Nine sample sites were selected in order to sample the form, content, and geochemistry of the soil and related sediments. The sample sites (referred to below as auger holes AH 1-9 producing profiles 1-9 respectively) formed a transect from the hilltop above Skorba to the valley floor to the south (see Figure 4 for locations). Each was sampled using a hand-auger, the soil profiles being logged and characterized using a portable XRFA (see below). Appendix A provides a detailed record of each soil profile; Figure 5 summarizes the implications and results.

Background

The karst landscape is essentially largely barren of soils. Today thin azonal rendzina-form terra rossa soils exist over the hard, slow-weathering limestones. The valleys contain alluvial deposits and other footslope and dry-valley locations contain varying depths of colluvial deposits of differing nature character and age. The ancient terraces also provide soil and sediment archives, and may bury prehistoric land surfaces denuded from elsewhere on the Island. The definition of the soils, former soils, and erosion episodes will aid in developing the history of human and agricultural use of the catchment and landscape packet around the Skorba Temple.

The Upper Corralline Limestone aquifer at this point comprises the Baida Ridge (on the southern slopes of which is Skorba), and the Pwales Valley and the Wardija Ridge to the south. The soils on the slopes of Mġarr/Skorba/Żebbiegħ (i.e. the Biada Ridge) are typical young immature raw soils with l

This would enable the formulation of more detailed targeted methodology of limited intervention fieldwork to examine, map and samples appropriate locations within the catchment of defined study-site locations.

Augering and the examination of natural exposures enabled:

A preliminary caternary sequence to be outlined;
A preliminary indication of the nature of the terrace soils (and their potential to seal and preserve ancient land surfaces);
An indication of the nature and depth of deposits in the Pwales Valley;
An outline palaeo-environmental and geoarchaeological potential of the Skorba environs

The valley footslope

degraded pollen spores, and other identifiable types were present, but not identified. This indicates the potential for pollen survival in the potentially deeply stratified Pwales Valley

approaches proposed, has the potential to examine the wider non-temple activities of these prehistoric communities not previously examined in depth on the Maltese Islands.

Review of geoarchaeological methods and the assessment fieldwork April 2010

We thank the Superintendence of Cultural Heritage for allowing us to test and confirm methodological approaches. It is clear that simple augering and test-pitting, whilst being minimally intrusive can provide a significant level of new information and interpretation to the study area which are applicable elsewhere.

It is clear that hand augering is possible, though not without its difficulties. The dry and highly silty nature of the Maltese soils makes hand augering difficult but not impossible. The 7cm diameter combination auger is ideal for silty-clays and stony soils, but would be better replaced by a 5cm diameter combination Edleman auger for highly silty deposits. The depth and nature of the deposits was largely established enabling the development of appropriate minimally intrusive methods (hand-excavated test pits

Allen, M J, & Lewison, A, 1987, Reconstructing an agrarian system in the Alpes Maritimes, France. *Antiquity* 61, 364–69.

Ashby, T, 1924, Supplementary excavations at Hal-Tarxien, Malta, in 1921. *Antiquaries Journal*, 4, 93–100.

Ashby, T, Bradley, R N, Peet, T E & Tagliaferro, N, 1913, Excavations in 1908–11 in various megalithic buildings in Malta and Gozo. *Papers of the British School at Rome*, 6, 1–126.

Barrowclough, D A & Malone, C (eds), 2007, *Cult in context. Reconsidering ritual in archaeology*. Oxford: Oxbow Books.

Evans, J D, 1953, The prehistoric culture-sequence in the Maltese archipelago. *Proceedings of the Prehistoric Society*, 19, 41–49.

Evans, J D, 1971, *The prehistoric antiquities of the Maltese Islands: A survey*. London: Athlone Press.

Fenech, K, 2007, *Human –induced changes in the environment and landscape of the Maltese Islands from the Neolithic to the 15th century AD – as inferred from the scientific study of sediments from Marsa, Malta.* Oxford: BAR Int. Series 1682.

French C A I & Whitelaw, T M, 1999, Soil erosion, agricultural terracing and site formation processes at Makiana Amorgos, Greece; the micromorphological perspective. *Geoarchaeology* 14, 151–89.

