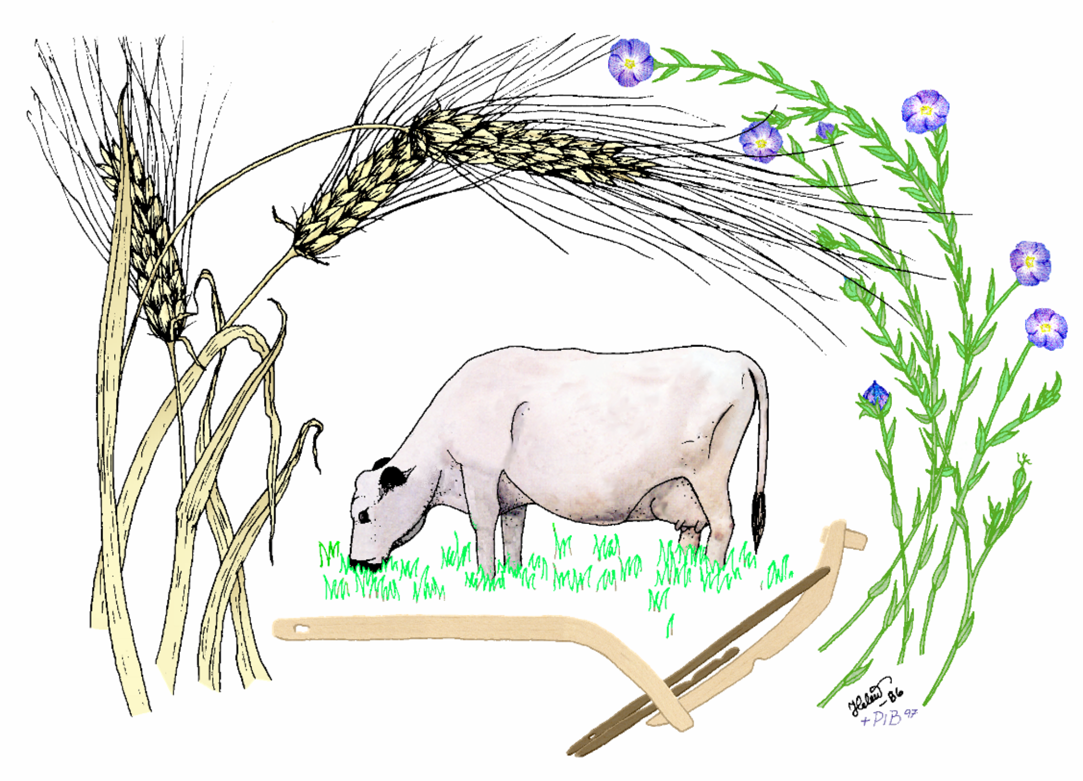
MILJÖARKEOLOGISKA LABORATORIET

RAPPORT nr. 2021-003



Environmental archaeological analyses of samples from the site Tanum 2462/ L2019:5359 & L2019:5360, Tanum Socken, Bohuslän

Johan Linderholm, Samuel Eriksson, Kristian Hristov & Jan-Erik Wallin

INSTITUTIONEN FÖR IDÉ – OCH SAMHÄLLSSTUDIER

UMEÅ UNIVERSITET

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Sample information

Analysis type: Makrofossil analysis of unfloated samples, soil chemical analysis, pollenanalysis
Number of samples: 5 macrofossil samples, 43 soil chemical samples (38 soil chemical samples + 5 subsamples from macrofossil samples), 3 pollen samples

Introduction

Five macrofossil, 43 soil chemical and 3 pollen samples from the excavations of the site Tanum 2462/ L2019:5359 & L2019:5360 were analyzed at the Environmental Archaeology Laboratory (MAL) at Umeå University.

Three stone settings were excavated. The archaeological material found in the features comprises of ceramic fragments, flint pieces and bones. The results from the analyses try to answer questions about the vegetation in the area as well as its use in the rituals. Other questions are connected with soil formation, taphonomy, traces of grave goods, etc.

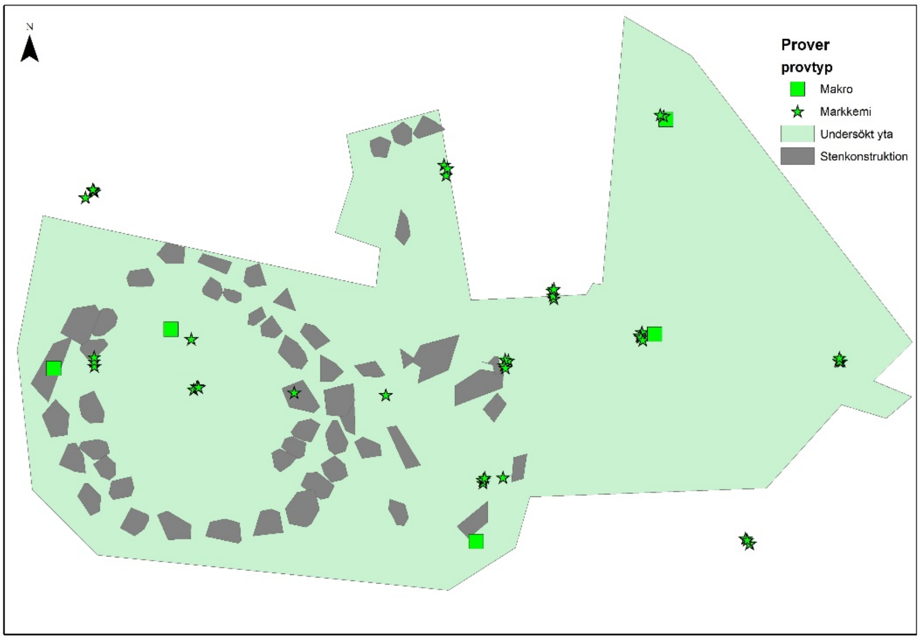

Figure 1. Site context and location of macro samples at Tanum 2462.

Materials and Methods

Macrofossil analysis

Before the analysis the samples were stored in a drying room (+30°) until the moisture has disappeared. After that, the samples were floated using sieve meshes of 0,5 mm and 2 mm. The samples volume before flotation was between 1,7 and 2,4 liters and after it between 20 and 125 ml. The sieved material was sorted and identified under stereomicroscope. The carbonised plant remains were extracted from the samples and the amount of woody charcoal was estimated as relative proportion of the floated sample volume as follows: x = up to 25 %, xx = up to 50 %, xxx = up to 75 %, xxxx = about 100 % of the floated sample volume. The identification of plant remains was conducted via reference literature for plant seeds (Cappers et al. 2006) and the laboratory reference collection.

