Veget Hist Archaeobot (2008) 17 (Suppl 1):S139–S148
DOI 10.1007/s00334-008-0171-9

ORIGINAL ARTICLE

Plant remains from the early Iron Age in western Sicily: differences in subsistence strategies of Greek and Elymian sites

Hans-Peter Stika · Andreas G. Heiss · Barbara Zach

Received: 21 November 2007 / Accepted: 14 April 2008 / Published online: 9 August 2008

Abstract For the early Iron Age Elymian town on Monte Polizzo, inland western Sicily, hulled barley was the dominant cereal, followed by emmer and free-threshing wheat. The dominant legume was *Vicia faba*. In the contemporary Greek harbour town of Selinunte on the southern coast of western Sicily, free-threshing wheat was dominant, while hulled barley and the legume *V. ervilia* were subdominant. For Selinunte, an import of cereals from the Elymians is suggested. The investigated area around the *agora* (marketplace) yielded a processed cereal product and edible fruit as the predominantly consumed plant-based food in Selinunte. Its hinterland most probably provided space for large-scale maintenance of horses and oxen as well as for stock breeding for consumption. At "House 1" on Monte Polizzo, the archaeobotanical record matches well with the archaeological interpretation of different rooms used for ritual consumption, everyday life, crop processing and crop storage. During feasts in the style of Greek symposia, grapes and figs were consumed. The Elymians most probably adopted olive cultivation quite late. The charcoal analyses, mainly of roof beams from Monte Polizzo residential contexts, point to a sufficient availability of undisturbed natural climax woodland for timberwork.

Keywords Early Iron Age · Sicily · Plant macrofossils · Ritual feasting · Human impact

Communicated by C.C. Bakels.

Electronic supplementary material The online version of this article (doi:10.1007/s00334-008-0171-9) contains supplementary material, which is available to authorized users.

H.-P. Stika (✉)
Institut für Botanik, Universität Hohenheim,
70593 Stuttgart, Germany
e-mail: stika@uni-hohenheim.de

A. G. Heiss
Vienna Institute for Archaeological Science (VIAS),
Universität Wien, Althanstr. 14 (Geozentrum), 1090
Vienna, Austria

B. Zach
Weidachring 4, 86975 Bernbeuren, Germany

Introduction

In early Iron Age Sicily, indigenous Sicilian peoples as well as Greek and Punic colonies interacted in various ways. Numerous reports on the political and economical implications of these interdependencies have already been given by archaeologists and historians (amongst others, cited in Leighton 1999; De Angelis 2006). The relationships between these groups must have been complex and varied. In archaeological contexts of the Archaic period, numerous finds of Greek imports in Elymian sites suggest that in western Sicily indigenous peoples adopted Greek, not Phoenician, cultural traditions in the 7th/6th century B.C. This is mainly interpreted as a "hellenisation" (Leighton 1999, pp. 220, 232). As an alternative term, "transculturation" was suggested for these mutual cultural interactions (Streiffert Eikeland 2006, pp. 17–26) to contrast them with the coastal areas surrounding the Greek towns in Sicily, where the term "colonisation" indeed fits well. Spatial distances between different ethnic groups were so small that in western Sicily, when looking out from the indigenous Elymian site of Monte Polizzo, the Greek harbour town of Selinunte in the south as well as the Phoenician colony Motya on an island in the west and the Elymian town of Segesta in the north were all within view.

Ancient writers give numerous hints facilitating archaeobotanical interpretations: Theophrastus praised the high quality of Selinountine wheat, pointing to a lively trade in this agricultural product of obviously widespread fame. Selinountine tetradrachms from the 5th century B.C. display ears of grain as iconographic evidence of the economic importance of cereals (cited in De Angelis 2003, p. 186). The term used by Sicilian Greeks to denominate the indigenous peoples of western Sicily was *Elymoi*, derived from the word for millet (ελυμος), and thus interpreted as "millet eaters" (cited in De Angelis 2006, p. 31f). But are these statements from written sources telling us the whole story? Are they true at all? The results of the archaeobotanical investigations might answer these questions.

