, open plains
Daucus carota L.	Apiaceae	carrot		herb in meadows, slopes, sand dunes, fields, etc., root consumable
Ziziphora Dumort. sp.	Lamiaceae	ziziphora		herb in dry open places
Ornithogalum sp./cf. *Muscari* (*neglecta*)	Liliaceae	ornithogalum / grape hyacinth		geophytes mainly on slopes, disturbed habitats, indicators of overgrazed landscape
Plantago L. sp.	Plantaginaceae	plantain		herb
Verbascum L. sp.	Scrophulariaceae	mullein		herbaceous plant in mainly open habitats
Verbena cf. *officinalis* L.	Verbenaceae	vervain	indet.	ruderal, disturbed places, rocky slopes, dry river beds, embankments, walls, sand dunes, wood, bushes
Poa sp.	Poaceae	meadow-grass		grass species of various habitats

Table 5: List of taxa of possibly non-weedy character at Tell Mozan (all phases).

cularly numerous in the late Early Bronze Age phases Early Jazirah IV and V (Figure 69 c).

Other taxa that are indicative of strongly grazed ground are *Ornithogalum* sp. (ornithogalum) and *Muscari* sp. (grape hyacinth; Figure 69 g - h), often poisonous geophytes that are commonly avoided by grazing animals and that were most ubiquent in Early Jazirah IV. Some species of this group may, however, grow as weeds.

Asperula involucrata Wahlenb. grows in broad-leaved mixed forest and clearings[121] or more generally in woods,[122] and it was probably part of the natural vegetation of more or less open mixed deciduous oak forests.[123] The entrance of the seeds of this herb into the settlement occurred most probably via dung remains of sheep and goats browsing on these vegetation units (Figure 69), and it is mainly characteristic of the Middle Bronze Age samples.

Eragrostis N.M.Wolf sp. is a small-seeded grass whose species occur mainly in fresh habitats and periodically irrigated but never inundated fields.[124] For the same reasons discussed above for *Poa* sp., *Eragrostis* N.M.Wolf sp. is not a likely candidate for having entered the settlement via the crop harvest. The seeds are best represented in the late Early Bronze Age samples (Early Jazirah V) at Tell Mozan.

The species of *Rumex* L. sp. are mainly found in open vegetation, often on ground with good water availability. It may grow as a weed, but it is also consumed by sheep and goat while growing. The taxon cannot be identified to species level, due to morphological similarity, hampering the functional classification of these seeds. They occur mostly in Early Bronze Age (Early Jazirah V) samples from Tell Mozan.

121 Davis 1965 – 1988.
122 Post 1932.
123 See Deckers this volume.
124 Zohary 1973.

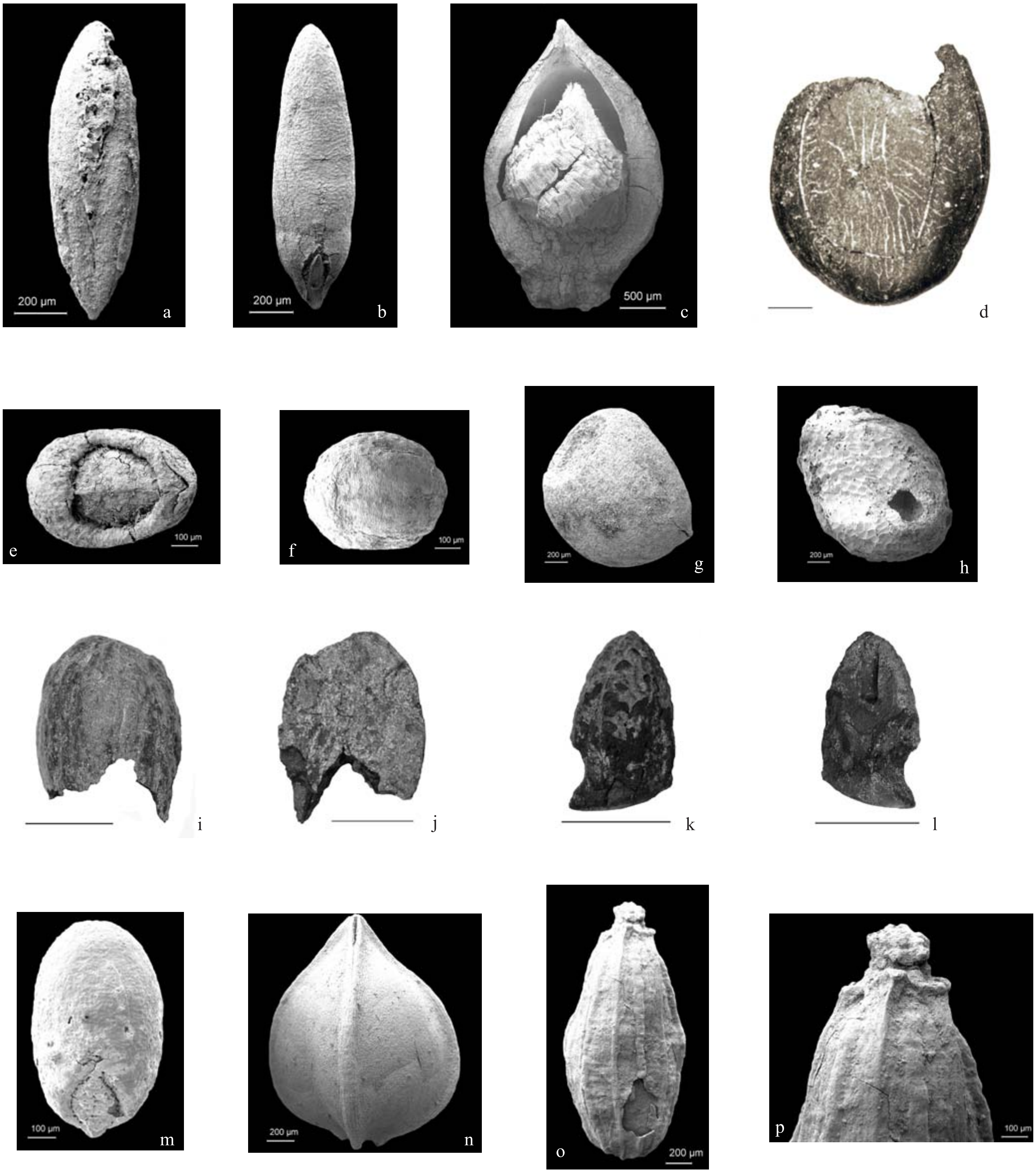


Figure 69: Seeds from taxa of possibly non-weedy character: (a) *Poa* sp., ventral view, (b) *Poa* sp., dorsal view, (c) *Verbascum* L. sp., fruit with seeds, (d) *Prosopis* cf. *farcta* (Banks & Sol.), (e) *Asperula involucrata* Wahlenb. ventral, (f) *Asperula involucrata* Wahlenb., dorsal, (g) *Ornithogalum* sp., (h) *Muscari* sp., (i) *Quercus* L. sp., cotyledon outer part (j) *Quercus* L. sp., cotyledon inner part (k) *Quercus* L. sp., cotyledon outer part (l) *Quercus* L. sp., cotyledon inner part, (m) *Eragrostis* N.M.Wolf sp. ,(n) *Rumex* L. sp., (o) *Ammi majus* L. (p) *Ammi majus* L., detail.

2.1.4 Some remarks on archaeobotanical assemblages as representatives of animal fodder

Potentially almost all plant taxa, particularly if they are very resistent to mechanical and chemical stress,[125] recorded in archaeo- botanical samples could derive from dung remains of domestic animals. Even species that are considered to have anti-grazing characteristics[126] may be grazed and browsed at least in a juvenile state of their life, i.e. when they do not have yet developed any seeds (e.g., *Centaurea solstitialis* L.). Not only natural habitats are grazed; it is (and was also in ancient times) common practice in arid and semi-arid regions to allow animals to graze the stubble after a grain crop.

Much has been written on the contribution of seeds from dung remains in archaeobotanical assemblages.[127] Aside from very rare *in situ* finds of dung remains, there is no standard methodolo-gical approach to distinguish seed remains deriving from plants prepared or stored for human consumption, and such provided as animal feed or deriving from dung. Contextual analysis of the sample origin and ecological evaluation of plant taxa may help to develop an idea of plausible arrivals via animal dung[128] (see also chapter 2.1.3.2), but the only way to directly control the actual input of seeds via dung remains is to analyze pieces of dung. In many cases, however, pellets do not contain seeds, either for pre-servation reasons or because the pellets derive from a time of the year when no mature seeds were available.

An exceptional find from Early Bronze Age Tell el-Abd, where several hundred sheep or goat pellets still containing seed remains, provides some information on preferred sheep/goat feed in the Euphrates region during this period.[129] Beside thousands of fruits of the Polygonaceae (*Rumex* spp./*Polygonum* spp.), chaff remains of barley, several grasses (*Eremopyrum* sp., *Phleum* sp.), legumes (*Melilotus/Trifolium* spp., *Trigonella* sp.), *Heliotropium* sp., and *Euphorbia exigua/arvalis* - type were all present in large amounts.

However, amongst the 128 species that are listed in Ertug-Yaraş[130] and that are cut and stored as winter fodder by central Anatolian farmers, there are only a few represented in the archaeo-botanical wild assemblages from Early and Middle Bronze Age Tell Mozan. These are *Daucus carota* L., *Centaurea solstitialis* - type and *Vaccaria* cf. *pyramidata* Medik., although many of the archaeobotanical remains that were not identified to the species level are represented with their genus amongst the set of species traditionally cut for animal fodder.[131]

The almost exclusive diet of crops for animals (barley, pulses, beet, etc.) as sometimes practiced in modern industrialized countries is very unlikely to have existed in ancient Near Eastern territories. This is evident from ancient texts, such as from Tell Beydar. Sallaberger demonstrated that grain-fed animals were rare, compared to the large, exclusively grazed flocks. “A smaller part of the sheep and goats was kept separately and fattened by grain. These were later to be slaughtered for their meat.” Their purpose was often related to sacrifices.[132] Meat was obviously not the main economic interest, as wool or other secondary products were. With this long-term economic goal, large-scale grain-feeding would have been very uneconomic.[133]

In traditional farming animal feeding is practiced, but grain supplements are largely reserved for the winter period[134] and mainly in climatic regions with strong and cold winters, as in Central Anatolia. But even there the main component of the fodder is cut from the wild.[135]

2.2 Spatial patterning of archaeobotanical remains in the site

All the samples considered in this study derive from the central part of the domestic area C2,[136] from various contexts but mainly from pits, floors, and pottery contents (usually secondary fill). No samples were taken from the temple terrace farther north of this area.

About one third of the considered samples come from the western part (A 94) of the so-called Pusham-House (building IX), a large building (41 x 20 m) probably used as a kind of merchants house or karawanserai with rooms for storage of yet unknown goods that was continuously in use from the final phase of the Early Bronze Age (Early Jazirah V) until the Middle Bronze Age (Old Jazirah I). The remaining samples are more or less evenly distributed to the smaller houses of this area.

No Early Bronze Age samples were obtained from the Pusham-House. The Middle Bronze Age samples from this area were dominated by barley, *Poa* sp., and *Coronilla* sp. (Table 6). The plant remains represent domestic garbage, deriving from crop storage, food processing, and partially from burning dung.

125 As e.g. chaff remains or wild plant taxa, such as small-seeded legumes.
126 I.e. that are either poisonous to the animals or indigestible due to spines.
127 Miller 1984, 1996; Miller – Smart 1984; and various articles in *Environmental Archaeology* 1, 1998.
128 Riehl 2004.
129 Riehl in prep.
130 Ertug-Yaraş 1997.
131 *Silene* spp., *Salsola* spp., *Astragalus* spp., *Lathyrus* spp., *Melilotus* spp., *Vicia* spp., *Ajuga* spp., *Muscari* spp., *Ornithogalum* spp., *Plantago* spp., *Bromus* spp., *Poa* spp., *Adonis* spp., etc.
132 Sallaberger 2004: 21.
133 Cf. Doll, this volume.
134 Beuls et al. in press.
135 Cf. Ertug-Yaraş 1997.
136 I.e. squares A 63 – A 93, A 64 – A 94, and A 65-A 95; see Bianchi et al. in preparation.

square	layer	number of samples	dating	contexts[137]	main components
63	C05	6	MBA (OJ I)	Pottery contents of Grave 3; wall	Poa, cereals
	C07a	2	EBA (EJ V)	Pits in area DA	Barley, free-threshing wheat
64	C05a	9	MBA (OJ I)	Pottery contents, and ash layers in House I and II	Barley, emmer
	C07c	2	EBA (EJ V)		Free-threshing wheat
	C10a	1	EBA (EJ IV)	Pits south of House XIII	Coronilla, barley
65	C05a	2	MBA (OJ I)	Floor in House I	Barley, emmer
73	C05	1	MBA (OJ I)	Ash pit	Poa, barley
	C07b3	3	EBA (EJ V)	Pits in area AL	Barley, Coronilla
74	C06a1	2	MBA (OJ I)	Pottery content in grave	Barley
	C05b	3	MBA (OJ I)	Pottery content; ash pit	Poa, barley
	C07c-d	3	EBA (EJ V)	Pit	Free-threshing wheat, barley, Coronilla
	C09a	1	EBA (EJ IV)	House XIII	Aegilops, barley
75	C13-C14	1	EBA (EJ IIIa)		Poa, barley
84	C05b	1	MBA (OJ I)	Place between Houses II and III	Barley
	C08a	3	EBA (EJ IV)	Pottery content of House XI	Barley
	C12	1	EBA (EJ IIIb)	Place AE	Coronilla, barley
85	C05b	2	MBA (OJ I)	House VIII, ash sample	Poa, emmer
	C12b-d	5	EBA (EJ IIIb)	Place AE	Barley, Coronilla
	C13	1	EBA (EJ IIIa)		Coronilla, barley
93	C05-06	2	MBA (OJ I)	Ash pit	Poa, Coronilla
94	C05	22	MBA (OJ I)	Building IX, mainly pottery contents from graves	Poa, barley
	C06-07	4	MBA (OJ I)	Building IX; room, grave, ash pit	Barley, Coronilla
95	C12b	1	EBA (EJ IIIb)	North of Building IX	Barley
114	C07	1	EBA (EJ V)		Poa, Coronilla

Table 6: Distribution of samples according to squares and archaeological layers at Tell Mozan, with related contexts and main archaeobotanical components (only samples with more than 100 records included).

2.3 Plant production patterns in Early and the Middle Bronze Age Tell Mozan, compared to the wider North-Syrian territory

Early and Middle Bronze Age crop proportions at Tell Mozan appear to be very similar in first sight, with a dominance of two-row barley in both periods. The only difference seems to lie in the preferred wheat species, with free-threshing wheat in the Early Bronze Age and with emmer wheat in the Middle Bronze Age. The opportunity to examine crop proportions of the different phases of both periods revealed a more differentiated picture, particularly for Early Bronze Age plant production (Figure 70).

While barley was the dominant crop (>60%) during the Early Bronze Age phases Early Jazirah IIIa, Early Jazirah IIIb, and Early Jazirah IV, there was a marked shift to free-threshing wheat (>55%) during the final phase of the Early Bronze Age (Early Jazirah V). It rapidly decreased again to less than 10% of the crop plant assemblage in the Middle Bronze Age (Old Jazirah I). Only during Early Jazirah V does free-threshing wheat reach significantly high amounts. In all the other Early and Middle Bronze Age phases emmer wheat is equally represented as free-threshing wheat. Such a highly distinctive pattern would not be visible without the fine resolution of the periods into phases, and it is particularly crucial for the consideration of transitional developments between the Early and the Middle Bronze Age.

137 For the archaeological context see Biainchi et al. in preparation.

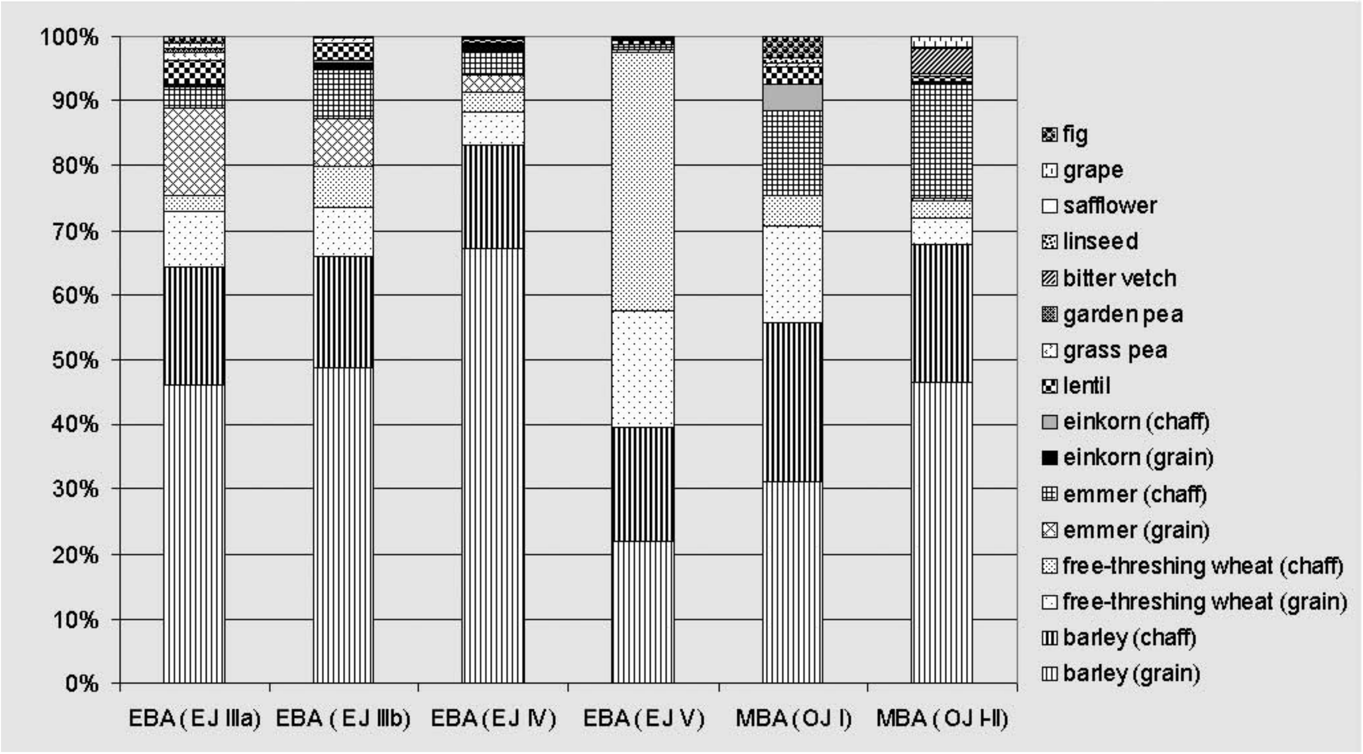


Figure 70: Crop plant proportions in the different phases of Early and Middle Bronze Age Tell Mozan.

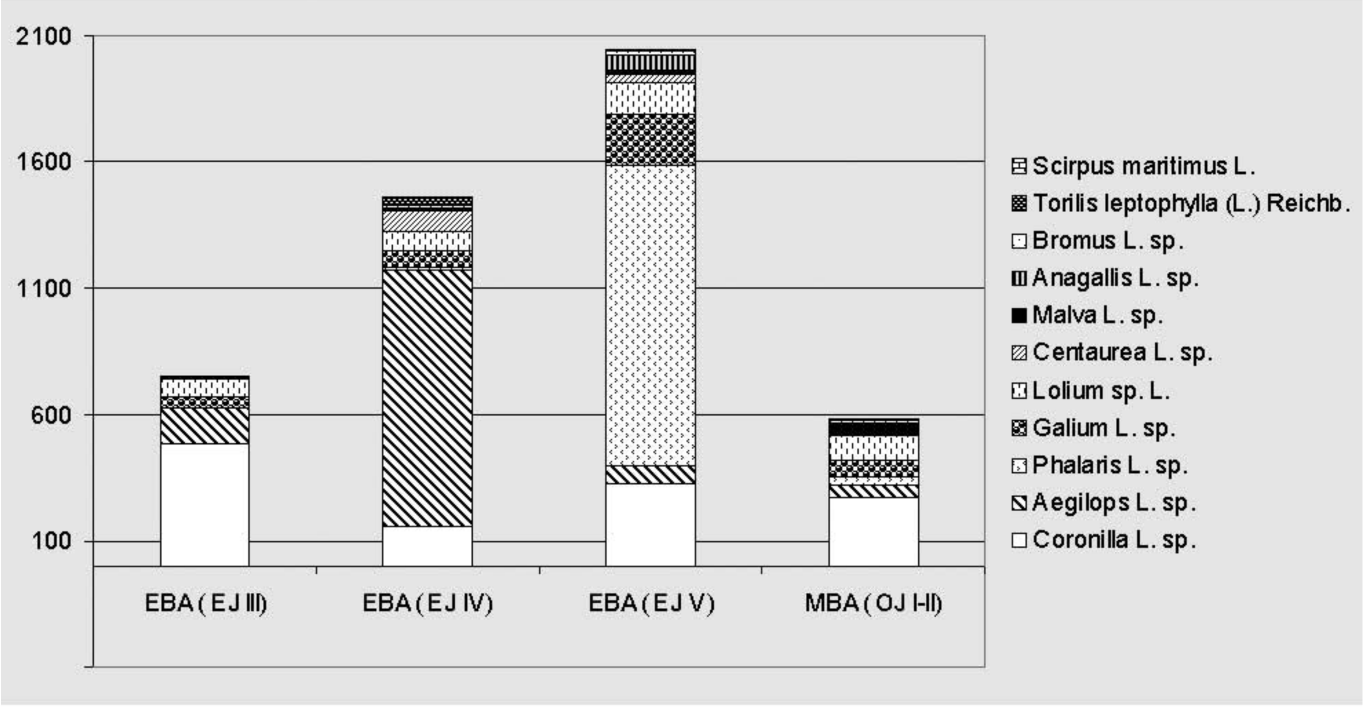


Figure 71: Typical and probable weed numbers in the different phases of Early and Middle Bronze Age Tell Mozan.

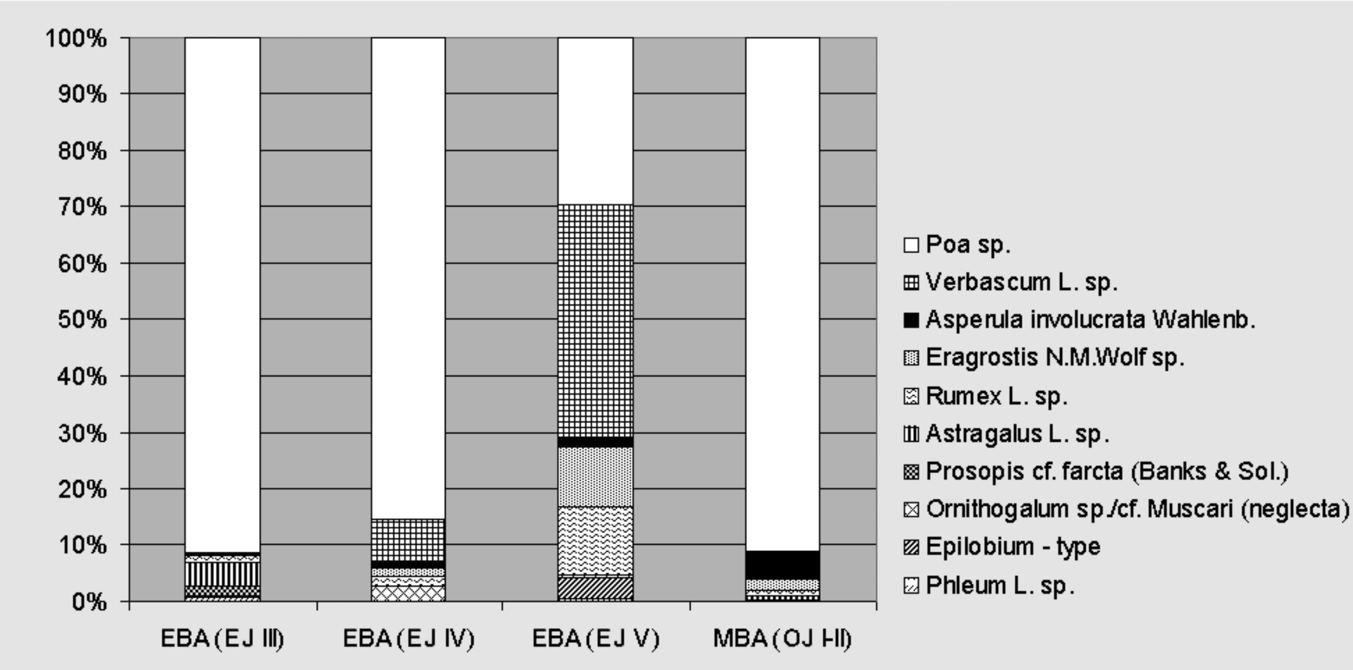


Figure 72: Proportions of taxa of possibly non-weedy character in the different phases of Early and Middle Bronze Age Tell Mozan.

Other crops occur in comparatively low proportions, which corresponds to the general archaeobotanical pattern in archaeological sites. Looking at the other crops in more detail, lentil was the best represented pulse crop in all the phases, except in the Middle Bronze Age phase Old Jazirah I-II, when it became substituted by bitter vetch.

The typical and probable weeds were the most numerous group amongst the wild plant remains (see 2.1.3.1), and while the ratio of crops to wild plants is almost equally below 1 in all the phases, the ratio of crops to typical and probable weeds is very variable for the different phases. The weed proportion increases continuously from the Early Bronze Age phase Early Jazirah IIIa until and including Early Jazirah IV. From Early Jazirah V to Old Jazirah II they decrease again, to reach the same proportion as during Early Jazirah IIIa.

Some of the taxa, such as *Coronilla* sp., *Galium* sp., or *Lolium* sp., are evenly contributing to the assemblages in all the phases (Figure 71).

Two taxa at least show a significant change in contribution. These are *Aegilops* sp., which accounts for most of the weed remains in Early Jazirah IV, and *Phalaris* sp., which is very numerous in Early Jazirah V. This may indicate two significant shifts in the crop weed assemblage at the transition from Early Jazirah IV to Early Jazirah V and later again from Early Jazirah V to Old Jazirah I.

Similar differences as with all the other plant categories (crops and weeds) exist for taxa of possibly non-weedy character (see also 2.1.3.2). *Poa* sp. is dominant in all the phases, except for phase Early Jazirah V, when Verbascum seeds are more numerous (Figure 72). Another difference is the comparatively high proportion of *Rumex* sp. in Early Jazirah V.

The significant difference of the Early Jazirah V phase from all the others is also visible through canonical correspondence analysis (Figure 73). This type of analysis enables pattern searching particularly with large data sets. Details on the advantages and concrete application of CCA are published elsewhere.[138]

The distinctiveness of the Early Jazirah V samples, which mainly cluster above the X-axis, from all the other samples is obvious. On the other hand, the similarity of Early Jazirah III and IV samples to the Middle Bronze Age (Old Jazirah I-II) assemblages is also visible.

The attribute plots of species presence in these samples provides more detailed information on the taxa representation in the different phases (Figures 74 – 76).

Besides taxa that contribute to all phases with similar values, such as two-row barley, emmer wheat, lentil, and some weeds[139], there are taxa that are either significant particularly for one phase[140] or others that show similar representation in two sequential phases.

138 Riehl 1999; Riehl in press b.
139 *Aegilops* sp., *Bromus* sp., *Galium* spp., *Scirpus maritimus*, etc.
140 E.g. free-threshing wheat and *Eleocharis* sp., for Early Jazirah V, Figure 74.

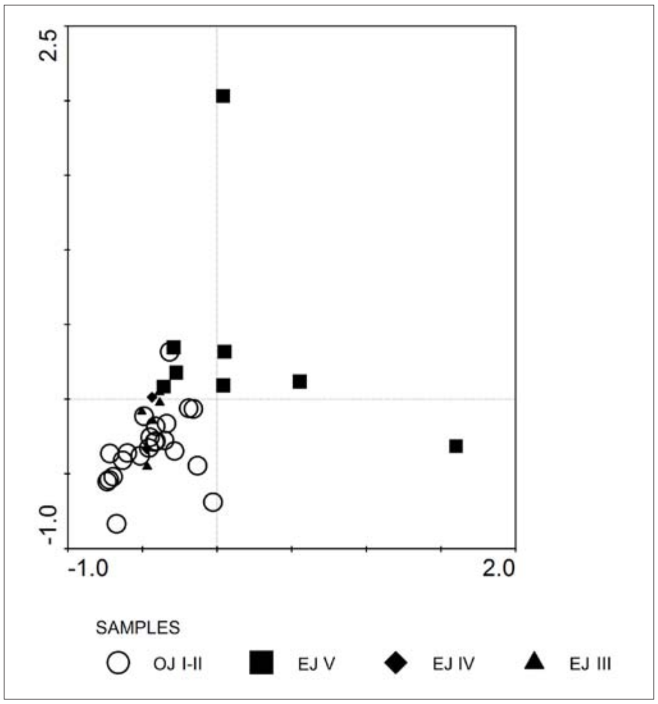


Figure 73: Correspondence plot of the complete data set of the Tell Mozan samples (phase classification).

A comparatively strong correspondence in weeds during the phases Early Jazirah IV and V is indicated, while there seems to be a clear break between Early Jazirah V and Old Jazirah I-II; for example there is a relatively high number of weeds and wild taxa contributing similarly to the phases Early Jazirah IV and V, while there are far fewer taxa similarly contributing to the phases Early Jazirah V and Old Jazirah I-II.

Amongst the taxa that similarly contribute to phases Early Jazirah IV and V are many typical weeds, such as *Centaurea solsitialis*, *Valerianella dentata*, *Chenopodium* sp., and others (Figure 75), while only a few taxa are similarly represented in Early Jazirah V and Old Jazirah I-II samples (*Vicia ervilia*, *Fumaria officinalis*, Figure 76).

As was pointed out in an earlier paper, regional trends in plant production are strongly related to different regimes of water availability (including precipitation).[141] Such patterns, however, are not always clear, as precipitation is not the only factor that may influence the composition of plant assemblages, taking into account economic and cultural preferences (Figure 77). Also, irrigation technology enables breaking through the natural limits of crop production in arid and semi-arid environments.

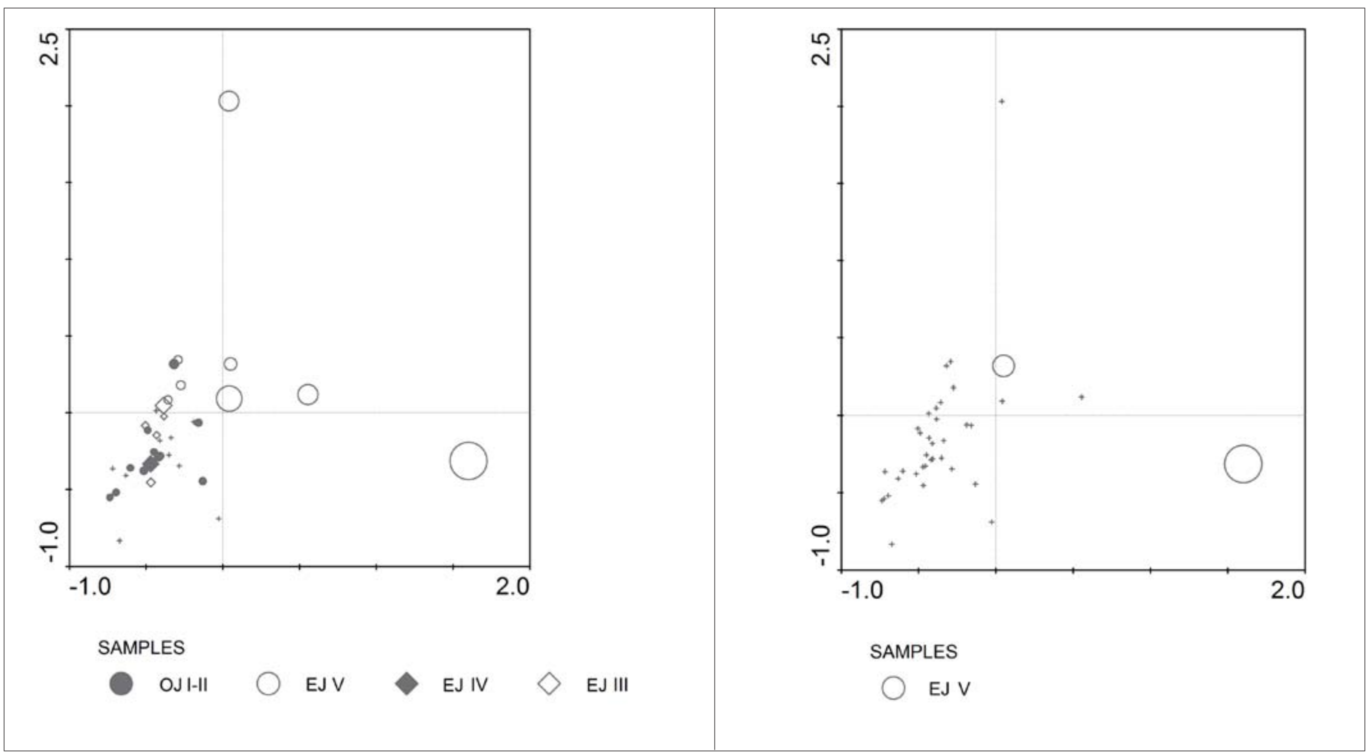


Figure 74: Attribute plots of free-threshing wheat grain and *Eleocharis* sp. in the Tell Mozan samples.