The names of the identified plants are given according to the Nordens flora (Mossberg and Stenberg 2018) and the Virtual Flora (Anderberg and Anderberg, u.d.). The results from the analyses have been presented in Table 3.

Samples processing and identification was done by Kristian Hristov and Ivanka Hristova.

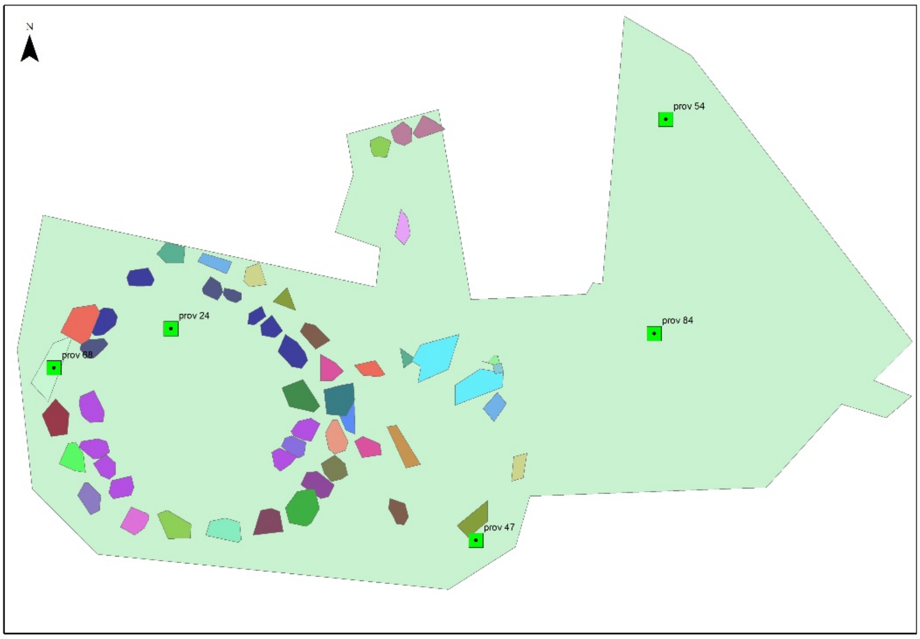

Figure 2- Location of macro samples from Tanum 2462.

Pollen analysis

Pollen analysis was performed by Jan-Erik Wallin. The pollen report is in Swedish and attached in the end. The results from pollen analysis were incorporated in the discussion and conclusion.

Soil chemistry

Prior to all analyses the samples were dried at 30°C. Samples were then passed through a 1.25 mm sieve and any presence of material of cultural significance noted (such as bone, charred material, ceramics etc.). The chemical methods employed here are the same as those used in Swedish soil chemical studies following the methodological approach of Engelmark and Linderholm (1996 and 2008). The parameters analysed and abbreviations used are explained in Table 1.

Table 1. Geoarchaeological methods and abbreviations as used in this report.

Abbreviation	Method	Description
MS	Magnetic Susceptibility	Magnetic susceptibility measured on 10g of soil, with a Bartington MS3 system with an MS2B probe (Dearing 1994). Data are reported as SI-units per ten grams of soil, (corresponding to X_{lf}, 10^{-8} m^3 kg^{-1}) (Thompson & Oldfield 1986).
MS550	Magnetic Susceptibility after burning at 550°C	Magnetic susceptibility after 550° C ignition (units as above)
LOI (%)	Loss On Ignition	Soil organic matter, determined by loss on ignition at 550° C, in percent (Carter, 1993).
CitP	Inorganic phosphate content (mg P/kg dry matter, ppm)	Extraction with 2% citric acid (corresponding to the Arrhenius method (Arrhenius 1934)
CitPOI	Total phosphate (mg P/kg dry matter, ppm) (inorganic & organic)	Extraction with 2% citric acid on ignited soil
P quota	**Cit-POI /Cit-P**	Ratio of inorganic & organic to inorganic phosphate

These methods have been developed and adapted for soil prospection and the bulk analysis of occupation soils and features. Analysed parameters comprise organic matter (loss on ignition [LOI], Carter 1993), two fractions of phosphate (inorganic [Cit-P], and sum of organic and inorganic [Cit-POI]) (Engelmark and Linderholm 2008, Linderholm 2007) and magnetic susceptibility (MS-χ_{lf}) and MS550-χ_{lf} (Linderholm 2007, Engelmark and Linderholm 2008). These analyses provide information on various aspects concerning phosphate, iron and other magnetic components and total organic matter in soils and sediments, and their relation to phosphate.

X-ray fluorescence (XRF) was applied to a sub-set of samples from suspected burials in order to find possible traces of corroded metal objects etc. The XRF analysis was conducted using a Thermo Scientific Niton XL5 Analyzer, connected to a Thermo Scientific™ portable test stand. The reference calibration Soil mode was used for quantification.

Soil chemical analyses were undertaken by Johan Linderholm, Samuel Eriksson and Kristian Hristov.

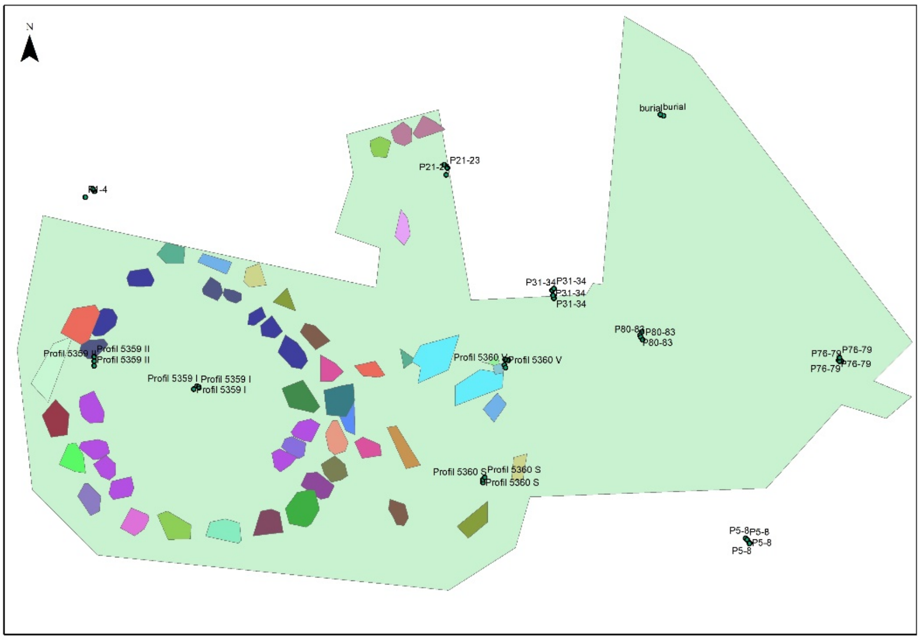

Figure 3. Site context and location of profile samples at Tanum 2462.