The sites

The main Elymian site under archaeobotanical investigation was the proto-urban Elymian hilltop settlement of Monte Polizzo, a mountain of 725.9 m a.s.l. situated ca. 6 km northwest of Salemi (Comune di Salemi, Prov. Trapani), inland in the centre of westernmost Sicily (Fig. 1). The main occupation period on Monte Polizzo dates to ca. 700–525 B.C. Afterwards, the main local Elymian settlement was relocated to the old town area of nearby modern Salemi. At Monte Polizzo, terracing around 625 B.C. destroyed most traces of the 7th century village on the summit, where a sanctuary was then established, with a series of shrines, altars and ritual deposits (latest report, Morris et al. 2005). Burnt sacrifices took place on a rectangular altar and led to three deposits of residues consisting of ash layers containing more than 20,000 fragments of red deer antlers. After the settlement had been abandoned at around 525 B.C., the sanctuary continued attracting worshippers until ca. 350–300 B.C. as indicated by finds that included Punic bronze coins and a small Punic stele (standing block). The excavations on the summit [see Fig. 3 in electronic supplementary material (ESM)] include the sanctuary (excavation unit: "Acropolis A") as well as residence areas ("Acropolis B", "C", "D") and were directed by I. Morris from Stanford University. On the northern slope lies a massive midden, containing layers dating to ca. 675–525 B.C. It was jointly excavated by the Stanford team ("Acropolis E") and a Scandinavian team from the universities of Oslo and Göteborg (excavation unit: "Profile"). For further details about the excavation units, see ESM.

The Sicilian Greek harbour town of Selinunte (*Selinous*) is the westernmost Greek town on the southern coast of Sicily. During the last two decades, excavations by the German Archaeological Institute in Rome were carried out on the *agora* on Manuzza hill (latest report, Mertens 2003). Around the public square, rows of shops were arranged with living areas in their rear buildings. The excavated area yielded structures from the late seventh to the 3rd century B.C. (De Angelis 2003, pp. 129–144). According to Leighton (1999), Selinunte was founded in 628 B.C. In the battle against its former ally Carthage in 409 B.C., the town was nearly completely destroyed, then partially rebuilt under Punic rule. In the course of the first Punic war, Selinunte was finally abandoned in 250 B.C.

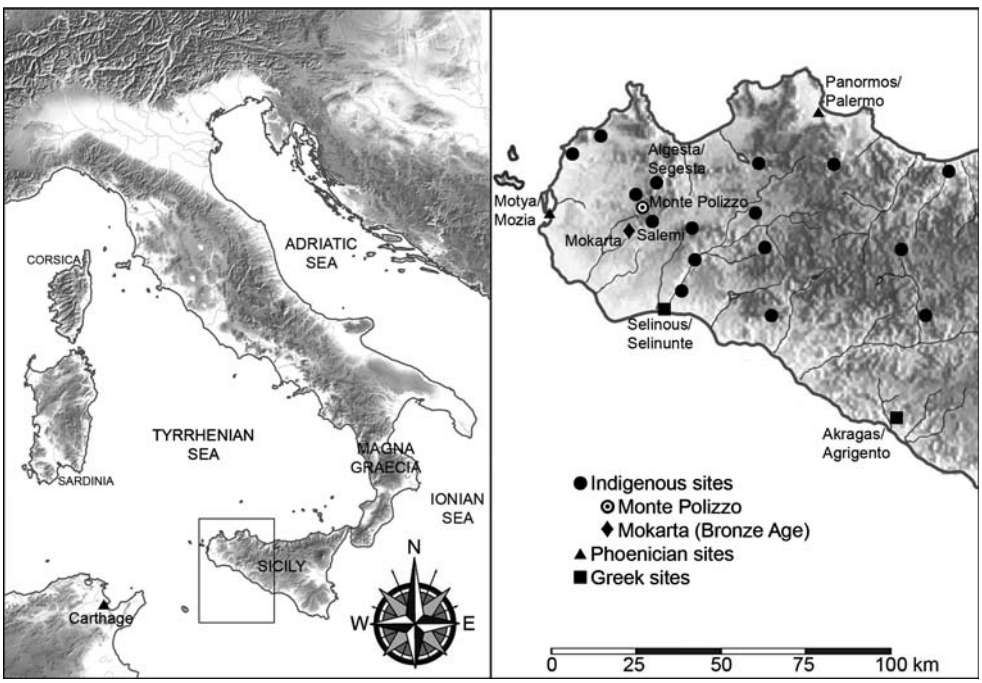

Fig. 1 Investigated area. The sites included in this study as well as important late Iron Age settlements in western Sicily are indicated. Map sources: LaFleur et al. (2001), Morris et al. (2004, p. 247), both modified