Grima, R, 2004, The landscape context of megalithic architecture. In D. Cilia (ed), *Malta before history*. Malta: Miranda Books. 327–45.

Grima, R, 2005, *Monuments in search of a landscape. The landscape context of monumentality in Late Neolithic Malta*. London: University of London Unpublished PhD Thesis.

Grima, R, 2007, Landscape and ritual in late Neolithic Malta. In D. Barrowclough & C. Malone (eds), *Cult in Context*. *Reconsidering ritual in archaeology.* Oxford: Oxbow Books. 35–40.

Grima, R, 2008, Landscape, territories, and life-histories of monuments in Temple Period Malta.

Schembri, P J, 1997, The Maltese Islands: climate vegetation and landscape. *Geojournal,* 41, 115–25.

Schembri, P J, Falzon, A, Fenech, K & Sant, M J, 2000, The molluscan remains. In A Bonanno, A Frendo & N C Vella (eds), Excavations at Tas-Silg, Malta. A preliminary report on the 1996-1998 campaigns conducted by the Department of Classics and Archaeology of the University of Malta. *Mediterranean Archaeology,* 13, 102–9.

Schembri, P J, Hunt, C, Peldey, M, Malone, C & Stoddart, S, 2009, The environment of the Maltese Islands. In C Malone,

APPENDIX A

(AH 5a, 5b and 6)

Profile 5a 33 S 0443807 3975392, elevation 120m

Top of the courgette field, top of the augered sequence above Skorba

Ploughed surface and harrowed/hoed surface

0-27	Ap; ploughsoil (Rendzina)	Dark brown (7.5YR 3/3) humic silty clay loam (will take slight polish), contains some medium sand, many very small limestone pieces, few medium subangular limestone pieces, very weak ?subangular blocky/prismatic structure, abrupt boundary on to limestone bedrock (or large stone)	
27+	C; limestone	Parent material	

Profile 5b Repeat of profile 5a at 33 S 0443811 3975391, elevation 119m

Approximately 2.5-3m north of terrace wall

Ploughed surface and harrowed/hoed surface

0-35	Ap; ploughsoil (Rendzina)	Dark brown (7.5YR 3/3) humic silty clay loam (will take slight polish), contains some medium sand, many very small limestone pieces, few medium subangular limestone pieces, very weak ?subangular blocky/prismatic structure, becoming moister (due to irrigation but also possibly higher clay/silt content) at base, abrupt boundary on to limestone bedrock (or large stone)	
35+	C; limestone	Limestone; Parent material	

Profile 6 33 S 0443833 3975375, elevation 117m

Lower courgette field, immediately above Skorba

(AH 7a, 7b, 8, and 9)

Profile 7a 33 S 0443833 3975375, elevation 118m

Downslope from Skorba, in triangular field, 3-4m north of southern boundary terrace wall

Loose stony ploughsoil

0-16	Ap; ploughsoil	Brown (10YR 4/3) very loose stone-free humic silty loam, clear to gradual boundary	161 @ 0cm 162 @ 10cm
16-39	A;	Brown (10YR 4/4 – 7.5YR 4/4) loose friable silt loam with common very small and rare small limestone pieces. From 30cm pottery sherds (2-3cm) and modern tubers, clear boundary	163 @ 20cm 164 @ 30cm
39-41	Cw	(10YR 4/4-5/4) calcareous silt loam with common medium stones	165 @ 40cm
41+	C; limestone	Limestone; parent material	

Profile 7b 1.5m east of AH 7a

0-16	Ap; ploughsoil (Rendzina)	Brown (10YR 4/3) very loose stone-free humic silty loam, clear to gradual boundary	
16-30	A;	Brown (10YR 4/4) friable silt loam with common very small and rare small limestone pieces.	
30+	C; limestone	Limestone; parent material	

Profile 9 33 S 0443833 3975375, elevation 118m

South of Skorba, field at base of slope above Trio Il-Vantlja

0-27	Ap; ploughsoil (Rendzina)	Brown (10YR 4/3) dry humic silt (clay) loam, common very small limestone pieces, some medium subangular to subrounded stones. Pottery on surface. Clear boundary.	