Results

Macrofossil analysis

Sample 20_0020_0001/ P24/ S2

The sample volume before flotation was 1,8 liter and after flotation it is 80 ml. The floated sample contained about 25% of charcoals, all of them very small (1 - 5 mm). The rest of the sample was represented by modern vegetative parts such as roots and stems. Six pine (*Pinus* sp.) cone flakes were found.

Sample 20_0020_0002/ P47/ S5

The sample volume before flotation was 1,7 liter and after flotation – 50 ml. The amount of charcoals comprises of approximately 25 % of the floated sample volume. All registered charcoals are very small. The rest of the sample contains modern vegetative parts. The archaeobotanical material was represented by seven fragments of pine (Pinus sp.) cone flakes.

Sample 20_0020_0003/ P54/ S6

The sample volume before flotation was 2,4 liters and after flotation is 125 ml. The sample contains mainly modern vegetative parts. The charcoal fragments are very small and represent about 25% of the floated sample volume. One piece of black slag was registered. The identified macros are represented by eleven fragments of pine (Pinus sp.) cone flakes.

Sample 20_0020_0004/ P68/ S5

The sample volume before flotation was 1,8 liter and after it – 75 ml. The sample consisted mainly of modern roots/ stems. The amount of charcoals is about 25 % of the floated sample volume. All preserved charcoal fragments are less than 5 mm. The only recognized botanical remains were five pine (Pinus sp.) cone flakes, three of them fragmented.

Sample 20_0020_0005/ P84/ S8

The sample volume before flotation was 1 liter and after flotation – 20 ml. No archaeobotanical material was preserved in the floated sample. The sample consist mainly of modern plant vegetative parts. The registered charcoals were very small and their amount was very low, less than 25% of the floated sample volume.

Soil chemistry

In table 2 and 3 all chemistry data is presented.

Five parameters

In figure 4, an overview of the whole data set and the parameters CitP, MS and LOI is given. Some extreme outliers are found in the bone pit related samples. There are no extreme MS readings in the material but there are a few samples with reading above 50 that may be significant.

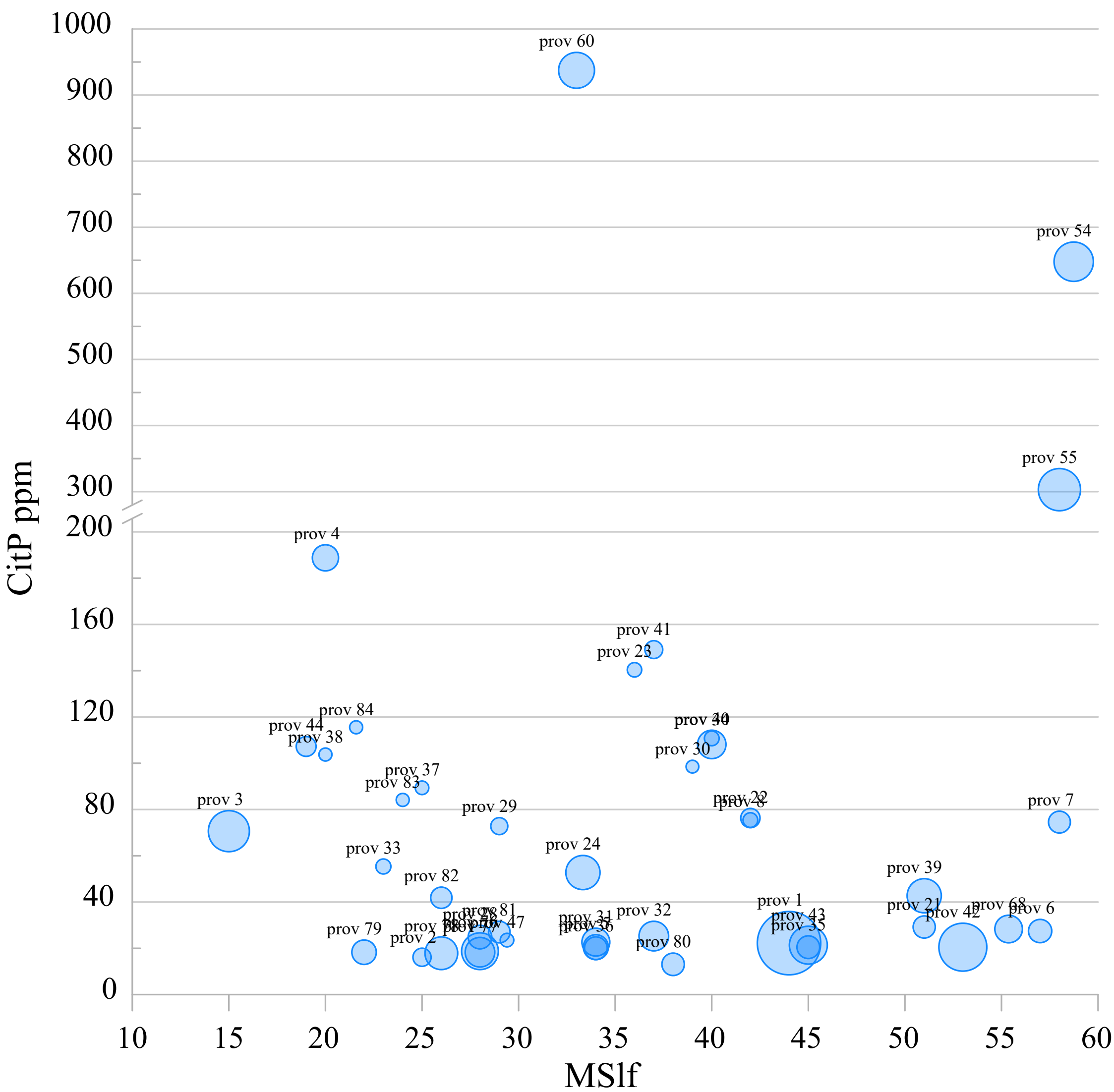

Figure 4. Plot describing CitP to MS, with readings relative to size of points in LOI.

In figure s 5a-j stratigraphic presentations are done for all the profiles.

In the first three profiles (figure 5 a-c) are located outside the stone structure the LOI is decreasing with depth and the P parameters are increasing and reach at the base levels of clear accumulation. MS is even and low throughout.