141 Riehl in press b.

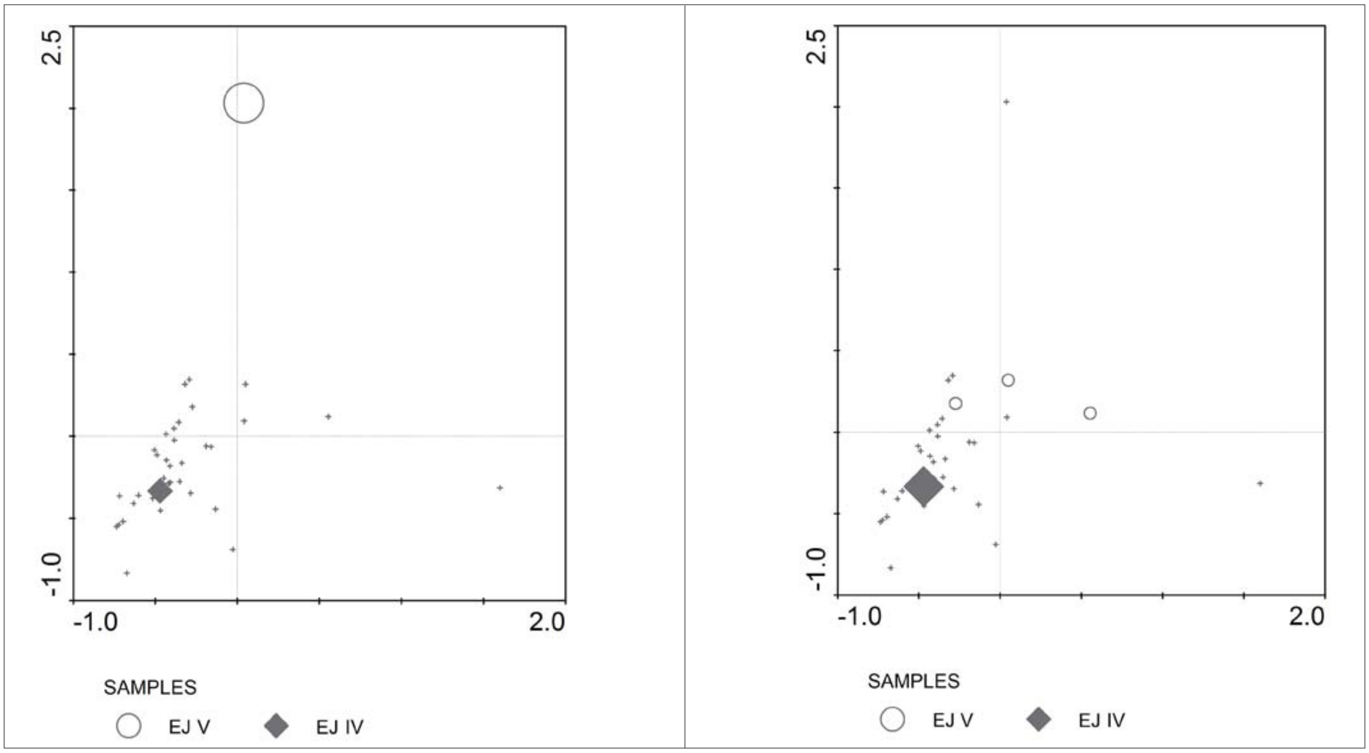


Figure 75: Attribute plots of *Centaurea solsitialis* and *Chenopodium* sp. in the Tell Mozan samples.

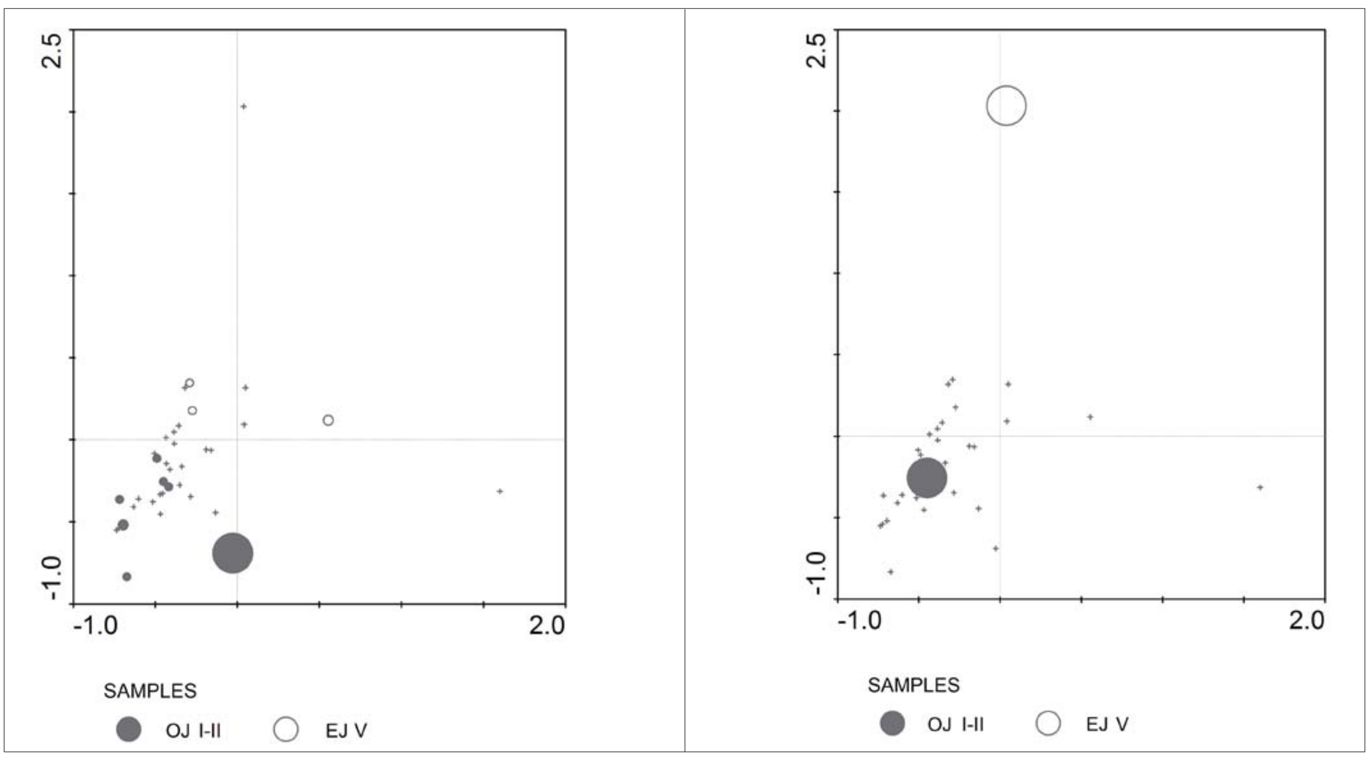


Figure 76: Attribute plots of *Vicia ervilia* and *Fumaria officinalis* in the Tell Mozan samples.

To test this hypothesis, canonical correspondence analysis was conducted for a set of North-Syrian Early Bronze Age sites (mainly Euphrates and Khabur). The analysis is based on the percentage proportions of the different taxa in the considered sites or phases. Taxa with proportions below one were deleted. Only sites with more than 100 record entries in the raw data were analysed, resulting in a set of 11 sites or 21 phases.

The correspondence plot Figure 77 shows archaeobotanical plant assemblages clustering generally in correlation with the precipitation regimes of their locations, but additionally along the x-axis according to the degree of application of irrigation. Most of the sites with higher mean December-February precipitation cluster to the upper left of the y-axis; however, the site group with mean December-February precipitation around 150 mm is distracted along the x-axis, indicating strong dissimilarities that are expressed in differences in plant proportions (see also Figure 78). While the assemblages of the „150 mm-precipitation group“ right of the y-axis are dominated by wild taxa of mainly dry environments, those on the left are dominated by relatively demanding crops. The arguments that support this hypothesis are shown in Figure 78 and presented below.

Several taxa of predominantly open and disturbed habitats[142] occur exclusively, with high proportions, in the areas of modern mean precipitation (Dec-Feb) of 150 mm, but in generally higher proportions in the sites, phases, or assemblages considered here as to have received no or moderate irrigation (Figures 78 a and b).

Those sites, phases, or assemblages hypothesized to have received more intensive irrigation show high proportions in crop taxa with higher water requirements on the one hand (*Pisum sativum*, *Vitis vinifera*) but also mass production in two-row barley (Figures 78 c and d). Besides this, problems related to increasing salinity of the soils may have occurred, indicated by high proportions in taxa of preferably saline habitats (e.g., *Suaeda* spp.; Figure 78 e).

Some taxa, such as the tetraploid wheats (free-threshing wheat and emmer) occur with higher proportions in areas with higher precipitation (Figures 78 g and h). They are robust enough to resist slight fluctuations in water availability. Accompanying weeds (e.g., *Scirpus maritimus*) may have also tolerated such conditions (Figure 78 f).
An objection to the above arguments may be that different phases within the Early Bronze Age might have had differing

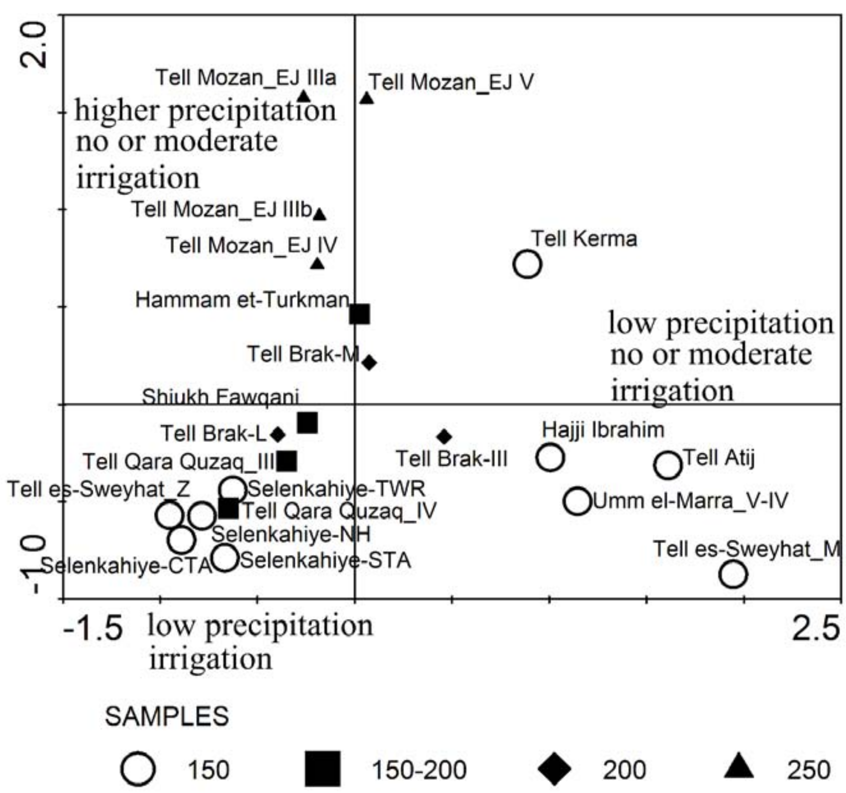
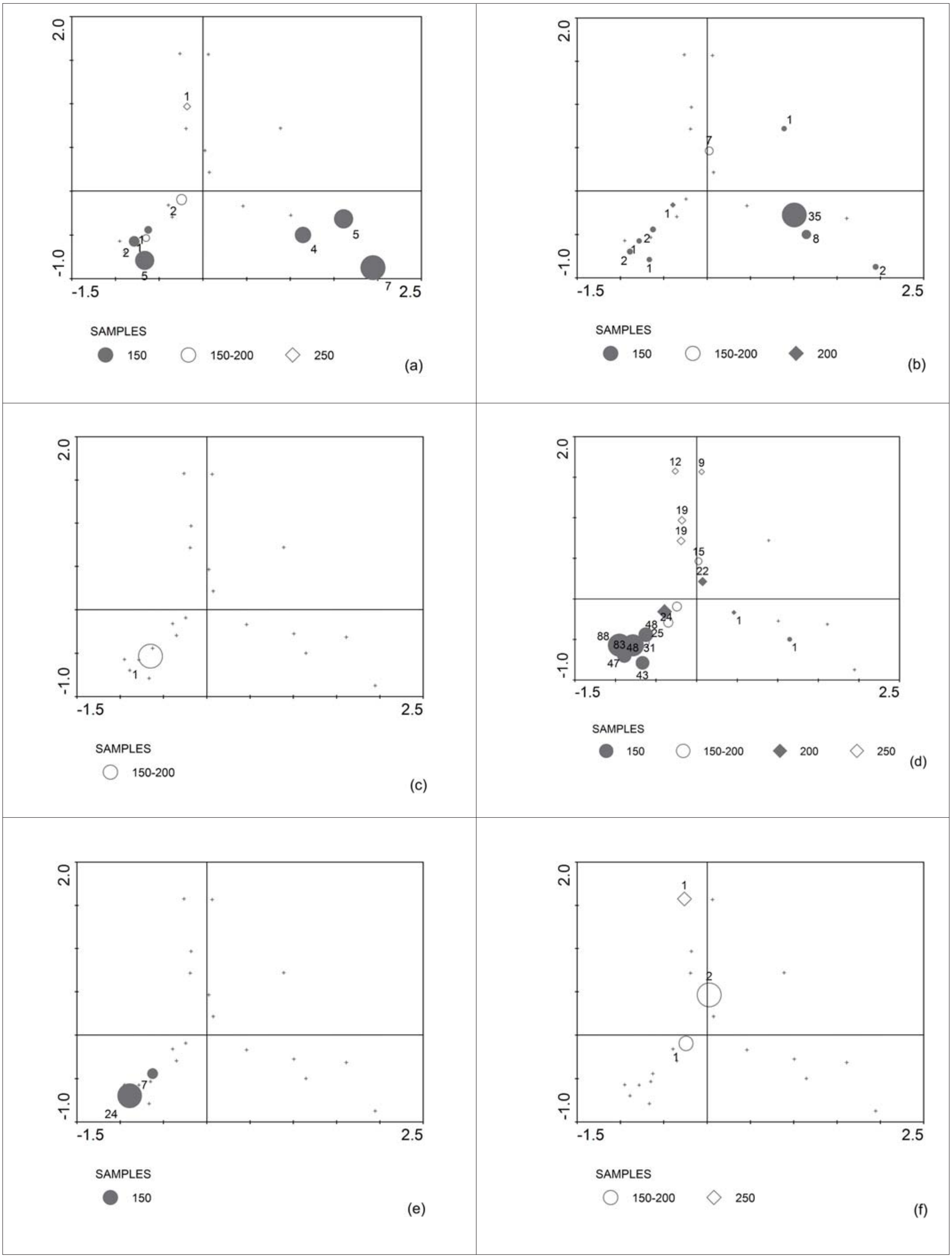


Figure 77: Correspondence plot of North-Syrian sites, classified according to modern precipitation (Dec-Feb) ranges. Note the two different assemblages from Tell es-Sweyhat.

142 E.g. *Astragalus* sp., *Eremopyrum* sp., Liliaceae.


2.0
-1.0
-1.5
2.5
SAMPLES
150
150-200
250
(a)
2.0
-1.0
-1.5
2.5
SAMPLES
150
150-200
200
(b)
2.0
-1.0
-1.5
2.5
SAMPLES
150-200
(c)
2.0
-1.0
-1.5
2.5
SAMPLES
150
150-200
200
250
(d)
2.0
-1.0
-1.5
2.5
SAMPLES
150
(e)
2.0
-1.0
-1.5
2.5
SAMPLES
150-200
250
(f)

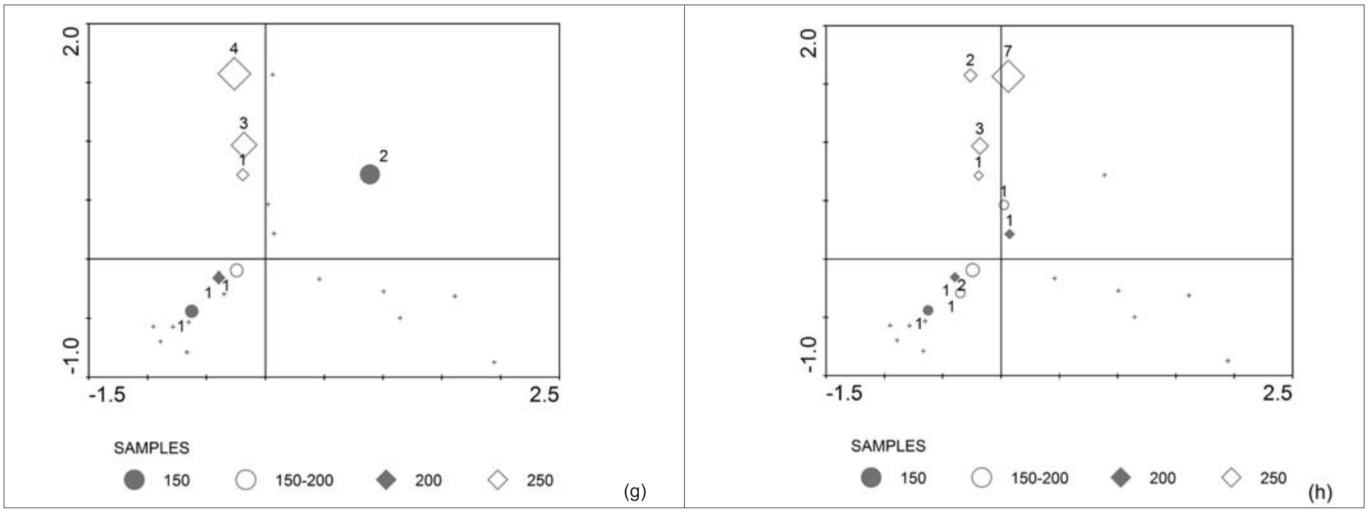


Figure 78: Attribute plots to Figure 77, showing adundance of some environmentally significant taxa in the different sites plotted in Figure 77: (a) *Astragalus* sp., (b) *Eremopyrum* sp., (c) *Vitis vinifera*, (d) two-row barley, (e) *Suaeda* spp., (f) *Scirpus maritimus*, (g) emmer wheat, (h) free-threshing wheat.

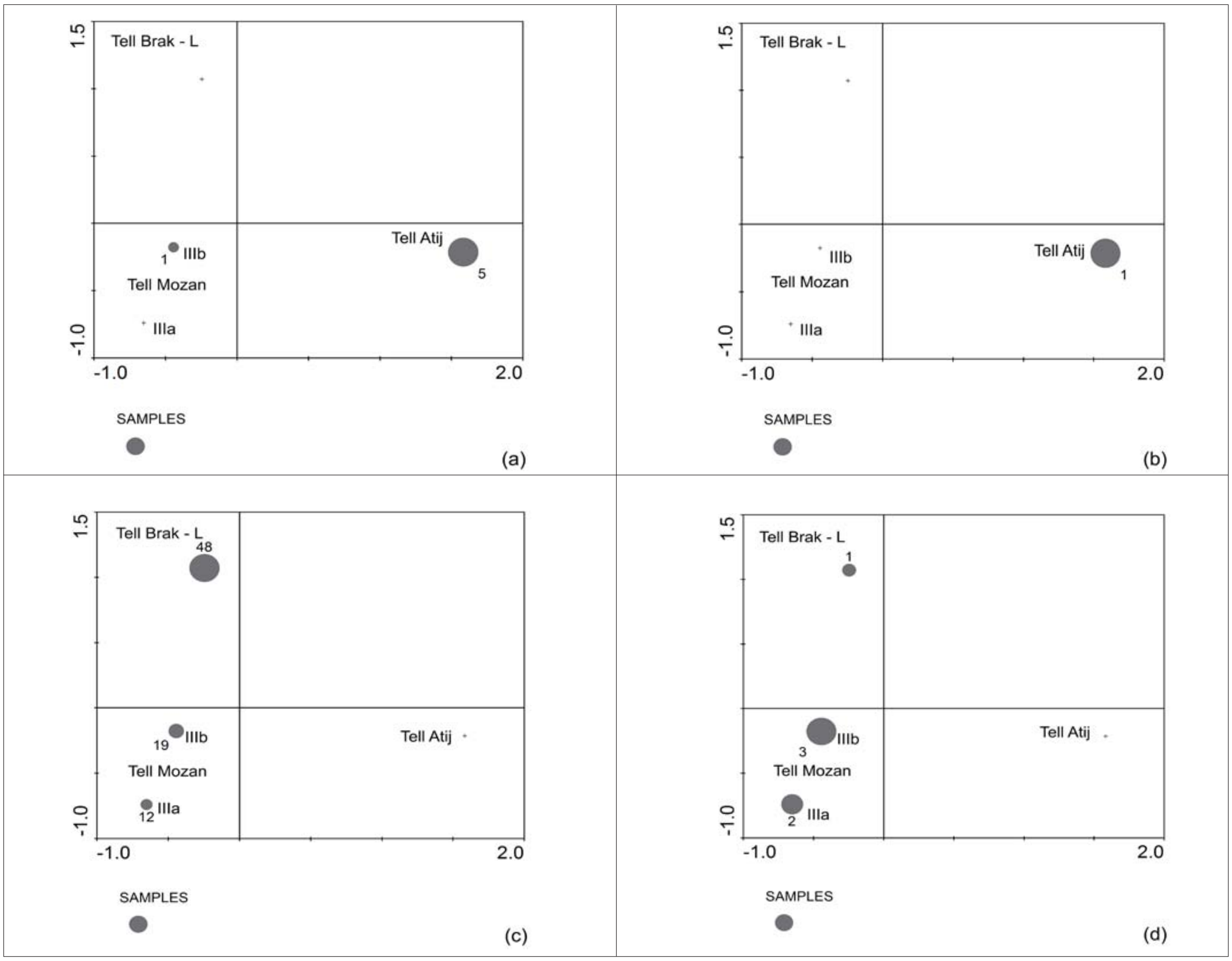


Figure 79: Attribute plots of some selected taxa to the correspondence analysis of the Early Bronze Age (ca. 2600-2300 BC) assemblages of Tell Mozan, Tell Brak and Tell Atij: (a) *Astragalus* spp., (b) Liliaceae, (c) barley grain, (d) free-threshing wheat grain.

environmental conditions, as is possibly the case at Tell Mozan (Figure 73).

The consideration of sites belonging to the same chronological phase may be helpful. With the archaeobotanical remains of three sites (Tell Mozan, Tell Brak, Tell Atij) on a North-South line of roughly 100 kilometres, spanning a precipitation regime from 100-150 mm at Tell Atij to 200-250 mm at Tell Mozan in the months from December to February, the importance of the precipitation regime becomes well visible (Figure 79). All the samples date roughly between 2600 and 2300 BC and provide good evidence for the North-South gradient of ancient precipitation regimes.

Already the first three axes show 100% of the data variability, separating the sites of Tell Mozan and Tell Brak from the more different Tell Atij in terms of plant assemblages along the x-axis (showing 51,8% of the variation), while at the same time Tell Mozan and Tell Brak are separated along the y-axis (accounting for 32,7% of the variation). The attribute plots of the taxa confirm the importance of the precipitation regimes, placing Tell Atij with high proportions in plant taxa of open and disturbed habitats (*Astragalus* spp., Liliaceae) in an environment probably already highly degraded from 2600 BC onward by grazing sheep and goats (Figures 79a and b).

The probably slightly different precipitation regimes at Tell Brak and Tell Mozan may have been the basis for differences in crop proportions in an area where irrigation was not practiced obligatorily, but rainfed agriculture may have been the rule, resulting in comparatively higher proportions in barley at Tell Brak and in free-threshing wheat at Tell Mozan (Figures 79 c and d).

3 Discussion and conclusion

3.1 Environmental factors deter mining changes in crop production patterns during the Early and Middle Bronze Age

Agriculture in semi-arid and arid environments is extremely sensitive to droughts that may cause considerable losses in yield over a series of years. The 400 mm isohyet is crucial in the consideration of endangered areas. Being aware that ancient precipitation regimes probably were different in many respects, it is, however, reasonable by palaeoclimatic data to assume that at least the basic geographically determined climatic patterns during the Holocene were very similar to modern time. Having the 400 mm isohyet and related agricultural problems in drier years in mind, many researchers vote for similar problems in ancient times, which is supported by textual evidence.[143]

Climatic development during the mid-Holocene has been increasingly investigated during the last years, to allow a linkage of economic to environmental developments, although the chronology, reasons, and the weighting of single processes are still under debate. Aside from the assumed general increase in aridity after around 6000 BP for most regions in the Near East and the Mediterranean, short-term fluctuations (several decades) due to cooling events are assumed.

One of the favoured arguments is an increase in volcanicity around 4200 BP that changed the amount of solar radiation reaching the Earth's surface and atmospheric circulation, resulting in increased global cooling.[144] Although the relationship between cooling and water balance is far from being well understood, in terms of the net result in moisture for a given cooling event it is clear that the net result must be very variable, depending on the geographic region and geomorphologic composition of this area. Assuming the cooling event of 4200 BP may have been caused by increased aerosols in the atmosphere and related reduction of solar radiation reaching the Earth's surface, the related reduction of evapotranspiration in arid and semi-arid regions must have been considerable. It is therefore reasonable to assume that the 4200 BP event resulted at first in an increased soil moisture. Additionally, models show an increased precipitation for 300 years, starting around 4200 BP.

If the decrease in solar radiation was caused by increased aerosols in the atmosphere, it should have turned to its original strength after some decades or centuries, accompanied by increased evapotranspiration and decreasing precipitation.[145] The 400 mm isohyet is important in this relation, as at locations with precipitation above this value the changes may have been less perceptible than in areas receiving 400 mm of annual precipitation or less, resulting in very different agronomic situations in the Syrian territory. The general environmental situation in Syria created by the developments from the mid-Holocene onward, however, would have been an increasingly arid climate from the Chalcolithic until modern times, with cooling events at some stages.[146]

Populations in areas around the 400 mm isohyet and below may have experienced the return from moister conditions to increasing aridity several centuries after the 4200 BP event as extremely stressful; some areas may have been overly stressed, while in areas above the 400 mm isohyet

143 E.g. numerous contributions in Bulletin on Sumerian Agriculture, vol. IV, 1988 and vol. V, 1990.
144 Bryson 1998; Riehl et al. 2008.
145 An increased water stress in cereals from Near Eastern sites after 4000 BP is evident in the stable isotope data from archaeobotanical remains.
146 Stages 4-5 according to Bond 1997.

they may have had a certain leeway to develop new agricultural stra-tegies. Many sites were already abandoned with or shortly before the 4200 BP event. These are for the Khabur area Tell Leilan, Tell Chuera, Tell Beydar, and all the excavated middle Khabur sites.[147] The latter are situated in a region of modern mean annual precipitation between 200 and 300 mm, and they may have been already under strong environmental stress before the event. Tell Mozan and Tell Brak are so far the only sites in the Khabur area with settlement continuity, and both are in an area of modern precipitation around 400 mm or above. To the west and in the Euphrates area, evidence of decentralization is suggested around 2000 BC by destroyed and/or abandoned sites such as Tell es-Sweyhat, Tell Selenkahiye, Tell Hammam et-Turkman, Umm el-Marra, etc.[148] All these sites are situated in an area with modern precipitation of 300 mm and below. Their already weakened economy after the return of more arid conditions may not have been able to resist additional political stress from outside, thus being unable to recover.

While natural water availability in arid and semi-arid environments sets a basic potential and limit to crop plant production, human technology may interact and shift the borders between potential and limits. For the Near Eastern region this is particularly relevant in areas with large rivers, such as the Euphrates, where large-scale irrigation may have allowed enlargement of the potential and which is evident for some sites.[149] In some settlements or settlement periods this may have found expression in cultivation patterns strongly differing from neighbouring sites (see Figure 77). Irrigation practices support a maximizing strategy in agricultural production, particularly with increasing population and the consequential necessary surplus, and at the same time they make the system more vulnerable.[150]

Direct human impact is visible by considering the development of woodland.[151] Deciduous oak, which was dominant in the area during the Early Bronze Age, was in rarer use during the Middle Bronze Age. Increasing human impact is also discussed for other areas, such as Umm el-Marra, where Miller argues for a reduction in woodland components by a decreasing charcoal : seed ratio throughout time, which would advocate for an increasing use of dung for fuel.[152] Methodological problems make it necessary to verify the arguments by extensive charcoal analysis of sequential layers in archaeological excavations.

147 Akkermans – Schwartz 2003.
148 Akkermans – Schwartz 2003: 283.
149 Riehl in press.
150 Cf. Wilkinson 1997.
151 See Deckers this volume.
152 Miller in Schwartz et al. 2000.

3.2 Political and cultural factors determining changes in crop production patterns during the Early and Middle Bronze Age

Wilkinson[153] discusses a number of inter-related factors that may have increased the instability of Holocene crop-production in the dry farming area of the Near East. Besides decreasing mean annual rainfall, which would have led to an overall decline in crop production and to increased inter-annual variability, he mentions the agglomeration of production in specific ecological areas, which may have increased instability and the potential for crop failure, and socio-economic and political factors that may have inhibited adaptation to changing environmental conditions.

The general settlement pattern at the end of the Early Bronze Age, i.e. that abandonment is rather the rule, while continuity is mainly the exception, provokes the question of why some settlements could survive the developments at the end of the Early Bronze Age. Akkermans and Schwartz offer as an explanation for the survival of the urban centres of Urkesh (Tell Mozan) and Nawar (Tell Brak) their political importance, such as Urkesh's "location at the northern edge of the Khabur plains near the Mardin saddle", which may have controlled "the route to the copper mines of eastern Anatolia" and Nawar as being a "traditional connector to southern Mesopotamia".[154] Whatever they mean by the term "traditional", agricultural production in these settlements indeed was traditional after 2000 BC, in the sense that only the populations at Tell Mozan and Tell Brak continued emmer and einkorn cultivation, following the patterns of the middle to late Early Bronze Age, while at other Middle Bronze Age sites in the wider region these crops were abandoned.[155]

The general abandonment of emmer cultivation at the end of the Early Bronze Age seems to be a good example of agronomic change mainly based on political and economic decisions.[156] Emmer is considered a highly drought-resistant species, thus a very useful cereal crop in arid and semi-arid environments. Its general abandonment in the Middle Bronze Age suggests that economic, political, and probably also cultural (dietary) reasons should be considered rather than reasons related to environmental change. Nesbitt and Samuel argue that economic pressure for increased productivity seems to select in favour of free-threshing wheats, due to a lower input-output relation with the latter crop. Acculturation and change in eating habits occur as rural populations are drawn

153 Wilkinson 1997.
154 Akkermans – Schwartz 2003: 286.
155 Riehl 2009.
156 Cf. Nesbitt – Samuel 1996.

into industrialized food markets",[157] which would explain slight differences in the timing of the decline of the crop at different sites.

These arguments would explain agricultural decision-making in favour of free-threshing wheat in regions where and/or periods when growing conditions would allow both crops to be successfully cultivated, which obviously was the case at Early Jazirah V Mozan. On the other hand, when agricultural conditions would not allow continuous successful cultivation of free-threshing wheat, a return to emmer wheat would be understandable, as was the case at Old Jazirah I Mozan.

Another crop, which was abandoned for at least partially cultural-economic reasons, is flax or linseed. Wool may have developed as a preferred textile fibre above the much better suited linen cloth for warm conditions because of a guaranteed regular "harvest" of wool in relation to the uncertain yield and very laborous production of flax fibre and additionally because of the very high water requirement of the crop. In times of drier seasons and resulting crop failure, the decision-makers of urban centres may have chosen to import precious linen from other regions in favour of mass production of wool.

3.3 Climate and agricultural decision making: Environmental constraints and economic development at Tell Mozan

Drought resistance and salinity tolerance are major adaptations of plants growing in arid and semi-arid environments. Different crop species show differences in their ability to tolerate stress, and an enormous number of modern cultivated races of specific crops exists that strongly vary in their response to different types of stress factors, making the access to basic crop ecological characteristics sometimes difficult. The specific agricultural conditions related to water stress by generally low precipitation and occasionally occuring years of drought may be one reason why fruit tree species are so rare amongst the archaeobotanical finds in northern Syria.

There are some well-investigated characteristics outlined in Chapter 2 (see Table 2) that determine the development of crop production patterns in general and at Early and Middle Bronze Age Tell Mozan in particular. One question that arises around this issue is why people should change to another main crop in Early Jazirah V and back again in Old Jazirah I to the old production pattern. Surely, such a decision is based on economic grounds, but the limits and potentials of economy are always based on the environmental situation for a given time and region.

Two-row barley, the most stress-tolerant cereal of those cultivated in the Bronze Age, is the main crop in most of the Early and Middle Bronze Age sites in the Near East. It was also dominant in the majority of Early and Middle Bronze Age samples from Tell Mozan, with one exception. With the beginning of Early Jazirah V (around 2100 BC), more-demanding free-threshing wheat became dominant for about 100 years. Additionally, emmer, the highly stress-tolerant hulled wheat, was virtually abandoned in Early Jazirah V Mozan, to be recultivated in Old Jazirah I, the period when the whole economic organization of the now reduced settlement of Mozan had changed. While the general abandonment of emmer until the end of the Early Bronze Age has to be explained with mainly economic and cultural reasons, its recultivation at Tell Mozan and Tell Brak may have been strongly forced by increasing arid conditions, which probably resulted in reduced yields of free-threshing wheat. A number of other increasing or decreasing crops and wild plants support the relation of plant proportions to changed water availability (see also chapter 2).

Amongst the taxa that are comparatively sensitive to reduced water availability and that decreased with the beginning of the Middle Bronze Age are garden pea, linseed, free-threshing wheat, lentil, and einkorn, the last of which may have already been considered a weed in Early Bronze Age cereal fields. Other taxa with higher stress-tolerance, such as bitter vetch, increase at Tell Mozan with the beginning of the Middle Bronze Age. Additionally, there is an increase in taxa indicative for increased water availability with the beginning of the final Early Bronze Age phase Early Jazirah V. Amongst them, *Phalaris* sp. is most dominant and may represent a weed growing with free-threshing wheat. Considering the weed assemblages of the different phases, the weed flora of Early Jazirah V is more similar to that of Early Jazirah IV than to Old Jazirah I, reflecting a continuation of agriculture in the same fields and similar surrounding vegetation. The strong difference in the weed flora of Early Jazirah V and Old Jazirah I advocates for a reorganization of agricultural activities with the beginning of the Middle Bronze Age.

Large-scale irrigation in any of the phases at Tell Mozan seems unlikely, as typical indicators occur in only small numbers. Plant species typical of saline soils are also extremely rare.