Profile 2

(AH 4)

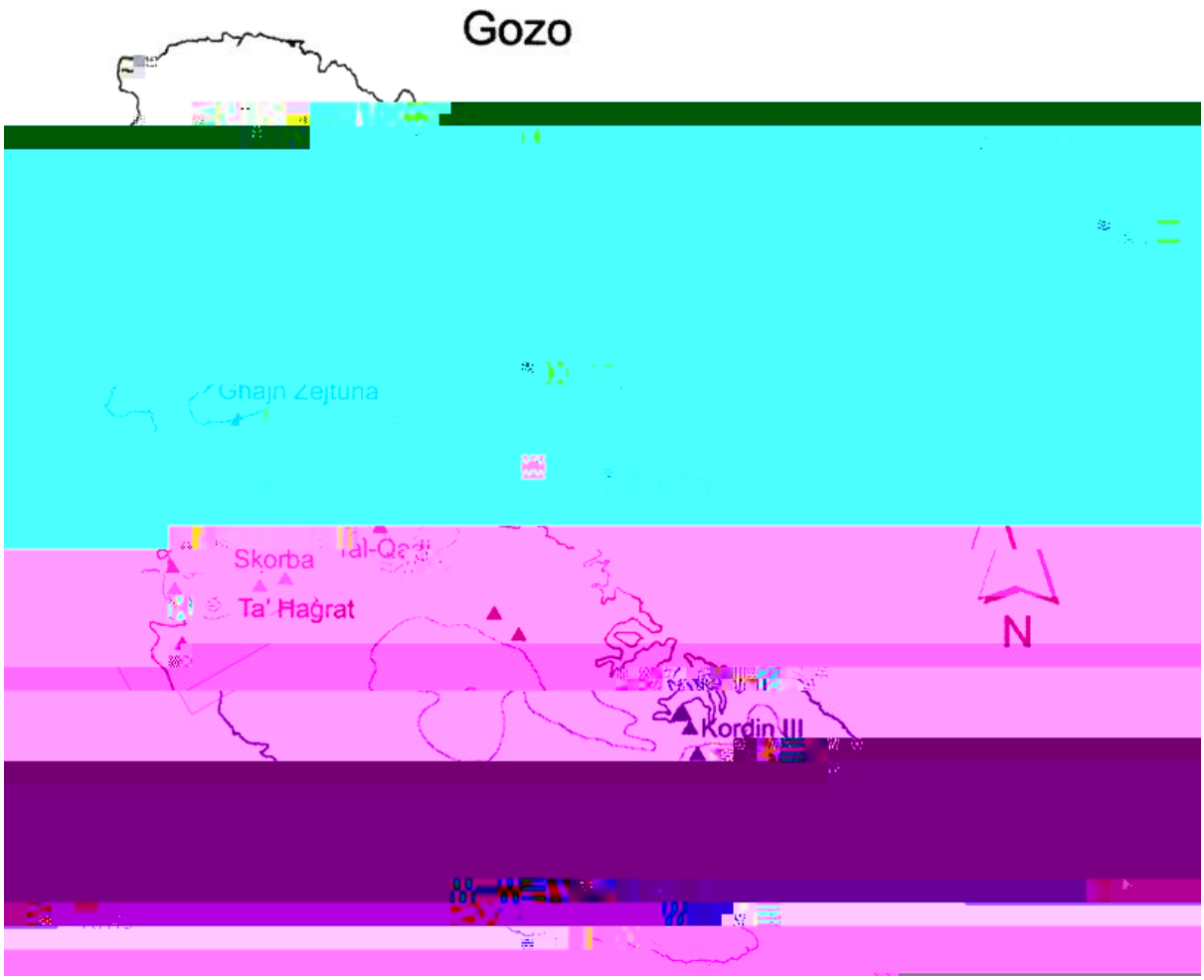
Profile 4 33 S 0443837 3974055, elevation 83m