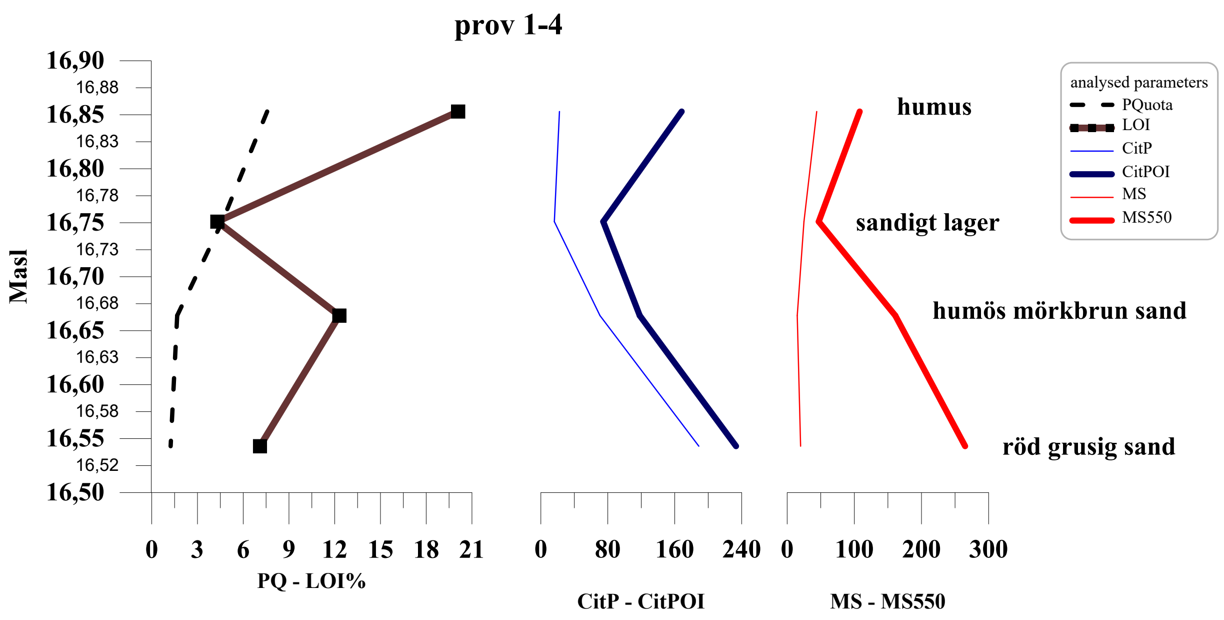

Figure 5a. Vertical distribution of analysed parameters

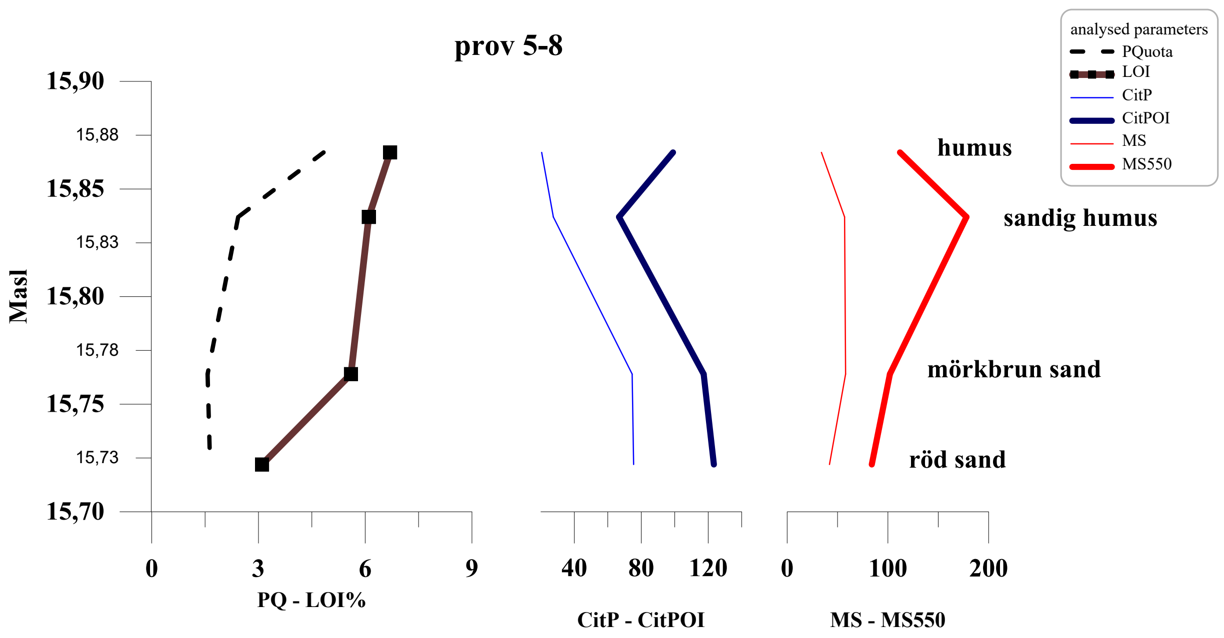

Figure 5b. Vertical distribution of analysed parameters

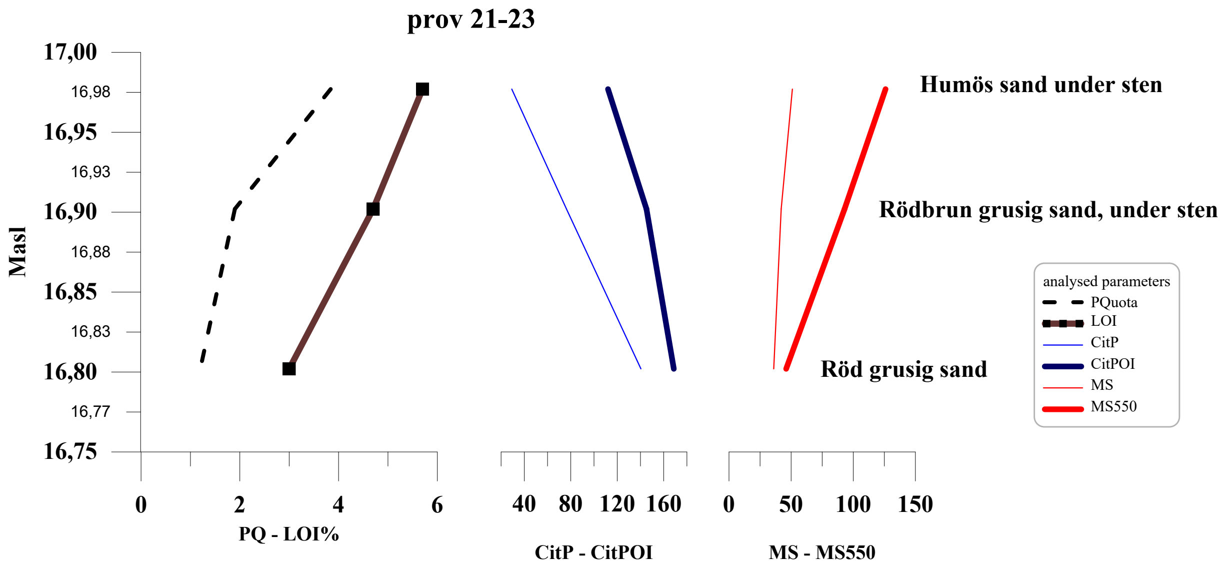

Figure 5c. Vertical distribution of analysed parameters

Figures 5 d-e are inside the stone structures just outside the main one and they display similar trends as the previous ones above.