The most likely scenario reflected in the archaeobotanical data and the shift from barley to free-threshing wheat cultivation with the beginning of Early Jazirah V (c. 2100 BC) is that this decision was made after a preceding increase in winter precipitation (c. 2250 BC) or at least increased soil moisture for a long enough period to lead to this new economic orientation under better growing conditions for more demanding crops (see also Table 7). Such a shift in agricultural practice may not have occurred everywhere, and in fact is not visible

157 Nesbitt – Samuel 1996: 88.

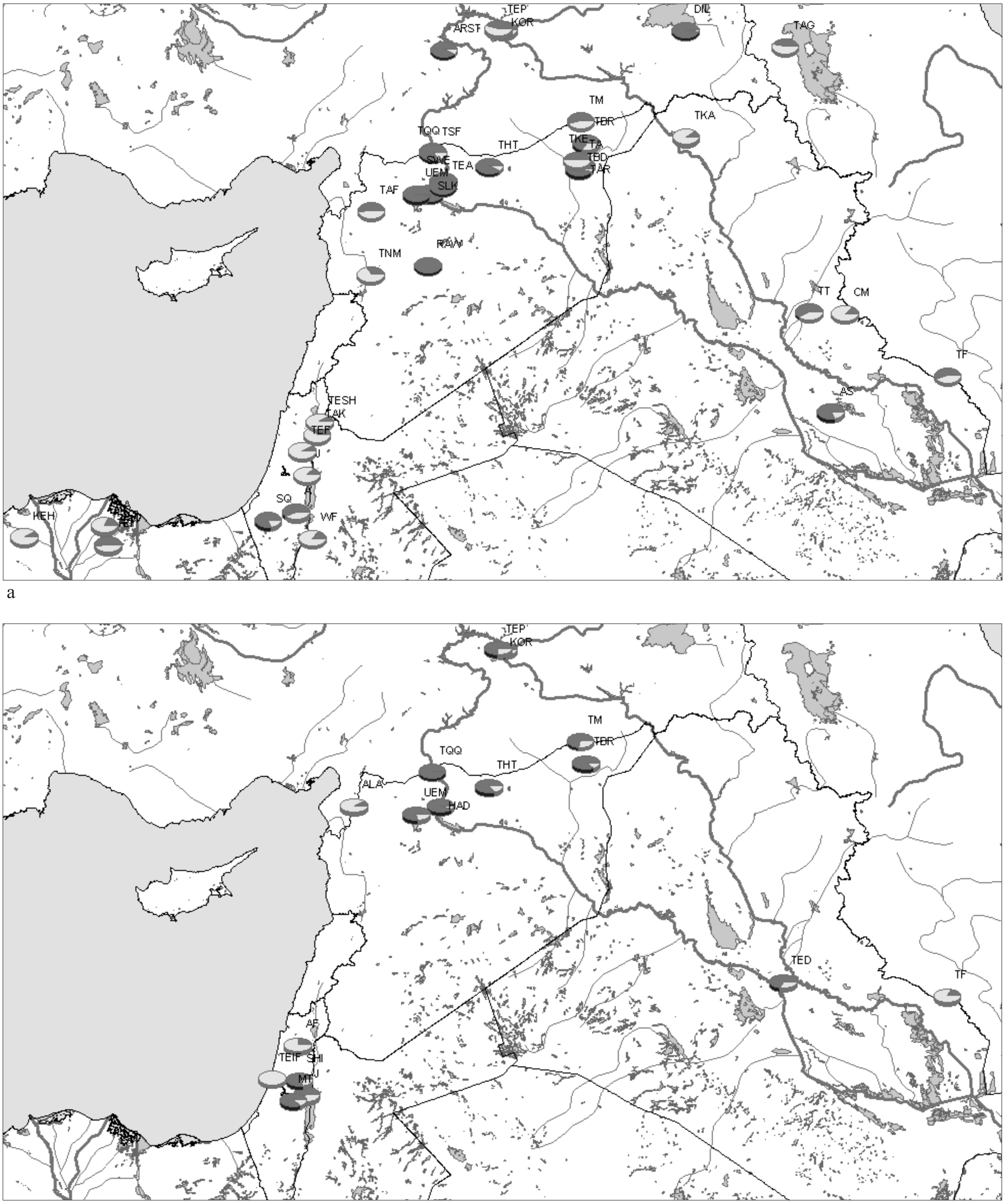


Figure 80: Percentage proportions of the two main crops barley (dark grey) and free-threshing wheat (light grey) in Near Eastern archaeological sites during the Early Bronze Age (a) and the Middle Bronze Age (b).

at Tell Brak.[158] In areas with lower precipitation, an increase may not have reached a level that would have allowed a shift to more-demanding crops. A short-term increase in precipitation[159] would additionally not find expression in the woodland composition, which is consequently not visible in the charcoal remains from Tell Mozan.[160]

Most likely shortly before 2000 BC mean winter precipitation decreased again, to reach similar values as in Early Jazirah III.

Although the hypothesis of a short phase of increased precipitation or soil moisture during Early Jazirah V seems to be in conflict with the general argument of the "global cooling and aridification event at 4200 BP"[161] at first sight, it would, on the contrary, explain the strong effects of aridification on human society even more fully. Continuously increasing aridity would give the populations enough time to adapt, while a short-term shift to better conditions, only to abruptly change in the other direction, may have multiplied the stress situation many times over, and reinforced the perception of the worsening environmental conditions. Although this decrease did lead to critical conditions in most of the sites, it did not at Mozan and Brak, as the populations were able to adapt their agricultural production, and it shifted to or continued with the earlier patterns. In other areas with mean annual precipitation already below 400 mm, this decrease in precipitation may have provoked critical agricultural situations, experienced as droughts and probably also considerable loss in yields. Political instability may have additionally stressed the economic system, consequently leading to collapse.

Although increasing degradation of the landscape throughout time is visible in numerous records,[162] there is not enough data yet to completely understand vegetation development in all the areas. In the seed remains from Tell Mozan, patterns of degradation are only weakly visible, as taxa with anti-grazing qualities (e.g., *Astragalus* sp., *Verbascum* sp. etc.), which were common in middle Khabur sites already during the Early Bronze Age (e.g., Tell Atij), occur only in small amounts at Tell Mozan. Whether the reduction in the use of oak during the Middle Bronze Age indicates an increase in aridity or degradation by human impact or both cannot be answered at the moment.[163] Considering the regional archaeobotanical evidence along the Khabur river a north-south gradient in landscape degradation becomes visible, such that the southern areas suffered much earlier from climate and anthropogenic impact than the north.[164]

cal.BC	Lake Van - palynology (Wick 2003)	Indus Valley (Staubwasser 2003)	settlement history, Syria	Tell Mozan	Dry/Moist (shift in moisture deduced from carpological remains)	Khabur: woodland development	modeled precipitation Qamishli (Bryson)	Khabur: crop production strategies	Tell Mozan: crop production	Tell Mozan: weed assemblages	Euphrates: woodland development	modeled precipitation Tel Abiad (Bryson)	Euphrates: crop production strategies
1750							487						**irrigation**
1800				**MBA**		deciduous		abandonment	broad crop		woody plants		pea still under
1850	GRAZING			Old-Jazirah II	**D**	oak	500	of pea & flax	spectrum:		of steppe type		cultivation
1900			MBA			reduced		grape reduction	barley &		environments		grape reduction
1950			repopulation				**512**	mainly wheat	emmer			328	mainly barley
2000			decentralization	Old-Jazirah I									**irrigation**
2050	reduced						**512**	**rainfed**	mainly free-	taxa of fresh-			
2100	spring rainfall			Early-Jazirah V	(M)			**agriculture**	thresh.wheat	moist habitats			
2150	decrease in		EBA		?		**512**				wood from		
2200	oak		depopulation			deciduous					mainly alluvial		
2250		4200 BP		Early-Jazirah IV		oak	**512**				vegetation	**391**	
2300					**D**	dominant							**irrigation**
2350				Early-Jazirah IIIb			500	broad cereal	broad cereal				specialization
2400								spectrum:	spectrum:				on two-row
2450				**EBA**			487	wheat & barley	barley &				barley
2500								**rainfed**	emmer				**irrigation**
2550				Early-Jazirah IIIa			480	**agriculture**				325	

Table 7: Environmental, economic and cultural development in Northern Syria.

158 Cf. Colledge 2003.
159 100 to 200 years in maximum.
160 See Deckers this volume.
161 Ristvet – Weiss 2005.
162 E.g. comparing the Early Bronze Age charcoal remains from Tell Selenkahiye and Tell Bderi with those of Middle Bronze Age Tell Hadidi.
163 See Deckers this volume.
164 Riehl – Bryson 2007.

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5 Appendix

Taxa tables

family	taxa	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2
	botanical sample no.	**BP01**	**BP03**	**BP05**	**BP06**	**BP08**	**BP09**	**BP10**	**BP11**
	area	85	65	74	94	63	63	63	63
	trench	41	36/37	-	57	84	84	84	84
	collection/item no.	Q 219 - FS 78	Q 223 - FS 61/62	Q 344 - FS 215	Q 403 - FS 206	i 291 - I	i 292 - II	i 295	i 294
	layer	C05a1	C05a	C05a	C06-07	C05	C05	C05	C05
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I	OJ I-II	OJ I-II	OJ I-II	OJ I-II
family	**taxa**								
Poaceae	*Hordeum distichon* L. (rachis)				1		1		3
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare* (rachis)								1
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare*, hulled	3	1	20	4		1	1	3
Poaceae	Triticum free-threshing tetraploid (rachis)								
Poaceae	*Triticum* cf. free-threshing tetraploid (rachis)								
Poaceae	Triticum free-threshing cf. tetraploid (rachis)								
Poaceae	Triticum free-threshing hexaploid/tetraploid				1				
Poaceae	Triticum free-threshing hexapl./tetrapl. (rachis)								2
Poaceae	Triticum free-threshing h/t (terminal glume base)								
Poaceae	*Triticum dicoccon* Schrank								
Poaceae	*Triticum dicoccon* Schrank (glume base)								
Poaceae	*Triticum* cf. *dicoccon* Schrank	1							
Poaceae	*Triticum* cf. *dicoccon* Schrank (glume base)	5			4			1	4
Poaceae	*Triticum monococcum* L.								
Poaceae	*Triticum monococcum* L. (cf. 2-grained)								
Poaceae	*Triticum monococcum* L. (glume base)								
Poaceae	*Triticum* cf. *monococcum* L.	1							
Poaceae	*Triticum* cf. *monococcum* L. (glume base)								
Poaceae	*Triticum monococcum/dicoccum*								
Poaceae	*Triticum monococcum/dicoccum* (rachis)								
Poaceae	Triticum hulled/free-threshing wheat								
Poaceae	*Triticum* L. sp.					1			2
Poaceae	*Triticum* L. sp. (chaff)								
Poaceae	Cerealia	4			3	2			3
Poaceae	Cerealia (culm nodes)								
Poaceae	Cerealia (rachis)								1
Poaceae	Cerealia (roots)								
Fabaceae	*Lens culinaris* Medik.	2			3				
Fabaceae	*Lens* Miller sp.								
Fabaceae	*Lathyrus sativus / cicera*								
Fabaceae	*Pisum sativum* L.								

	year of excavation	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2
	botanical sample no.	**BP01**	**BP03**	**BP05**	**BP06**	**BP08**	**BP09**	**BP10**	**BP11**
	area	85	65	74	94	63	63	63	63
	trench	41	36/37	-	57	84	84	84	84
	collection/item no.	Q 219 - FS 78	Q 223 - FS 61/62	Q 344 - FS 215	Q 403 - FS 206	i 291 - I	i 292 - II	i 295	i 294
	layer	C05a1	C05a	C05a	C06-07	C05	C05	C05	C05
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I	OJ I-II	OJ I-II	OJ I-II	OJ I-II
family	**taxa**								
Fabaceae	*Vicia ervilia* (L.) Willd.								
Fabaceae	cf. *Vicia faba* L.	1							
Fabaceae	cf. *Cicer arietinum* L.								
Fabaceae	Fabaceae sativae								
Linaceae	*Linum* cf. *usitatissimum* L.								
Asteraceae	*Carthamus* cf. *tinctorius* L.								
Vitaceae	*Vitis vinifera* L.								
Vitaceae	*Vitis vinifera* L. (stalks)								1
Moraceae	*Ficus carica* L.								
Moraceae	cf. *Ficus* L. sp., mineralized								
Apiaceae	*Ammi majus* L.								
Apiaceae	Apiaceae indet.								
Apiaceae	*Daucus carota* L.								
Apiaceae	*Torilis* - type								
Apiaceae	*Torilis leptophylla* (L.) Reichb.								
Asteraceae	*Anthemis* L. sp.								
Asteraceae	Asteraceae indet.								
Asteraceae	*Carduus* cf. *acanthoides* L.								
Asteraceae	*Centaurea* L. sp.								
Asteraceae	*Centaurea solstitialis* - type								
Asteraceae	*Cichorium* cf. *intybus* L.								
Asteraceae	*Crepis* L. sp.								
Asteraceae	*Senecio* L. sp.								
Boraginaceae	*Buglossoides tenuiflora* (L. fil.) Johnston	1							
Boraginaceae	cf. *Heliotropium* L. sp.								
Boraginaceae	*Heliotropium* L. sp.								
Boraginaceae	*Lithospermum arvense* L., uncarbonized								
Brassicaceae	Brassicaceae indet.								
Brassicaceae	*Camelina* cf. *microcarpa* Andrz.								
Brassicaceae	*Cheiranthus* - type								
Brassicaceae	*Lepidium* L. sp. (sativum?)								
Caryophyllaceae	Caryophyllaceae indet.								
Caryophyllaceae	*Silene* cf. *conica* L.								

	year of excavation	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2
	botanical sample no.	**BP01**	**BP03**	**BP05**	**BP06**	**BP08**	**BP09**	**BP10**	**BP11**
	area	85	65	74	94	63	63	63	63
	trench	41	36/37	-	57	84	84	84	84
	collection/item no.	Q 219 - FS 78	Q 223 - FS 61/62	Q 344 - FS 215	Q 403 - FS 206	i 291 - I	i 292 - II	i 295	i 294
	layer	C05a1	C05a	C05a	C06-07	C05	C05	C05	C05
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I	OJ I-II	OJ I-II	OJ I-II	OJ I-II
family	**taxa**								
Caryophyllaceae	*Silene* L. sp.	1							
Caryophyllaceae	*Silene* type 1								
Caryophyllaceae	*Silene* type 2								
Caryophyllaceae	*Silene* type 3								
Caryophyllaceae	*Vaccaria* cf. *pyramidata* Medik.								
Characeae	*Chara* L. sp.								
Chenopodiaceae	Chenopodiaceae indet.								
Chenopodiaceae	Chenopodiaceae indet., endosperm								
Chenopodiaceae	*Chenopodium* L. sp.								
Chenopodiaceae	*Chenopodium murale* L.								
Chenopodiaceae	*Salsola* L. sp.								
Chen./Resedac.	*Atriplex / Reseda*								
Convolvulaceae	*Calystegia* R.Br. sp.				1				
Cyperaceae	*Carex* L. sp.								
Cyperaceae	Cyperaceae indet.								2
Cyperaceae	Cyperaceae indet., endosperm								
Cyperaceae	*Eleocharis* R.Br. sp.								
Cyperaceae	*Scirpus* L. sp.								
Cyperaceae	*Scirpus maritimus* L.	1			1				
Dipsacaceae	*Cephalaria* Schrader ex Roemer & Schultes sp.								
Euphorbiaceae	*Euphorbia* L. sp.								
Fabaceae	*Astragalus L. sp.*	6							
Fabaceae	*Coronilla* L. sp.	9			6	2	2	1	9
Fabaceae	Fabaceae indet. (large)					2			
Fabaceae	Fabaceae indet. (small)	3			2				
Fabaceae	*Hippocrepis* L. sp.								
Fabaceae	*Medicago L. sp.*								
Fabaceae	*Melilotus* - type								
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.)								
Fabaceae	*Prosopis cf. farcta (Banks & Sol.), pod fragm.*								
Fabaceae	*Scorpiurus* cf. *muricatus* L.								
Fabaceae	*Trifolium / Lotus*								

	year of excavation	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2
	botanical sample no.	**BP01**	**BP03**	**BP05**	**BP06**	**BP08**	**BP09**	**BP10**	**BP11**
	area	85	65	74	94	63	63	63	63
	trench	41	36/37	-	57	84	84	84	84
	collection/item no.	Q 219 - FS 78	Q 223 - FS 61/62	Q 344 - FS 215	Q 403 - FS 206	i 291 - I	i 292 - II	i 295	i 294
	layer	C05a1	C05a	C05a	C06-07	C05	C05	C05	C05
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I	OJ I-II	OJ I-II	OJ I-II	OJ I-II
family	**taxa**								
Fabaceae	*Trifolium* L. sp.								
Fabaceae	*Trigonella* L. sp.								
Fabaceae	*Vicia / Lathyrus*								
Fabaceae	*Vicia* L. sp.								
Fagaceae	*Quercus* L. sp., fruit								
Lamiaceae	*Ajuga* cf. *salicifolia* (L.) Schreber								
Lamiaceae	*Ajuga* L. sp.								
Lamiaceae	*Lallemantia* Fisch.& Mey. sp.								
Lamiaceae	Lamiaceae indet.								
Lamiaceae	*Teucrium / Ajuga*								
Lamiaceae	*Ziziphora* Dumort. sp.								
Liliaceae	*Ornithogalum* sp./cf. *Muscari* (*neglecta*)								
Malvaceae	*Malva* L. sp.								
Malvaceae	Malvaceae vet. *Malva* (*Malope* - type)								
Onagraceae	*Epilobium* - type								
Papaveraceae	*Fumaria* L. sp.								
Papaveraceae	*Papaver* L. sp.								
Plantaginaceae	*Plantago cf. lagopus L.*								
Plantaginaceae	*Plantago L. sp.*								
Poaceae	*Aegilops* L. sp.						1		1
Poaceae	*Aegilops* Sec.*Vertebr.*Zhuk.e.Kiharas (gl. base)				1				
Poaceae	*Agrostis type*								
Poaceae	*Alopecurus* L. sp.				1				
Poaceae	*Avena* L. sp.								
Poaceae	*Bromus* L. sp.								
Poaceae	cf. *Catabrosa aquatica* (L.) P. Beauv.								
Poaceae	*Echinaria capitata* (L.) Desf.				1		1		3
Poaceae	*Bromus sterilis* L.								
Poaceae	*Eragrostis N.M.Wolf sp.*								15
Poaceae	*Eremopyrum* (Ledeb.) Jaub.& Spach sp.								
Poaceae	*Hordeum* cf. *spontaneum* Koch								

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP01**	**BP03**	**BP05**	**BP06**	**BP08**	**BP09**	**BP10**	**BP11**
	area	85	65	74	94	63	63	63	63
	trench	41	36/37	-	57	84	84	84	84
	collection/item no.	Q 219 - FS 78	Q 223 - FS 61/62	Q 344 - FS 215	Q 403 - FS 206	i 291 - I	i 292 - II	i 295	i 294
	layer	C05a1	C05a	C05a	C06-07	C05	C05	C05	C05
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I	OJ I-II	OJ I-II	OJ I-II	OJ I-II
family	**taxa**								
Poaceae	*Hordeum spontaneum* Koch (rachis)								
Poaceae	*Hordeum* L. sp. (wild)								
Poaceae	*Lolium* sp. (*persicum* - type)	4			3		2		
Poaceae	*Phalaris* L. sp.								
Poaceae	*Phleum* L. sp.								
Poaceae	*Poa nemoralis type*	30			23	8	20		
Poaceae	Poaceae indet. (large to medium)				2			1	2
Poaceae	Poaceae indet. (small)								
Poaceae	*Secale* L. sp.								
Poaceae	*Setaria verticillata* (L.) P. Beauv.								
Polygonaceae	Polygonaceae indet.								
Polygonaceae	*Polygonum aviculare* L.								
Polygonaceae	*Rumex* L. sp.								
Primulaceae	*Anagallis L. sp.*								
Ranunculaceae	*Adonis* L. sp.								1
Rubiaceae	*Asperula involucrata* Wahlenb.								
Rubiaceae	cf. *Crucianella* L. sp.								
Rubiaceae	*Galium / Asperula*								
Rubiaceae	*Galium aparine* - type								
Rubiaceae	*Galium* L. sp.				2				1
Rubiaceae	*Galium spurium* - type								
Scrophulariaceae	Scrophulariaceae indet.								
Scrophulariaceae	*Verbascum* L. sp.	1							
Thymelaeaceae	*Thymelaea* Miller sp.								
Valerianaceae	*Valerianella dentata* (L.) Pollich								
Valerianaceae	*Valerianella vesicaria* type								
Verbenaceae	*Verbena* cf. *officinalis* L.								
	beetle								
	Coprolite (goat)								
	Coprolite (mouse)								
	food remains								
	indet.								
	nut shell								
	prickles (cf. *Prosopis farcta*)								

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP12**	**BP13**	**BP14**	**BP15**	**BP16**	**BP17**	**BP18**	**BP19**
	area	63	94	94	94	94	94	94	94
	trench	60	58	56	56	56	56	56	56
	collection/item no.	Q 305 - FS 196	Q 492 - FS 205	i 329	i 323	i 325	i 322	i 324	i 328
	layer	C05a1	C05-C07	C05	C05	C05	C05	C05	C05
	dating	OJ I-II	OJ I-EJ V	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II
family	**taxa**								
Poaceae	*Hordeum distichon* L. (rachis)	1	3		1		3	5	2
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare* (rachis)	4							
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare*, hulled	7	26	5	4	2	7	9	1
Poaceae	Triticum free-threshing tetraploid (rachis)								
Poaceae	*Triticum* cf. free-threshing tetraploid (rachis)								
Poaceae	Triticum free-threshing cf. tetraploid (rachis)								
Poaceae	Triticum free-threshing hexaploid/tetraploid	5	14		2		3		1
Poaceae	Triticum free-threshing hexapl./tetrapl. (rachis)								
Poaceae	Triticum free-threshing h/t (terminal glume base)								
Poaceae	*Triticum dicoccon* Schrank		1						
Poaceae	*Triticum dicoccon* Schrank (glume base)								
Poaceae	*Triticum* cf. *dicoccon* Schrank					1			
Poaceae	*Triticum* cf. *dicoccon* Schrank (glume base)	6	10	2	2	1	4	2	
Poaceae	*Triticum monococcum* L.								
Poaceae	*Triticum monococcum* L. (cf. 2-grained)								
Poaceae	*Triticum monococcum* L. (glume base)								
Poaceae	*Triticum* cf. *monococcum* L.								
Poaceae	*Triticum* cf. *monococcum* L. (glume base)								
Poaceae	*Triticum monococcum/dicoccum*								
Poaceae	*Triticum monococcum/dicoccum* (rachis)								
Poaceae	Triticum hulled/free-threshing wheat								
Poaceae	*Triticum* L. sp.	4	7				1	1	
Poaceae	*Triticum* L. sp. (chaff)								
Poaceae	Cerealia	30	8	4	2		2	4	1
Poaceae	Cerealia (culm nodes)		1		1			2	1
Poaceae	Cerealia (rachis)	4	1	1		1	7	2	
Poaceae	Cerealia (roots)								
Fabaceae	*Lens culinaris* Medik.	1							
Fabaceae	*Lens* Miller sp.								
Fabaceae	*Lathyrus sativus / cicera*								
Fabaceae	*Pisum sativum* L.								
Fabaceae	*Vicia ervilia* (L.) Willd.			1					
Fabaceae	cf. *Vicia faba* L.							1	

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP12**	**BP13**	**BP14**	**BP15**	**BP16**	**BP17**	**BP18**	**BP19**
	area	63	94	94	94	94	94	94	94
	trench	60	58	56	56	56	56	56	56
	collection/item no.	Q 305 - FS 196	Q 492 - FS 205	i 329	i 323	i 325	i 322	i 324	i 328
	layer	C05a1	C05-C07	C05	C05	C05	C05	C05	C05
	dating	OJ I-II	OJ I-EJ V	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II
family	**taxa**								
Fabaceae	cf. *Cicer arietinum* L.								
Fabaceae	Fabaceae sativae								
Linaceae	*Linum* cf. *usitatissimum* L.								
Asteraceae	*Carthamus* cf. *tinctorius* L.	1							
Vitaceae	*Vitis vinifera* L.								
Vitaceae	*Vitis vinifera* L. (stalks)								
Moraceae	*Ficus carica* L.								
Moraceae	cf. *Ficus* L. sp., mineralized								
Apiaceae	*Ammi majus* L.								
Apiaceae	Apiaceae indet.								
Apiaceae	*Daucus carota* L.								
Apiaceae	*Torilis* - type								
Apiaceae	*Torilis leptophylla* (L.) Reichb.								
Asteraceae	*Anthemis* L. sp.								
Asteraceae	Asteraceae indet.								
Asteraceae	*Carduus* cf. *acanthoides* L.								
Asteraceae	*Centaurea* L. sp.								
Asteraceae	*Centaurea solstitialis* - type								
Asteraceae	*Cichorium* cf. *intybus* L.								
Asteraceae	*Crepis* L. sp.								
Asteraceae	*Senecio* L. sp.								
Boraginaceae	*Buglossoides tenuiflora* (L. fil.) Johnston							1	
Boraginaceae	cf. *Heliotropium* L. sp.								
Boraginaceae	*Heliotropium* L. sp.								
Boraginaceae	*Lithospermum arvense* L., uncarbonized								
Brassicaceae	Brassicaceae indet.								
Brassicaceae	*Camelina* cf. *microcarpa* Andrz.							36	
Brassicaceae	*Cheiranthus* - type								
Brassicaceae	*Lepidium* L. sp. (sativum?)								
Caryophyllaceae	Caryophyllaceae indet.								
Caryophyllaceae	*Silene* cf. *conica* L.								
Caryophyllaceae	*Silene* L. sp.	2							
Caryophyllaceae	*Silene* type 1								

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP12**	**BP13**	**BP14**	**BP15**	**BP16**	**BP17**	**BP18**	**BP19**
	area	63	94	94	94	94	94	94	94
	trench	60	58	56	56	56	56	56	56
	collection/item no.	Q 305 - FS 196	Q 492 - FS 205	i 329	i 323	i 325	i 322	i 324	i 328
	layer	C05a1	C05-C07	C05	C05	C05	C05	C05	C05
	dating	OJ I-II	OJ I-EJ V	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II
family	**taxa**								
Caryophyllaceae	*Silene* type 2								
Caryophyllaceae	*Silene* type 3								
Caryophyllaceae	*Vaccaria* cf. *pyramidata* Medik.								
Characeae	*Chara* L. sp.								
Chenopodiaceae	Chenopodiaceae indet.								
Chenopodiaceae	Chenopodiaceae indet., endosperm								
Chenopodiaceae	*Chenopodium* L. sp.								
Chenopodiaceae	*Chenopodium murale* L.								
Chenopodiaceae	*Salsola* L. sp.								
Chen./Resedac.	*Atriplex / Reseda*								
Convolvulaceae	*Calystegia* R.Br. sp.								
Cyperaceae	*Carex* L. sp.								
Cyperaceae	Cyperaceae indet.	1					1		
Cyperaceae	Cyperaceae indet., endosperm		1						
Cyperaceae	*Eleocharis* R.Br. sp.							1	
Cyperaceae	*Scirpus* L. sp.		2						
Cyperaceae	*Scirpus maritimus* L.						1		
Dipsacaceae	*Cephalaria* Schrader ex Roemer & Schultes sp.								
Euphorbiaceae	*Euphorbia* L. sp.								
Fabaceae	*Astragalus L. sp.*								
Fabaceae	*Coronilla* L. sp.	6	13	6	3	2	7	9	2
Fabaceae	Fabaceae indet. (large)	2	1				1	1	1
Fabaceae	Fabaceae indet. (small)		2	1	2	1	2	1	
Fabaceae	*Hippocrepis* L. sp.								
Fabaceae	Medicago L. sp.								
Fabaceae	*Melilotus* - type								
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.)	1							
Fabaceae	*Prosopis cf. farcta (Banks & Sol.), pod fragm.*								
Fabaceae	*Scorpiurus* cf. *muricatus* L.								
Fabaceae	*Trifolium / Lotus*								
Fabaceae	*Trifolium* L. sp.		1						
Fabaceae	*Trigonella* L. sp.								
Fabaceae	*Vicia / Lathyrus*								

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP12**	**BP13**	**BP14**	**BP15**	**BP16**	**BP17**	**BP18**	**BP19**
	area	63	94	94	94	94	94	94	94
	trench	60	58	56	56	56	56	56	56
	collection/item no.	Q 305 - FS 196	Q 492 - FS 205	i 329	i 323	i 325	i 322	i 324	i 328
	layer	C05a1	C05-C07	C05	C05	C05	C05	C05	C05
	dating	OJ I-II	OJ I-EJ V	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II
family	**taxa**								
Fabaceae	*Vicia* L. sp.								
Fagaceae	*Quercus* L. sp., fruit								
Lamiaceae	*Ajuga* cf. *salicifolia* (L.) Schreber								
Lamiaceae	*Ajuga* L. sp.								
Lamiaceae	*Lallemantia* Fisch.& Mey. sp.								
Lamiaceae	Lamiaceae indet.								
Lamiaceae	*Teucrium / Ajuga*	1							
Lamiaceae	*Ziziphora* Dumort. sp.								
Liliaceae	*Ornithogalum* sp./cf. *Muscari* (*neglecta*)								
Malvaceae	*Malva* L. sp.		1				1	5	1
Malvaceae	Malvaceae vet. *Malva* (*Malope* - type)								
Onagraceae	*Epilobium* - type								
Papaveraceae	*Fumaria* L. sp.								
Papaveraceae	*Papaver* L. sp.								
Plantaginaceae	*Plantago cf. lagopus L.*								
Plantaginaceae	*Plantago L. sp.*						1		
Poaceae	*Aegilops* L. sp.	4							
Poaceae	*Aegilops* Sec.*Vertebr.*Zhuk.e.Kiharas (gl. base)	5	3				1		1
Poaceae	*Agrostis type*								
Poaceae	*Alopecurus* L. sp.								
Poaceae	*Avena* L. sp.								
Poaceae	*Bromus* L. sp.								
Poaceae	*Bromus sterilis* L.								
Poaceae	cf. *Catabrosa aquatica* (L.) P. Beauv.								
Poaceae	*Echinaria capitata* (L.) Desf.	1	2	1		2			
Poaceae	*Eragrostis N.M.Wolf sp.*								
Poaceae	*Eremopyrum* (Ledeb.) Jaub.& Spach sp.								
Poaceae	*Hordeum* cf. *spontaneum* Koch						2		
Poaceae	*Hordeum spontaneum* Koch (rachis)			1					
Poaceae	*Hordeum* L. sp. (wild)								
Poaceae	*Lolium* sp. (*persicum* - type)	2	4			4	5	4	1
Poaceae	*Phalaris* L. sp.						11		
Poaceae	*Phleum* L. sp.								

	year of excavation	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2
	botanical sample no.	**BP12**	**BP13**	**BP14**	**BP15**	**BP16**	**BP17**	**BP18**	**BP19**
	area	63	94	94	94	94	94	94	94
	trench	60	58	56	56	56	56	56	56
	collection/item no.	Q 305 - FS 196	Q 492 - FS 205	i 329	i 323	i 325	i 322	i 324	i 328
	layer	C05a1	C05-C07	C05	C05	C05	C05	C05	C05
	dating	OJ I-II	OJ I-EJ V	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II
family	**taxa**								
Poaceae	*Poa nemoralis type*	22		30	20	25	33		
Poaceae	Poaceae indet. (large to medium)	2	8	1	3			2	
Poaceae	Poaceae indet. (small)	1		15	1	10		1	
Poaceae	*Secale* L. sp.								
Poaceae	*Setaria verticillata* (L.) P. Beauv.							1	
Polygonaceae	Polygonaceae indet.								
Polygonaceae	*Polygonum aviculare* L.								
Polygonaceae	*Rumex* L. sp.							1	
Primulaceae	*Anagallis L. sp.*	1							
Ranunculaceae	*Adonis* L. sp.	1							
Rubiaceae	*Asperula involucrata* Wahlenb.								
Rubiaceae	cf. *Crucianella* L. sp.								
Rubiaceae	*Galium / Asperula*								
Rubiaceae	*Galium aparine* - type								
Rubiaceae	*Galium* L. sp.	3	2	1	3	1	2	1	1
Rubiaceae	*Galium spurium* - type								
Scrophulariaceae	Scrophulariaceae indet.								
Scrophulariaceae	*Verbascum* L. sp.								
Thymelaeaceae	*Thymelaea* Miller sp.								
Valerianaceae	*Valerianella dentata* (L.) Pollich								
Valerianaceae	*Valerianella vesicaria* type								
Verbenaceae	*Verbena* cf. *officinalis* L.								
	beetle								
	Coprolite (goat)								
	Coprolite (mouse)								
	food remains								
	indet.							3	
	nut shell								
	prickles (cf. *Prosopis farcta*)								

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP20**	**BP21**	**BP22**	**BP23**	**BP24**	**BP25**	**BP26**	**BP27**
	area	93	93	94	94	94	94	94	94
	trench	99	99	56	56	56/100	56	59	56/100
	collection/item no.	Q 439 - FS 246	Q 440 - FS 247	i 321	i 327	i 336	i 326	Q 481 - FS 264	i 368 - FS 240
	layer	C05	C05-06	C05	C05	C05	C05	C06	C05
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I	OJ I-II
family	**taxa**								
Poaceae	*Hordeum distichon* L. (rachis)	3	1	5	2	1		1	2
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare* (rachis)								3
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare*, hulled	5	5	6	7	1	1	13	4
Poaceae	Triticum free-threshing tetraploid (rachis)								
Poaceae	*Triticum* cf. free-threshing tetraploid (rachis)								
Poaceae	Triticum free-threshing cf. tetraploid (rachis)								
Poaceae	Triticum free-threshing hexaploid/tetraploid		1		1			5	
Poaceae	Triticum free-threshing hexapl./tetrapl. (rachis)								3
Poaceae	Triticum free-threshing h/t (terminal glume base)								
Poaceae	*Triticum dicoccon* Schrank								
Poaceae	*Triticum dicoccon* Schrank (glume base)								
Poaceae	*Triticum* cf. *dicoccon* Schrank								
Poaceae	*Triticum* cf. *dicoccon* Schrank (glume base)	7	2	7	2	1	3	9	9
Poaceae	*Triticum monococcum* L.								
Poaceae	*Triticum monococcum* L. (cf. 2-grained)								
Poaceae	*Triticum monococcum* L. (glume base)								
Poaceae	*Triticum* cf. *monococcum* L.								
Poaceae	*Triticum* cf. *monococcum* L. (glume base)								
Poaceae	Triticum monococcum/dicoccum								
Poaceae	*Triticum monococcum/dicoccum* (rachis)								
Poaceae	Triticum hulled/free-threshing wheat								
Poaceae	*Triticum* L. sp.	1		3	2		1	6	2
Poaceae	*Triticum* L. sp. (chaff)		2					4	
Poaceae	Cerealia				1	2		9	8
Poaceae	Cerealia (culm nodes)						1		1
Poaceae	Cerealia (rachis)	3			1		4	16	48
Poaceae	Cerealia (roots)								
Fabaceae	*Lens culinaris* Medik.								
Fabaceae	*Lens* Miller sp.								
Fabaceae	Lathyrus sativus / cicera		3						

Fabaceae	*Pisum sativum* L.								
	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP20**	**BP21**	**BP22**	**BP23**	**BP24**	**BP25**	**BP26**	**BP27**
	area	93	93	94	94	94	94	94	94
	trench	99	99	56	56	56/100	56	59	56/100
	collection/item no.	Q 439 - FS 246	Q 440 - FS 247	i 321	i 327	i 336	i 326	Q 481 - FS 264	i 368 - FS 240
	layer	C05	C05-06	C05	C05	C05	C05	C06	C05
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I	OJ I-II
family	**taxa**								
Fabaceae	*Vicia ervilia* (L.) Willd.	31	3	1	1				
Fabaceae	cf. *Vicia faba* L.								
Fabaceae	cf. *Cicer arietinum* L.								
Fabaceae	Fabaceae sativae								
Linaceae	*Linum* cf. *usitatissimum* L.								
Asteraceae	*Carthamus* cf. *tinctorius* L.								
Vitaceae	*Vitis vinifera* L.	6		1					
Vitaceae	*Vitis vinifera* L. (stalks)	9							
Moraceae	*Ficus carica* L.							1	
Moraceae	cf. *Ficus* L. sp., mineralized								
Apiaceae	*Ammi majus* L.								
Apiaceae	Apiaceae indet.						1		
Apiaceae	*Daucus carota* L.								
Apiaceae	*Torilis* - type								
Apiaceae	*Torilis leptophylla* (L.) Reichb.								
Asteraceae	*Anthemis* L. sp.								
Asteraceae	Asteraceae indet.	2		21	2				
Asteraceae	*Carduus* cf. *acanthoides* L.								
Asteraceae	*Centaurea* L. sp.								
Asteraceae	*Centaurea solstitialis* - type								
Asteraceae	*Cichorium* cf. *intybus* L.	1							
Asteraceae	*Crepis* L. sp.								
Asteraceae	*Senecio* L. sp.	1							
Boraginaceae	*Buglossoides tenuiflora* (L. fil.) Johnston		1			78		8	
Boraginaceae	cf. *Heliotropium* L. sp.								
Boraginaceae	*Heliotropium* L. sp.								
Boraginaceae	*Lithospermum arvense* L., uncarbonized								
Brassicaceae	Brassicaceae indet.	2							1
Brassicaceae	*Camelina* cf. *microcarpa* Andrz.								
Brassicaceae	*Cheiranthus* - type	1							
Brassicaceae	*Lepidium* L. sp. (sativum?)	1							
Caryophyllaceae	Caryophyllaceae indet.								