The environmental settings of the Monte Polizzo area and the hinterland of Selinunte differ strongly (for further information on the modern vegetation on Monte Polizzo, see Fig. 3, Table 3 in ESM). Selinunte is located on the southern coast of Sicily with two natural bays forming a peninsula. These had originally served as harbours to the ancient town, but later they became completely silted up. Inland, a Triassic limestone plateau dominates the local geology (De Angelis 2003, pp. 180–183). The bedrock of Monte Polizzo, on the other hand, is mainly built of sedimentary rock types such as conglomerates of the Terravecchia Formation, associated with evaporites, limestones, carbonate-bearing mudstones, siltstones, and sandstones (Mahood 2005). Concerning soil quality, the valleys surrounding Monte Polizzo have ample and deeply developed fertile soils (French et al. 2008) while in the hinterland of Selinunte the soils are less favourable, as is also observable in today's agriculture in both areas. The annual rainfall for the decade 1931–1940 for Mazara del Vallo (close to Selinunte) was on average 485.5 mm (min. 363, max. 573 mm), while Salemi's average for the same decade was 809.4 mm (min. 612, max. 1,071 mm) (Pollastri 1948–1949, cited in De Angelis 2003, p. 182). In Sicily, 95% of the annual precipitation falls between October and March. To sum it up, the environmental conditions for agriculture around Monte Polizzo are noticeably better than in the hinterland of Selinunte (for further details on environmental conditions, see De Angelis 2003, pp. 180–183).

Materials and methods

From the early Iron Age site of Selinunte (*Selinous*), 80 samples with a total volume of 483 l have already been analysed, as given in Table 1. All these samples derive from the excavation on Manuzza hill, in the public centre of Selinunte where a complex stratigraphy has been formed around the *agora* starting with Archaic contexts and continuing until the late Corinthian period (Mertens 2003). Samples were taken both from the public shopping area around the *agora* and from the attached residential areas. Burnt layers from ovens and hearths were sampled, as well as floor layers, vessel contents, and the sediments from a cistern (which unfortunately did not provide waterlogged preservation conditions).

Archaeobotanical investigations at Iron Age "House 1" on Monte Polizzo followed a strict sampling strategy. Statistical samples of 5 l each were taken from the different archaeological layers along a grid (at first 30 × 30 cm, later 1 × 1 m). In addition, samples were taken from special contexts, such as charcoal concentrations, special features (hearths, etc.) and contents of amphorae and other vessels. Documentation of botanical samples followed the archaeological guidelines (Prescott 2004; Mühlenbock and Prescott 2004a, 2004b) in the GIS based data base "Intrasis" from the Swedish National Heritage Board (Johansson and Prescott 2004; Lund 2004). A total of 125 samples were taken from "House 1" for a detailed comparison with the archaeological results. Archaeologically, six rooms (rooms 1–6) were postulated where finds and structures suggested different functions and uses (see Fig. 2 as well as "Discussion").

Charcoal samples have only been analysed from the Iron Age Monte Polizzo sites so far. The sample material originated, on the one hand, from 22 soil samples from "House 1". These were taken according to the sampling strategy applied there (see above), and were then subsampled for charcoal material. Another set of 11 samples included single finds of carbonised objects, more precisely roof beams (from "Saggio S", and "Acropolis A", "C", and "E", see Fig. 3 in ESM).

Nomenclature mainly follows the *Flora d'Italia* (Pignatti 1982), and additional data on the natural Sicilian flora originates from Tornabene (1973).

For details of other excavation units, sample processing and the methods of analysis, see the ESM text.

Results

The archaeobotanical results from Selinunte are listed in Table 1 (for wild plant finds, see Table 4 ESM). The main finds in number are fragments of residues most probably deriving from processed food (labelled as "porridge/bread"). The main part of the identifiable plant remains are cereals, with *Triticum aestivum/durum* (free-threshing wheat, Fig. 4a,b in ESM) dominating. Subdominant are finds of a multi-rowed variety of *Hordeum vulgare* (hulled barley). *Triticum dicoccum* (emmer) and *Secale cereale* (rye) are represented by single finds only. The rye grain is thus interpreted as being a weed rather than a crop. Non-cereal finds are approximately of the same frequency and number as the residues of cereals. Remains of the cultivated fruits *Ficus carica* (fig) and *Vitis vinifera* (grapevine, Fig. 4d in ESM) are both quite common, closely followed by seeds of *Vicia ervilia* (bitter vetch, Fig. 4c in ESM). Several fragments of fruits and fruit stones of *Olea europaea* (olive) show the use of this fruit in Selinunte, and not just of the olive oil, as also indicated by special amphorae (Mertens 2003). The number of finds of wild plants is rather low. Only a few grass taxa (*Avena, Lolium*, and *Phalaris*) and other common weeds (*Chenopodium album*, *Galium aparine/tricornutum*, *Malva* sp., *Medicago* sp., *Sherardia arvensis* and *Scandix pecten-veneris*) were found.