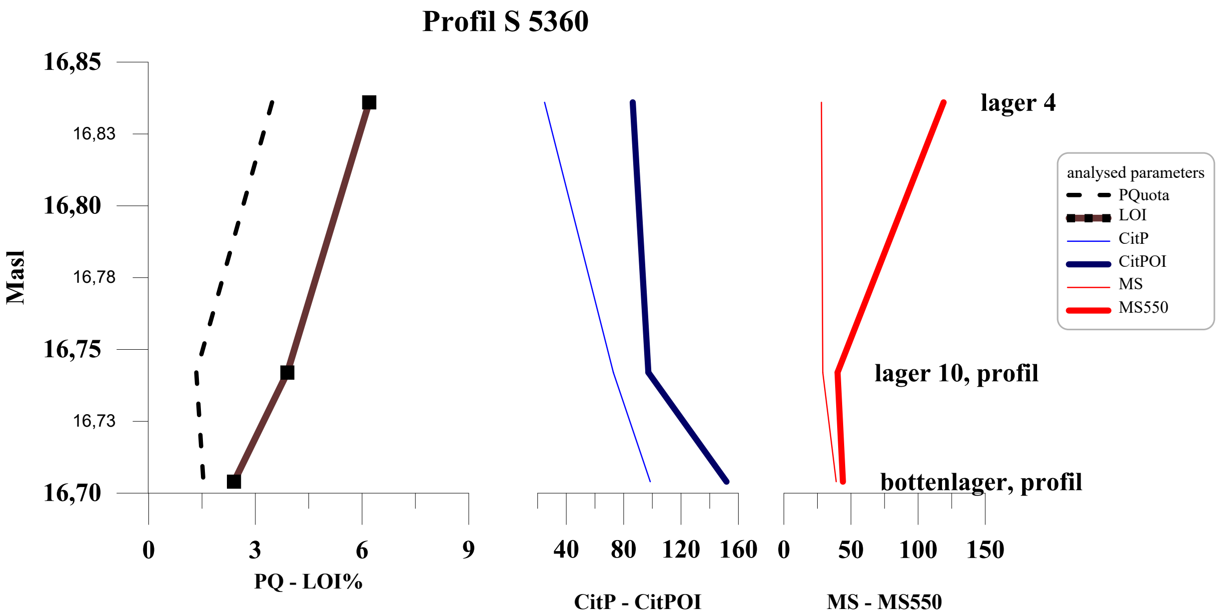

Figure 5d. Vertical distribution of analysed parameters

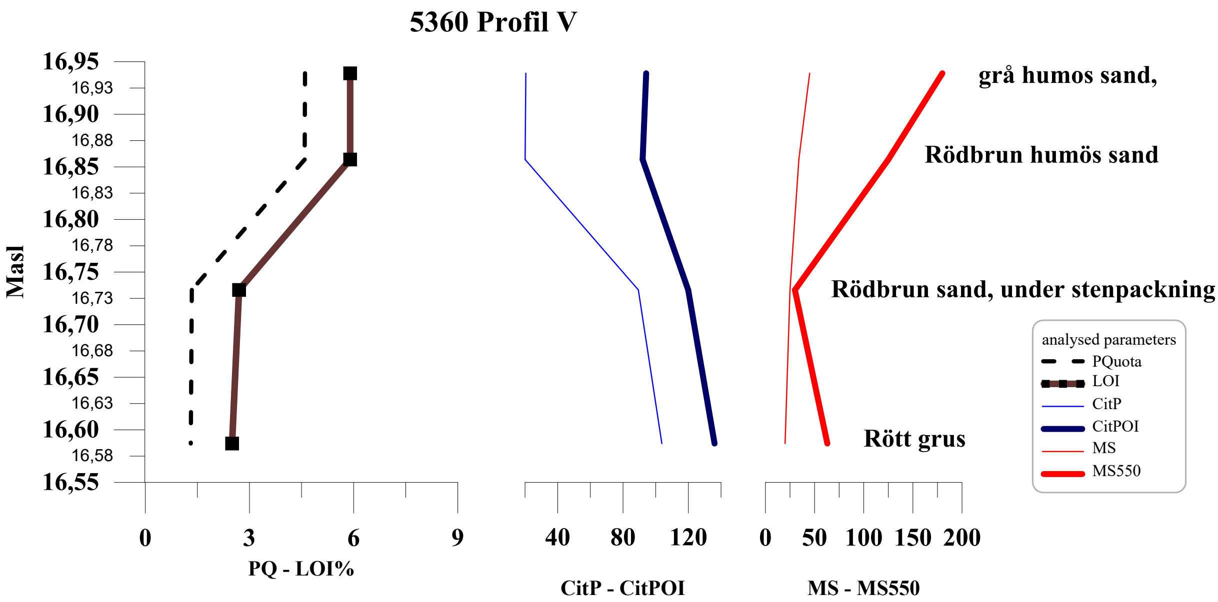

Figure 5e. Vertical distribution of analysed parameters

Figures 5 f and g are sampled from inside the main structure with higher responses in P at depth. Also, the LOI is quite high all through and in the bottom of the sequence.