In the valley floodplain

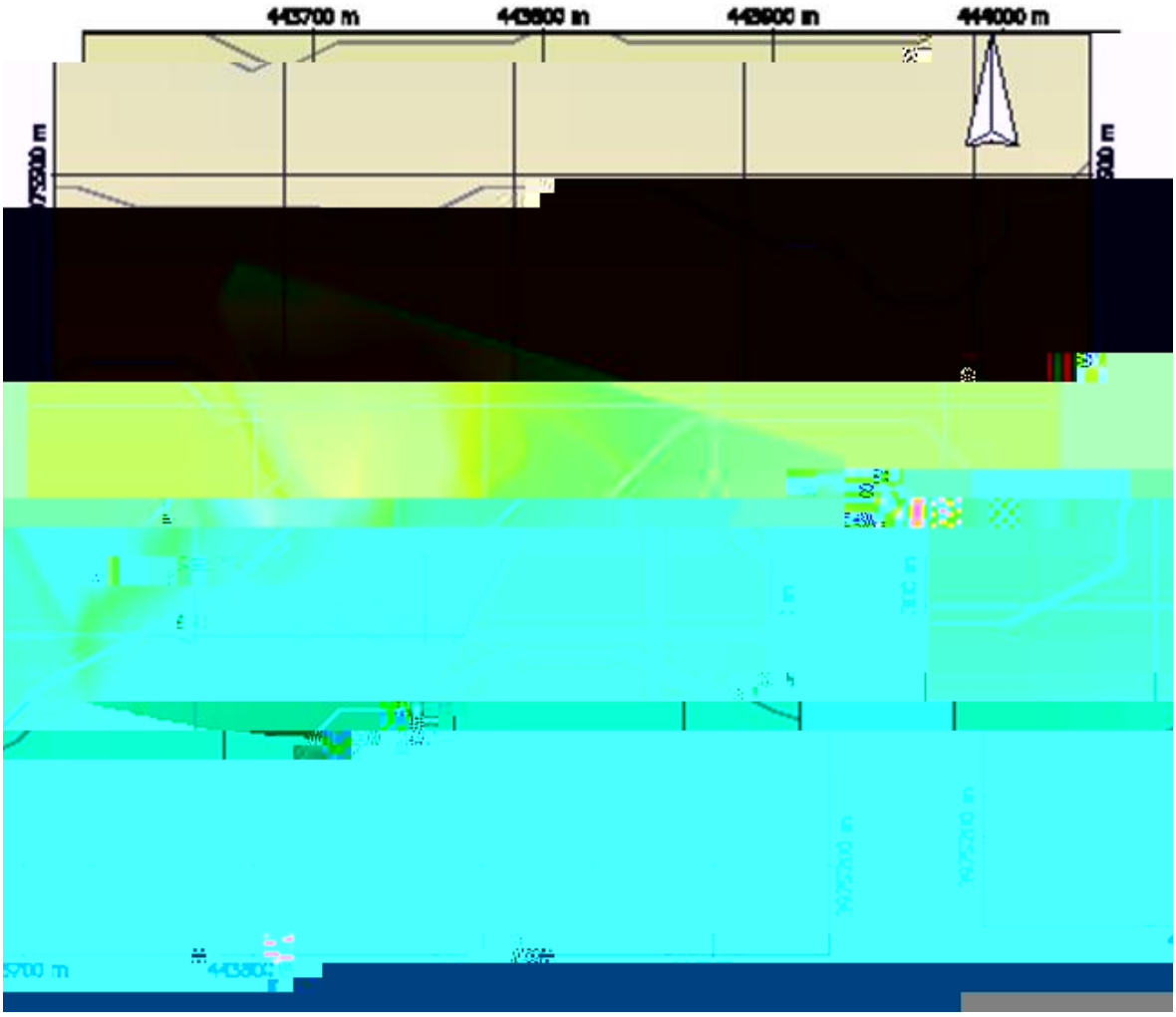
Ploughed surface

0-25	Ap; ploughsoil	Dark yellowish brown (10YR 3/6) to dark brown (7.5YR3/4) loose, stone-free humic silty clay loam, clear boundary	191 @ 10cm
25-52	B; colluvial/alluvial B	Dark brown (10YR 3/3), stiff and compacted almost sto	