Caryophyllaceae	*Silene* cf. *conica* L.		1						
	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP20**	**BP21**	**BP22**	**BP23**	**BP24**	**BP25**	**BP26**	**BP27**
	area	93	93	94	94	94	94	94	94
	trench	99	99	56	56	56/100	56	59	56/100
	collection/item no.	Q 439 - FS 246	Q 440 - FS 247	i 321	i 327	i 336	i 326	Q 481 - FS 264	i 368 - FS 240
	layer	C05	C05-06	C05	C05	C05	C05	C06	C05
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I	OJ I-II
family	**taxa**								
Caryophyllaceae	*Silene* L. sp.				1				
Caryophyllaceae	*Silene* type 1								
Caryophyllaceae	*Silene* type 2		1						
Caryophyllaceae	*Silene* type 3								
Caryophyllaceae	*Vaccaria* cf. *pyramidata* Medik.								
Characeae	*Chara* L. sp.								
Chenopodiaceae	Chenopodiaceae indet.								
Chenopodiaceae	Chenopodiaceae indet., endosperm								1
Chenopodiaceae	*Chenopodium* L. sp.								
Chenopodiaceae	*Chenopodium murale* L.								
Chenopodiaceae	*Salsola* L. sp.								
Chen./Resedac.	Atriplex / Reseda								
Convolvulaceae	*Calystegia* R.Br. sp.								
Cyperaceae	*Carex* L. sp.								
Cyperaceae	Cyperaceae indet.	1					1		
Cyperaceae	Cyperaceae indet., endosperm	1							
Cyperaceae	*Eleocharis* R.Br. sp.								
Cyperaceae	*Scirpus* L. sp.							1	1
Cyperaceae	*Scirpus maritimus* L.								
Dipsacaceae	*Cephalaria* Schrader ex Roemer & Schultes sp.								
Euphorbiaceae	*Euphorbia* L. sp.								
Fabaceae	*Astragalus* L. sp.							1	
Fabaceae	*Coronilla* L. sp.	10	30	8	9		4	10	12
Fabaceae	Fabaceae indet. (large)	3	5	2				5	1
Fabaceae	Fabaceae indet. (small)		2						9
Fabaceae	*Hippocrepis* L. sp.								
Fabaceae	*Medicago* L. sp.								
Fabaceae	*Melilotus* - type								
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.)	1						1	
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.), pod fragm.								
Fabaceae	*Scorpiurus* cf. *muricatus* L.								2
Fabaceae	Trifolium / Lotus								

Fabaceae	*Trifolium* L. sp.	2		4					
	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP20**	**BP21**	**BP22**	**BP23**	**BP24**	**BP25**	**BP26**	**BP27**
	area	93	93	94	94	94	94	94	94
	trench	99	99	56	56	56/100	56	59	56/100
	collection/item no.	Q 439 - FS 246	Q 440 - FS 247	i 321	i 327	i 336	i 326	Q 481 - FS 264	i 368 - FS 240
	layer	C05	C05-06	C05	C05	C05	C05	C06	C05
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I	OJ I-II
family	**taxa**								
Fabaceae	*Trigonella* L. sp.		1	20					
Fabaceae	Vicia / Lathyrus								
Fabaceae	*Vicia* L. sp.							1	
Fagaceae	*Quercus* L. sp., fruit								
Lamiaceae	*Ajuga* cf. *salicifolia* (L.) Schreber								
Lamiaceae	*Ajuga* L. sp.								
Lamiaceae	*Lallemantia* Fisch.& Mey. sp.	1							
Lamiaceae	Lamiaceae indet.								
Lamiaceae	Teucrium / Ajuga	1							
Lamiaceae	*Ziziphora* Dumort. sp.	1							
Liliaceae	*Ornithogalum* sp./cf. *Muscari* (*neglecta*)								
Malvaceae	*Malva* L. sp.				2		3	9	9
Malvaceae	Malvaceae vet. *Malva* (*Malope* - type)								
Onagraceae	*Epilobium* - type								
Papaveraceae	*Fumaria* L. sp.								
Papaveraceae	*Papaver* L. sp.								
Plantaginaceae	*Plantago* cf. *lagopus* L.							9	
Plantaginaceae	*Plantago* L. sp.								
Poaceae	*Aegilops* L. sp.		1	1	3			4	4
Poaceae	*Aegilops* Sec.*Vertebr.*Zhuk.e.Kiharas (gl. base)								
Poaceae	*Agrostis* type								
Poaceae	*Alopecurus* L. sp.								
Poaceae	*Avena* L. sp.								
Poaceae	*Bromus* L. sp.	2							
Poaceae	*Bromus sterilis* L.								
Poaceae	cf. *Catabrosa aquatica* (L.) P. Beauv.								
Poaceae	*Echinaria capitata* (L.) Desf.			1	1			1	1
Poaceae	*Eragrostis* N.M.Wolf sp.								
Poaceae	*Eremopyrum* (Ledeb.) Jaub.& Spach sp.								
Poaceae	*Hordeum* cf. *spontaneum* Koch								
Poaceae	*Hordeum spontaneum* Koch (rachis)								
Poaceae	*Hordeum* L. sp. (wild)							3	10

Poaceae	*Lolium* sp. (*persicum* - type)	4		6	1		3	2	12
	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP20**	**BP21**	**BP22**	**BP23**	**BP24**	**BP25**	**BP26**	**BP27**
	area	93	93	94	94	94	94	94	94
	trench	99	99	56	56	56/100	56	59	56/100
	collection/item no.	Q 439 - FS 246	Q 440 - FS 247	i 321	i 327	i 336	i 326	Q 481 - FS 264	i 368 - FS 240
	layer	C05	C05-06	C05	C05	C05	C05	C06	C05
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I	OJ I-II
family	**taxa**								
Poaceae	*Phalaris* L. sp.	10		1					10
Poaceae	*Phleum* L. sp.								
Poaceae	Poa nemoralis type		127	20					54
Poaceae	Poaceae indet. (large to medium)		3	5	3	2	3	1	6
Poaceae	Poaceae indet. (small)								
Poaceae	*Secale* L. sp.								
Poaceae	*Setaria verticillata* (L.) P. Beauv.					1			
Polygonaceae	Polygonaceae indet.	1							
Polygonaceae	*Polygonum aviculare* L.								
Polygonaceae	*Rumex* L. sp.		2	1	1				
Primulaceae	*Anagallis* L. sp.								1
Ranunculaceae	*Adonis* L. sp.	6						1	
Rubiaceae	*Asperula involucrata* Wahlenb.								
Rubiaceae	cf. *Crucianella* L. sp.								
Rubiaceae	Galium / Asperula								
Rubiaceae	*Galium aparine* - type								
Rubiaceae	*Galium* L. sp.	11	16	1	1	1		1	
Rubiaceae	*Galium spurium* - type								
Scrophulariaceae	Scrophulariaceae indet.								
Scrophulariaceae	*Verbascum* L. sp.								
Thymelaeaceae	*Thymelaea* Miller sp.								
Valerianaceae	*Valerianella dentata* (L.) Pollich								
Valerianaceae	*Valerianella vesicaria* type								
Verbenaceae	*Verbena* cf. *officinalis* L.								
	beetle								
	Coprolite (goat)								
	Coprolite (mouse)								
	food remains								
	indet.						3	5	5
	nut shell								
	prickles (cf. *Prosopis farcta*)								

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP28**	**BP29**	**BP30**	**BP31**	**BP32**	**BP33**	**BP34**
	area	94	94	64	94	94	64	64
	trench	56/100	-	-	-	-		0
	collection/item no.	i 365 - FS 240	i 407 - FS 240	i 393 - FS 275	i 408 - FS 240	i 409 - FS 240	Q 347 - FS 217	Q 514 - FS 275
	layer	C05	C05	C05a	C05	C05	C05a	C05a
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II
family	**taxa**							
Poaceae	*Hordeum distichon* L. (rachis)	21			8			
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare* (rachis)	13	65		10	30		
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare*, hulled	9	29	1	9	23		
Poaceae	Triticum free-threshing tetraploid (rachis)	2	4					
Poaceae	*Triticum* cf. free-threshing tetraploid (rachis)							
Poaceae	Triticum free-threshing cf. tetraploid (rachis)							
Poaceae	Triticum free-threshing hexaploid/tetraploid		2		5	2		
Poaceae	Triticum free-threshing hexapl./tetrapl. (rachis)					6		
Poaceae	Triticum free-threshing h/t (terminal glume base)							
Poaceae	*Triticum dicoccon* Schrank							
Poaceae	*Triticum dicoccon* Schrank (glume base)							
Poaceae	*Triticum* cf. *dicoccon* Schrank							
Poaceae	*Triticum* cf. *dicoccon* Schrank (glume base)	7	56		3	26		
Poaceae	*Triticum monococcum* L.							
Poaceae	*Triticum monococcum* L. (cf. 2-grained)							
Poaceae	*Triticum monococcum* L. (glume base)							
Poaceae	*Triticum* cf. *monococcum* L.							
Poaceae	*Triticum* cf. *monococcum* L. (glume base)							
Poaceae	*Triticum monococcum/dicoccum*							
Poaceae	*Triticum monococcum/dicoccum* (rachis)							
Poaceae	Triticum hulled/free-threshing wheat							
Poaceae	*Triticum* L. sp.		3		3	5		
Poaceae	*Triticum* L. sp. (chaff)				2			
Poaceae	Cerealia	4	6		2	4		
Poaceae	Cerealia (culm nodes)	4	7			9	1	
Poaceae	Cerealia (rachis)	19				11		
Poaceae	Cerealia (roots)							
Fabaceae	*Lens culinaris* Medik.					1		
Fabaceae	*Lens* Miller sp.							
Fabaceae	*Lathyrus sativus / cicera*	1				1		
Fabaceae	*Pisum sativum* L.							
Fabaceae	*Vicia ervilia* (L.) Willd.		1			1		
Fabaceae	cf. *Vicia faba* L.							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP28**	**BP29**	**BP30**	**BP31**	**BP32**	**BP33**	**BP34**
	area	94	94	64	94	94	64	64
	trench	56/100	-	-	-	-		0
	collection/item no.	i 365 - FS 240	i 407 - FS 240	i 393 - FS 275	i 408 - FS 240	i 409 - FS 240	Q 347 - FS 217	Q 514 - FS 275
	layer	C05	C05	C05a	C05	C05	C05a	C05a
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II
family	**taxa**							
Fabaceae	cf. *Cicer arietinum* L.							
Fabaceae	Fabaceae sativae							
Linaceae	*Linum* cf. *usitatissimum* L.							
Asteraceae	*Carthamus* cf. *tinctorius* L.							
Vitaceae	*Vitis vinifera* L.							
Vitaceae	*Vitis vinifera* L. (stalks)							
Moraceae	*Ficus carica* L.							
Moraceae	cf. *Ficus* L. sp., mineralized							
Apiaceae	*Ammi majus* L.							
Apiaceae	Apiaceae indet.							
Apiaceae	*Daucus carota* L.							
Apiaceae	*Torilis* - type							
Apiaceae	*Torilis leptophylla* (L.) Reichb.							
Asteraceae	*Anthemis* L. sp.							
Asteraceae	Asteraceae indet.							
Asteraceae	*Carduus* cf. *acanthoides* L.							
Asteraceae	*Centaurea* L. sp.							
Asteraceae	*Centaurea solstitialis* - type							
Asteraceae	*Cichorium* cf. *intybus* L.							
Asteraceae	*Crepis* L. sp.					1		
Asteraceae	*Senecio* L. sp.							
Boraginaceae	*Buglossoides tenuiflora* (L. fil.) Johnston							
Boraginaceae	cf. *Heliotropium* L. sp.							
Boraginaceae	*Heliotropium* L. sp.							
Boraginaceae	*Lithospermum arvense* L., uncarbonized							
Brassicaceae	Brassicaceae indet.							
Brassicaceae	*Camelina* cf. *microcarpa* Andrz.			2				
Brassicaceae	*Cheiranthus* - type							
Brassicaceae	*Lepidium* L. sp. (sativum?)							
Caryophyllaceae	Caryophyllaceae indet.							
Caryophyllaceae	*Silene* cf. *conica* L.							
Caryophyllaceae	*Silene* L. sp.	1	1					
Caryophyllaceae	*Silene* type 1							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP28**	**BP29**	**BP30**	**BP31**	**BP32**	**BP33**	**BP34**
	area	94	94	64	94	94	64	64
	trench	56/100	-	-	-	-		0
	collection/item no.	i 365 - FS 240	i 407 - FS 240	i 393 - FS 275	i 408 - FS 240	i 409 - FS 240	Q 347 - FS 217	Q 514 - FS 275
	layer	C05	C05	C05a	C05	C05	C05a	C05a
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II
family	**taxa**							
Caryophyllaceae	*Silene* type 2							
Caryophyllaceae	*Silene* type 3							
Caryophyllaceae	*Vaccaria* cf. *pyramidata* Medik.							
Characeae	*Chara* L. sp.	1						
Chenopodiaceae	Chenopodiaceae indet.							
Chenopodiaceae	Chenopodiaceae indet., endosperm							
Chenopodiaceae	*Chenopodium* L. sp.							
Chenopodiaceae	*Chenopodium murale* L.							
Chenopodiaceae	*Salsola* L. sp.							
Chen./Resedac.	*Atriplex / Reseda*							
Convolvulaceae	*Calystegia* R.Br. sp.							
Cyperaceae	*Carex* L. sp.							
Cyperaceae	Cyperaceae indet.							
Cyperaceae	Cyperaceae indet., endosperm							
Cyperaceae	*Eleocharis* R.Br. sp.							
Cyperaceae	*Scirpus* L. sp.							
Cyperaceae	*Scirpus maritimus* L.							
Dipsacaceae	*Cephalaria* Schrader ex Roemer & Schultes sp.							
Euphorbiaceae	*Euphorbia* L. sp.							
Fabaceae	*Astragalus* L. sp.				1			
Fabaceae	*Coronilla* L. sp.	14	12		3	26		1
Fabaceae	Fabaceae indet. (large)	1	1		2	3		
Fabaceae	Fabaceae indet. (small)	1				3		
Fabaceae	*Hippocrepis* L. sp.							
Fabaceae	*Medicago* L. sp.							
Fabaceae	*Melilotus* - type							
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.)							
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.), pod fragm.							
Fabaceae	*Scorpiurus* cf. *muricatus* L.		1			1		
Fabaceae	*Trifolium / Lotus*							
Fabaceae	*Trifolium* L. sp.		5		1			
Fabaceae	*Trigonella* L. sp.					1		
Fabaceae	*Vicia / Lathyrus*							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP28**	**BP29**	**BP30**	**BP31**	**BP32**	**BP33**	**BP34**
	area	94	94	64	94	94	64	64
	trench	56/100	-	-	-	-		0
	collection/item no.	i 365 - FS 240	i 407 - FS 240	i 393 - FS 275	i 408 - FS 240	i 409 - FS 240	Q 347 - FS 217	Q 514 - FS 275
	layer	C05	C05	C05a	C05	C05	C05a	C05a
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II
family	**taxa**							
Fabaceae	*Vicia* L. sp.							
Fagaceae	*Quercus* L. sp., fruit							
Lamiaceae	*Ajuga* cf. *salicifolia* (L.) Schreber							
Lamiaceae	*Ajuga* L. sp.							
Lamiaceae	*Lallemantia* Fisch.& Mey. sp.							
Lamiaceae	Lamiaceae indet.							
Lamiaceae	*Teucrium / Ajuga*							
Lamiaceae	*Ziziphora* Dumort. sp.							
Liliaceae	*Ornithogalum* sp./cf. *Muscari* (*neglecta*)							
Malvaceae	*Malva* L. sp.	2	1	1	2	1		
Malvaceae	Malvaceae vet. *Malva* (*Malope* - type)							
Onagraceae	*Epilobium* - type							
Papaveraceae	*Fumaria* L. sp.		1					
Papaveraceae	*Papaver* L. sp.							
Plantaginaceae	*Plantago* cf. *lagopus* L.							
Plantaginaceae	*Plantago* L. sp.							
Poaceae	*Aegilops* L. sp.	1	1		1	1		
Poaceae	*Aegilops* Sec.*Vertebr.*Zhuk.e.Kiharas (gl. base)		2			2		
Poaceae	*Agrostis* type							
Poaceae	*Alopecurus* L. sp.							
Poaceae	*Avena* L. sp.							
Poaceae	*Bromus* L. sp.	1						
Poaceae	*Bromus sterilis* L.							
Poaceae	cf. *Catabrosa aquatica* (L.) P. Beauv.							
Poaceae	*Echinaria capitata* (L.) Desf.		5			1	1	
Poaceae	*Eragrostis* N.M.Wolf sp.							
Poaceae	*Eremopyrum* (Ledeb.) Jaub.& Spach sp.							
Poaceae	*Hordeum* cf. *spontaneum* Koch							
Poaceae	*Hordeum spontaneum* Koch (rachis)	2				1		
Poaceae	*Hordeum* L. sp. (wild)	2						
Poaceae	*Lolium* sp. (*persicum* - type)	4	13		3	3		
Poaceae	*Phalaris* L. sp.							
Poaceae	*Phleum* L. sp.							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP28**	**BP29**	**BP30**	**BP31**	**BP32**	**BP33**	**BP34**
	area	94	94	64	94	94	64	64
	trench	56/100	-	-	-	-		0
	collection/item no.	i 365 - FS 240	i 407 - FS 240	i 393 - FS 275	i 408 - FS 240	i 409 - FS 240	Q 347 - FS 217	Q 514 - FS 275
	layer	C05	C05	C05a	C05	C05	C05a	C05a
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II
family	**taxa**							
Poaceae	*Poa nemoralis type*	40	91	1		40		
Poaceae	Poaceae indet. (large to medium)	2	7		2	6		
Poaceae	Poaceae indet. (small)					20		
Poaceae	*Secale* L. sp.							
Poaceae	*Setaria verticillata* (L.) P. Beauv.							
Polygonaceae	Polygonaceae indet.							
Polygonaceae	*Polygonum aviculare* L.							
Polygonaceae	*Rumex* L. sp.							
Primulaceae	*Anagallis* L. sp.							
Ranunculaceae	*Adonis* L. sp.					2		
Rubiaceae	*Asperula involucrata* Wahlenb.							
Rubiaceae	cf. *Crucianella* L. sp.							
Rubiaceae	*Galium / Asperula*							
Rubiaceae	*Galium aparine* - type							
Rubiaceae	*Galium* L. sp.	2	2		3	4		
Rubiaceae	*Galium spurium* - type							
Scrophulariaceae	Scrophulariaceae indet.							
Scrophulariaceae	*Verbascum* L. sp.							
Thymelaeaceae	*Thymelaea* Miller sp.							
Valerianaceae	*Valerianella dentata* (L.) Pollich							1
Valerianaceae	*Valerianella vesicaria* type							
Verbenaceae	*Verbena* cf. *officinalis* L.							
	beetle		1					
	Coprolite (goat)					1		
	Coprolite (mouse)	1				2		
	food remains							
	indet.		12					
	nut shell							
	prickles (cf. *Prosopis farcta*)	1	1					

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP35**	**BP36**	**BP37**	**BP38**	**BP39**	**BP40**	**BP41**
	area	64	64	65	65	64	73	93
	trench		0		0			102
	collection/item no.	Q 346 - FS 216	Q 516 - FS 275	Q 561 - FS 275	Q 531 - FS 275	Q 562 - FS 215	Q 558 - FS 280	Q 591 - FS 270
	layer	C05a	C05a		C05a	C05a	C05	C02-05
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	medieval/MBA
family	**taxa**							
Poaceae	*Hordeum distichon* L. (rachis)	4	1			2	4	
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare* (rachis)						9	58
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare*, hulled			7	218	23	19	43
Poaceae	Triticum free-threshing tetraploid (rachis)							2
Poaceae	*Triticum* cf. free-threshing tetraploid (rachis)							
Poaceae	Triticum free-threshing cf. tetraploid (rachis)							
Poaceae	Triticum free-threshing hexaploid/tetraploid						10	1
Poaceae	Triticum free-threshing hexapl./tetrapl. (rachis)							
Poaceae	Triticum free-threshing h/t (terminal glume base)							
Poaceae	*Triticum dicoccon* Schrank							
Poaceae	*Triticum dicoccon* Schrank (glume base)							
Poaceae	*Triticum* cf. *dicoccon* Schrank							
Poaceae	*Triticum* cf. *dicoccon* Schrank (glume base)				9	10	3	15
Poaceae	*Triticum monococcum* L.							
Poaceae	*Triticum monococcum* L. (cf. 2-grained)							
Poaceae	*Triticum monococcum* L. (glume base)							
Poaceae	*Triticum* cf. *monococcum* L.							
Poaceae	*Triticum* cf. *monococcum* L. (glume base)							
Poaceae	*Triticum monococcum/dicoccum*							
Poaceae	*Triticum monococcum/dicoccum* (rachis)							
Poaceae	Triticum hulled/free-threshing wheat							
Poaceae	*Triticum* L. sp.					2	3	
Poaceae	*Triticum* L. sp. (chaff)							
Poaceae	Cerealia	1				7	7	12
Poaceae	Cerealia (culm nodes)	3	1			4	1	1
Poaceae	Cerealia (rachis)					1		
Poaceae	Cerealia (roots)							
Fabaceae	*Lens culinaris* Medik.						2	3
Fabaceae	*Lens* Miller sp.							
Fabaceae	*Lathyrus sativus / cicera*							
Fabaceae	*Pisum sativum* L.							
Fabaceae	*Vicia ervilia* (L.) Willd.						1	
Fabaceae	cf. *Vicia faba* L.							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP35**	**BP36**	**BP37**	**BP38**	**BP39**	**BP40**	**BP41**
	area	64	64	65	65	64	73	93
	trench		0		0			102
	collection/item no.	Q 346 - FS 216	Q 516 - FS 275	Q 561 - FS 275	Q 531 - FS 275	Q 562 - FS 215	Q 558 - FS 280	Q 591 - FS 270
	layer	C05a	C05a		C05a	C05a	C05	C02-05
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	medieval/MBA
family	**taxa**							
Fabaceae	cf. *Cicer arietinum* L.				1			
Fabaceae	Fabaceae sativae							
Linaceae	*Linum* cf. *usitatissimum* L.							
Asteraceae	*Carthamus* cf. *tinctorius* L.							1
Vitaceae	*Vitis vinifera* L.							1
Vitaceae	*Vitis vinifera* L. (stalks)							
Moraceae	*Ficus carica* L.							
Moraceae	cf. *Ficus* L. sp., mineralized							
Apiaceae	*Ammi majus* L.							
Apiaceae	Apiaceae indet.							
Apiaceae	*Daucus carota* L.							
Apiaceae	*Torilis* - type							
Apiaceae	*Torilis leptophylla* (L.) Reichb.		2					
Asteraceae	*Anthemis* L. sp.							
Asteraceae	Asteraceae indet.							
Asteraceae	*Carduus* cf. *acanthoides* L.							
Asteraceae	*Centaurea* L. sp.							
Asteraceae	*Centaurea solstitialis* - type							
Asteraceae	*Cichorium* cf. *intybus* L.							
Asteraceae	*Crepis* L. sp.							
Asteraceae	*Senecio* L. sp.							
Boraginaceae	*Buglossoides tenuiflora* (L. fil.) Johnston							
Boraginaceae	cf. *Heliotropium* L. sp.							
Boraginaceae	*Heliotropium* L. sp.						1	
Boraginaceae	*Lithospermum arvense* L., uncarbonized							
Brassicaceae	Brassicaceae indet.							
Brassicaceae	*Camelina* cf. *microcarpa* Andrz.							
Brassicaceae	*Cheiranthus* - type							
Brassicaceae	*Lepidium* L. sp. (sativum?)							
Caryophyllaceae	Caryophyllaceae indet.							
Caryophyllaceae	*Silene* cf. *conica* L.							
Caryophyllaceae	*Silene* L. sp.						1	
Caryophyllaceae	*Silene* type 1							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP35**	**BP36**	**BP37**	**BP38**	**BP39**	**BP40**	**BP41**
	area	64	64	65	65	64	73	93
	trench		0		0			102
	collection/item no.	Q 346 - FS 216	Q 516 - FS 275	Q 561 - FS 275	Q 531 - FS 275	Q 562 - FS 215	Q 558 - FS 280	Q 591 - FS 270
	layer	C05a	C05a		C05a	C05a	C05	C02-05
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	medieval/MBA
family	**taxa**							
Caryophyllaceae	*Silene* type 2							
Caryophyllaceae	*Silene* type 3							
Caryophyllaceae	*Vaccaria* cf. *pyramidata* Medik.							
Characeae	*Chara* L. sp.							
Chenopodiaceae	Chenopodiaceae indet.							
Chenopodiaceae	Chenopodiaceae indet., endosperm						2	
Chenopodiaceae	*Chenopodium* L. sp.							
Chenopodiaceae	*Chenopodium murale* L.							
Chenopodiaceae	*Salsola* L. sp.							
Chen./Resedac.	*Atriplex / Reseda*							
Convolvulaceae	*Calystegia* R.Br. sp.							
Cyperaceae	*Carex* L. sp.							
Cyperaceae	Cyperaceae indet.							
Cyperaceae	Cyperaceae indet., endosperm							
Cyperaceae	*Eleocharis* R.Br. sp.							
Cyperaceae	*Scirpus* L. sp.							
Cyperaceae	*Scirpus maritimus* L.							
Dipsacaceae	*Cephalaria* Schrader ex Roemer & Schultes sp.							
Euphorbiaceae	*Euphorbia* L. sp.							
Fabaceae	*Astragalus* L. sp.							
Fabaceae	*Coronilla* L. sp.	1			1	4	15	20
Fabaceae	Fabaceae indet. (large)							2
Fabaceae	Fabaceae indet. (small)							
Fabaceae	*Hippocrepis* L. sp.							
Fabaceae	*Medicago* L. sp.							
Fabaceae	*Melilotus* - type							
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.)							8
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.), pod fragm.							2
Fabaceae	*Scorpiurus* cf. *muricatus* L.							
Fabaceae	*Trifolium / Lotus*							
Fabaceae	*Trifolium* L. sp.	1						4
Fabaceae	*Trigonella* L. sp.					1		
Fabaceae	*Vicia / Lathyrus*							

family		MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2
	year of excavation	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2
	botanical sample no.	**BP35**	**BP36**	**BP37**	**BP38**	**BP39**	**BP40**	**BP41**
	area	64	64	65	65	64	73	93
	trench		0		0			102
	collection/item no.	Q 346 - FS 216	Q 516 - FS 275	Q 561 - FS 275	Q 531 - FS 275	Q 562 - FS 215	Q 558 - FS 280	Q 591 - FS 270
	layer	C05a	C05a		C05a	C05a	C05	C02-05
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	medieval/MBA
family	**taxa**							
Fabaceae	*Vicia* L. sp.							
Fagaceae	*Quercus* L. sp., fruit							
Lamiaceae	*Ajuga* cf. *salicifolia* (L.) Schreber							
Lamiaceae	*Ajuga* L. sp.							
Lamiaceae	*Lallemantia* Fisch.& Mey. sp.							
Lamiaceae	Lamiaceae indet.							
Lamiaceae	*Teucrium / Ajuga*							
Lamiaceae	*Ziziphora* Dumort. sp.							
Liliaceae	*Ornithogalum* sp./cf. *Muscari* (*neglecta*)							
Malvaceae	*Malva* L. sp.							
Malvaceae	Malvaceae vet. *Malva* (*Malope* - type)							
Onagraceae	*Epilobium* - type							
Papaveraceae	*Fumaria* L. sp.							1
Papaveraceae	*Papaver* L. sp.							
Plantaginaceae	*Plantago* cf. *lagopus* L.							
Plantaginaceae	*Plantago* L. sp.							
Poaceae	*Aegilops* L. sp.						3	15
Poaceae	*Aegilops* Sec.*Vertebr.*Zhuk.e.Kiharas (gl. base)				1			9
Poaceae	*Agrostis* type							
Poaceae	*Alopecurus* L. sp.							
Poaceae	*Avena* L. sp.							
Poaceae	*Bromus* L. sp.					1		
Poaceae	*Bromus sterilis* L.							
Poaceae	cf. *Catabrosa aquatica* (L.) P. Beauv.							
Poaceae	*Echinaria capitata* (L.) Desf.					6	3	1
Poaceae	*Eragrostis* N.M.Wolf sp.							
Poaceae	*Eremopyrum* (Ledeb.) Jaub.& Spach sp.							
Poaceae	*Hordeum* cf. *spontaneum* Koch							
Poaceae	*Hordeum spontaneum* Koch (rachis)					1	1	
Poaceae	*Hordeum* L. sp. (wild)			5				
Poaceae	*Lolium* sp. (*persicum* - type)					7	7	7
Poaceae	*Phalaris* L. sp.						1	
Poaceae	*Phleum* L. sp.							

family	taxa	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2
	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP35**	**BP36**	**BP37**	**BP38**	**BP39**	**BP40**	**BP41**
	area	64	64	65	65	64	73	93
	trench		0		0			102
	collection/item no.	Q 346 - FS 216	Q 516 - FS 275	Q 561 - FS 275	Q 531 - FS 275	Q 562 - FS 215	Q 558 - FS 280	Q 591 - FS 270
	layer	C05a	C05a		C05a	C05a	C05	C02-05
	dating	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	OJ I-II	medieval/MBA
family	**taxa**							
Poaceae	*Poa nemoralis type*						50	50
Poaceae	Poaceae indet. (large to medium)					1	7	4
Poaceae	Poaceae indet. (small)							
Poaceae	*Secale* L. sp.							
Poaceae	*Setaria verticillata* (L.) P. Beauv.							
Polygonaceae	Polygonaceae indet.							
Polygonaceae	*Polygonum aviculare* L.							
Polygonaceae	*Rumex* L. sp.					1		
Primulaceae	*Anagallis* L. sp.							
Ranunculaceae	*Adonis* L. sp.							
Rubiaceae	*Asperula involucrata* Wahlenb.							
Rubiaceae	cf. *Crucianella* L. sp.							
Rubiaceae	*Galium / Asperula*							
Rubiaceae	*Galium aparine* - type							
Rubiaceae	*Galium* L. sp.				2	4	4	7
Rubiaceae	*Galium spurium* - type							
Scrophulariaceae	Scrophulariaceae indet.							1
Scrophulariaceae	*Verbascum* L. sp.							
Thymelaeaceae	*Thymelaea* Miller sp.							
Valerianaceae	*Valerianella dentata* (L.) Pollich							
Valerianaceae	*Valerianella vesicaria* type							
Verbenaceae	*Verbena* cf. *officinalis* L.							
	beetle							
	Coprolite (goat)							
	Coprolite (mouse)							
	food remains							
	indet.							
	nut shell							
	prickles (cf. *Prosopis farcta*)							5