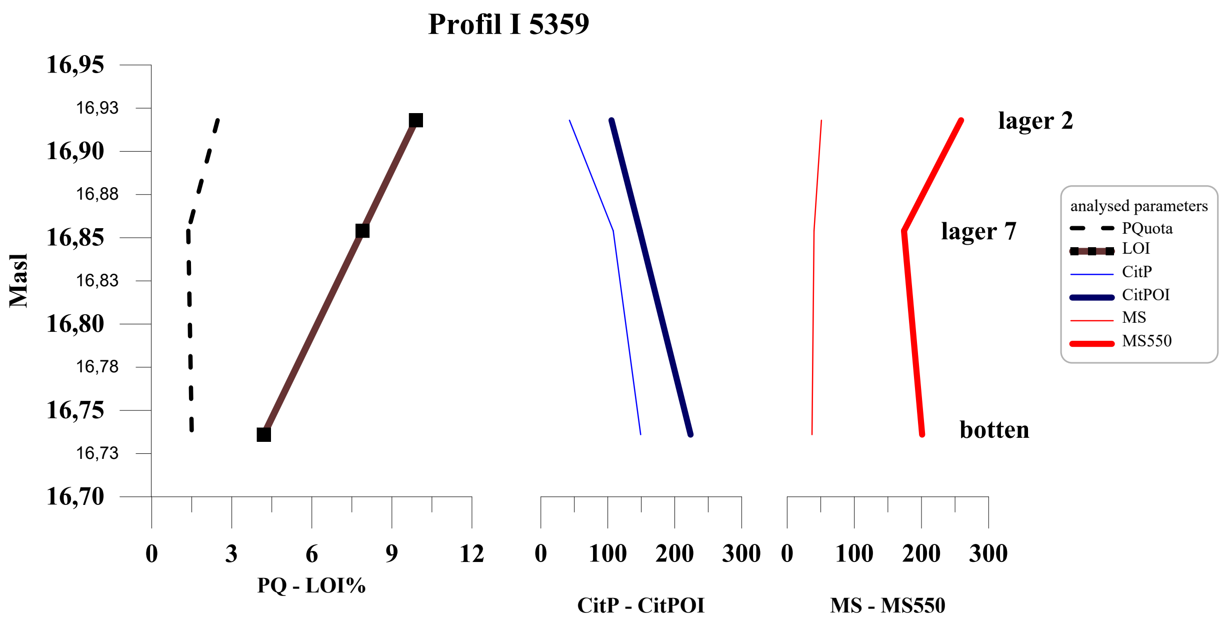

Figure 5f. Vertical distribution of analysed parameters

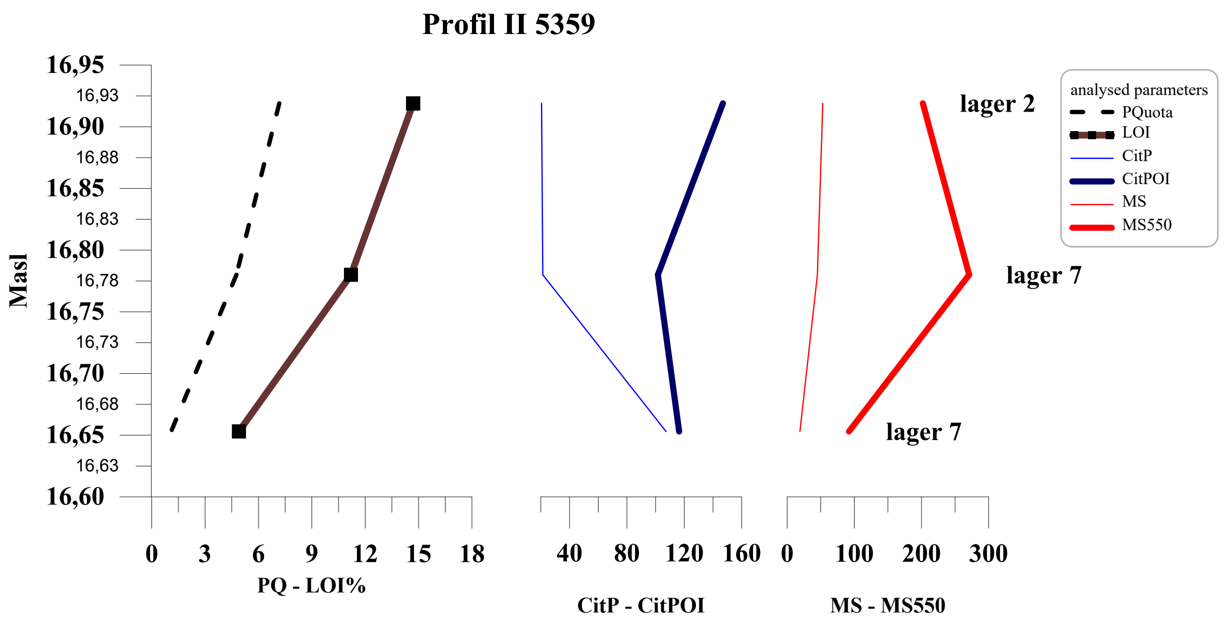

Figure 5g. Vertical distribution of analysed parameters

In the figures 5h-j the similar pattering as in the first plots and with even lower CitP values, especially in figure 5i.