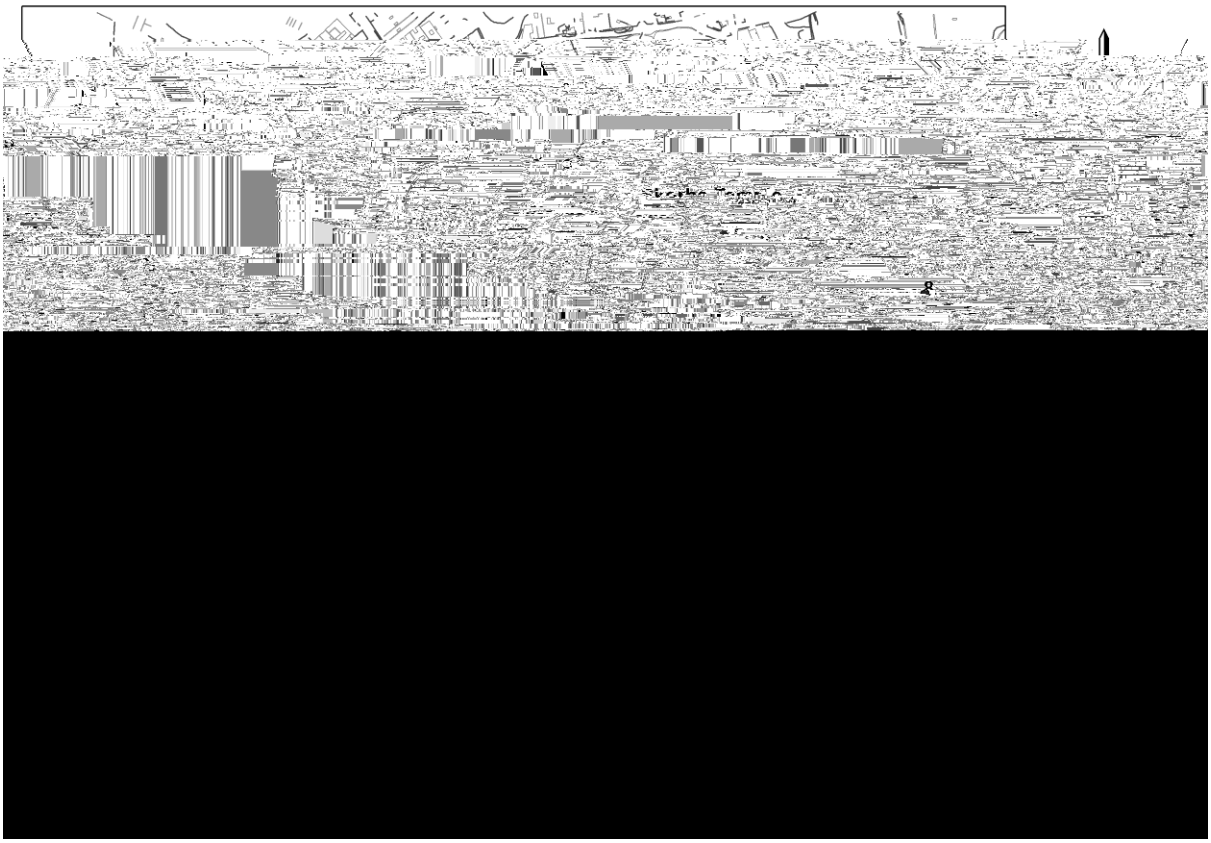
: Location of the Study Area and the focal site of Skorba (after Grima 2008, fig. 3 with additions).



: Digital Terrain Model (DTM) of the Skorba area.



: Skorba area with the position of the auger holes indicated.