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP42**	**BP43**	**BP44**	**BP45**	**BP46**	**BP47**	**BP48**
	area	74	64	64	83	94	73	94
	trench	22/65		-	103	59/101	38	56/100
	collection/item no.	Q 551 - FS 168	Q 562 - FS 215	i 472 - FS 00	i 353 - FS 268	i 745 - FS 320	i 454 - FS 283	Q 419 - FS 240
	layer	C05b	C05a	C05a	C05a	C06		C05
	dating	OJ II	OJ I-II	OJ I-II	OJ I-II	OJ I	EJ V-OJ I	OJ I-II
family	**taxa**							
Poaceae	*Hordeum distichon* L. (rachis)	2	2	1		2	5	
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare* (rachis)					4		
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare*, hulled	6	10			17	30	3
Poaceae	Triticum free-threshing tetraploid (rachis)							
Poaceae	*Triticum* cf. free-threshing tetraploid (rachis)							
Poaceae	Triticum free-threshing cf. tetraploid (rachis)							
Poaceae	Triticum free-threshing hexaploid/tetraploid	1				12	11	
Poaceae	Triticum free-threshing hexapl./tetrapl. (rachis)	4	2			3		
Poaceae	Triticum free-threshing h/t (terminal glume base)							
Poaceae	*Triticum dicoccon* Schrank							
Poaceae	*Triticum dicoccon* Schrank (glume base)							
Poaceae	*Triticum* cf. *dicoccon* Schrank							
Poaceae	*Triticum* cf. *dicoccon* Schrank (glume base)	1	8	1	1	4	4	
Poaceae	*Triticum monococcum* L.							
Poaceae	*Triticum monococcum* L. (cf. 2-grained)							
Poaceae	*Triticum monococcum* L. (glume base)							
Poaceae	*Triticum* cf. *monococcum* L.							
Poaceae	*Triticum* cf. *monococcum* L. (glume base)							
Poaceae	*Triticum monococcum/dicoccum*							
Poaceae	*Triticum monococcum/dicoccum* (rachis)							
Poaceae	Triticum hulled/free-threshing wheat							
Poaceae	*Triticum* L. sp.		1			9	16	
Poaceae	*Triticum* L. sp. (chaff)							
Poaceae	Cerealia	8	5		1	16	39	
Poaceae	Cerealia (culm nodes)	1						
Poaceae	Cerealia (rachis)					6	1	
Poaceae	Cerealia (roots)							
Fabaceae	*Lens culinaris* Medik.						4	
Fabaceae	*Lens* Miller sp.							
Fabaceae	*Lathyrus sativus / cicera*					1	3	
Fabaceae	*Pisum sativum* L.							
Fabaceae	*Vicia ervilia* (L.) Willd.							
Fabaceae	cf. *Vicia faba* L.							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP42**	**BP43**	**BP44**	**BP45**	**BP46**	**BP47**	**BP48**
	area	74	64	64	83	94	73	94
	trench	22/65		-	103	59/101	38	56/100
	collection/item no.	Q 551 - FS 168	Q 562 - FS 215	i 472 - FS 00	i 353 - FS 268	i 745 - FS 320	i 454 - FS 283	Q 419 - FS 240
	layer	C05b	C05a	C05a	C05a	C06		C05
	dating	OJ II	OJ I-II	OJ I-II	OJ I-II	OJ I	EJ V-OJ I	OJ I-II
family	**taxa**							
Fabaceae	cf. *Cicer arietinum* L.							
Fabaceae	Fabaceae sativae							
Linaceae	*Linum* cf. *usitatissimum* L.					1		
Asteraceae	*Carthamus* cf. *tinctorius* L.							
Vitaceae	*Vitis vinifera* L.							
Vitaceae	*Vitis vinifera* L. (stalks)							
Moraceae	*Ficus carica* L.					1		
Moraceae	cf. *Ficus* L. sp., mineralized							
Apiaceae	*Ammi majus* L.							
Apiaceae	Apiaceae indet.							
Apiaceae	*Daucus carota* L.							
Apiaceae	*Torilis* - type							
Apiaceae	*Torilis leptophylla* (L.) Reichb.							
Asteraceae	*Anthemis* L. sp.					2		
Asteraceae	Asteraceae indet.							
Asteraceae	*Carduus* cf. *acanthoides* L.							
Asteraceae	*Centaurea* L. sp.							
Asteraceae	*Centaurea solstitialis* - type							
Asteraceae	*Cichorium* cf. *intybus* L.							
Asteraceae	*Crepis* L. sp.							
Asteraceae	*Senecio* L. sp.							
Boraginaceae	*Buglossoides tenuiflora* (L. fil.) Johnston					1		
Boraginaceae	cf. *Heliotropium* L. sp.							
Boraginaceae	*Heliotropium* L. sp.							
Boraginaceae	*Lithospermum arvense* L., uncarbonized							
Brassicaceae	Brassicaceae indet.	1	20					1
Brassicaceae	*Camelina* cf. *microcarpa* Andrz.							
Brassicaceae	*Cheiranthus* - type							
Brassicaceae	*Lepidium* L. sp. (sativum?)							
Caryophyllaceae	Caryophyllaceae indet.							
Caryophyllaceae	*Silene* cf. *conica* L.							
Caryophyllaceae	*Silene* L. sp.							
Caryophyllaceae	*Silene* type 1							

family	taxa							
	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP42**	**BP43**	**BP44**	**BP45**	**BP46**	**BP47**	**BP48**
	area	74	64	64	83	94	73	94
	trench	22/65		-	103	59/101	38	56/100
	collection/item no.	Q 551 - FS 168	Q 562 - FS 215	i 472 - FS 00	i 353 - FS 268	i 745 - FS 320	i 454 - FS 283	Q 419 - FS 240
	layer	C05b	C05a	C05a	C05a	C06		C05
	dating	OJ II	OJ I-II	OJ I-II	OJ I-II	OJ I	EJ V-OJ I	OJ I-II
family	**taxa**							
Caryophyllaceae	*Silene* type 2							
Caryophyllaceae	*Silene* type 3							
Caryophyllaceae	*Vaccaria* cf. *pyramidata* Medik.							
Characeae	*Chara* L. sp.							
Chenopodiaceae	Chenopodiaceae indet.							
Chenopodiaceae	Chenopodiaceae indet., endosperm							
Chenopodiaceae	*Chenopodium* L. sp.							
Chenopodiaceae	*Chenopodium murale* L.						1	
Chenopodiaceae	*Salsola* L. sp.							
Chen./Resedac.	*Atriplex / Reseda*							
Convolvulaceae	*Calystegia* R.Br. sp.							
Cyperaceae	*Carex* L. sp.							
Cyperaceae	Cyperaceae indet.							
Cyperaceae	Cyperaceae indet., endosperm							
Cyperaceae	*Eleocharis* R.Br. sp.							
Cyperaceae	*Scirpus* L. sp.		1				1	
Cyperaceae	*Scirpus maritimus* L.	1						
Dipsacaceae	*Cephalaria* Schrader ex Roemer & Schultes sp.							
Euphorbiaceae	*Euphorbia* L. sp.							
Fabaceae	*Astragalus* L. sp.							
Fabaceae	*Coronilla* L. sp.	9	4			12	23	2
Fabaceae	Fabaceae indet. (large)	2	1			1	9	
Fabaceae	Fabaceae indet. (small)	2						
Fabaceae	*Hippocrepis* L. sp.							
Fabaceae	*Medicago* L. sp.							
Fabaceae	*Melilotus* - type							
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.)							
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.), pod fragm.							
Fabaceae	*Scorpiurus* cf. *muricatus* L.							
Fabaceae	*Trifolium / Lotus*							
Fabaceae	*Trifolium* L. sp.							
Fabaceae	*Trigonella* L. sp.							
Fabaceae	*Vicia / Lathyrus*							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP42**	**BP43**	**BP44**	**BP45**	**BP46**	**BP47**	**BP48**
	area	74	64	64	83	94	73	94
	trench	22/65		-	103	59/101	38	56/100
	collection/item no.	Q 551 - FS 168	Q 562 - FS 215	i 472 - FS 00	i 353 - FS 268	i 745 - FS 320	i 454 - FS 283	Q 419 - FS 240
	layer	C05b	C05a	C05a	C05a	C06		C05
	dating	OJ II	OJ I-II	OJ I-II	OJ I-II	OJ I	EJ V-OJ I	OJ I-II
family	**taxa**							
Fabaceae	*Vicia* L. sp.							
Fagaceae	*Quercus* L. sp., fruit							
Lamiaceae	*Ajuga* cf. *salicifolia* (L.) Schreber							
Lamiaceae	*Ajuga* L. sp.							
Lamiaceae	*Lallemantia* Fisch.& Mey. sp.							
Lamiaceae	Lamiaceae indet.							
Lamiaceae	*Teucrium / Ajuga*							
Lamiaceae	*Ziziphora* Dumort. sp.							
Liliaceae	*Ornithogalum* sp./cf. *Muscari* (*neglecta*)							
Malvaceae	*Malva* L. sp.					4		
Malvaceae	Malvaceae vet. *Malva* (*Malope* - type)							
Onagraceae	*Epilobium* - type							
Papaveraceae	*Fumaria* L. sp.							
Papaveraceae	*Papaver* L. sp.							
Plantaginaceae	*Plantago* cf. *lagopus* L.							
Plantaginaceae	*Plantago* L. sp.							
Poaceae	*Aegilops* L. sp.	2	1				5	
Poaceae	*Aegilops* Sec.*Vertebr.*Zhuk.e.Kiharas (gl. base)						3	
Poaceae	*Agrostis* type							
Poaceae	*Alopecurus* L. sp.							
Poaceae	*Avena* L. sp.							
Poaceae	*Bromus* L. sp.					1		
Poaceae	*Bromus sterilis* L.							
Poaceae	cf. *Catabrosa aquatica* (L.) P. Beauv.							
Poaceae	*Echinaria capitata* (L.) Desf.	1				2		
Poaceae	*Eragrostis* N.M.Wolf sp.							
Poaceae	*Eremopyrum* (Ledeb.) Jaub.& Spach sp.							
Poaceae	*Hordeum* cf. *spontaneum* Koch							
Poaceae	*Hordeum spontaneum* Koch (rachis)					1		
Poaceae	*Hordeum* L. sp. (wild)							
Poaceae	*Lolium* sp. (*persicum* - type)		1			2	15	
Poaceae	*Phalaris* L. sp.							
Poaceae	*Phleum* L. sp.							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP42**	**BP43**	**BP44**	**BP45**	**BP46**	**BP47**	**BP48**
	area	74	64	64	83	94	73	94
	trench	22/65		-	103	59/101	38	56/100
	collection/item no.	Q 551 - FS 168	Q 562 - FS 215	i 472 - FS 00	i 353 - FS 268	i 745 - FS 320	i 454 - FS 283	Q 419 - FS 240
	layer	C05b	C05a	C05a	C05a	C06		C05
	dating	OJ II	OJ I-II	OJ I-II	OJ I-II	OJ I	EJ V-OJ I	OJ I-II
family	**taxa**							
Poaceae	*Poa nemoralis type*	165		1	2	1	421	
Poaceae	Poaceae indet. (large to medium)	6	10			5	20	
Poaceae	Poaceae indet. (small)							
Poaceae	*Secale* L. sp.							
Poaceae	*Setaria verticillata* (L.) P. Beauv.							
Polygonaceae	Polygonaceae indet.							
Polygonaceae	*Polygonum aviculare* L.							
Polygonaceae	*Rumex* L. sp.		1					
Primulaceae	*Anagallis* L. sp.	1					3	
Ranunculaceae	*Adonis* L. sp.					2	3	
Rubiaceae	*Asperula involucrata* Wahlenb.					50		
Rubiaceae	cf. *Crucianella* L. sp.							
Rubiaceae	*Galium / Asperula*							
Rubiaceae	*Galium aparine* - type							
Rubiaceae	*Galium* L. sp.	1	1			1	7	
Rubiaceae	*Galium spurium* - type							
Scrophulariaceae	Scrophulariaceae indet.							
Scrophulariaceae	*Verbascum* L. sp.							
Thymelaeaceae	*Thymelaea* Miller sp.							1
Valerianaceae	*Valerianella dentata* (L.) Pollich							
Valerianaceae	*Valerianella vesicaria* type							
Verbenaceae	*Verbena* cf. *officinalis* L.							
	beetle							
	Coprolite (goat)							
	Coprolite (mouse)							
	food remains							
	indet.							
	nut shell							
	prickles (cf. *Prosopis farcta*)							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP49**	**BP50**	**BP51**	**BP55**	**BP56**	**BP57**	**BP60**
	area	84	85	94	84	64	84	85
	trench	105	112	57	104	-	106	112
	collection/item no.	Q 651 - FS 314	Q 652 - FS 294	Q 433 - FS 206	Q 505 - FS 206	Q 358 - FS 219	Q 485 - FS 261	Q 576 - FS 269
	layer	C07-08a	C05b-08a	C06-07	C05b	C05a1	C08a	C05b-08a
	dating	EJ IV-V	OJ I-EJG IV	EJ V	OJ I-II	OJ I-II	EJ IV	OJ I-EJ IV
family	**taxa**							
Poaceae	*Hordeum distichon* L. (rachis)	2	2					
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare* (rachis)		14					
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare*, hulled	13	64	1	5		1	5
Poaceae	Triticum free-threshing tetraploid (rachis)		1					
Poaceae	*Triticum* cf. free-threshing tetraploid (rachis)							
Poaceae	Triticum free-threshing cf. tetraploid (rachis)							
Poaceae	Triticum free-threshing hexaploid/tetraploid	15	5					
Poaceae	Triticum free-threshing hexapl./tetrapl. (rachis)	2						
Poaceae	Triticum free-threshing h/t (terminal glume base)							
Poaceae	*Triticum dicoccon* Schrank							
Poaceae	*Triticum dicoccon* Schrank (glume base)							
Poaceae	*Triticum* cf. *dicoccon* Schrank							
Poaceae	*Triticum* cf. *dicoccon* Schrank (glume base)	6	43					
Poaceae	*Triticum monococcum* L.							
Poaceae	*Triticum monococcum* L. (cf. 2-grained)							
Poaceae	*Triticum monococcum* L. (glume base)							
Poaceae	*Triticum* cf. *monococcum* L.							
Poaceae	*Triticum* cf. *monococcum* L. (glume base)							
Poaceae	*Triticum monococcum/dicoccum*		8		2			
Poaceae	*Triticum monococcum/dicoccum* (rachis)							
Poaceae	Triticum hulled/free-threshing wheat							
Poaceae	*Triticum* L. sp.	7						
Poaceae	*Triticum* L. sp. (chaff)							
Poaceae	Cerealia	30	40			7		
Poaceae	Cerealia (culm nodes)		2					
Poaceae	Cerealia (rachis)	8	9					
Poaceae	Cerealia (roots)							
Fabaceae	*Lens culinaris* Medik.	2	2					
Fabaceae	*Lens* Miller sp.							
Fabaceae	*Lathyrus sativus / cicera*							
Fabaceae	*Pisum sativum* L.							
Fabaceae	*Vicia ervilia* (L.) Willd.				1			
Fabaceae	cf. *Vicia faba* L.							

family	taxa							
	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP49**	**BP50**	**BP51**	**BP55**	**BP56**	**BP57**	**BP60**
	area	84	85	94	84	64	84	85
	trench	105	112	57	104	-	106	112
	collection/item no.	Q 651 - FS 314	Q 652 - FS 294	Q 433 - FS 206	Q 505 - FS 206	Q 358 - FS 219	Q 485 - FS 261	Q 576 - FS 269
	layer	C07-08a	C05b-08a	C06-07	C05b	C05a1	C08a	C05b-08a
	dating	EJ IV-V	OJ I-EJG IV	EJ V	OJ I-II	OJ I-II	EJ IV	OJ I-EJ IV
Fabaceae	cf. *Cicer arietinum* L.							
Fabaceae	Fabaceae sativae							
Linaceae	*Linum* cf. *usitatissimum* L.							
Asteraceae	*Carthamus* cf. *tinctorius* L.							
Vitaceae	*Vitis vinifera* L.							
Vitaceae	*Vitis vinifera* L. (stalks)							
Moraceae	*Ficus carica* L.							
Moraceae	cf. *Ficus* L. sp., mineralized							
Apiaceae	*Ammi majus* L.		1					
Apiaceae	Apiaceae indet.							
Apiaceae	*Daucus carota* L.							
Apiaceae	*Torilis* - type							
Apiaceae	*Torilis leptophylla* (L.) Reichb.							
Asteraceae	*Anthemis* L. sp.							
Asteraceae	Asteraceae indet.							
Asteraceae	*Carduus* cf. *acanthoides* L.							
Asteraceae	*Centaurea* L. sp.							
Asteraceae	*Centaurea solstitialis* - type							
Asteraceae	*Cichorium* cf. *intybus* L.							
Asteraceae	*Crepis* L. sp.							
Asteraceae	*Senecio* L. sp.							
Boraginaceae	*Buglossoides tenuiflora* (L. fil.) Johnston							
Boraginaceae	cf. *Heliotropium* L. sp.							
Boraginaceae	*Heliotropium* L. sp.	1						
Boraginaceae	*Lithospermum arvense* L., uncarbonized							
Brassicaceae	Brassicaceae indet.		1					
Brassicaceae	*Camelina* cf. *microcarpa* Andrz.							
Brassicaceae	*Cheiranthus* - type							
Brassicaceae	*Lepidium* L. sp. (sativum?)							
Caryophyllaceae	Caryophyllaceae indet.							
Caryophyllaceae	*Silene* cf. *conica* L.		2					
Caryophyllaceae	*Silene* L. sp.							
Caryophyllaceae	*Silene* type 1		1					

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP49**	**BP50**	**BP51**	**BP55**	**BP56**	**BP57**	**BP60**
	area	84	85	94	84	64	84	85
	trench	105	112	57	104	-	106	112
	collection/item no.	Q 651 - FS 314	Q 652 - FS 294	Q 433 - FS 206	Q 505 - FS 206	Q 358 - FS 219	Q 485 - FS 261	Q 576 - FS 269
	layer	C07-08a	C05b-08a	C06-07	C05b	C05a1	C08a	C05b-08a
	dating	EJ IV-V	OJ I-EJG IV	EJ V	OJ I-II	OJ I-II	EJ IV	OJ I-EJ IV
family	**taxa**							
Caryophyllaceae	*Silene* type 2		1					
Caryophyllaceae	*Silene* type 3							
Caryophyllaceae	*Vaccaria* cf. *pyramidata* Medik.							
Characeae	*Chara* L. sp.							
Chenopodiaceae	Chenopodiaceae indet.							
Chenopodiaceae	Chenopodiaceae indet., endosperm							
Chenopodiaceae	*Chenopodium* L. sp.							
Chenopodiaceae	*Chenopodium murale* L.							
Chenopodiaceae	*Salsola* L. sp.							
Chen./Resedac.	*Atriplex / Reseda*							1
Convolvulaceae	*Calystegia* R.Br. sp.		1					
Cyperaceae	*Carex* L. sp.							
Cyperaceae	Cyperaceae indet.							
Cyperaceae	Cyperaceae indet., endosperm							
Cyperaceae	*Eleocharis* R.Br. sp.							
Cyperaceae	*Scirpus* L. sp.							
Cyperaceae	*Scirpus maritimus* L.	1						
Dipsacaceae	*Cephalaria* Schrader ex Roemer & Schultes sp.							
Euphorbiaceae	*Euphorbia* L. sp.							
Fabaceae	*Astragalus* L. sp.		3					
Fabaceae	*Coronilla* L. sp.	21	78					
Fabaceae	Fabaceae indet. (large)	1	6					2
Fabaceae	Fabaceae indet. (small)		3					1
Fabaceae	*Hippocrepis* L. sp.							
Fabaceae	*Medicago* L. sp.		1					
Fabaceae	*Melilotus* - type							
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.)							
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.), pod fragm.							
Fabaceae	*Scorpiurus* cf. *muricatus* L.							
Fabaceae	*Trifolium / Lotus*							
Fabaceae	*Trifolium* L. sp.							
Fabaceae	*Trigonella* L. sp.							
Fabaceae	*Vicia / Lathyrus*							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP49**	**BP50**	**BP51**	**BP55**	**BP56**	**BP57**	**BP60**
	area	84	85	94	84	64	84	85
	trench	105	112	57	104	-	106	112
	collection/item no.	Q 651 - FS 314	Q 652 - FS 294	Q 433 - FS 206	Q 505 - FS 206	Q 358 - FS 219	Q 485 - FS 261	Q 576 - FS 269
	layer	C07-08a	C05b-08a	C06-07	C05b	C05a1	C08a	C05b-08a
	dating	EJ IV-V	OJ I-EJG IV	EJ V	OJ I-II	OJ I-II	EJ IV	OJ I-EJ IV
family	**taxa**							
Fabaceae	*Vicia* L. sp.							
Fagaceae	*Quercus* L. sp., fruit							
Lamiaceae	*Ajuga* cf. *salicifolia* (L.) Schreber							
Lamiaceae	*Ajuga* L. sp.							
Lamiaceae	*Lallemantia* Fisch.& Mey. sp.							
Lamiaceae	Lamiaceae indet.	1						
Lamiaceae	*Teucrium / Ajuga*							
Lamiaceae	*Ziziphora* Dumort. sp.							
Liliaceae	*Ornithogalum* sp./cf. *Muscari* (*neglecta*)		1					
Malvaceae	*Malva* L. sp.					5		
Malvaceae	Malvaceae vet. *Malva* (*Malope* - type)							
Onagraceae	*Epilobium* - type							
Papaveraceae	*Fumaria* L. sp.							
Papaveraceae	*Papaver* L. sp.							
Plantaginaceae	*Plantago* cf. *lagopus* L.							
Plantaginaceae	*Plantago* L. sp.							
Poaceae	*Aegilops* L. sp.	4	21					
Poaceae	*Aegilops* Sec.*Vertebr.*Zhuk.e.Kiharas (gl. base)	1	7					
Poaceae	*Agrostis* type							
Poaceae	*Alopecurus* L. sp.							
Poaceae	*Avena* L. sp.							
Poaceae	*Bromus* L. sp.		1					
Poaceae	*Bromus sterilis* L.							
Poaceae	cf. *Catabrosa aquatica* (L.) P. Beauv.							
Poaceae	*Echinaria capitata* (L.) Desf.	2	3					
Poaceae	*Eragrostis* N.M.Wolf sp.							
Poaceae	*Eremopyrum* (Ledeb.) Jaub.& Spach sp.							
Poaceae	*Hordeum* cf. *spontaneum* Koch							
Poaceae	*Hordeum spontaneum* Koch (rachis)							
Poaceae	*Hordeum* L. sp. (wild)							
Poaceae	*Lolium* sp. (*persicum* - type)		9					1
Poaceae	*Phalaris* L. sp.	2						
Poaceae	*Phleum* L. sp.							

	year of excavation	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2
	botanical sample no.	**BP49**	**BP50**	**BP51**	**BP55**	**BP56**	**BP57**	**BP60**
	area	84	85	94	84	64	84	85
	trench	105	112	57	104	-	106	112
	collection/item no.	Q 651 - FS 314	Q 652 - FS 294	Q 433 - FS 206	Q 505 - FS 206	Q 358 - FS 219	Q 485 - FS 261	Q 576 - FS 269
	layer	C07-08a	C05b-08a	C06-07	C05b	C05a1	C08a	C05b-08a
	dating	EJ IV-V	OJ I-EJG IV	EJ V	OJ I-II	OJ I-II	EJ IV	OJ I-EJ IV
family	**taxa**							
Poaceae	*Poa nemoralis type*	25	200					
Poaceae	Poaceae indet. (large to medium)	5	25					
Poaceae	Poaceae indet. (small)							
Poaceae	*Secale* L. sp.							
Poaceae	*Setaria verticillata* (L.) P. Beauv.							
Polygonaceae	Polygonaceae indet.							
Polygonaceae	*Polygonum aviculare* L.							
Polygonaceae	*Rumex* L. sp.		1					
Primulaceae	*Anagallis* L. sp.	1						
Ranunculaceae	*Adonis* L. sp.	1	3					
Rubiaceae	*Asperula involucrata* Wahlenb.							
Rubiaceae	cf. *Crucianella* L. sp.							
Rubiaceae	*Galium / Asperula*							
Rubiaceae	*Galium aparine* - type							
Rubiaceae	*Galium* L. sp.	2	3					
Rubiaceae	*Galium spurium* - type							
Scrophulariaceae	Scrophulariaceae indet.							
Scrophulariaceae	*Verbascum* L. sp.							
Thymelaeaceae	*Thymelaea* Miller sp.							
Valerianaceae	*Valerianella dentata* (L.) Pollich							
Valerianaceae	*Valerianella vesicaria* type							
Verbenaceae	*Verbena* cf. *officinalis* L.							
	beetle							
	Coprolite (goat)							
	Coprolite (mouse)							
	food remains							
	indet.							
	nut shell							
	prickles (cf. *Prosopis farcta*)							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP62**	**BP63**	**BP64**	**BP65**	**BP67**	**BP68**	**BP69**
	area	94	63	94	74	94	94	94
	trench	56		59	108	-	-	-
	collection/item no.	Q 542 - FS 248	Q 696 - FS 283	i 549 - FS 290	i 601 - FS 295	i 578 - FS 279	i 573 - FS 279	i 572 - FS 279
	layer	C07a	C06-07	C06	C06a1	C05	C05	C05
	dating	EJ V	OJ I-EJ V	OJ I	OJ I	OJ I-II	OJ I-II	OJ I-II
family	**taxa**							
Poaceae	*Hordeum distichon* L. (rachis)		44					
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare* (rachis)		28	4		3	3	3
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare*, hulled		254		1		3	8
Poaceae	Triticum free-threshing tetraploid (rachis)		57					
Poaceae	*Triticum* cf. free-threshing tetraploid (rachis)							
Poaceae	Triticum free-threshing cf. tetraploid (rachis)							
Poaceae	Triticum free-threshing hexaploid/tetraploid		133			1		5
Poaceae	Triticum free-threshing hexapl./tetrapl. (rachis)			2		1	1	1
Poaceae	Triticum free-threshing h/t (terminal glume base)							
Poaceae	*Triticum dicoccon* Schrank		6				1	
Poaceae	*Triticum dicoccon* Schrank (glume base)		84				2	1
Poaceae	*Triticum* cf. *dicoccon* Schrank		10					
Poaceae	*Triticum* cf. *dicoccon* Schrank (glume base)			2				
Poaceae	*Triticum monococcum* L.							
Poaceae	*Triticum monococcum* L. (cf. 2-grained)		5					
Poaceae	*Triticum monococcum* L. (glume base)							
Poaceae	*Triticum* cf. *monococcum* L.							
Poaceae	*Triticum* cf. *monococcum* L. (glume base)			5				
Poaceae	*Triticum monococcum/dicoccum*		2			1		
Poaceae	*Triticum monococcum/dicoccum* (rachis)							
Poaceae	Triticum hulled/free-threshing wheat			2				
Poaceae	*Triticum* L. sp.		101		1			
Poaceae	*Triticum* L. sp. (chaff)							
Poaceae	Cerealia		665		1	2	5	5
Poaceae	Cerealia (culm nodes)		64				4	
Poaceae	Cerealia (rachis)					1		
Poaceae	Cerealia (roots)							
Fabaceae	*Lens culinaris* Medik.		12					
Fabaceae	*Lens* Miller sp.							
Fabaceae	*Lathyrus sativus / cicera*		29					
Fabaceae	*Pisum sativum* L.							
Fabaceae	*Vicia ervilia* (L.) Willd.							
Fabaceae	cf. *Vicia faba* L.							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP62**	**BP63**	**BP64**	**BP65**	**BP67**	**BP68**	**BP69**
	area	94	63	94	74	94	94	94
	trench	56		59	108	-	-	-
	collection/item no.	Q 542 - FS 248	Q 696 - FS 283	i 549 - FS 290	i 601 - FS 295	i 578 - FS 279	i 573 - FS 279	i 572 - FS 279
	layer	C07a	C06-07	C06	C06a1	C05	C05	C05
	dating	EJ V	OJ I-EJ V	OJ I	OJ I	OJ I-II	OJ I-II	OJ I-II
family	**taxa**							
Fabaceae	cf. *Cicer arietinum* L.							
Fabaceae	Fabaceae sativae							
Linaceae	*Linum* L. sp.							
Asteraceae	*Carthamus* cf. *tinctorius* L.		16					
Vitaceae	*Vitis vinifera* L.		2					1
Vitaceae	*Vitis vinifera* L. (stalks)							
Moraceae	*Ficus carica* L.							
Moraceae	cf. *Ficus* L. sp., mineralized			2				
Apiaceae	*Ammi majus* L.							
Apiaceae	Apiaceae indet.		10					
Apiaceae	*Daucus carota* L.							
Apiaceae	*Torilis* - type							
Apiaceae	*Torilis leptophylla* (L.) Reichb.							
Asteraceae	*Anthemis* L. sp.							
Asteraceae	Asteraceae indet.							
Asteraceae	*Carduus* cf. *acanthoides* L.							1
Asteraceae	*Centaurea* L. sp.							
Asteraceae	*Centaurea solstitialis* - type						1	
Asteraceae	*Cichorium* cf. *intybus* L.							
Asteraceae	*Crepis* L. sp.							
Asteraceae	*Senecio* L. sp.							
Boraginaceae	*Buglossoides tenuiflora* (L. fil.) Johnston							
Boraginaceae	cf. *Heliotropium* L. sp.		52					
Boraginaceae	*Heliotropium* L. sp.		2					
Boraginaceae	*Lithospermum arvense* L., uncarbonized							
Brassicaceae	Brassicaceae indet.		10					
Brassicaceae	*Camelina* cf. *microcarpa* Andrz.							
Brassicaceae	*Cheiranthus* - type							
Brassicaceae	*Lepidium* L. sp. (sativum?)							
Caryophyllaceae	Caryophyllaceae indet.							
Caryophyllaceae	*Silene* cf. *conica* L.							
Caryophyllaceae	*Silene* L. sp.		1					
Caryophyllaceae	*Silene* type 1							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP62**	**BP63**	**BP64**	**BP65**	**BP67**	**BP68**	**BP69**
	area	94	63	94	74	94	94	94
	trench	56		59	108	-	-	-
	collection/item no.	Q 542 - FS 248	Q 696 - FS 283	i 549 - FS 290	i 601 - FS 295	i 578 - FS 279	i 573 - FS 279	i 572 - FS 279
	layer	C07a	C06-07	C06	C06a1	C05	C05	C05
	dating	EJ V	OJ I-EJ V	OJ I	OJ I	OJ I-II	OJ I-II	OJ I-II
family	**taxa**							
Caryophyllaceae	*Silene* type 2							
Caryophyllaceae	*Silene* type 3							
Caryophyllaceae	*Vaccaria* cf. *pyramidata* Medik.							
Characeae	*Chara* L. sp.							
Chenopodiaceae	Chenopodiaceae indet.							
Chenopodiaceae	Chenopodiaceae indet., endosperm							
Chenopodiaceae	*Chenopodium* L. sp.		19					
Chenopodiaceae	*Chenopodium murale* L.							
Chenopodiaceae	*Salsola* L. sp.							
Chen./Resedac.	*Atriplex / Reseda*							
Convolvulaceae	*Calystegia* R.Br. sp.							
Cyperaceae	*Carex* L. sp.							
Cyperaceae	Cyperaceae indet.			1				
Cyperaceae	Cyperaceae indet., endosperm							
Cyperaceae	*Eleocharis* R.Br. sp.							
Cyperaceae	*Scirpus* L. sp.							
Cyperaceae	*Scirpus maritimus* L.							
Dipsacaceae	*Cephalaria* Schrader ex Roemer & Schultes sp.							
Euphorbiaceae	*Euphorbia* L. sp.							
Fabaceae	*Astragalus* L. sp.							
Fabaceae	*Coronilla* L. sp.	2	122	11		1	2	3
Fabaceae	Fabaceae indet. (large)		71				1	
Fabaceae	Fabaceae indet. (small)							
Fabaceae	*Hippocrepis* L. sp.							
Fabaceae	*Medicago* L. sp.							
Fabaceae	*Melilotus* - type							
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.)		8					
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.), pod fragm.		3					
Fabaceae	*Scorpiurus* cf. *muricatus* L.			2				
Fabaceae	*Trifolium / Lotus*			1				
Fabaceae	*Trifolium* L. sp.							
Fabaceae	*Trigonella* L. sp.							
Fabaceae	*Vicia / Lathyrus*		2					

	year of excavation	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2
	botanical sample no.	**BP62**	**BP63**	**BP64**	**BP65**	**BP67**	**BP68**	**BP69**
	area	94	63	94	74	94	94	94
	trench	56		59	108	-	-	-
	collection/item no.	Q 542 - FS 248	Q 696 - FS 283	i 549 - FS 290	i 601 - FS 295	i 578 - FS 279	i 573 - FS 279	i 572 - FS 279
	layer	C07a	C06-07	C06	C06a1	C05	C05	C05
	dating	EJ V	OJ I-EJ V	OJ I	OJ I	OJ I-II	OJ I-II	OJ I-II
family	**taxa**							
Fabaceae	*Vicia* L. sp.							
Fagaceae	*Quercus* L. sp., fruit							
Lamiaceae	*Ajuga* cf. *salicifolia* (L.) Schreber							
Lamiaceae	*Ajuga* L. sp.							
Lamiaceae	*Lallemantia* Fisch.& Mey. sp.							
Lamiaceae	Lamiaceae indet.							
Lamiaceae	*Teucrium / Ajuga*		2					
Lamiaceae	*Ziziphora* Dumort. sp.							
Liliaceae	*Ornithogalum* sp./cf. *Muscari* (*neglecta*)		2					
Malvaceae	*Malva* L. sp.						1	
Malvaceae	Malvaceae vet. *Malva* (*Malope* - type)							
Onagraceae	*Epilobium* - type							
Papaveraceae	*Fumaria* L. sp.							
Papaveraceae	*Papaver* L. sp.							
Plantaginaceae	*Plantago* cf. *lagopus* L.							
Plantaginaceae	*Plantago* L. sp.							
Poaceae	*Aegilops* L. sp.		43	3				
Poaceae	*Aegilops* Sec.*Vertebr.*Zhuk.e.Kiharas (gl. base)		18	1		1		1
Poaceae	*Agrostis* type							
Poaceae	*Alopecurus* L. sp.							
Poaceae	*Avena* L. sp.							
Poaceae	*Bromus* L. sp.		7	1				
Poaceae	*Bromus sterilis* L.							
Poaceae	cf. *Catabrosa aquatica* (L.) P. Beauv.							
Poaceae	*Echinaria capitata* (L.) Desf.		1					
Poaceae	*Eragrostis* N.M.Wolf sp.							
Poaceae	*Eremopyrum* (Ledeb.) Jaub.& Spach sp.			1				
Poaceae	*Hordeum* cf. *spontaneum* Koch							
Poaceae	*Hordeum spontaneum* Koch (rachis)							
Poaceae	*Hordeum* L. sp. (wild)		66					
Poaceae	*Lolium* sp. (*persicum* - type)		107				2	1
Poaceae	*Phalaris* L. sp.							
Poaceae	*Phleum* L. sp.		4					