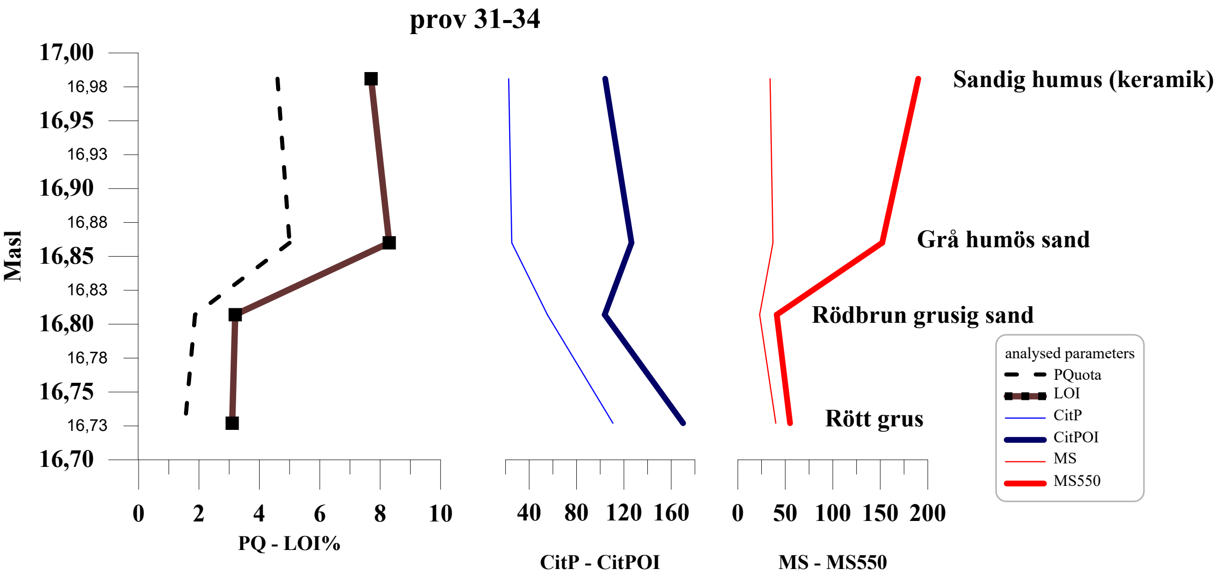

Figure 5h. Vertical distribution of analysed parameters

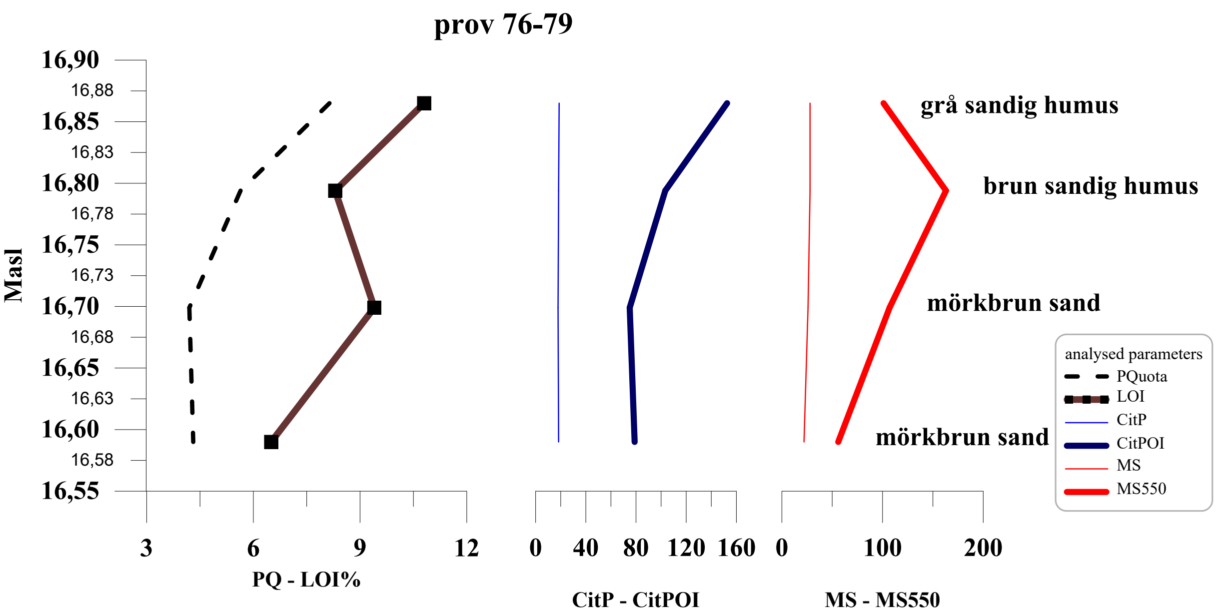

Figure 5i. Vertical distribution of analysed parameters

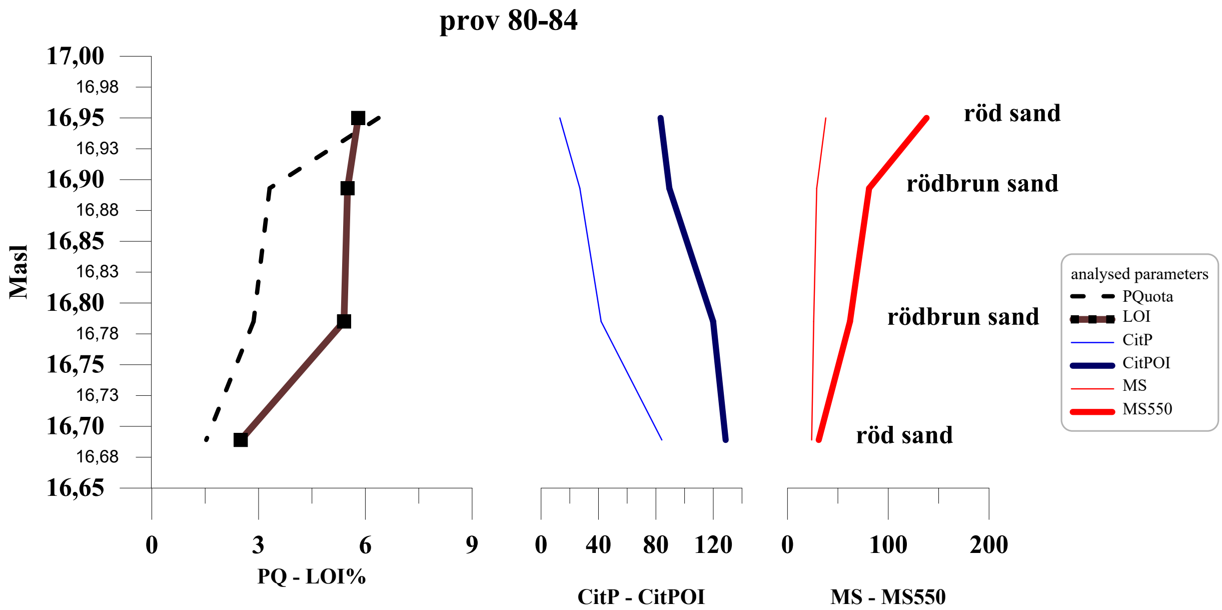

Figure 5j. Vertical distribution of analysed parameters

XRF-results

In table 2 the XRF-results for the four samples are presented. Two sample locations have been analysed, sample number 55 and 60 (bone pit) and number 76-77 (approximately 4 m southeast of the bone pit, figure 3). The latter two samples were chosen to act as control to the to the bone pit samples, as the showed, especially low in CitP and CitPOI, but also low in MS.

Cupper and Zink is found in low concentrations in the bone pit samples. In the comparison samples no Cu could be detected. It also needs to be stressed that the Cu values in the bone pit samples are just above the detection limit of the applied technique. Compared to previous grave studies in the Tanum area (Linderholm 2014), where combinations of Cu, Sn and Pb could show presence of metallic (bronze) grave goods, concentrations in Cu were ten times higher. Furthermore, Sn is only found in sample 76-77, and in low concentrations, which further lessens the probability of any metallic remains in the bone pit.

In the bone pit samples, the CitP content is also very high which is what to expect from a bone pit. Calcium is on the other hand low and leaching is here a probable cause of this. Ca and Sr normally follow each other and so is the case also here. Comparing to the previous study (Linderholm 2014) the Ca levels at Tanum 2462 are less and around 1%, which is at the very low end compared to the previous studied sites and materials.

No strong indications of grave goods or such can be established, based on the chemistry data of the analysed soil samples. Still a leached body stain is quite clear from a phosphate point of view and combined with the comparably low calcium levels that implies a low pH leaching environment.