The samples from early Iron Age Monte Polizzo were very poor in archaeobotanical finds (Table 1; Table 4

Table 1 Remains of crops and gathered plants from the western Sicily sites Mokarta, Monte Polizzo, Salemi and Selinunte

Site			Selinunte	Monte Polizzo	Salemi	Mokarta	Mokarta	Monte Polizzo	Detail: Monte Polizzo, House 1
Period			Archaic-Corinthian	Early Iron Age	Early Iron Age	Late Bronze Age	Medieval	Medieval	Early Iron Age
			Late 7th–3rd c. B.C.	Late 7th–6th c. B.C.	5th/4th c. B.C.	12th c. B.C.	12th/13th c. A.D.	11th/early 12th c. A.D.	6th c. B.C.
Number of samples			80	255	13	10	1	8	84
Total sample volume (l)			483	1,481	15	50	11	71	353
Cultivated and gathered plants									
Cereals									
Hordeum vulgare	Grains	c	14	175	2	32	2	6	9
H. vulgare	Grain frags.	c	–	3	–	–	–	–	–
H. vulgare	Chaff	c	–	4	–	–	–	–	–
H. vulgare "hulled barley"	Grains	c	16	5	–	–	–	5	–
Secale cereale	Grain	c	1	–	–	–	–	–	–
S. cereale	Grain frag.	c	1	–	–	–	–	–	–
Triticum aestivum/durum	Grains	c	38	75	4	1	2	782	2
T. aestivum/durum (*T. aest.*-type)	Chaff	c	–	7	–	–	–	1	–
T. aestivum/durum (*T. durum*-type)	Chaff	c	1	–	–	–	–	–	–
T. cf. *aestivum/durum*	Grains	c	–	11	–	–	–	–	–
T. aestivum/durum vel *dicoccum*	Grains	c	–	–	–	–	–	26	–
T. dicoccum	Grains	c	1	70	–	–	1	1	2
T. cf. *dicoccum*	Chaff	c	–	51	–	–	–	–	11
T. cf. *monococcum*	Grain	c	–	1	–	–	–	–	–
T. cf. *monococcum*	Grain frag.	c	–	1	–	–	–	–	–
T. cf. *monococcum*	Chaff	c	–	5	–	–	–	–	–
Triticum sp. "hulled wheats"	Grains	c	–	80	–	–	–	–	–
Triticum sp. "hulled wheats"	Chaff	c	–	43	–	–	–	–	–
Triticum sp.	Grains	c	8	3	–	2	1	122	4
Triticum sp.	Grain frags.	c	–	14	–	–	–	26	–
Triticum sp.	Chaff	c	1	–	–	–	–	–	–
Cerealia indet.	Grains	c	–	311	7	17	1	626	51
Cerealia indet.	Grain frags.	c	99	264	11	16	–	167	–
Cerealia indet.	Chaff	c	–	10	–	1	–	–	1
Cerealia indet.	Culm nodes	c	–	6	1	–	–	1	1
Legumes									
Lens culinaris	Seeds	c	1	–	–	–	–	–	–
Vicia ervilia	Seeds	c	36	–	–	–	–	–	–