	year of excavation	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2
	botanical sample no.	**BP62**	**BP63**	**BP64**	**BP65**	**BP67**	**BP68**	**BP69**
	area	94	63	94	74	94	94	94
	trench	56		59	108	-	-	-
	collection/item no.	Q 542 - FS 248	Q 696 - FS 283	i 549 - FS 290	i 601 - FS 295	i 578 - FS 279	i 573 - FS 279	i 572 - FS 279
	layer	C07a	C06-07	C06	C06a1	C05	C05	C05
	dating	EJ V	OJ I-EJ V	OJ I	OJ I	OJ I-II	OJ I-II	OJ I-II
family	**taxa**							
Poaceae	*Poa nemoralis type*		2	8		2		30
Poaceae	Poaceae indet. (large to medium)		250			1		
Poaceae	Poaceae indet. (small)	1						1
Poaceae	*Secale* L. sp.							
Poaceae	*Setaria verticillata* (L.) P. Beauv.							
Polygonaceae	Polygonaceae indet.							
Polygonaceae	*Polygonum aviculare* L.							
Polygonaceae	*Rumex* L. sp.		14					
Primulaceae	*Anagallis* L. sp.		4					
Ranunculaceae	*Adonis* L. sp.		7					
Rubiaceae	*Asperula involucrata* Wahlenb.							
Rubiaceae	cf. *Crucianella* L. sp.							
Rubiaceae	*Galium / Asperula*			1				
Rubiaceae	*Galium aparine* - type							
Rubiaceae	*Galium* L. sp.		146				1	
Rubiaceae	*Galium spurium* - type							
Scrophulariaceae	Scrophulariaceae indet.							
Scrophulariaceae	*Verbascum* L. sp.							
Thymelaeaceae	*Thymelaea* Miller sp.							
Valerianaceae	*Valerianella dentata* (L.) Pollich							
Valerianaceae	*Valerianella vesicaria* type							
Verbenaceae	*Verbena* cf. *officinalis* L.							
	beetle							
	Coprolite (goat)							
	Coprolite (mouse)							
	food remains							
	indet.	2	21	3				2
	nut shell							
	prickles (cf. *Prosopis farcta*)							

	year of excavation	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2	MZ 99 C2
	botanical sample no.	**BP70**	**BP71**	**BP72**	**BP73**	**BP74**	**BP75**	**BP76**
	area	94	74	94	74	85	63/73	63
	trench	-	108	-	109	112	38/45	121
	collection/item no.	i 581- FS 279	i 600 - FS 295	i 575 - FS 279	Q 711 - FS 331	Q 790 - FS 353	Q 781 - FS 283	i 718 - FS 333
	layer	C05	C06a1	C05	C07	C05b-08a	C06-07	C05a2
	dating	OJ I-II	OJ I	OJ I-II	EJ V	OJ I-EJG IV	OJ I-EJ V	OJ I-II
family	**taxa**							
Poaceae	*Hordeum distichon* L. (rachis)		6		5	7	6	
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare* (rachis)		12	4	6	14	42	2
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare*, hulled	3	1	4	11	200	43	1
Poaceae	Triticum free-threshing tetraploid (rachis)					23	5	
Poaceae	*Triticum* cf. free-threshing tetraploid (rachis)							
Poaceae	Triticum free-threshing cf. tetraploid (rachis)							
Poaceae	Triticum free-threshing hexaploid/tetraploid	1			8	61	28	
Poaceae	Triticum free-threshing hexapl./tetrapl. (rachis)		1	1	12	13	1	
Poaceae	Triticum free-threshing h/t (terminal glume base)							
Poaceae	*Triticum dicoccon* Schrank				1	27		
Poaceae	*Triticum dicoccon* Schrank (glume base)		1			53	4	3
Poaceae	*Triticum* cf. *dicoccon* Schrank			1			2	
Poaceae	*Triticum* cf. *dicoccon* Schrank (glume base)							
Poaceae	*Triticum monococcum* L.							
Poaceae	*Triticum monococcum* L. (cf. 2-grained)					1		
Poaceae	*Triticum monococcum* L. (glume base)							1
Poaceae	*Triticum* cf. *monococcum* L.					1		
Poaceae	*Triticum* cf. *monococcum* L. (glume base)							
Poaceae	*Triticum monococcum/dicoccum*					15	2	1
Poaceae	*Triticum monococcum/dicoccum* (rachis)			4			6	
Poaceae	Triticum hulled/free-threshing wheat							
Poaceae	*Triticum* L. sp.	1	1	2	2	31	48	
Poaceae	*Triticum* L. sp. (chaff)				6		1	
Poaceae	Cerealia		2	5	17	116	76	4
Poaceae	Cerealia (culm nodes)			1	4	34	8	
Poaceae	Cerealia (rachis)			6	6	50	7	1
Poaceae	Cerealia (roots)							
Fabaceae	*Lens culinaris* Medik.				4	5		2
Fabaceae	*Lens* Miller sp.			1				
Fabaceae	*Lathyrus sativus / cicera*						13	
Fabaceae	*Pisum sativum* L.							
Fabaceae	*Vicia ervilia* (L.) Willd.				1			
Fabaceae	cf. *Vicia faba* L.							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP70**	**BP71**	**BP72**	**BP73**	**BP74**	**BP75**	**BP76**
	area	94	74	94	74	85	63/73	63
	trench	-	108	-	109	112	38/45	121
	collection/item no.	i 581- FS 279	i 600 - FS 295	i 575 - FS 279	Q 711 - FS 331	Q 790 - FS 353	Q 781 - FS 283	i 718 - FS 333
	layer	C05	C06a1	C05	C07	C05b-08a	C06-07	C05a2
	dating	OJ I-II	OJ I	OJ I-II	EJ V	OJ I-EJG IV	OJ I-EJ V	OJ I-II
family	**taxa**							
Fabaceae	cf. *Cicer arietinum* L.							
Fabaceae	Fabaceae sativae							
Linaceae	*Linum* cf. *usitatissimum* L.							
Asteraceae	*Carthamus* cf. *tinctorius* L.						2	
Vitaceae	*Vitis vinifera* L.							
Vitaceae	*Vitis vinifera* L. (stalks)							
Moraceae	*Ficus carica* L.							
Moraceae	cf. *Ficus* L. sp., mineralized							
Apiaceae	*Ammi majus* L.							
Apiaceae	Apiaceae indet.						1	
Apiaceae	*Daucus carota* L.							
Apiaceae	*Torilis* - type							
Apiaceae	*Torilis leptophylla* (L.) Reichb.							
Asteraceae	*Anthemis* L. sp.						1	
Asteraceae	Asteraceae indet.							
Asteraceae	*Carduus* cf. *acanthoides* L.							
Asteraceae	*Centaurea* L. sp.					1		
Asteraceae	*Centaurea solstitialis* - type							
Asteraceae	*Cichorium* cf. *intybus* L.							
Asteraceae	*Crepis* L. sp.							
Asteraceae	*Senecio* L. sp.							
Boraginaceae	*Buglossoides tenuiflora* (L. fil.) Johnston							
Boraginaceae	cf. *Heliotropium* L. sp.						9	
Boraginaceae	*Heliotropium* L. sp.							
Boraginaceae	*Lithospermum arvense* L., uncarbonized							
Brassicaceae	Brassicaceae indet.						1	
Brassicaceae	*Camelina* cf. *microcarpa* Andrz.							1
Brassicaceae	*Cheiranthus* - type							
Brassicaceae	*Lepidium* L. sp. (sativum?)							
Caryophyllaceae	Caryophyllaceae indet.						1	
Caryophyllaceae	*Silene* cf. *conica* L.							
Caryophyllaceae	*Silene* L. sp.				1			
Caryophyllaceae	*Silene* type 1							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP70**	**BP71**	**BP72**	**BP73**	**BP74**	**BP75**	**BP76**
	area	94	74	94	74	85	63/73	63
	trench	-	108	-	109	112	38/45	121
	collection/item no.	i 581- FS 279	i 600 - FS 295	i 575 - FS 279	Q 711 - FS 331	Q 790 - FS 353	Q 781 - FS 283	i 718 - FS 333
	layer	C05	C06a1	C05	C07	C05b-08a	C06-07	C05a2
	dating	OJ I-II	OJ I	OJ I-II	EJ V	OJ I-EJG IV	OJ I-EJ V	OJ I-II
family	**taxa**							
Caryophyllaceae	*Silene* type 2							
Caryophyllaceae	*Silene* type 3					1		
Caryophyllaceae	*Vaccaria* cf. *pyramidata* Medik.							
Characeae	*Chara* L. sp.							
Chenopodiaceae	Chenopodiaceae indet.							
Chenopodiaceae	Chenopodiaceae indet., endosperm				1			
Chenopodiaceae	*Chenopodium* L. sp.							
Chenopodiaceae	*Chenopodium murale* L.							
Chenopodiaceae	*Salsola* L. sp.							
Chen./Resedac.	*Atriplex / Reseda*							
Convolvulaceae	*Calystegia* R.Br. sp.						1	
Cyperaceae	*Carex* L. sp.							
Cyperaceae	Cyperaceae indet.				1			
Cyperaceae	Cyperaceae indet., endosperm							
Cyperaceae	*Eleocharis* R.Br. sp.							
Cyperaceae	*Scirpus* L. sp.					2		
Cyperaceae	*Scirpus maritimus* L.							
Dipsacaceae	*Cephalaria* Schrader ex Roemer & Schultes sp.							
Euphorbiaceae	*Euphorbia* L. sp.							
Fabaceae	*Astragalus* L. sp.		1			6		
Fabaceae	*Coronilla* L. sp.	1	1	5	29	123	39	6
Fabaceae	Fabaceae indet. (large)		1	1	2		6	
Fabaceae	Fabaceae indet. (small)					9	2	
Fabaceae	*Hippocrepis* L. sp.							
Fabaceae	*Medicago* L. sp.				1	1		
Fabaceae	*Melilotus* - type							
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.)					1		
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.), pod fragm.						2	
Fabaceae	*Scorpiurus* cf. *muricatus* L.							
Fabaceae	*Trifolium / Lotus*							
Fabaceae	*Trifolium* L. sp.			1		2		
Fabaceae	*Trigonella* L. sp.					1		
Fabaceae	*Vicia / Lathyrus*					6		

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP70**	**BP71**	**BP72**	**BP73**	**BP74**	**BP75**	**BP76**
	area	94	74	94	74	85	63/73	63
	trench	-	108	-	109	112	38/45	121
	collection/item no.	i 581- FS 279	i 600 - FS 295	i 575 - FS 279	Q 711 - FS 331	Q 790 - FS 353	Q 781 - FS 283	i 718 - FS 333
	layer	C05	C06a1	C05	C07	C05b-08a	C06-07	C05a2
	dating	OJ I-II	OJ I	OJ I-II	EJ V	OJ I-EJG IV	OJ I-EJ V	OJ I-II
family	**taxa**							
Fabaceae	*Vicia* L. sp.							
Fagaceae	*Quercus* L. sp., fruit							
Lamiaceae	*Ajuga* cf. *salicifolia* (L.) Schreber							
Lamiaceae	*Ajuga* L. sp.						1	
Lamiaceae	*Lallemantia* Fisch.& Mey. sp.							
Lamiaceae	Lamiaceae indet.						1	
Lamiaceae	*Teucrium / Ajuga*							
Lamiaceae	*Ziziphora* Dumort. sp.							
Liliaceae	*Ornithogalum* sp./cf. *Muscari* (*neglecta*)					2		
Malvaceae	*Malva* L. sp.							
Malvaceae	Malvaceae vet. *Malva* (*Malope* - type)							
Onagraceae	*Epilobium* - type							
Papaveraceae	*Fumaria* L. sp.							
Papaveraceae	*Papaver* L. sp.							
Plantaginaceae	*Plantago* cf. *lagopus* L.							
Plantaginaceae	*Plantago* L. sp.							
Poaceae	*Aegilops* L. sp.				4	54	11	1
Poaceae	*Aegilops* Sec.*Vertebr.*Zhuk.e.Kiharas (gl. base)	1			4	28	7	
Poaceae	*Agrostis* type							
Poaceae	*Alopecurus* L. sp.							
Poaceae	*Avena* L. sp.							
Poaceae	*Bromus* L. sp.		1	1	1	3	1	
Poaceae	*Bromus sterilis* L.							
Poaceae	cf. *Catabrosa aquatica* (L.) P. Beauv.							
Poaceae	*Echinaria capitata* (L.) Desf.			1			1	1
Poaceae	*Eragrostis* N.M.Wolf sp.	5						
Poaceae	*Eremopyrum* (Ledeb.) Jaub.& Spach sp.							
Poaceae	*Hordeum* cf. *spontaneum* Koch							
Poaceae	*Hordeum spontaneum* Koch (rachis)							
Poaceae	*Hordeum* L. sp. (wild)			2	1	35	22	
Poaceae	*Lolium* sp. (*persicum* - type)			1	4	25	17	
Poaceae	*Phalaris* L. sp.							
Poaceae	*Phleum* L. sp.				1			

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP70**	**BP71**	**BP72**	**BP73**	**BP74**	**BP75**	**BP76**
	area	94	74	94	74	85	63/73	63
	trench	-	108	-	109	112	38/45	121
	collection/item no.	i 581- FS 279	i 600 - FS 295	i 575 - FS 279	Q 711 - FS 331	Q 790 - FS 353	Q 781 - FS 283	i 718 - FS 333
	layer	C05	C06a1	C05	C07	C05b-08a	C06-07	C05a2
	dating	OJ I-II	OJ I	OJ I-II	EJ V	OJ I-EJG IV	OJ I-EJ V	OJ I-II
family	**taxa**							
Poaceae	*Poa nemoralis type*			75		1	168	1
Poaceae	Poaceae indet. (large to medium)				7	17	22	1
Poaceae	Poaceae indet. (small)	1		1	4	2	2	
Poaceae	*Secale* L. sp.					3	3	
Poaceae	*Setaria verticillata* (L.) P. Beauv.							
Polygonaceae	Polygonaceae indet.							
Polygonaceae	*Polygonum aviculare* L.							
Polygonaceae	*Rumex* L. sp.							
Primulaceae	*Anagallis* L. sp.						5	
Ranunculaceae	*Adonis* L. sp.					3	3	
Rubiaceae	*Asperula involucrata* Wahlenb.						6	
Rubiaceae	cf. *Crucianella* L. sp.							
Rubiaceae	*Galium / Asperula*							
Rubiaceae	*Galium aparine* - type					4	17	
Rubiaceae	*Galium* L. sp.					3		1
Rubiaceae	*Galium spurium* - type					7		
Scrophulariaceae	Scrophulariaceae indet.							
Scrophulariaceae	*Verbascum* L. sp.							
Thymelaeaceae	*Thymelaea* Miller sp.							
Valerianaceae	*Valerianella dentata* (L.) Pollich				1			
Valerianaceae	*Valerianella vesicaria* type						3	
Verbenaceae	*Verbena* cf. *officinalis* L.							
	beetle							
	Coprolite (goat)							
	Coprolite (mouse)					2		
	food remains				9			
	indet.			2		5		
	nut shell							
	prickles (cf. *Prosopis farcta*)							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP77**	**BP78**	**BP79**	**BP80**	**BP81**	**BP82**	**BP83**
	area	74		85	84	84	85	84
	trench	-			105	105/116	112	105
	collection/item no.	Q 775 - FS 00	i 550 - FS 290	Q 842 - FS361	i 912 - FS 403	Q 683 - FS 327	Q 749 - FS 353	Q 912 _ FS 403
	layer	C05-06	C06	C05b	C08a	C07-08a	C05b-08a	C08a
	dating	OJ I-II	OJ I	OJ I-II	EJ IV	EJ IV-V	OJ I-EJ IV	EJ IV
family	**taxa**							
Poaceae	*Hordeum distichon* L. (rachis)							
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare* (rachis)							
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare*, hulled	5	2	1	1	6	65	1
Poaceae	Triticum free-threshing tetraploid (rachis)							
Poaceae	*Triticum* cf. free-threshing tetraploid (rachis)							
Poaceae	Triticum free-threshing cf. tetraploid (rachis)							
Poaceae	Triticum free-threshing hexaploid/tetraploid					2	31	
Poaceae	Triticum free-threshing hexapl./tetrapl. (rachis)							
Poaceae	Triticum free-threshing h/t (terminal glume base)							
Poaceae	*Triticum dicoccon* Schrank					3	35	
Poaceae	*Triticum dicoccon* Schrank (glume base)	1						
Poaceae	*Triticum* cf. *dicoccon* Schrank							
Poaceae	*Triticum* cf. *dicoccon* Schrank (glume base)							
Poaceae	*Triticum monococcum* L.							
Poaceae	*Triticum monococcum* L. (cf. 2-grained)							
Poaceae	*Triticum monococcum* L. (glume base)							
Poaceae	*Triticum* cf. *monococcum* L.							
Poaceae	*Triticum* cf. *monococcum* L. (glume base)							
Poaceae	*Triticum monococcum/dicoccum*	1		2				
Poaceae	*Triticum monococcum/dicoccum* (rachis)							
Poaceae	Triticum hulled/free-threshing wheat							
Poaceae	*Triticum* L. sp.					2	23	
Poaceae	*Triticum* L. sp. (chaff)							
Poaceae	Cerealia	9				4	10	
Poaceae	Cerealia (culm nodes)	1		1				
Poaceae	Cerealia (rachis)							1
Poaceae	Cerealia (roots)							
Fabaceae	*Lens culinaris* Medik.							
Fabaceae	*Lens* Miller sp.							
Fabaceae	*Lathyrus sativus / cicera*				1		1	
Fabaceae	*Pisum sativum* L.							
Fabaceae	*Vicia ervilia* (L.) Willd.							
Fabaceae	cf. *Vicia faba* L.							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP77**	**BP78**	**BP79**	**BP80**	**BP81**	**BP82**	**BP83**
	area	74		85	84	84	85	84
	trench	-			105	105/116	112	105
	collection/item no.	Q 775 - FS 00	i 550 - FS 290	Q 842 - FS361	i 912 - FS 403	Q 683 - FS 327	Q 749 - FS 353	Q 912 _ FS 403
	layer	C05-06	C06	C05b	C08a	C07-08a	C05b-08a	C08a
	dating	OJ I-II	OJ I	OJ I-II	EJ IV	EJ IV-V	OJ I-EJ IV	EJ IV
family	**taxa**							
Fabaceae	cf. *Cicer arietinum* L.							
Fabaceae	Fabaceae sativae							
Linaceae	*Linum* cf. *usitatissimum* L.							
Asteraceae	*Carthamus* cf. *tinctorius* L.							
Vitaceae	*Vitis vinifera* L.							
Vitaceae	*Vitis vinifera* L. (stalks)							
Moraceae	*Ficus carica* L.							
Moraceae	cf. *Ficus* L. sp., mineralized							
Apiaceae	*Ammi majus* L.							
Apiaceae	Apiaceae indet.							
Apiaceae	*Daucus carota* L.							
Apiaceae	*Torilis* - type							
Apiaceae	*Torilis leptophylla* (L.) Reichb.							
Asteraceae	*Anthemis* L. sp.							
Asteraceae	Asteraceae indet.							
Asteraceae	*Carduus* cf. *acanthoides* L.							
Asteraceae	*Centaurea* L. sp.							
Asteraceae	*Centaurea solstitialis* - type							
Asteraceae	*Cichorium* cf. *intybus* L.							
Asteraceae	*Crepis* L. sp.							
Asteraceae	*Senecio* L. sp.							
Boraginaceae	*Buglossoides tenuiflora* (L. fil.) Johnston							
Boraginaceae	cf. *Heliotropium* L. sp.							
Boraginaceae	*Heliotropium* L. sp.							
Boraginaceae	*Lithospermum arvense* L., uncarbonized		6					
Brassicaceae	Brassicaceae indet.							
Brassicaceae	*Camelina* cf. *microcarpa* Andrz.							
Brassicaceae	*Cheiranthus* - type							
Brassicaceae	*Lepidium* L. sp. (sativum?)							
Caryophyllaceae	Caryophyllaceae indet.							
Caryophyllaceae	*Silene* cf. *conica* L.							
Caryophyllaceae	*Silene* L. sp.							
Caryophyllaceae	*Silene* type 1							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP77**	**BP78**	**BP79**	**BP80**	**BP81**	**BP82**	**BP83**
	area	74		85	84	84	85	84
	trench	-			105	105/116	112	105
	collection/item no.	Q 775 - FS 00	i 550 - FS 290	Q 842 - FS361	i 912 - FS 403	Q 683 - FS 327	Q 749 - FS 353	Q 912 _ FS 403
	layer	C05-06	C06	C05b	C08a	C07-08a	C05b-08a	C08a
	dating	OJ I-II	OJ I	OJ I-II	EJ IV	EJ IV-V	OJ I-EJ IV	EJ IV
family	**taxa**							
Caryophyllaceae	*Silene* type 2							
Caryophyllaceae	*Silene* type 3							
Caryophyllaceae	*Vaccaria* cf. *pyramidata* Medik.							
Characeae	*Chara* L. sp.							
Chenopodiaceae	Chenopodiaceae indet.							
Chenopodiaceae	Chenopodiaceae indet., endosperm							
Chenopodiaceae	*Chenopodium* L. sp.							
Chenopodiaceae	*Chenopodium murale* L.							
Chenopodiaceae	*Salsola* L. sp.							
Chen./Resedac.	*Atriplex / Reseda*							
Convolvulaceae	*Calystegia* R.Br. sp.							
Cyperaceae	*Carex* L. sp.							
Cyperaceae	Cyperaceae indet.							
Cyperaceae	Cyperaceae indet., endosperm							
Cyperaceae	*Eleocharis* R.Br. sp.							
Cyperaceae	*Scirpus* L. sp.							
Cyperaceae	*Scirpus maritimus* L.		1					
Dipsacaceae	*Cephalaria* Schrader ex Roemer & Schultes sp.							
Euphorbiaceae	*Euphorbia* L. sp.							
Fabaceae	*Astragalus* L. sp.							
Fabaceae	*Coronilla* L. sp.	2	1	2				2
Fabaceae	Fabaceae indet. (large)	2						
Fabaceae	Fabaceae indet. (small)							
Fabaceae	*Hippocrepis* L. sp.							
Fabaceae	*Medicago* L. sp.							
Fabaceae	*Melilotus* - type							
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.)							
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.), pod fragm.							
Fabaceae	*Scorpiurus* cf. *muricatus* L.							
Fabaceae	*Trifolium / Lotus*							
Fabaceae	*Trifolium* L. sp.							
Fabaceae	*Trigonella* L. sp.							
Fabaceae	*Vicia / Lathyrus*							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP77**	**BP78**	**BP79**	**BP80**	**BP81**	**BP82**	**BP83**
	area	74		85	84	84	85	84
	trench	-			105	105/116	112	105
	collection/item no.	Q 775 - FS 00	i 550 - FS 290	Q 842 - FS361	i 912 - FS 403	Q 683 - FS 327	Q 749 - FS 353	Q 912 _ FS 403
	layer	C05-06	C06	C05b	C08a	C07-08a	C05b-08a	C08a
	dating	OJ I-II	OJ I	OJ I-II	EJ IV	EJ IV-V	OJ I-EJ IV	EJ IV
family	**taxa**							
Fabaceae	*Vicia* L. sp.							
Fagaceae	*Quercus* L. sp., fruit							
Lamiaceae	*Ajuga* cf. *salicifolia* (L.) Schreber							
Lamiaceae	*Ajuga* L. sp.							
Lamiaceae	*Lallemantia* Fisch.& Mey. sp.							
Lamiaceae	Lamiaceae indet.							
Lamiaceae	*Teucrium / Ajuga*							
Lamiaceae	*Ziziphora* Dumort. sp.							
Liliaceae	*Ornithogalum* sp./cf. *Muscari* (*neglecta*)							
Malvaceae	*Malva* L. sp.							
Malvaceae	Malvaceae vet. *Malva* (*Malope* - type)							
Onagraceae	*Epilobium* - type							
Papaveraceae	*Fumaria* L. sp.							
Papaveraceae	*Papaver* L. sp.							
Plantaginaceae	*Plantago* cf. *lagopus* L.							
Plantaginaceae	*Plantago* L. sp.							
Poaceae	*Aegilops* L. sp.	1	1		2	1	1	
Poaceae	*Aegilops* Sec.*Vertebr.*Zhuk.e.Kiharas (gl. base)						2	
Poaceae	*Agrostis* type							
Poaceae	*Alopecurus* L. sp.							
Poaceae	*Avena* L. sp.							
Poaceae	*Bromus* L. sp.							
Poaceae	*Bromus sterilis* L.							
Poaceae	cf. *Catabrosa aquatica* (L.) P. Beauv.							
Poaceae	*Echinaria capitata* (L.) Desf.							
Poaceae	*Eragrostis* N.M.Wolf sp.							
Poaceae	*Eremopyrum* (Ledeb.) Jaub.& Spach sp.							
Poaceae	*Hordeum* cf. *spontaneum* Koch							
Poaceae	*Hordeum spontaneum* Koch (rachis)							
Poaceae	*Hordeum* L. sp. (wild)						1	
Poaceae	*Lolium* sp. (*persicum* - type)	2						
Poaceae	*Phalaris* L. sp.							
Poaceae	*Phleum* L. sp.							

	year of excavation	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**	**MZ 99 C2**
	botanical sample no.	**BP77**	**BP78**	**BP79**	**BP80**	**BP81**	**BP82**	**BP83**
	area	74		85	84	84	85	84
	trench	-			105	105/116	112	105
	collection/item no.	Q 775 - FS 00	i 550 - FS 290	Q 842 - FS361	i 912 - FS 403	Q 683 - FS 327	Q 749 - FS 353	Q 912 _ FS 403
	layer	C05-06	C06	C05b	C08a	C07-08a	C05b-08a	C08a
	dating	OJ I-II	OJ I	OJ I-II	EJ IV	EJ IV-V	OJ I-EJ IV	EJ IV
family	**taxa**							
Poaceae	*Poa nemoralis type*							
Poaceae	Poaceae indet. (large to medium)	6	1	3				
Poaceae	Poaceae indet. (small)	1						
Poaceae	*Secale* L. sp.							
Poaceae	*Setaria verticillata* (L.) P. Beauv.							
Polygonaceae	Polygonaceae indet.	1						
Polygonaceae	*Polygonum aviculare* L.							
Polygonaceae	*Rumex* L. sp.							
Primulaceae	*Anagallis* L. sp.							
Ranunculaceae	*Adonis* L. sp.							
Rubiaceae	*Asperula involucrata* Wahlenb.							
Rubiaceae	cf. *Crucianella* L. sp.							
Rubiaceae	*Galium / Asperula*							
Rubiaceae	*Galium aparine* - type							
Rubiaceae	*Galium* L. sp.			1				1
Rubiaceae	*Galium spurium* - type							
Scrophulariaceae	Scrophulariaceae indet.							
Scrophulariaceae	*Verbascum* L. sp.							
Thymelaeaceae	*Thymelaea* Miller sp.							
Valerianaceae	*Valerianella dentata* (L.) Pollich							
Valerianaceae	*Valerianella vesicaria* type							
Verbenaceae	*Verbena* cf. *officinalis* L.							
	beetle							
	Coprolite (goat)			27				
	Coprolite (mouse)							
	food remains							
	indet.							
	nut shell							
	prickles (cf. *Prosopis farcta*)							

	year of excavation	MZ 99 C2	MZ 00 C2	MZ 00 C2	MZ 00 C2	MZ 00 C2	MZ 00 C2
	botanical sample no.	**BP84**	**BP05**	**BP06**	**BP12**	**BP31**	**BP39**
	area	94	85	84	85	64	114
	trench	56/100	161/162/163	-	161		
	collection/item no.	Q 796 - FS 279	Q 441 - 512/513/514	Q 273 - FS 531	Q 301 - FS 512	Q 1250 - FS 859	i 1286 - FS 809
	layer	C05	C12b	C12	C12b	C07a	C07
	dating	OJ I-II	EJ IIIb	EJ IIIb	EJ IIIb	EJ V	EJ V
family	**taxa**						
Poaceae	*Hordeum distichon* L. (rachis)		16	1	3		
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare* (rachis)		118	4	6		
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare*, hulled	12	229	61	56	5	1
Poaceae	Triticum free-threshing tetraploid (rachis)						
Poaceae	*Triticum* cf. free-threshing tetraploid (rachis)						
Poaceae	Triticum free-threshing cf. tetraploid (rachis)		8				
Poaceae	Triticum free-threshing hexaploid/tetraploid	3	44	8	6	3	1
Poaceae	Triticum free-threshing hexapl./tetrapl. (rachis)		44	2			
Poaceae	Triticum free-threshing h/t (terminal glume base)						
Poaceae	*Triticum dicoccon* Schrank		13	4	2		
Poaceae	*Triticum dicoccon* Schrank (glume base)		54	5	7	1	
Poaceae	*Triticum* cf. *dicoccon* Schrank	1	15	2	5		
Poaceae	*Triticum* cf. *dicoccon* Schrank (glume base)						
Poaceae	*Triticum monococcum* L.		4				
Poaceae	*Triticum monococcum* L. (cf. 2-grained)						
Poaceae	*Triticum monococcum* L. (glume base)		3				
Poaceae	*Triticum* cf. *monococcum* L.		4				
Poaceae	*Triticum* cf. *monococcum* L. (glume base)						
Poaceae	*Triticum monococcum/dicoccum*		12		4		
Poaceae	*Triticum monococcum/dicoccum* (rachis)				11		
Poaceae	Triticum hulled/free-threshing wheat						
Poaceae	*Triticum* L. sp.		42	11	6	5	
Poaceae	*Triticum* L. sp. (chaff)						
Poaceae	Cerealia		89	23	36	6	1
Poaceae	Cerealia (culm nodes)		32	3	1		
Poaceae	Cerealia (rachis)		36		3		
Poaceae	Cerealia (roots)		4				
Fabaceae	*Lens culinaris* Medik.		5	14	3		
Fabaceae	*Lens* Miller sp.						
Fabaceae	*Lathyrus sativus / cicera*		3	2		1	
Fabaceae	*Pisum sativum* L.						
Fabaceae	*Vicia ervilia* (L.) Willd.						
Fabaceae	cf. *Vicia faba* L.						