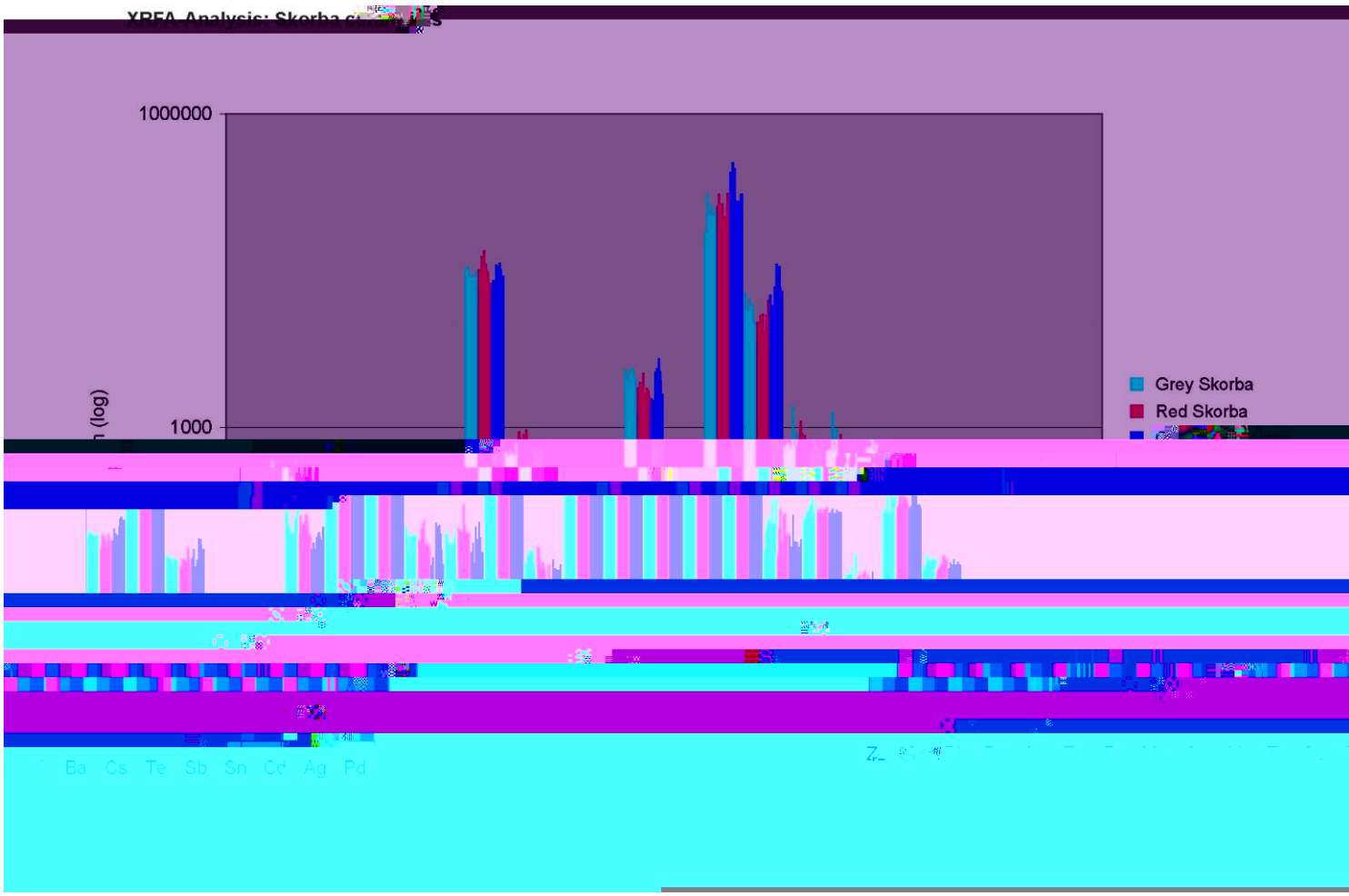


: Summary soil profiles recorded during the auger survey.

	Slope	Terraces	Footslope	Floodplain
	Convex gentle to moderate slope, with exposed Upper Coralline Limestone at is crest. Terraces with narrow to moderate terraces	Level terraces of varying width	Level to gentle slope, broad terraces	Level broad floodplain
	Agriculture (cereal crops, melons etc), and open ground	Agriculture (cereal crops, melons etc),	Agriculture, largely cereals	High intensity agriculture and horticulture;
	Bare exposed geology on crest with shallow xerorendzinas on slopes where not terraced	Sediment of about 1m thickness immediately behind terrace walls, thinning upslope to thin xerorendzinas and bare rock		Deeply stratified sediment sequences
	Limited to nil	Moderate to high potential for determining construction and age of the developing agriculture and land-use. Also for determining the nature of past soils during prehistoric phases (incl. Temple-building phase), and changing/ developing soil history	Low but undefined	High potential for long stratified

: Principal components analysis of the results from XRFA-analysis of soil samples around Skorba.

: Results of the XRF-analyses of ceramic sherds from Skorba (in ppm, logarithmic).



: Results of the XRF-analyses of ceramic sherds from Skorba: Principal component analysis, excluding the major elements Ca, K and Fe. (Phase 1= Ghar Dalam, Phase 2= Grey Skorba, Phase 3= Red Skorba).