Table 1 continued

Site			Selinunte	Monte Polizzo	Salemi	Mokarta	Mokarta	Monte Polizzo	Detail: Monte Polizzo, House 1
Period			Archaic-Corinthian	Early Iron Age	Early Iron Age	Late Bronze Age	Medieval	Medieval	Early Iron Age
			Late 7th–3rd c. B.C.	Late 7th–6th c. B.C.	5th/4th c. B.C.	12th c. B.C.	12th/13th c. A.D.	11th/early 12th c. A.D.	6th c. B.C.
Number of samples			80	255	13	10	1	8	84
Total sample volume (l)			483	1,481	15	50	11	71	353
V. faba	Seeds	c	–	17	–	2	6	–	3
V. faba	Seed frags.	c	–	26	–	8	11	–	–
V. faba	Hila	c	–	5	–	–	–	–	–
Fabaceae cult. indet.	Seeds	c	3	7	–	–	–	–	2
Oilseeds									
Linum usitatissimum	Seeds	c	–	5	–	–	–	–	–
L. usitatissimum	Capsule frags.	c	–	7	–	–	–	–	–
Olea europaea	Stone frags.	c	6	–	4	–	–	–	–
O. europaea	Fruitflesh frags.	c	2	–	–	–	–	–	–
Papaver somniferum	Seed	c	–	1	–	–	–	–	–
Other cultivated plants									
Apium graveolens	Mericarps	c	–	–	–	–	8	–	–
Coriandrum sativum	Mericarps	c	–	2	–	–	–	–	–
Ficus carica	Stones	m	–	10	3	–	–	–	–
F. carica	Stones	c	12	20	4	–	–	1	5
F. carica	Syconium peduncles	c	–	2	–	–	–	–	–
F. carica	Syconium frags.	c	37	–	–	–	–	–	–
Cf. *Pimpinella anisum*	mericarp	c	–	1	–	–	–	–	–
Prunus dulcis	Stone frags.	c	–	1	–	–	–	–	–
Vitis vinifera	Seeds	c	2	9	1	1	1	–	4
V. vinifera	Seed frags.	c	30	–	5	–	–	–	–
V. vinifera	Seeds	m	1	3	–	–	–	1	–
V. vinifera	Berries	c	3	–	–	–	–	–	–
V. vinifera	Berry frags.	c	2	1	–	–	–	–	–
V. vinifera	Seeds (modern?)	c	–	–	–	1	–	–	–
Gathered plants									
Prunus spinosa	Drupe	c	–	4	–	–	–	–	–
P. spinosa	Drupe frags.	c	–	4	–	–	–	–	1
P. spinosa	Stones		–	1	–	1	–	–	–
Valerianella dentata	Nutlets	c	–	1	–	–	–	–	–

Table 1 continued

Site	Selinunte	Monte Polizzo	Salemi	Mokarta	Mokarta	Monte Polizzo	Detail: Monte Polizzo, House 1
Period	Archaic-Corinthian	Early Iron Age	Early Iron Age	Late Bronze Age	Medieval	Medieval	Early Iron Age
	Late 7th–3rd c. B.C.	Late 7th–6th c. B.C.	5th/4th c. B.C.	12th c. B.C.	12th/13th c. A.D.	11th/early 12th c. A.D.	6th c. B.C.
Number of samples	80	255	13	10	1	8	84
Total sample volume (l)	483	1,481	15	50	11	71	353
Sum, cultivated and gathered plants	315	1,266	42	82	33	1,765	96
Sum, wild plants	1,808	864	13	3	24	98	139
Total sum	2,123	2,154	64	87	57	1,863	235

Preservation: *c* carbonised, *m* mineralised, *u* uncarbonised, *frag(s)* fragment(s). For further information and results concerning Bronze Age Mokarta, early Iron Age Salemi as well as medieval Mokarta and Monte Polizzo see ESM sections

ESM). In the Elymian contexts, *Hordeum vulgare* is the dominant crop, while *T. dicoccum* and *T. aestivum/durum* are subdominant. There is evidence of *T. monococcum* (einkorn), but most probably it was not intentionally cultivated as a crop there because of only few and infrequent finds. The non-cereal crops of Monte Polizzo are dominated by *V. faba* (faba bean), followed by *Ficus carica* (fig). A few finds were from *Vitis vinifera* and *Linum usitatissimum* (linseed). Single remains of *Papaver somniferum* (opium poppy), *Coriandrum sativum* (coriander) and *Pimpinella anisum* (aniseed) were identified. The fruit finds of *Prunus spinosa* (sloe), *Prunus dulcis* (almond) and *Valerianella dentata* (narrow-fruited corn salad) are interpreted as gathered plants. On Monte Polizzo, caryopses of *Phalaris* sp. dominate, followed by *Lolium temulentum/remotum* (Table 4 in ESM). These wild grasses are common weeds in crops, as are *Aegilops* sp., *Avena* sp. and *Bromus* sp., but they also grow in disturbed places. Other wild plants such as *Chenopodium album*, *Galium aparine/tricornutum*, *Malva* sp. *Medicago* sp. and *Sherardia arvensis* are very common in anthropogenically disturbed habitats, such as arable fields and waste places.