	year of excavation	**MZ 99 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**
	botanical sample no.	**BP84**	**BP05**	**BP06**	**BP12**	**BP31**	**BP39**
	area	94	85	84	85	64	114
	trench	56/100	161/162/163	-	161		
	collection/item no.	Q 796 - FS 279	Q 441 - 512/513/514	Q 273 - FS 531	Q 301 - FS 512	Q 1250 - FS 859	i 1286 - FS 809
	layer	C05	C12b	C12	C12b	C07a	C07
	dating	OJ I-II	EJ IIIb	EJ IIIb	EJ IIIb	EJ V	EJ V
family	**taxa**						
Fabaceae	cf. *Cicer arietinum* L.						
Fabaceae	Fabaceae sativae						
Linaceae	*Linum* cf. *usitatissimum* L.						
Asteraceae	*Carthamus* cf. *tinctorius* L.						
Vitaceae	*Vitis vinifera* L.			1			
Vitaceae	*Vitis vinifera* L. (stalks)						
Moraceae	*Ficus carica* L.		1				
Moraceae	cf. *Ficus* L. sp., mineralized						
Apiaceae	*Ammi majus* L.						
Apiaceae	Apiaceae indet.		1			1	
Apiaceae	*Daucus carota* L.						
Apiaceae	*Torilis* - type						
Apiaceae	*Torilis leptophylla* (L.) Reichb.						
Asteraceae	*Anthemis* L. sp.						
Asteraceae	Asteraceae indet.						
Asteraceae	*Carduus* cf. *acanthoides* L.						
Asteraceae	*Centaurea* L. sp.						
Asteraceae	*Centaurea solstitialis* - type						
Asteraceae	*Cichorium* cf. *intybus* L.						
Asteraceae	*Crepis* L. sp.						
Asteraceae	*Senecio* L. sp.						
Boraginaceae	*Buglossoides tenuiflora* (L. fil.) Johnston			1			
Boraginaceae	cf. *Heliotropium* L. sp.						
Boraginaceae	*Heliotropium* L. sp.		1				
Boraginaceae	*Lithospermum arvense* L., uncarbonized			1			
Brassicaceae	Brassicaceae indet.		1				
Brassicaceae	*Camelina* cf. *microcarpa* Andrz.						
Brassicaceae	*Cheiranthus* - type						
Brassicaceae	*Lepidium* L. sp. (sativum?)						
Caryophyllaceae	Caryophyllaceae indet.						
Caryophyllaceae	*Silene* cf. *conica* L.						
Caryophyllaceae	*Silene* L. sp.		3		1		
Caryophyllaceae	*Silene* type 1						

	year of excavation	**MZ 99 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**
	botanical sample no.	**BP84**	**BP05**	**BP06**	**BP12**	**BP31**	**BP39**
	area	94	85	84	85	64	114
	trench	56/100	161/162/163	-	161		
	collection/item no.	Q 796 - FS 279	Q 441 - 512/513/514	Q 273 - FS 531	Q 301 - FS 512	Q 1250 - FS 859	i 1286 - FS 809
	layer	C05	C12b	C12	C12b	C07a	C07
	dating	OJ I-II	EJ IIIb	EJ IIIb	EJ IIIb	EJ V	EJ V
family	**taxa**						
Caryophyllaceae	*Silene* type 2				2		
Caryophyllaceae	*Silene* type 3				2		
Caryophyllaceae	*Vaccaria* cf. *pyramidata* Medik.			1			
Characeae	*Chara* L. sp.						
Chenopodiaceae	Chenopodiaceae indet.						
Chenopodiaceae	Chenopodiaceae indet., endosperm						
Chenopodiaceae	*Chenopodium* L. sp.						
Chenopodiaceae	*Chenopodium murale* L.				1		
Chenopodiaceae	*Salsola* L. sp.						
Chen./Resedac.	*Atriplex / Reseda*						
Convolvulaceae	*Calystegia* R.Br. sp.						
Cyperaceae	*Carex* L. sp.						
Cyperaceae	Cyperaceae indet.		1				
Cyperaceae	Cyperaceae indet., endosperm						
Cyperaceae	*Eleocharis* R.Br. sp.						
Cyperaceae	*Scirpus* L. sp.						
Cyperaceae	*Scirpus maritimus* L.		3			2	2
Dipsacaceae	*Cephalaria* Schrader ex Roemer & Schultes sp.						
Euphorbiaceae	*Euphorbia* L. sp.						
Fabaceae	*Astragalus* L. sp.		9	4	4		
Fabaceae	*Coronilla* L. sp.		267	124	57	7	3
Fabaceae	Fabaceae indet. (large)		4				
Fabaceae	Fabaceae indet. (small)				1		
Fabaceae	*Hippocrepis* L. sp.			1			
Fabaceae	*Medicago* L. sp.		4	1	4		
Fabaceae	*Melilotus* - type		3				
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.)						
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.), pod fragm.						
Fabaceae	*Scorpiurus* cf. *muricatus* L.						
Fabaceae	*Trifolium / Lotus*						
Fabaceae	*Trifolium* L. sp.		1		11		
Fabaceae	*Trigonella* L. sp.		2				
Fabaceae	*Vicia / Lathyrus*		4		8		

	year of excavation	**MZ 99 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**
	botanical sample no.	**BP84**	**BP05**	**BP06**	**BP12**	**BP31**	**BP39**
	area	94	85	84	85	64	114
	trench	56/100	161/162/163	-	161		
	collection/item no.	Q 796 - FS 279	Q 441 - 512/513/514	Q 273 - FS 531	Q 301 - FS 512	Q 1250 - FS 859	i 1286 - FS 809
	layer	C05	C12b	C12	C12b	C07a	C07
	dating	OJ I-II	EJ IIIb	EJ IIIb	EJ IIIb	EJ V	EJ V
family	**taxa**						
Fabaceae	*Vicia* L. sp.						
Fagaceae	*Quercus* L. sp., fruit						
Lamiaceae	*Ajuga* cf. *salicifolia* (L.) Schreber						
Lamiaceae	*Ajuga* L. sp.						
Lamiaceae	*Lallemantia* Fisch.& Mey. sp.						
Lamiaceae	Lamiaceae indet.		1				
Lamiaceae	*Teucrium / Ajuga*						
Lamiaceae	*Ziziphora* Dumort. sp.		1				
Liliaceae	*Ornithogalum* sp./cf. *Muscari* (*neglecta*)		1				
Malvaceae	*Malva* L. sp.						
Malvaceae	Malvaceae vet. *Malva* (*Malope* - type)		9	2			
Onagraceae	*Epilobium* - type						
Papaveraceae	*Fumaria* L. sp.						
Papaveraceae	*Papaver* L. sp.			1			
Plantaginaceae	*Plantago* cf. *lagopus* L.						
Plantaginaceae	*Plantago* L. sp.						
Poaceae	*Aegilops* L. sp.		61	37	11	4	
Poaceae	*Aegilops* Sec.*Vertebr.*Zhuk.e.Kiharas (gl. base)		9	1	9	1	
Poaceae	*Agrostis* type		3				
Poaceae	*Alopecurus* L. sp.						
Poaceae	*Avena* L. sp.						
Poaceae	*Bromus* L. sp.		1	4			
Poaceae	*Bromus sterilis* L.						
Poaceae	cf. *Catabrosa aquatica* (L.) P. Beauv.						
Poaceae	*Echinaria capitata* (L.) Desf.						
Poaceae	*Eragrostis* N.M.Wolf sp.						1
Poaceae	*Eremopyrum* (Ledeb.) Jaub.& Spach sp.		1				
Poaceae	*Hordeum* cf. *spontaneum* Koch						
Poaceae	*Hordeum spontaneum* Koch (rachis)						
Poaceae	*Hordeum* L. sp. (wild)		31	1			
Poaceae	*Lolium* sp. (*persicum* - type)		21	12	17	3	
Poaceae	*Phalaris* L. sp.						
Poaceae	*Phleum* L. sp.		1	2			

	year of excavation	**MZ 99 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**
	botanical sample no.	**BP84**	**BP05**	**BP06**	**BP12**	**BP31**	**BP39**
	area	94	85	84	85	64	114
	trench	56/100	161/162/163	-	161		
	collection/item no.	Q 796 - FS 279	Q 441 - 512/513/514	Q 273 - FS 531	Q 301 - FS 512	Q 1250 - FS 859	i 1286 - FS 809
	layer	C05	C12b	C12	C12b	C07a	C07
	dating	OJ I-II	EJ IIIb	EJ IIIb	EJ IIIb	EJ V	EJ V
family	**taxa**						
Poaceae	*Poa nemoralis type*		96	39	8		8
Poaceae	Poaceae indet. (large to medium)		38	16		1	
Poaceae	Poaceae indet. (small)			1	16		
Poaceae	*Secale* L. sp.						
Poaceae	*Setaria verticillata* (L.) P. Beauv.						
Polygonaceae	Polygonaceae indet.						
Polygonaceae	*Polygonum aviculare* L.		1				
Polygonaceae	*Rumex* L. sp.				3		
Primulaceae	*Anagallis* L. sp.						
Ranunculaceae	*Adonis* L. sp.		1				
Rubiaceae	*Asperula involucrata* Wahlenb.		1	1			
Rubiaceae	cf. *Crucianella* L. sp.						
Rubiaceae	*Galium / Asperula*						
Rubiaceae	*Galium aparine* - type		2	1			
Rubiaceae	*Galium* L. sp.			2	5	3	
Rubiaceae	*Galium spurium* - type		6	3			
Scrophulariaceae	Scrophulariaceae indet.						
Scrophulariaceae	*Verbascum* L. sp.						
Thymelaeaceae	*Thymelaea* Miller sp.						
Valerianaceae	*Valerianella dentata* (L.) Pollich						
Valerianaceae	*Valerianella vesicaria* type						
Verbenaceae	*Verbena* cf. *officinalis* L.						
	beetle						
	Coprolite (goat)						
	Coprolite (mouse)		3				
	food remains						
	indet.		4	3			
	nut shell						
	prickles (cf. *Prosopis farcta*)						

	year of excavation	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 01 C2**
	botanical sample no.	**BP40**	**BP41**	**BP45**	**BP47**	**BP53**	**BP55**	**BP01**
	area	85	95	85	85	85	84/85	85
	trench	178	161	163	162	163	181/183/1	0
	collection/item no.	Q 451 - FS 512	Q 195 - FS 512	Q 298 - FS 514	Q 197 - FS 513	Q 196 - FS 514	Q 565 - FS 621	Q 46 - FS 1003
	layer	C12b	C12b	C12b-d	C12b	C12b-d	C12d	00
	dating	FG IIIb	FG IIIb	FG IIIb	FG IIIb	FG IIIb	FG IIIb	
family	**taxa**							
Poaceae	*Hordeum distichon* L. (rachis)							
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare* (rachis)							
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare*, hulled	12	35		15	8		9
Poaceae	Triticum free-threshing tetraploid (rachis)							
Poaceae	*Triticum* cf. free-threshing tetraploid (rachis)							
Poaceae	Triticum free-threshing cf. tetraploid (rachis)							
Poaceae	Triticum free-threshing hexaploid/tetraploid		3		4			
Poaceae	Triticum free-threshing hexapl./tetrapl. (rachis)							
Poaceae	Triticum free-threshing h/t (terminal glume base)							
Poaceae	*Triticum dicoccon* Schrank	5	7		3	5		8
Poaceae	*Triticum dicoccon* Schrank (glume base)							
Poaceae	*Triticum* cf. *dicoccon* Schrank					1		
Poaceae	*Triticum* cf. *dicoccon* Schrank (glume base)							
Poaceae	*Triticum monococcum* L.							
Poaceae	*Triticum monococcum* L. (cf. 2-grained)							
Poaceae	*Triticum monococcum* L. (glume base)							
Poaceae	*Triticum* cf. *monococcum* L.							
Poaceae	*Triticum* cf. *monococcum* L. (glume base)							
Poaceae	*Triticum monococcum/dicoccum*		1					
Poaceae	*Triticum monococcum/dicoccum* (rachis)							
Poaceae	Triticum hulled/free-threshing wheat		2					
Poaceae	*Triticum* L. sp.	1	4					
Poaceae	*Triticum* L. sp. (chaff)							
Poaceae	Cerealia				4			
Poaceae	Cerealia (culm nodes)							
Poaceae	Cerealia (rachis)							
Poaceae	Cerealia (roots)							
Fabaceae	*Lens culinaris* Medik.				1			
Fabaceae	*Lens* Miller sp.							
Fabaceae	*Lathyrus sativus / cicera*	2						
Fabaceae	*Pisum sativum* L.							
Fabaceae	*Vicia ervilia* (L.) Willd.							

	year of excavation	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 01 C2**
	botanical sample no.	**BP40**	**BP41**	**BP45**	**BP47**	**BP53**	**BP55**	**BP01**
	area	85	95	85	85	85	84/85	85
	trench	178	161	163	162	163	181/183/1	0
	collection/item no.	Q 451 - FS 512	Q 195 - FS 512	Q 298 - FS 514	Q 197 - FS 513	Q 196 - FS 514	Q 565 - FS 621	Q 46 - FS 1003
	layer	C12b	C12b	C12b-d	C12b	C12b-d	C12d	00
	dating	FG IIIb	FG IIIb	FG IIIb	FG IIIb	FG IIIb	FG IIIb	
family	**taxa**							
Fabaceae	cf. *Vicia faba* L.							
Fabaceae	cf. *Cicer arietinum* L.							
Fabaceae	Fabaceae sativae							
Linaceae	*Linum* cf. *usitatissimum* L.							
Asteraceae	*Carthamus* cf. *tinctorius* L.							
Vitaceae	*Vitis vinifera* L.							
Vitaceae	*Vitis vinifera* L. (stalks)							
Moraceae	*Ficus carica* L.							
Moraceae	cf. *Ficus* L. sp., mineralized							
Apiaceae	*Ammi majus* L.							
Apiaceae	Apiaceae indet.							
Apiaceae	*Daucus carota* L.							
Apiaceae	*Torilis* - type							
Apiaceae	*Torilis leptophylla* (L.) Reichb.							
Asteraceae	*Anthemis* L. sp.							
Asteraceae	Asteraceae indet.							
Asteraceae	*Carduus* cf. *acanthoides* L.							
Asteraceae	*Centaurea* L. sp.							
Asteraceae	*Centaurea solstitialis* - type							
Asteraceae	*Cichorium* cf. *intybus* L.							
Asteraceae	*Crepis* L. sp.							
Asteraceae	*Senecio* L. sp.							
Boraginaceae	*Buglossoides tenuiflora* (L. fil.) Johnston							
Boraginaceae	cf. *Heliotropium* L. sp.							
Boraginaceae	*Heliotropium* L. sp.							
Boraginaceae	*Lithospermum arvense* L., uncarbonized							
Brassicaceae	Brassicaceae indet.							
Brassicaceae	*Camelina* cf. *microcarpa* Andrz.							
Brassicaceae	*Cheiranthus* - type							
Brassicaceae	*Lepidium* L. sp. (sativum?)							
Caryophyllaceae	Caryophyllaceae indet.							
Caryophyllaceae	*Silene* cf. *conica* L.							
Caryophyllaceae	*Silene* L. sp.							

	year of excavation	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 01 C2**
	botanical sample no.	**BP40**	**BP41**	**BP45**	**BP47**	**BP53**	**BP55**	**BP01**
	area	85	95	85	85	85	84/85	85
	trench	178	161	163	162	163	181/183/1	0
	collection/item no.	Q 451 - FS 512	Q 195 - FS 512	Q 298 - FS 514	Q 197 - FS 513	Q 196 - FS 514	Q 565 - FS 621	Q 46 - FS 1003
	layer	C12b	C12b	C12b-d	C12b	C12b-d	C12d	00
	dating	FG IIIb	FG IIIb	FG IIIb	FG IIIb	FG IIIb	FG IIIb	
family	**taxa**							
Caryophyllaceae	*Silene* type 1							
Caryophyllaceae	*Silene* type 2							
Caryophyllaceae	*Silene* type 3							
Caryophyllaceae	*Vaccaria* cf. *pyramidata* Medik.							
Characeae	*Chara* L. sp.							
Chenopodiaceae	Chenopodiaceae indet.							
Chenopodiaceae	Chenopodiaceae indet., endosperm							
Chenopodiaceae	*Chenopodium* L. sp.							
Chenopodiaceae	*Chenopodium murale* L.							
Chenopodiaceae	*Salsola* L. sp.							
Chen./Resedac.	*Atriplex / Reseda*							
Convolvulaceae	*Calystegia* R.Br. sp.							
Cyperaceae	*Carex* L. sp.							
Cyperaceae	Cyperaceae indet.							
Cyperaceae	Cyperaceae indet., endosperm							
Cyperaceae	*Eleocharis* R.Br. sp.							
Cyperaceae	*Scirpus* L. sp.							
Cyperaceae	*Scirpus maritimus* L.							
Dipsacaceae	*Cephalaria* Schrader ex Roemer & Schultes sp.							
Euphorbiaceae	*Euphorbia* L. sp.							
Fabaceae	*Astragalus* L. sp.							
Fabaceae	*Coronilla* L. sp.							
Fabaceae	Fabaceae indet. (large)							
Fabaceae	Fabaceae indet. (small)							
Fabaceae	*Hippocrepis* L. sp.							
Fabaceae	*Medicago* L. sp.							
Fabaceae	*Melilotus* - type							
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.)							
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.), pod fragm.							
Fabaceae	*Scorpiurus* cf. *muricatus* L.							
Fabaceae	*Trifolium / Lotus*							
Fabaceae	*Trifolium* L. sp.							
Fabaceae	*Trigonella* L. sp.							

	year of excavation	MZ 00 C2	MZ 00 C2	MZ 00 C2	MZ 00 C2	MZ 00 C2	MZ 00 C2	MZ 01 C2
	botanical sample no.	**BP40**	**BP41**	**BP45**	**BP47**	**BP53**	**BP55**	**BP01**
	area	85	95	85	85	85	84/85	85
	trench	178	161	163	162	163	181/183/1	0
	collection/item no.	Q 451 - FS 512	Q 195 - FS 512	Q 298 - FS 514	Q 197 - FS 513	Q 196 - FS 514	Q 565 - FS 621	Q 46 - FS 1003
	layer	C12b	C12b	C12b-d	C12b	C12b-d	C12d	00
	dating	FG IIIb	FG IIIb	FG IIIb	FG IIIb	FG IIIb	FG IIIb	
family	**taxa**							
Fabaceae	*Vicia / Lathyrus*							
Fabaceae	*Vicia* L. sp.							
Fagaceae	*Quercus* L. sp., fruit						1	
Lamiaceae	*Ajuga* cf. *salicifolia* (L.) Schreber							
Lamiaceae	*Ajuga* L. sp.							
Lamiaceae	*Lallemantia* Fisch.& Mey. sp.							
Lamiaceae	Lamiaceae indet.							
Lamiaceae	*Teucrium / Ajuga*							
Lamiaceae	*Ziziphora* Dumort. sp.							
Liliaceae	*Ornithogalum* sp./cf. *Muscari* (*neglecta*)							
Malvaceae	*Malva* L. sp.							
Malvaceae	Malvaceae vet. *Malva* (*Malope* - type)							
Onagraceae	*Epilobium* - type							
Papaveraceae	*Fumaria* L. sp.							
Papaveraceae	*Papaver* L. sp.							
Plantaginaceae	*Plantago* cf. *lagopus* L.							
Plantaginaceae	*Plantago* L. sp.							
Poaceae	*Aegilops* L. sp.							
Poaceae	*Aegilops* Sec.*Vertebr.*Zhuk.e.Kiharas (gl. base)							
Poaceae	*Agrostis* type							
Poaceae	*Alopecurus* L. sp.							
Poaceae	*Avena* L. sp.							
Poaceae	*Bromus* L. sp.							
Poaceae	*Bromus sterilis* L.							
Poaceae	cf. *Catabrosa aquatica* (L.) P. Beauv.							
Poaceae	*Echinaria capitata* (L.) Desf.							
Poaceae	*Eragrostis* N.M.Wolf sp.							
Poaceae	*Eremopyrum* (Ledeb.) Jaub.& Spach sp.							
Poaceae	*Hordeum* cf. *spontaneum* Koch							
Poaceae	*Hordeum spontaneum* Koch (rachis)							
Poaceae	*Hordeum* L. sp. (wild)							
Poaceae	*Lolium* sp. (*persicum* - type)							
Poaceae	*Phalaris* L. sp.							

	year of excavation	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 00 C2**	**MZ 01 C2**
	botanical sample no.	**BP40**	**BP41**	**BP45**	**BP47**	**BP53**	**BP55**	**BP01**
	area	85	95	85	85	85	84/85	85
	trench	178	161	163	162	163	181/183/1	0
	collection/item no.	Q 451 - FS 512	Q 195 - FS 512	Q 298 - FS 514	Q 197 - FS 513	Q 196 - FS 514	Q 565 - FS 621	Q 46 - FS 1003
	layer	C12b	C12b	C12b-d	C12b	C12b-d	C12d	00
	dating	FG IIIb	FG IIIb	FG IIIb	FG IIIb	FG IIIb	FG IIIb	
family	**taxa**							
Poaceae	*Phleum* L. sp.							
Poaceae	*Poa nemoralis type*							
Poaceae	Poaceae indet. (large to medium)							
Poaceae	Poaceae indet. (small)							
Poaceae	*Secale* L. sp.							
Poaceae	*Setaria verticillata* (L.) P. Beauv.							
Polygonaceae	Polygonaceae indet.							
Polygonaceae	*Polygonum aviculare* L.							
Polygonaceae	*Rumex* L. sp.							
Primulaceae	*Anagallis* L. sp.							
Ranunculaceae	*Adonis* L. sp.							
Rubiaceae	*Asperula involucrata* Wahlenb.							
Rubiaceae	cf. *Crucianella* L. sp.							
Rubiaceae	*Galium / Asperula*							
Rubiaceae	*Galium aparine* - type							
Rubiaceae	*Galium* L. sp.							
Rubiaceae	*Galium spurium* - type							
Scrophulariaceae	Scrophulariaceae indet.							
Scrophulariaceae	*Verbascum* L. sp.							
Thymelaeaceae	*Thymelaea* Miller sp.							
Valerianaceae	*Valerianella dentata* (L.) Pollich							
Valerianaceae	*Valerianella vesicaria* type							
Verbenaceae	*Verbena* cf. *officinalis* L.							
	beetle							
	Coprolite (goat)			10				
	Coprolite (mouse)							
	food remains							
	indet.							
	nut shell							
	prickles (cf. *Prosopis farcta*)							

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP02**	**BP03**	**BP04**	**BP06**	**BP07**	**BP09**	**BP11**
	area	95	73	74	63		63	84
	trench	0	273	275	272		272	0
	collection/item no.	Q 53 - FS 1002	Q 153 - FS 1054	Q 181 - FS 1117	Q 288 - FS 1160	Q 290 -	Q 322 - FS 1160	Q 387 - FS 1090
	layer	00	C07b3	C07c-d	C07a	C07a	C07a	C07
	dating		EJ V	EJ V	EJ V	EJ V	EJ V	EJ V
family	**taxa**							
Poaceae	*Hordeum distichon* L. (rachis)					17		
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare* (rachis)			4	56	111		
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare*, hulled	12	9	7	45	151	103	
Poaceae	Triticum free-threshing tetraploid (rachis)				5		4	
Poaceae	*Triticum* cf. free-threshing tetraploid (rachis)							
Poaceae	Triticum free-threshing cf. tetraploid (rachis)					65		
Poaceae	Triticum free-threshing hexaploid/tetraploid	1	4		81	130	26	
Poaceae	Triticum free-threshing hexapl./tetrapl. (rachis)					15	34	
Poaceae	Triticum free-threshing h/t (terminal glume base)							
Poaceae	*Triticum dicoccon* Schrank	2		1	3			
Poaceae	*Triticum dicoccon* Schrank (glume base)					8		
Poaceae	*Triticum* cf. *dicoccon* Schrank							
Poaceae	*Triticum* cf. *dicoccon* Schrank (glume base)							
Poaceae	*Triticum monococcum* L.							
Poaceae	*Triticum monococcum* L. (cf. 2-grained)			2				
Poaceae	*Triticum monococcum* L. (glume base)							
Poaceae	*Triticum* cf. *monococcum* L.				1			
Poaceae	*Triticum* cf. *monococcum* L. (glume base)							
Poaceae	*Triticum monococcum/dicoccum*				1			
Poaceae	*Triticum monococcum/dicoccum* (rachis)							
Poaceae	Triticum hulled/free-threshing wheat					3		
Poaceae	*Triticum* L. sp.				18	54		
Poaceae	*Triticum* L. sp. (chaff)							
Poaceae	Cerealia		2		38	49	40	
Poaceae	Cerealia (culm nodes)				1	40	7	
Poaceae	Cerealia (rachis)				5		12	
Poaceae	Cerealia (roots)							
Fabaceae	*Lens culinaris* Medik.	1	1					
Fabaceae	*Lens* Miller sp.							
Fabaceae	*Lathyrus sativus / cicera*						1	
Fabaceae	*Pisum sativum* L.							
Fabaceae	*Vicia ervilia* (L.) Willd.							
Fabaceae	cf. *Vicia faba* L.							

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP02**	**BP03**	**BP04**	**BP06**	**BP07**	**BP09**	**BP11**
	area	95	73	74	63		63	84
	trench	0	273	275	272		272	0
	collection/item no.	Q 53 - FS 1002	Q 153 - FS 1054	Q 181 - FS 1117	Q 288 - FS 1160	Q 290 -	Q 322 - FS 1160	Q 387 - FS 1090
	layer	00	C07b3	C07c-d	C07a	C07a	C07a	C07
	dating		EJ V	EJ V	EJ V	EJ V	EJ V	EJ V
family	**taxa**							
Fabaceae	cf. *Cicer arietinum* L.							
Fabaceae	Fabaceae sativae					3		
Linaceae	*Linum* cf. *usitatissimum* L.					1		
Asteraceae	*Carthamus* cf. *tinctorius* L.							
Vitaceae	*Vitis vinifera* L.					2		
Vitaceae	*Vitis vinifera* L. (stalks)					2		
Moraceae	*Ficus carica* L.							
Moraceae	cf. *Ficus* L. sp., mineralized							
Apiaceae	*Ammi majus* L.						1	
Apiaceae	Apiaceae indet.							
Apiaceae	*Daucus carota* L.							
Apiaceae	*Torilis* - type							
Apiaceae	*Torilis leptophylla* (L.) Reichb.							
Asteraceae	*Anthemis* L. sp.							
Asteraceae	Asteraceae indet.							
Asteraceae	*Carduus* cf. *acanthoides* L.							
Asteraceae	*Centaurea* L. sp.							
Asteraceae	*Centaurea solstitialis* - type							
Asteraceae	*Cichorium* cf. *intybus* L.							
Asteraceae	*Crepis* L. sp.							
Asteraceae	*Senecio* L. sp.							
Boraginaceae	*Buglossoides tenuiflora* (L. fil.) Johnston							
Boraginaceae	cf. *Heliotropium* L. sp.							
Boraginaceae	*Heliotropium* L. sp.							
Boraginaceae	*Lithospermum arvense* L., uncarbonized							
Brassicaceae	Brassicaceae indet.				10	6	10	
Brassicaceae	*Camelina* cf. *microcarpa* Andrz.							
Brassicaceae	*Cheiranthus* - type							
Brassicaceae	*Lepidium* L. sp. (sativum?)							
Caryophyllaceae	Caryophyllaceae indet.							
Caryophyllaceae	*Silene* cf. *conica* L.							
Caryophyllaceae	*Silene* L. sp.					22	3	
Caryophyllaceae	*Silene* type 1							

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP02**	**BP03**	**BP04**	**BP06**	**BP07**	**BP09**	**BP11**
	area	95	73	74	63		63	84
	trench	0	273	275	272		272	0
	collection/item no.	Q 53 - FS 1002	Q 153 - FS 1054	Q 181 - FS 1117	Q 288 - FS 1160	Q 290 -	Q 322 - FS 1160	Q 387 - FS 1090
	layer	00	C07b3	C07c-d	C07a	C07a	C07a	C07
	dating		EJ V	EJ V	EJ V	EJ V	EJ V	EJ V
family	**taxa**							
Caryophyllaceae	*Silene* type 2					6	1	
Caryophyllaceae	*Silene* type 3					2	1	
Caryophyllaceae	*Vaccaria* cf. *pyramidata* Medik.							
Characeae	*Chara* L. sp.							
Chenopodiaceae	Chenopodiaceae indet.							
Chenopodiaceae	Chenopodiaceae indet., endosperm							
Chenopodiaceae	*Chenopodium* L. sp.						1	
Chenopodiaceae	*Chenopodium murale* L.							
Chenopodiaceae	*Salsola* L. sp.							
Chen./Resedac.	*Atriplex / Reseda*							
Convolvulaceae	*Calystegia* R.Br. sp.							
Cyperaceae	*Carex* L. sp.							
Cyperaceae	Cyperaceae indet.				1			
Cyperaceae	Cyperaceae indet., endosperm							
Cyperaceae	*Eleocharis* R.Br. sp.					2	1	
Cyperaceae	*Scirpus* L. sp.							
Cyperaceae	*Scirpus maritimus* L.							
Dipsacaceae	*Cephalaria* Schrader ex Roemer & Schultes sp.							
Euphorbiaceae	*Euphorbia* L. sp.					1		
Fabaceae	*Astragalus* L. sp.							
Fabaceae	*Coronilla* L. sp.					6	7	
Fabaceae	Fabaceae indet. (large)			2				
Fabaceae	Fabaceae indet. (small)				2		6	
Fabaceae	*Hippocrepis* L. sp.							
Fabaceae	*Medicago* L. sp.							
Fabaceae	*Melilotus* - type							
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.)							
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.), pod fragm.							
Fabaceae	*Scorpiurus* cf. *muricatus* L.							
Fabaceae	*Trifolium / Lotus*							
Fabaceae	*Trifolium* L. sp.							
Fabaceae	*Trigonella* L. sp.							
Fabaceae	*Vicia / Lathyrus*					1		

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP02**	**BP03**	**BP04**	**BP06**	**BP07**	**BP09**	**BP11**
	area	95	73	74	63		63	84
	trench	0	273	275	272		272	0
	collection/item no.	Q 53 - FS 1002	Q 153 - FS 1054	Q 181 - FS 1117	Q 288 - FS 1160	Q 290 -	Q 322 - FS 1160	Q 387 - FS 1090
	layer	00	C07b3	C07c-d	C07a	C07a	C07a	C07
	dating		EJ V	EJ V	EJ V	EJ V	EJ V	EJ V
family	**taxa**							
Fabaceae	*Vicia* L. sp.							
Fagaceae	*Quercus* L. sp., fruit							1
Lamiaceae	*Ajuga* cf. *salicifolia* (L.) Schreber							
Lamiaceae	*Ajuga* L. sp.							
Lamiaceae	*Lallemantia* Fisch.& Mey. sp.							
Lamiaceae	Lamiaceae indet.						1	
Lamiaceae	*Teucrium / Ajuga*							
Lamiaceae	*Ziziphora* Dumort. sp.							
Liliaceae	*Ornithogalum* sp./cf. *Muscari* (*neglecta*)							
Malvaceae	*Malva* L. sp.					12	1	
Malvaceae	Malvaceae vet. *Malva* (*Malope* - type)							
Onagraceae	*Epilobium* - type					6		
Papaveraceae	*Fumaria* L. sp.							
Papaveraceae	*Papaver* L. sp.							
Plantaginaceae	*Plantago* cf. *lagopus* L.							
Plantaginaceae	*Plantago* L. sp.							
Poaceae	*Aegilops* L. sp.				15	2	11	
Poaceae	*Aegilops* Sec.*Vertebr.*Zhuk.e.Kiharas (gl. base)				1	1	5	
Poaceae	*Agrostis* type							
Poaceae	*Alopecurus* L. sp.							
Poaceae	*Avena* L. sp.							
Poaceae	*Bromus* L. sp.				2	4	2	
Poaceae	*Bromus sterilis* L.							
Poaceae	cf. *Catabrosa aquatica* (L.) P. Beauv.							
Poaceae	*Echinaria capitata* (L.) Desf.				1			
Poaceae	*Eragrostis* N.M.Wolf sp.				1		16	
Poaceae	*Eremopyrum* (Ledeb.) Jaub.& Spach sp.							
Poaceae	*Hordeum* cf. *spontaneum* Koch							
Poaceae	*Hordeum spontaneum* Koch (rachis)							
Poaceae	*Hordeum* L. sp. (wild)					10		
Poaceae	*Lolium* sp. (*persicum* - type)			4	5	68		
Poaceae	*Phalaris* L. sp.			3		1117	4	
Poaceae	*Phleum* L. sp.							

	year of excavation	MZ 01 C2	MZ 01 C2	MZ 01 C2	MZ 01 C2	MZ 01 C2	MZ 01 C2	MZ 01 C2
	botanical sample no.	**BP02**	**BP03**	**BP04**	**BP06**	**BP07**	**BP09**	**BP11**
	area	95	73	74	63		63	84
	trench	0	273	275	272		272	0
	collection/item no.	Q 53 - FS 1002	Q 153 - FS 1054	Q 181 - FS 1117	Q 288 - FS 1160	Q 290 -	Q 322 - FS 1160	Q 387 - FS 1090
	layer	00	C07b3	C07c-d	C07a	C07a	C07a	C07
	dating		EJ V	EJ V	EJ V	EJ V	EJ V	EJ V
family	**taxa**							
Poaceae	*Poa nemoralis type*				8	24		
Poaceae	Poaceae indet. (large to medium)				13	19	11	
Poaceae	Poaceae indet. (small)							
Poaceae	*Secale* L. sp.							
Poaceae	*Setaria verticillata* (L.) P. Beauv.							
Polygonaceae	Polygonaceae indet.							
Polygonaceae	*Polygonum aviculare* L.							
Polygonaceae	*Rumex* L. sp.					13		
Primulaceae	*Anagallis* L. sp.				7	21	24	
Ranunculaceae	*Adonis* L. sp.				1			
Rubiaceae	*Asperula involucrata* Wahlenb.				2			
Rubiaceae	cf. *Crucianella* L. sp.						2	
Rubiaceae	*Galium / Asperula*							
Rubiaceae	*Galium aparine* - type						1	
Rubiaceae	*Galium* L. sp.							
Rubiaceae	*Galium spurium* - type					174	6	
Scrophulariaceae	Scrophulariaceae indet.							
Scrophulariaceae	*Verbascum* L. sp.							
Thymelaeaceae	*Thymelaea* Miller sp.							
Valerianaceae	*Valerianella dentata* (L.) Pollich							
Valerianaceae	*Valerianella vesicaria* type							
Verbenaceae	*Verbena* cf. *officinalis* L.				8			
	beetle							
	Coprolite (goat)							
	Coprolite (mouse)							
	food remains							
	indet.						4	
	nut shell							
	prickles (cf. *Prosopis farcta*)							

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP13**	**BP15**	**BP17**	**BP18**	**BP23**	**BP25**
	area	64	84/85	113/123	64	113	73
	trench	276	0	0	276	0	273
	collection/item no.	Q 419 - FS 1196	Q 515 - FS 1218	Q 557 - FS 1292	Q 576 - FS 1308	Q 697 - FS 794	Q 784 - FS 1351
	layer	C07c-09b	C12d	C03-05	C07c	C06-07	C07a
	dating	EJ IV-V	EJ IIIb	LBA	EJ V	OJ I-EJ V	EJ V
family	**taxa**						
Poaceae	*Hordeum distichon* L. (rachis)				2		4
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare* (rachis)	1			43		10
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare*, hulled	16	4	2	26	24	29
Poaceae	Triticum free-threshing tetraploid (rachis)				27		
Poaceae	*Triticum* cf. free-threshing tetraploid (rachis)						
Poaceae	Triticum free-threshing cf. tetraploid (rachis)						
Poaceae	Triticum free-threshing hexaploid/tetraploid	12			58	5	8
Poaceae	Triticum free-threshing hexapl./tetrapl. (rachis)						1
Poaceae	Triticum free-threshing h/t (terminal glume base)				4		
Poaceae	*Triticum dicoccon* Schrank		2			5	2
Poaceae	*Triticum dicoccon* Schrank (glume base)						
Poaceae	*Triticum* cf. *dicoccon* Schrank						
Poaceae	*Triticum* cf. *dicoccon* Schrank (glume base)						
Poaceae	*Triticum monococcum* L.						
Poaceae	*Triticum monococcum* L. (cf. 2-grained)						1
Poaceae	*Triticum monococcum* L. (glume base)						
Poaceae	*Triticum* cf. *monococcum* L.						
Poaceae	*Triticum* cf. *monococcum* L. (glume base)						
Poaceae	*Triticum monococcum/dicoccum*						
Poaceae	*Triticum monococcum/dicoccum* (rachis)			1			
Poaceae	Triticum hulled/free-threshing wheat						
Poaceae	*Triticum* L. sp.	6					8
Poaceae	*Triticum* L. sp. (chaff)						
Poaceae	Cerealia	10		2	49	5	25
Poaceae	Cerealia (culm nodes)				59		3
Poaceae	Cerealia (rachis)				5		
Poaceae	Cerealia (roots)						
Fabaceae	*Lens culinaris* Medik.						
Fabaceae	*Lens* Miller sp.			2	1	1	2
Fabaceae	*Lathyrus sativus / cicera*						
Fabaceae	*Pisum sativum* L.			1			
Fabaceae	*Vicia ervilia* (L.) Willd.				3		
Fabaceae	cf. *Vicia faba* L.						