The 125 samples taken from "House 1" were extremely poor in botanical finds. Forty-one samples were completely without archaeobotanical finds such as seeds and fruits, and contained only charcoal fragments. The locations of the 84 samples from "House 1" listed in Table 1 are indicated by the triangles and lines in the floor plan of "House 1" (Fig. 2). The distribution of the seeds, fruits and chaff as well as of the determined charcoals in "House 1" will be given in detail in another publication (Stika and Heiss 2008a, b). The fig residues were distributed in rooms 1 and 6, as were the pips of grapevine (with an additional single find from room 2). The sloe came from room 5, while all the pulses were found in rooms 1 and 5. The finds of faba bean came from the hearth/oven in room 1 where cooking activities took place. The cereal grains were widespread across the house, with a concentration in room 1. Concerning chaff, the distribution of finds in "House 1" was limited to rooms 1, 2, and 3/4, but completely absent from rooms 5 to 6. The weeds were also widespread, again with clearly increasing concentrations in rooms 1, 2 and 3/4. The charcoal record from "House 1" showed a clear dominance of deciduous oak, as well as small amounts of evergreen oak and olive wood (Table 2). Additionally, *Ulmus* sp. (elm) was identified to a minor extent.

Discussion

On Elymian Monte Polizzo three main cereals were found: barley, emmer, and free-threshing wheats, with a clear dominance of barley. Concerning chaff and weeds, the

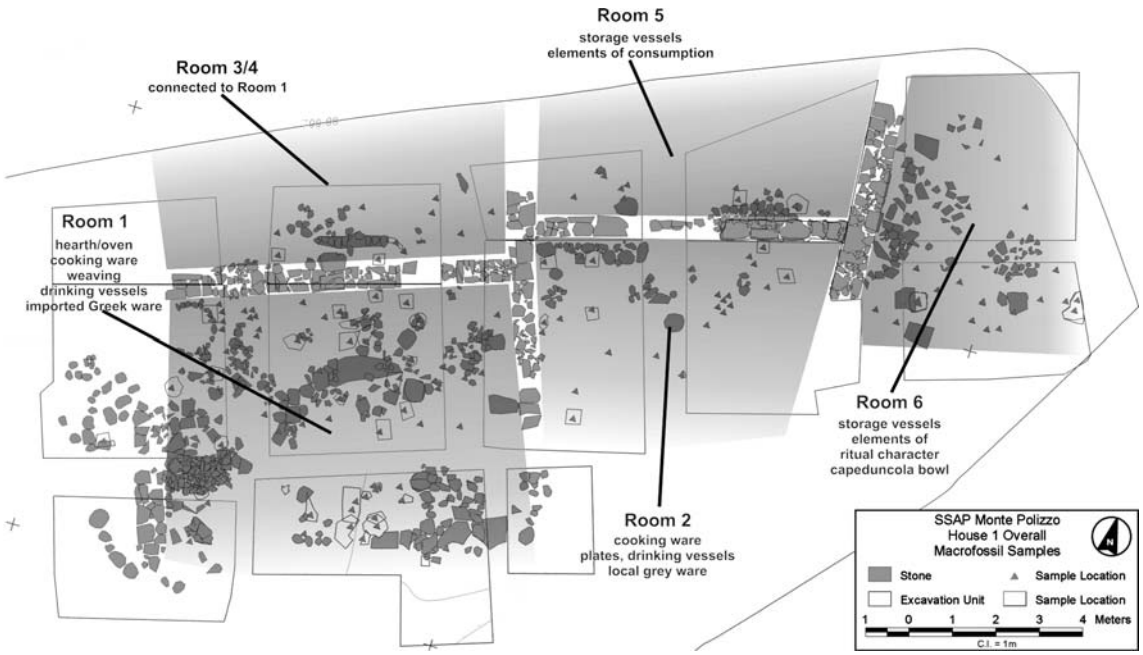

Fig. 2 Plan of the foundation walls of "House 1". *Shaded areas* indicate the reconstructed rooms. Map source: Intrasis database of the EEC-EU project, modified

Table 2 Charcoal remains from Iron Age Monte Polizzo

Location	Saggio S		Acrop. A		Acrop. C		Acrop. E		House 1	
Number of samples	5		1		4		1		22	
	N	*W*	*N*	*W*	*N*	*W*	*N*	*W*	*N*	*W*
Olea europaea	–	–	–	–	1	2.03	–	–	22	3.92
Quercus cf. subgen. *Cerris* (decid.)	1	6.88	–	–	–	–	–	–	28	2.87
Quercus cf. subgen. *Quercus* (decid.)	1	9.56	–	–	1	0.81	–	–	–	–
Quercus (deciduous)	3	18.11	–	–	2	3.28	–	–	147	5.12
Quercus cf. subgen. *Sclerophyllodrys* (evergreen)	–	–	–	–	–	–	1	0.80	–	–
Quercus (evergreen)	–	–	1	1.93	–	–	–	–	14	0.42
Ulmus	–	–	–	–	–	–	–	–	22	3.43
Indet. (broad-leaved wood)	–	–	–	–	–	–	–	–	11	0.05
Indet. (bark)	–	–	–	–	–	–	–	–	1	0.01
Sum, deciduous oak	5	34.55	–	–	3	4.09	–	–	175	7.99
Sum, evergreen oak	–	–	1	1.93	–	–	1	0.80	14	0.42
Sum, other wood	–	–	–	–	1	2.03	–	–	56	7.41
Total sum	5	34.55	1	1.93	4	6.12	1	0.80	245	15.82

Both numbers of fragments and weight are indicated. *N* number, *W* weight (g)

spectrum of archaeobotanical finds from the midden on Monte Polizzo points to crop processing activities inside the ancient town. The same is true for rooms 1, 2 and 3/4 of "House 1". As finds of *Linum usitatissimum* capsule fragments from the midden layers indicate, processing of linseed was also carried out inside the ancient town. The nutrient-demanding weeds indicate that the crops must have been cultivated on good quality soils. As a regional survey of the fertile arable land around Monte Polizzo showed (Kolb 2004), hints of early Iron Age agrarian settlements are very scarce in the close vicinity. Most probably because of unsettled times, the peasants may have cultivated their fields in the surroundings while still living in the town on Monte Polizzo for security reasons.

The samples from the sanctuary on the summit of Monte Polizzo ("Acropolis A") were extremely poor in botanical

finds. In a preliminary report (Stika 2005, p. 269) few charcoal determinations were given from the sanctuary: *Olea europaea* (olive), *Quercus* spp. (deciduous and evergreen oaks), and *Rhamnus* sp. (buckthorn). Associated with altar A2, olive charcoal was recorded. In the sanctuary, the main matrix of the sediments in the ritual deposits consists of fragmented burnt red deer antler (Morris et al. 2005, pp. 205–219; Hnatiuk 2005, pp. 247–253; De Angelis 2007, p. 180). Obviously no botanical offerings were part of the sacrifices, as no macro-remains were found in the ritual deposits. This result was confirmed by micromorphological studies of the sediments in deposit 2, north of altar A2 (Matthews 2004).

The archaeobotanical results from "House 1" are worth interpreting in detail. Following the results and reconstructions of the excavators (Mühlenbock and Prescott 2004a, b; Prescott 2004), their interpretations (Prescott and Mühlenbock 2008) concerning function and use of the different rooms match up very well with the archaeobotanical interpretations. The high quality of archaeological finds from "House 1" (Mühlenbock and Prescott 2004a) suggests a household of high social rank. Archaeobotanical finds of fig and grape are generally very scarce in the samples from all of the Monte Polizzo excavations, but over-represented in "House 1". Some specific use of fig and grape during symposia might be a reason for this. Finally, "House 1" partly burnt down and so the few charred botanical finds might exactly represent the material lying on the floor when the destructive fire took place, providing a snapshot of the activities in the very last period of "House 1". The location of the residues of fig and grape in a plan of the foundation walls of "House 1" (Fig. 2) indicates that these finds were located in rooms 1 and 6, archaeologically interpreted as places of ritual consumption, most probably following the Greek tradition of a symposium, as finds of high quality imported Greek pottery might suggest. Only one pip of grapevine was found in room 2 which is interpreted as being of less prominent social status, where local grey ware was used for consumption. Faba bean was found in room 1 in a hearth/oven where food preparation was done. A charred sloe fruit and one legume seed turned up in room 5 together with finds of storage vessels. Probably these crops were stored there together with cereals, from which we also have some scattered grain finds in room 5 (Fig. 2). Weed seeds are widespread in rooms 1, 2 and 3/4, while they are scarce in rooms 5 and 6. Cereal chaff was found in rooms 1, 2, and 3/4 while chaff finds are absent from rooms 5 and 6. Both compartments are classified as storage rooms, as indicated by the huge vessels which were found there. The crop processing most probably took place in a different area (rooms 1, 2, 3/4) than stockpiling (rooms 5, 6). Even the species distribution of charcoal displays different assemblages in the various rooms.

Pollen analyses were carried out on excavated sediment layers of "House 1" area (Hjelle 2004). Unfortunately the pollen assemblages were completely free of arboreal pollen and could neither be used for reconstruction of the natural environments nor as a source of information concerning woodland clearance.