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP13**	**BP15**	**BP17**	**BP18**	**BP23**	**BP25**
	area	64	84/85	113/123	64	113	73
	trench	276	0	0	276	0	273
	collection/item no.	Q 419 - FS 1196	Q 515 - FS 1218	Q 557 - FS 1292	Q 576 - FS 1308	Q 697 - FS 794	Q 784 - FS 1351
	layer	C07c-09b	C12d	C03-05	C07c	C06-07	C07a
	dating	EJ IV-V	EJ IIIb	LBA	EJ V	OJ I-EJ V	EJ V
family	**taxa**						
Fabaceae	cf. *Cicer arietinum* L.						
Fabaceae	Fabaceae sativae						2
Linaceae	*Linum* cf. *usitatissimum* L.						
Asteraceae	*Carthamus* cf. *tinctorius* L.						
Vitaceae	*Vitis vinifera* L.						
Vitaceae	*Vitis vinifera* L. (stalks)						
Moraceae	*Ficus carica* L.						
Moraceae	cf. *Ficus* L. sp., mineralized						
Apiaceae	*Ammi majus* L.						
Apiaceae	Apiaceae indet.						
Apiaceae	*Daucus carota* L.						
Apiaceae	*Torilis* - type						
Apiaceae	*Torilis leptophylla* (L.) Reichb.						
Asteraceae	*Anthemis* L. sp.						
Asteraceae	Asteraceae indet.	3					
Asteraceae	*Carduus* cf. *acanthoides* L.						
Asteraceae	*Centaurea* L. sp.	3					
Asteraceae	*Centaurea solstitialis* - type						
Asteraceae	*Cichorium* cf. *intybus* L.						
Asteraceae	*Crepis* L. sp.						
Asteraceae	*Senecio* L. sp.						
Boraginaceae	*Buglossoides tenuiflora* (L. fil.) Johnston						
Boraginaceae	cf. *Heliotropium* L. sp.						
Boraginaceae	*Heliotropium* L. sp.						
Boraginaceae	*Lithospermum arvense* L., uncarbonized						
Brassicaceae	Brassicaceae indet.				1		
Brassicaceae	*Camelina* cf. *microcarpa* Andrz.						
Brassicaceae	*Cheiranthus* - type						
Brassicaceae	*Lepidium* L. sp. (sativum?)						
Caryophyllaceae	Caryophyllaceae indet.						
Caryophyllaceae	*Silene* cf. *conica* L.						
Caryophyllaceae	*Silene* L. sp.						
Caryophyllaceae	*Silene* type 1						

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP13**	**BP15**	**BP17**	**BP18**	**BP23**	**BP25**
	area	64	84/85	113/123	64	113	73
	trench	276	0	0	276	0	273
	collection/item no.	Q 419 - FS 1196	Q 515 - FS 1218	Q 557 - FS 1292	Q 576 - FS 1308	Q 697 - FS 794	Q 784 - FS 1351
	layer	C07c-09b	C12d	C03-05	C07c	C06-07	C07a
	dating	EJ IV-V	EJ IIIb	LBA	EJ V	OJ I-EJ V	EJ V
family	**taxa**						
Caryophyllaceae	*Silene* type 2						
Caryophyllaceae	*Silene* type 3						
Caryophyllaceae	*Vaccaria* cf. *pyramidata* Medik.						
Characeae	*Chara* L. sp.						
Chenopodiaceae	Chenopodiaceae indet.						
Chenopodiaceae	Chenopodiaceae indet., endosperm						
Chenopodiaceae	*Chenopodium* L. sp.				1		
Chenopodiaceae	*Chenopodium murale* L.						
Chenopodiaceae	*Salsola* L. sp.				1		
Chen./Resedac.	*Atriplex / Reseda*						
Convolvulaceae	*Calystegia* R.Br. sp.						
Cyperaceae	*Carex* L. sp.						
Cyperaceae	Cyperaceae indet.						
Cyperaceae	Cyperaceae indet., endosperm						
Cyperaceae	*Eleocharis* R.Br. sp.						
Cyperaceae	*Scirpus* L. sp.						
Cyperaceae	*Scirpus maritimus* L.						1
Dipsacaceae	*Cephalaria* Schrader ex Roemer & Schultes sp.						
Euphorbiaceae	*Euphorbia* L. sp.						
Fabaceae	*Astragalus* L. sp.						
Fabaceae	*Coronilla* L. sp.	58		3	10		45
Fabaceae	Fabaceae indet. (large)						
Fabaceae	Fabaceae indet. (small)						
Fabaceae	*Hippocrepis* L. sp.						1
Fabaceae	*Medicago* L. sp.			1			
Fabaceae	*Melilotus* - type						
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.)						
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.), pod fragm.						
Fabaceae	*Scorpiurus* cf. *muricatus* L.						
Fabaceae	*Trifolium / Lotus*						
Fabaceae	*Trifolium* L. sp.						1
Fabaceae	*Trigonella* L. sp.						
Fabaceae	*Vicia / Lathyrus*						

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP13**	**BP15**	**BP17**	**BP18**	**BP23**	**BP25**
	area	64	84/85	113/123	64	113	73
	trench	276	0	0	276	0	273
	collection/item no.	Q 419 - FS 1196	Q 515 - FS 1218	Q 557 - FS 1292	Q 576 - FS 1308	Q 697 - FS 794	Q 784 - FS 1351
	layer	C07c-09b	C12d	C03-05	C07c	C06-07	C07a
	dating	EJ IV-V	EJ IIIb	LBA	EJ V	OJ I-EJ V	EJ V
family	**taxa**						
Fabaceae	*Vicia* L. sp.				1		
Fagaceae	*Quercus* L. sp., fruit						
Lamiaceae	*Ajuga* cf. *salicifolia* (L.) Schreber						
Lamiaceae	*Ajuga* L. sp.						
Lamiaceae	*Lallemantia* Fisch.& Mey. sp.						
Lamiaceae	Lamiaceae indet.				3		
Lamiaceae	*Teucrium / Ajuga*						
Lamiaceae	*Ziziphora* Dumort. sp.						
Liliaceae	*Ornithogalum* sp./cf. *Muscari* (*neglecta*)				1		
Malvaceae	*Malva* L. sp.				2		1
Malvaceae	Malvaceae vet. *Malva* (*Malope* - type)						
Onagraceae	*Epilobium* - type						
Papaveraceae	*Fumaria* L. sp.						
Papaveraceae	*Papaver* L. sp.						
Plantaginaceae	*Plantago* cf. *lagopus* L.						
Plantaginaceae	*Plantago* L. sp.						
Poaceae	*Aegilops* L. sp.				2	1	6
Poaceae	*Aegilops* Sec.*Vertebr.*Zhuk.e.Kiharas (gl. base)		1		3	1	
Poaceae	*Agrostis* type						
Poaceae	*Alopecurus* L. sp.						
Poaceae	*Avena* L. sp.						
Poaceae	*Bromus* L. sp.				5		
Poaceae	*Bromus sterilis* L.						
Poaceae	cf. *Catabrosa aquatica* (L.) P. Beauv.						
Poaceae	*Echinaria capitata* (L.) Desf.	4			1		
Poaceae	*Eragrostis* N.M.Wolf sp.						
Poaceae	*Eremopyrum* (Ledeb.) Jaub.& Spach sp.						
Poaceae	*Hordeum* cf. *spontaneum* Koch						
Poaceae	*Hordeum spontaneum* Koch (rachis)						
Poaceae	*Hordeum* L. sp. (wild)						
Poaceae	*Lolium* sp. (*persicum* - type)	1		1	42		1
Poaceae	*Phalaris* L. sp.	3			61		
Poaceae	*Phleum* L. sp.	1					

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP13**	**BP15**	**BP17**	**BP18**	**BP23**	**BP25**
	area	64	84/85	113/123	64	113	73
	trench	276	0	0	276	0	273
	collection/item no.	Q 419 - FS 1196	Q 515 - FS 1218	Q 557 - FS 1292	Q 576 - FS 1308	Q 697 - FS 794	Q 784 - FS 1351
	layer	C07c-09b	C12d	C03-05	C07c	C06-07	C07a
	dating	EJ IV-V	EJ IIIb	LBA	EJ V	OJ I-EJ V	EJ V
family	**taxa**						
Poaceae	*Poa nemoralis type*			4	1		2
Poaceae	Poaceae indet. (large to medium)	7			26		1
Poaceae	Poaceae indet. (small)						3
Poaceae	*Secale* L. sp.						
Poaceae	*Setaria verticillata* (L.) P. Beauv.						
Polygonaceae	Polygonaceae indet.						
Polygonaceae	*Polygonum aviculare* L.						
Polygonaceae	*Rumex* L. sp.				8		
Primulaceae	*Anagallis* L. sp.	1			5		
Ranunculaceae	*Adonis* L. sp.						
Rubiaceae	*Asperula involucrata* Wahlenb.						
Rubiaceae	cf. *Crucianella* L. sp.						
Rubiaceae	*Galium / Asperula*						
Rubiaceae	*Galium aparine* - type						
Rubiaceae	*Galium* L. sp.			1	11		
Rubiaceae	*Galium spurium* - type						
Scrophulariaceae	Scrophulariaceae indet.						
Scrophulariaceae	*Verbascum* L. sp.				71		
Thymelaeaceae	*Thymelaea* Miller sp.						
Valerianaceae	*Valerianella dentata* (L.) Pollich						
Valerianaceae	*Valerianella vesicaria* type						
Verbenaceae	*Verbena* cf. *officinalis* L.						
	beetle						
	Coprolite (goat)						
	Coprolite (mouse)						
	food remains						
	indet.	1			11		
	nut shell						
	prickles (cf. *Prosopis farcta*)						

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP27**	**BP28**	**BP29**	**BP34**	**BP42**	**BP50**
	area	73	64	73	85	74	74
	trench	273	276	271	290	0	344
	collection/item no.	Q 867 - FS 1351	Q 919 - FS 1444	Q 921 - FS 1359	Q 1065 - FS 1426	Q 1622 - FS 1711	Q 2002 - FS 1852
	layer	C07a	C10a	C07b3-09b	C13	C07	C09a
	dating	EJ V	EJ IV	EJ IV-V	EJ IIIa	EJ V	EJ IV
family	**taxa**						
Poaceae	*Hordeum distichon* L. (rachis)	2	13		1	66	33
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare* (rachis)	16	20		11	35	61
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare*, hulled	49	37	6		37	497
Poaceae	Triticum free-threshing tetraploid (rachis)	3	1			391	
Poaceae	*Triticum* cf. free-threshing tetraploid (rachis)					14	
Poaceae	Triticum free-threshing cf. tetraploid (rachis)					223	
Poaceae	Triticum free-threshing hexaploid/tetraploid	11			2	57	41
Poaceae	Triticum free-threshing hexapl./tetrapl. (rachis)	5				29	25
Poaceae	Triticum free-threshing h/t (terminal glume base)					27	
Poaceae	*Triticum dicoccon* Schrank	1		3	2		13
Poaceae	*Triticum dicoccon* Schrank (glume base)			2			29
Poaceae	*Triticum* cf. *dicoccon* Schrank		1		5		5
Poaceae	*Triticum* cf. *dicoccon* Schrank (glume base)		2	2			
Poaceae	*Triticum monococcum* L.						4
Poaceae	*Triticum monococcum* L. (cf. 2-grained)						5
Poaceae	*Triticum monococcum* L. (glume base)						
Poaceae	*Triticum* cf. *monococcum* L.				1		
Poaceae	*Triticum* cf. *monococcum* L. (glume base)						
Poaceae	*Triticum monococcum/dicoccum*						2
Poaceae	*Triticum monococcum/dicoccum* (rachis)						
Poaceae	Triticum hulled/free-threshing wheat						10
Poaceae	*Triticum* L. sp.		2	10	11	19	43
Poaceae	*Triticum* L. sp. (chaff)						
Poaceae	Cerealia	21	18	15	6	50	115
Poaceae	Cerealia (culm nodes)		1			72	25
Poaceae	Cerealia (rachis)				3	106	17
Poaceae	Cerealia (roots)					24	
Fabaceae	*Lens culinaris* Medik.	3	2				4
Fabaceae	*Lens* Miller sp.	1					
Fabaceae	*Lathyrus sativus / cicera*	2			1	1	
Fabaceae	*Pisum sativum* L.	1	1	1			1
Fabaceae	*Vicia ervilia* (L.) Willd.	1					
Fabaceae	cf. *Vicia faba* L.						

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP27**	**BP28**	**BP29**	**BP34**	**BP42**	**BP50**
	area	73	64	73	85	74	74
	trench	273	276	271	290	0	344
	collection/item no.	Q 867 - FS 1351	Q 919 - FS 1444	Q 921 - FS 1359	Q 1065 - FS 1426	Q 1622 - FS 1711	Q 2002 - FS 1852
	layer	C07a	C10a	C07b3-09b	C13	C07	C09a
	dating	EJ V	EJ IV	EJ IV-V	EJ IIIa	EJ V	EJ IV
family	**taxa**						
Fabaceae	cf. *Cicer arietinum* L.						
Fabaceae	Fabaceae sativae						
Linaceae	*Linum* cf. *usitatissimum* L.						
Asteraceae	*Carthamus* cf. *tinctorius* L.						
Vitaceae	*Vitis vinifera* L.						
Vitaceae	*Vitis vinifera* L. (stalks)						
Moraceae	*Ficus carica* L.						
Moraceae	cf. *Ficus* L. sp., mineralized						
Apiaceae	*Ammi majus* L.					2	2
Apiaceae	Apiaceae indet.		3	1		3	2
Apiaceae	*Daucus carota* L.						2
Apiaceae	*Torilis* - type					1	
Apiaceae	*Torilis leptophylla* (L.) Reichb.						29
Asteraceae	*Anthemis* L. sp.						
Asteraceae	Asteraceae indet.						
Asteraceae	*Carduus* cf. *acanthoides* L.						
Asteraceae	*Centaurea* L. sp.				1	2	75
Asteraceae	*Centaurea solstitialis* - type					27	14
Asteraceae	*Cichorium* cf. *intybus* L.						
Asteraceae	*Crepis* L. sp.						
Asteraceae	*Senecio* L. sp.						
Boraginaceae	*Buglossoides tenuiflora* (L. fil.) Johnston						
Boraginaceae	cf. *Heliotropium* L. sp.						
Boraginaceae	*Heliotropium* L. sp.						
Boraginaceae	*Lithospermum arvense* L., uncarbonized						
Brassicaceae	Brassicaceae indet.	3	1				
Brassicaceae	*Camelina* cf. *microcarpa* Andrz.						
Brassicaceae	*Cheiranthus* - type						
Brassicaceae	*Lepidium* L. sp. (sativum?)						
Caryophyllaceae	Caryophyllaceae indet.				1		
Caryophyllaceae	*Silene* cf. *conica* L.						
Caryophyllaceae	*Silene* L. sp.						4
Caryophyllaceae	*Silene* type 1						

	year of excavation	MZ 01 C2	MZ 01 C2	MZ 01 C2	MZ 01 C2	MZ 01 C2	MZ 01 C2
	botanical sample no.	**BP27**	**BP28**	**BP29**	**BP34**	**BP42**	**BP50**
	area	73	64	73	85	74	74
	trench	273	276	271	290	0	344
	collection/item no.	Q 867 - FS 1351	Q 919 - FS 1444	Q 921 - FS 1359	Q 1065 - FS 1426	Q 1622 - FS 1711	Q 2002 - FS 1852
	layer	C07a	C10a	C07b3-09b	C13	C07	C09a
	dating	EJ V	EJ IV	EJ IV-V	EJ IIIa	EJ V	EJ IV
family	**taxa**						
Caryophyllaceae	*Silene* type 2						2
Caryophyllaceae	*Silene* type 3						
Caryophyllaceae	*Vaccaria* cf. *pyramidata* Medik.						6
Characeae	*Chara* L. sp.						
Chenopodiaceae	Chenopodiaceae indet.			1			
Chenopodiaceae	Chenopodiaceae indet., endosperm						
Chenopodiaceae	*Chenopodium* L. sp.	1					6
Chenopodiaceae	*Chenopodium murale* L.						
Chenopodiaceae	*Salsola* L. sp.						
Chen./Resedac.	*Atriplex / Reseda*						
Convolvulaceae	*Calystegia* R.Br. sp.					1	1
Cyperaceae	*Carex* L. sp.		1				
Cyperaceae	Cyperaceae indet.						
Cyperaceae	Cyperaceae indet., endosperm						
Cyperaceae	*Eleocharis* R.Br. sp.						
Cyperaceae	*Scirpus* L. sp.						
Cyperaceae	*Scirpus maritimus* L.	1					1
Dipsacaceae	*Cephalaria* Schrader ex Roemer & Schultes sp.						5
Euphorbiaceae	*Euphorbia* L. sp.						
Fabaceae	*Astragalus* L. sp.						
Fabaceae	*Coronilla* L. sp.	60	97	4	13	142	59
Fabaceae	Fabaceae indet. (large)		1	1			1
Fabaceae	Fabaceae indet. (small)		4		1	4	
Fabaceae	*Hippocrepis* L. sp.						
Fabaceae	*Medicago* L. sp.				1		
Fabaceae	*Melilotus* - type						
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.)						
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.), pod fragm.						
Fabaceae	*Scorpiurus* cf. *muricatus* L.						
Fabaceae	*Trifolium / Lotus*						
Fabaceae	*Trifolium* L. sp.						
Fabaceae	*Trigonella* L. sp.						
Fabaceae	*Vicia / Lathyrus*						

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP27**	**BP28**	**BP29**	**BP34**	**BP42**	**BP50**
	area	73	64	73	85	74	74
	trench	273	276	271	290	0	344
	collection/item no.	Q 867 - FS 1351	Q 919 - FS 1444	Q 921 - FS 1359	Q 1065 - FS 1426	Q 1622 - FS 1711	Q 2002 - FS 1852
	layer	C07a	C10a	C07b3-09b	C13	C07	C09a
	dating	EJ V	EJ IV	EJ IV-V	EJ IIIa	EJ V	EJ IV
family	**taxa**						
Fabaceae	*Vicia* L. sp.						2
Fagaceae	*Quercus* L. sp., fruit						
Lamiaceae	*Ajuga* cf. *salicifolia* (L.) Schreber					4	
Lamiaceae	*Ajuga* L. sp.						2
Lamiaceae	*Lallemantia* Fisch.& Mey. sp.						1
Lamiaceae	Lamiaceae indet.		1				
Lamiaceae	*Teucrium / Ajuga*	2					
Lamiaceae	*Ziziphora* Dumort. sp.						
Liliaceae	*Ornithogalum* sp./cf. *Muscari* (*neglecta*)			1			4
Malvaceae	*Malva* L. sp.					1	3
Malvaceae	Malvaceae vet. *Malva* (*Malope* - type)						
Onagraceae	*Epilobium* - type						
Papaveraceae	*Fumaria* L. sp.					1	
Papaveraceae	*Papaver* L. sp.						
Plantaginaceae	*Plantago* cf. *lagopus* L.						
Plantaginaceae	*Plantago* L. sp.						
Poaceae	*Aegilops* L. sp.	2	41	2	6	4	837
Poaceae	*Aegilops* Sec.*Vertebr.*Zhuk.e.Kiharas (gl. base)		6	2		3	132
Poaceae	*Agrostis* type						3
Poaceae	*Alopecurus* L. sp.						
Poaceae	*Avena* L. sp.						6
Poaceae	*Bromus* L. sp.		2	1		2	11
Poaceae	*Bromus sterilis* L.						6
Poaceae	cf. *Catabrosa aquatica* (L.) P. Beauv.						1
Poaceae	*Echinaria capitata* (L.) Desf.	1	4			17	4
Poaceae	*Eragrostis* N.M.Wolf sp.		2				
Poaceae	*Eremopyrum* (Ledeb.) Jaub.& Spach sp.						4
Poaceae	*Hordeum* cf. *spontaneum* Koch						35
Poaceae	*Hordeum spontaneum* Koch (rachis)						
Poaceae	*Hordeum* L. sp. (wild)	3			1		10
Poaceae	*Lolium* sp. (*persicum* - type)	2	17	3	4	1	55
Poaceae	*Phalaris* L. sp.	3	1				1
Poaceae	*Phleum* L. sp.						

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP27**	**BP28**	**BP29**	**BP34**	**BP42**	**BP50**
	area	73	64	73	85	74	74
	trench	273	276	271	290	0	344
	collection/item no.	Q 867 - FS 1351	Q 919 - FS 1444	Q 921 - FS 1359	Q 1065 - FS 1426	Q 1622 - FS 1711	Q 2002 - FS 1852
	layer	C07a	C10a	C07b3-09b	C13	C07	C09a
	dating	EJ V	EJ IV	EJ IV-V	EJ IIIa	EJ V	EJ IV
family	**taxa**						
Poaceae	*Poa nemoralis type*	2	10			6	107
Poaceae	Poaceae indet. (large to medium)	9	12	6	3	5	64
Poaceae	Poaceae indet. (small)			1		6	2
Poaceae	*Secale* L. sp.						
Poaceae	*Setaria verticillata* (L.) P. Beauv.						
Polygonaceae	Polygonaceae indet.						
Polygonaceae	*Polygonum aviculare* L.						
Polygonaceae	*Rumex* L. sp.						2
Primulaceae	*Anagallis* L. sp.	1					1
Ranunculaceae	*Adonis* L. sp.	2					5
Rubiaceae	*Asperula involucrata* Wahlenb.					1	2
Rubiaceae	cf. *Crucianella* L. sp.						
Rubiaceae	*Galium / Asperula*						
Rubiaceae	*Galium aparine* - type						7
Rubiaceae	*Galium* L. sp.		1	1	2		
Rubiaceae	*Galium spurium* - type						63
Scrophulariaceae	Scrophulariaceae indet.						
Scrophulariaceae	*Verbascum* L. sp.						10
Thymelaeaceae	*Thymelaea* Miller sp.						
Valerianaceae	*Valerianella dentata* (L.) Pollich						2
Valerianaceae	*Valerianella vesicaria* type					1	
Verbenaceae	*Verbena* cf. *officinalis* L.						
	beetle						
	Coprolite (goat)						
	Coprolite (mouse)	1					
	food remains						
	indet.		2	2	1	8	12
	nut shell	1					
	prickles (cf. *Prosopis farcta*)						

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP51**	**BP69**	**BP81**
	area	75	75/85	85
	trench	262	-	250
	collection/item no.	Q 2066 - FS 1315	Q 2629 - FS 1988	Q 978 - FS 1426
	layer	C13-C14	C07-C13	C13
	dating	EJ IIIa	EJ IIIa-V	EJ IIIa
family	**taxa**			
Poaceae	*Hordeum distichon* L. (rachis)	5		
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare* (rachis)	13		
Poaceae	*Hordeum vulgare* convar. *distichon/vulgare*, hulled	75		
Poaceae	Triticum free-threshing tetraploid (rachis)			
Poaceae	*Triticum* cf. free-threshing tetraploid (rachis)			
Poaceae	Triticum free-threshing cf. tetraploid (rachis)	2		
Poaceae	Triticum free-threshing hexaploid/tetraploid	12		
Poaceae	Triticum free-threshing hexapl./tetrapl. (rachis)	2		
Poaceae	Triticum free-threshing h/t (terminal glume base)			
Poaceae	*Triticum dicoccon* Schrank	15		
Poaceae	*Triticum dicoccon* Schrank (glume base)	5		
Poaceae	*Triticum* cf. *dicoccon* Schrank			
Poaceae	*Triticum* cf. *dicoccon* Schrank (glume base)			
Poaceae	*Triticum monococcum* L.			
Poaceae	*Triticum monococcum* L. (cf. 2-grained)			
Poaceae	*Triticum monococcum* L. (glume base)			
Poaceae	*Triticum* cf. *monococcum* L.			
Poaceae	*Triticum* cf. *monococcum* L. (glume base)			
Poaceae	*Triticum monococcum/dicoccum*			
Poaceae	*Triticum monococcum/dicoccum* (rachis)			
Poaceae	Triticum hulled/free-threshing wheat			
Poaceae	*Triticum* L. sp.	5		
Poaceae	*Triticum* L. sp. (chaff)			
Poaceae	Cerealia	42		
Poaceae	Cerealia (culm nodes)	9		
Poaceae	Cerealia (rachis)			
Poaceae	Cerealia (roots)	1		
Fabaceae	*Lens culinaris* Medik.	6		
Fabaceae	*Lens* Miller sp.			
Fabaceae	*Lathyrus sativus / cicera*	1		
Fabaceae	*Pisum sativum* L.	1		
Fabaceae	*Vicia ervilia* (L.) Willd.			
Fabaceae	cf. *Vicia faba* L.			

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP51**	**BP69**	**BP81**
	area	75	75/85	85
	trench	262	-	250
	collection/item no.	Q 2066 - FS 1315	Q 2629 - FS 1988	Q 978 - FS 1426
	layer	C13-C14	C07-C13	C13
	dating	EJ IIIa	EJ IIIa-V	EJ IIIa
family	**taxa**			
Fabaceae	cf. *Cicer arietinum* L.			
Fabaceae	Fabaceae sativae			
Linaceae	*Linum* cf. *usitatissimum* L.			
Asteraceae	*Carthamus* cf. *tinctorius* L.			
Vitaceae	*Vitis vinifera* L.	1		
Vitaceae	*Vitis vinifera* L. (stalks)			
Moraceae	*Ficus carica* L.	2		
Moraceae	cf. *Ficus* L. sp., mineralized			
Apiaceae	*Ammi majus* L.			
Apiaceae	Apiaceae indet.			
Apiaceae	*Daucus carota* L.			
Apiaceae	*Torilis* - type			
Apiaceae	*Torilis leptophylla* (L.) Reichb.			
Asteraceae	*Anthemis* L. sp.			
Asteraceae	Asteraceae indet.			
Asteraceae	*Carduus* cf. *acanthoides* L.			
Asteraceae	*Centaurea* L. sp.			
Asteraceae	*Centaurea solstitialis* - type			
Asteraceae	*Cichorium* cf. *intybus* L.			
Asteraceae	*Crepis* L. sp.			
Asteraceae	*Senecio* L. sp.			
Boraginaceae	*Buglossoides tenuiflora* (L. fil.) Johnston			
Boraginaceae	cf. *Heliotropium* L. sp.			
Boraginaceae	*Heliotropium* L. sp.			
Boraginaceae	*Lithospermum arvense* L., uncarbonized			
Brassicaceae	Brassicaceae indet.			
Brassicaceae	*Camelina* cf. *microcarpa* Andrz.			
Brassicaceae	*Cheiranthus* - type			
Brassicaceae	*Lepidium* L. sp. (sativum?)			
Caryophyllaceae	Caryophyllaceae indet.			
Caryophyllaceae	*Silene* cf. *conica* L.			
Caryophyllaceae	*Silene* L. sp.	3		
Caryophyllaceae	*Silene* type 1			

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP51**	**BP69**	**BP81**
	area	75	75/85	85
	trench	262	-	250
	collection/item no.	Q 2066 - FS 1315	Q 2629 - FS 1988	Q 978 - FS 1426
	layer	C13-C14	C07-C13	C13
	dating	EJ IIIa	EJ IIIa-V	EJ IIIa
family	**taxa**			
Caryophyllaceae	*Silene* type 2			
Caryophyllaceae	*Silene* type 3	2		
Caryophyllaceae	*Vaccaria* cf. *pyramidata* Medik.	5		
Characeae	*Chara* L. sp.			
Chenopodiaceae	Chenopodiaceae indet.			
Chenopodiaceae	Chenopodiaceae indet., endosperm			
Chenopodiaceae	*Chenopodium* L. sp.			
Chenopodiaceae	*Chenopodium murale* L.			
Chenopodiaceae	*Salsola* L. sp.			
Chen./Resedac.	*Atriplex / Reseda*			
Convolvulaceae	*Calystegia* R.Br. sp.			
Cyperaceae	*Carex* L. sp.			
Cyperaceae	Cyperaceae indet.			
Cyperaceae	Cyperaceae indet., endosperm			
Cyperaceae	*Eleocharis* R.Br. sp.			
Cyperaceae	*Scirpus* L. sp.			
Cyperaceae	*Scirpus maritimus* L.	3		1
Dipsacaceae	*Cephalaria* Schrader ex Roemer & Schultes sp.			
Euphorbiaceae	*Euphorbia* L. sp.			
Fabaceae	*Astragalus* L. sp.			
Fabaceae	*Coronilla* L. sp.	19		
Fabaceae	Fabaceae indet. (large)			
Fabaceae	Fabaceae indet. (small)	1		
Fabaceae	*Hippocrepis* L. sp.			
Fabaceae	*Medicago* L. sp.			
Fabaceae	*Melilotus* - type			
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.)	7		
Fabaceae	*Prosopis* cf. *farcta* (Banks & Sol.), pod fragm.			
Fabaceae	*Scorpiurus* cf. *muricatus* L.			
Fabaceae	*Trifolium / Lotus*			
Fabaceae	*Trifolium* L. sp.			
Fabaceae	*Trigonella* L. sp.	1		
Fabaceae	*Vicia / Lathyrus*	2		

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP51**	**BP69**	**BP81**
	area	75	75/85	85
	trench	262	-	250
	collection/item no.	Q 2066 - FS 1315	Q 2629 - FS 1988	Q 978 - FS 1426
	layer	C13-C14	C07-C13	C13
	dating	EJ IIIa	EJ IIIa-V	EJ IIIa
family	**taxa**			
Fabaceae	*Vicia* L. sp.			
Fagaceae	*Quercus* L. sp., fruit		1	
Lamiaceae	*Ajuga* cf. *salicifolia* (L.) Schreber			
Lamiaceae	*Ajuga* L. sp.			
Lamiaceae	*Lallemantia* Fisch.& Mey. sp.			
Lamiaceae	Lamiaceae indet.			
Lamiaceae	*Teucrium / Ajuga*	1		
Lamiaceae	*Ziziphora* Dumort. sp.			
Liliaceae	*Ornithogalum* sp./cf. *Muscari* (*neglecta*)			
Malvaceae	*Malva* L. sp.			
Malvaceae	Malvaceae vet. *Malva* (*Malope* - type)	2		
Onagraceae	*Epilobium* - type			
Papaveraceae	*Fumaria* L. sp.			
Papaveraceae	*Papaver* L. sp.			
Plantaginaceae	*Plantago* cf. *lagopus* L.			
Plantaginaceae	*Plantago* L. sp.			
Poaceae	*Aegilops* L. sp.	6		
Poaceae	*Aegilops* Sec.*Vertebr.*Zhuk.e.Kiharas (gl. base)	2		
Poaceae	*Agrostis* type			
Poaceae	*Alopecurus* L. sp.			
Poaceae	*Avena* L. sp.			
Poaceae	*Bromus* L. sp.			
Poaceae	*Bromus sterilis* L.			
Poaceae	cf. *Catabrosa aquatica* (L.) P. Beauv.			
Poaceae	*Echinaria capitata* (L.) Desf.			
Poaceae	*Eragrostis* N.M.Wolf sp.			
Poaceae	*Eremopyrum* (Ledeb.) Jaub.& Spach sp.			
Poaceae	*Hordeum* cf. *spontaneum* Koch			
Poaceae	*Hordeum spontaneum* Koch (rachis)			
Poaceae				
Poaceae	*Lolium* sp. (*persicum* - type)	20		
Poaceae	*Phalaris* L. sp.			
Poaceae	*Phleum* L. sp.			

	year of excavation	**MZ 01 C2**	**MZ 01 C2**	**MZ 01 C2**
	botanical sample no.	**BP51**	**BP69**	**BP81**
	area	75	75/85	85
	trench	262	-	250
	collection/item no.	Q 2066 - FS 1315	Q 2629 - FS 1988	Q 978 - FS 1426
	layer	C13-C14	C07-C13	C13
	dating	EJ IIIa	EJ IIIa-V	EJ IIIa
family	**taxa**			
Poaceae	*Poa nemoralis type*	220		
Poaceae	Poaceae indet. (large to medium)	16		
Poaceae	Poaceae indet. (small)			
Poaceae	*Secale* L. sp.			
Poaceae	*Setaria verticillata* (L.) P. Beauv.			
Polygonaceae	Polygonaceae indet.			
Polygonaceae	*Polygonum aviculare* L.			
Polygonaceae	*Rumex* L. sp.	1		
Primulaceae	*Anagallis* L. sp.			
Ranunculaceae	*Adonis* L. sp.	1		
Rubiaceae	*Asperula involucrata* Wahlenb.			
Rubiaceae	cf. *Crucianella* L. sp.			
Rubiaceae	*Galium / Asperula*			
Rubiaceae	*Galium aparine* - type	2		
Rubiaceae	*Galium* L. sp.			
Rubiaceae	*Galium spurium* - type	21		
Scrophulariaceae	Scrophulariaceae indet.			
Scrophulariaceae	*Verbascum* L. sp.			
Thymelaeaceae	*Thymelaea* Miller sp.			
Valerianaceae	*Valerianella dentata* (L.) Pollich			
Valerianaceae	*Valerianella vesicaria* type			
Verbenaceae	*Verbena* cf. *officinalis* L.			
	beetle			
	Coprolite (goat)			
	Coprolite (mouse)	3		
	food remains			
	indet.	7		
	nut shell			
	prickles (cf. *Prosopis farcta*)	4		

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Herausgegeben von Peter Pfälzner

Serie A

Ausgrabungen 1998–2001 in der Zentralen Oberstadt von Tall Mozan / Urkeš

Herausgegeben von Peter Pfälzner

in Verbindung mit der Deutschen Orient-Gesellschaft
und der Deutschen Forschungsgemeinschaft

und in Kooperation mit M. Kelly-Buccellati und G. Buccellati
(The International Institute for Mesopotamian Area Studies)

Band 3

2010
Harrassowitz Verlag · Wiesbaden

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Peter Pfälzner and Simone Riehl

Development of the Environment, Subsistence and Settlement of the City of Urkeš and its Region

2010
Harrassowitz Verlag · Wiesbaden

Gedruckt mit Unterstützung der Deutschen Forschungsgemeinschaft.

Einbandgestaltung: Christiane Hemmerich Konzeption und Gestaltung, Tübingen
www.hemmerich.de

Bibliografische Information der Deutschen Nationalbibliothek
Die Deutsche Nationalbibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über http://dnb.d-nb.de abrufbar.

Bibliographic information published by the Deutsche Nationalbibliothek
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the internet at http://dnb.d-nb.de.

For further information about our publishing program consult our website http://www.harrassowitz-verlag.de

Printed on permanent/durable paper.
Layout and Typesetting: Alice Bianchi und Anne Wissing, Tübingen.
Printing and binding: Memminger MedienCentrum AG
Printed in Germany
ISSN 1869-666X
ISBN 978-3-447-06386-9

Inhalt