The single charcoal samples from the Iron Age sites of Monte Polizzo originate from construction timbers of olive and oak, most probably roof beams as already indicated by the archaeological context. The finds of carbonised *Ulmus* sp. (elm) wood are concentrated in room 2 of "House 1", together with finds of *Olea europaea* (olive) charcoal. An additional piece of elm charcoal was found in the northern part of room 1 (Fig. 2) where both profane and ritual activities are indicated in the archaeological record. It is possible that the elm wood played a role in these activities, either for fuelling a hearth or sacrificial fire, or as a wooden tool.

As for human impact on Monte Polizzo, no signs of woodland degradation such as *Pinus* spp. could be found in the resulting charcoal spectra—in fact, a natural climax woodland environment is represented by the finds. The question of the presence of *Olea europaea* on Monte Polizzo is, however, intriguing. Obviously this tree did play a local role as a construction timber, but up to now no archaeological evidence of the use of the olive fruits has been found on Monte Polizzo. Furthermore, gas chromatographical analyses have only indicated the local use of animal fat and not of olive oil so far (Agozzino 2005). A possible explanation for this discrepancy could be that the olive wood found in the charcoal record derives from *Olea europaea* ssp. *oleaster* (oleaster, wild olive) growing locally around the settlement, and that cultivated olive trees were either unknown to, or ignored by the Elymian settlers.

In the contemporary Greek town of Selinunte, free-threshing wheat was the dominant cereal, followed by hulled barley, while emmer was of no importance. The pulses lentil and bitter vetch are listed for Selinunte while faba bean was not there, although it was the most frequent legume on Monte Polizzo. There are obvious differences between the Greek and the Elymian sites: the dominance of barley and faba bean at Monte Polizzo stands in contrast to the dominance of free-threshing wheat and bitter vetch in Selinunte. In the Monte Polizzo samples, there were no fruit remains of olive, while they were common in Selinunte. At Monte Polizzo, animal fat was obviously used while the Greeks in Selinunte most probably preferred olive oil. In the (later) Elymian site of 5th and 4th century B.C. Salemi, there is in fact evidence of olive. So olive cultivation was probably adopted rather late by the western Sicilian peoples (Morris et al. 2005, p. 242).

The results of an unpublished pollen profile taken at Gorgo Basso close to Mazara del Vallo between Selinunte and Monte Polizzo support the assumption of a widespread undisturbed climax vegetation in western Sicily during the Neolithic and Bronze Age (Tinner et al. 2008). As the interpretation of the pollen profile suggests, the Greeks arrived when there was a rather undisturbed woodland with *Quercus ilex*, *Olea* and *Pistacia* dominating. Under the influence of the clearings made by the Greeks, the arboreal pollen sum which had been around 80% for millennia, rapidly decreased to 20%. During the Greek colonisation, the pollen assemblage points to intensive pasture farming. Hints for the cultivation of cereals in the hinterland of Selinunte are very rare for the first millennium B.C. A massive amount of cereal pollen types is, however, recorded, beginning with early medieval sediments.

While the soils in the area of Selinunte are less favourable for a local production of free-threshing wheats, which demand good soil quality, the surroundings of Monte Polizzo can be regarded as a more suitable area. The Greek town of Selinunte might have imported free-threshing wheats from the indigenous Elymians who might have themselves subsisted mainly on barley and emmer. As the results of the latest excavations indicate (Mertens 2003) and analyses of written and iconographic sources suggest (De Angelis 2003), trade and manufacturing were the main sources of Selinunte's wealth. Modern analyses, however, cast serious doubts on Greek wealth in Sicily mainly basing on growing wheat (De Angelis 2006). Furthermore, the Selinountine wheat, well known from ancient written sources, did not necessarily have to be produced by the Greek inhabitants of Selinunte themselves. The hinterland of ancient Selinunte provided space for the keeping of horses and oxen. To pay for the high quality Greek imports in Elymian contexts, as mentioned above, the Elymians might have offered crops in return, such as free-threshing wheat.

To answer another question posed in the introduction, the Elymi were in fact not millet eaters at all, as not a single record of millet was found in the numerous Elymian samples. An alternative explanation for the use of the term *Elymoi* by the Greek is the following: *Elymoi* or "millet eaters" might have been used as a pejorative term for people considered as being uncivilised. Thus, this might be one result of the archaeobotanical research of ancient contexts: written sources are not always accurate, or to be taken verbatim.

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