Discussion and Conclusions

The preservation of archaeobotanical remains from the studied features is very scarce. All the samples contained very low amounts of charcoals, which indicates the lack of burning activities, and could explain the poor preservation of botanical remains. In four of the samples, pinecone flakes were found, which were the only identified botanical remain. Their presence could be explained with some intentional use of the cones in the burials as part of the ritual or as grave goods or remains of a funeral pyre. However, their presence could be a result of later natural ground fires, especially if the samples were taken close to the ground level. Charcoal fragments and pollen of pine were also registered in the pollen samples. Notable is that the pollen sample from the bone pit shows signs of more disturbance indicating plants than the other two.

The chemistry results show probable body remains in a couple of the samples. No clear evidence of burning in situ can be established, nor any indications of grave goods of metallic origin. However, it seems to be a heavily leached soil matrix and this may explain as to why all signals but phosphate levels are quite weak. A lager empirical base of XRF analysed samples is recommended for future studies of this kind combined with analysis of pH-levels. This would give further possibilities to investigate issues on taphonomy and state of decay of the findings.

References

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Tables

Table 1. Archaeobotanical results from the studied sites.

MAL nr	Samples No	Volume before float	Volume after float	Pinus sp. (pine) cone flakes	Charcoals	Others
20_0020_0001	prov 24, S 2	1800 ml	80 ml	6	x	modern roots and stems
20_0020_0002	prov 47, S 5	1700 ml	50 ml	7	x	modern roots and stems
20_0020_0003	prov 54, S 6	2400 ml	125 ml	11	x	modern roots and stems
20_0020_0004	prov 68, S 5	1800 ml	75 ml	5	x	modern roots and stems
20_0020_0005	prov 84, S 8	1000 ml	20 ml	0	x	modern roots and stems

Table 2. XRF data son sub set of samples

MALNo	FieldNo	Ag	As	Cd	Cr	Pb	Cu	Zn	Sn	V	Sb	Ni
20_0019_0029	prov 55	<LOD	3,64	<LOD	37,00	37,51	4,38	32,12	<LOD	37,65	<LOD	13,56
20_0019_0030	prov 60	<LOD	<LOD	<LOD	17,87	17,94	5,17	20,14	<LOD	25,07	<LOD	17,72
20_0019_0031	prov 76	<LOD	4,95	4,64	22,76	41,30	<LOD	10,80	5,38	33,07	4,55	<LOD
20_0019_0032	prov 77	6,85	5,50	16,98	31,87	35,04	<LOD	11,55	8,58	45,86	9,62	24,90

MALNo	Fe%	Mn	K%	S%	Ca %	Sr	Ba	Rb	Th	Ti	U	Zr
20_0019_0029	2,25	245	1,00	0,309	0,77	141	250	105	12,63	3608	7,27	177
20_0019_0030	1,53	174	1,13	0,202	1,04	152	249	96	6,73	2697	6,91	132
20_0019_0031	1,37	132	1,47	0,200	0,81	150	239	99	6,20	2848	4,80	142
20_0019_0032	2,47	296	1,98	0,295	1,43	194	147	136	5,47	5207	8,02	266

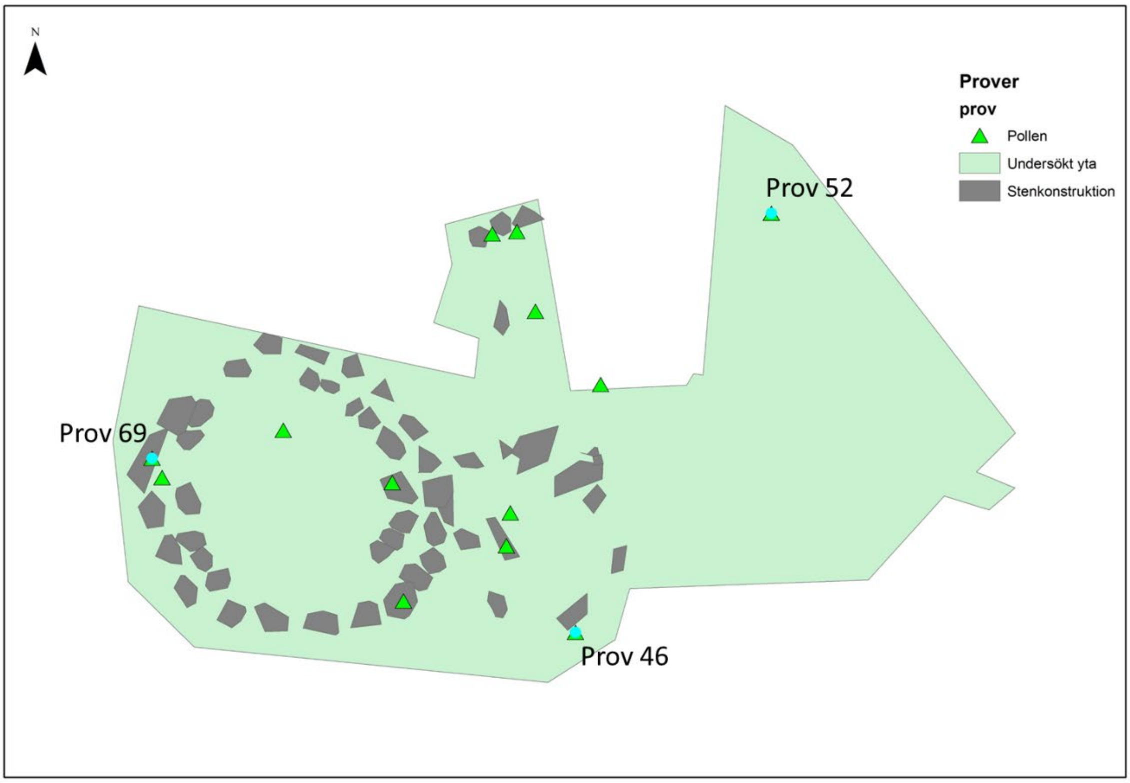
Table 3. Soil chemical data analysed samples.

MALNo	FieldNo	provtyp	Northing	Easting	Z	MSlf	MS550lf	MSQ	CitP ppm	CitPOI ppm	PQuota	LOI
20_0019_0001	prov 1	SP	6515144,1	284922,5	16,85	44	108	2,45	22	168	7,57	20,1
20_0019_0002	prov 2	SP	6515144,1	284922,5	16,75	25	47	1,88	16	75	4,62	4,3
20_0019_0003	prov 3	SP	6515144,1	284922,5	16,66	15	161	10,73	71	118	1,67	12,3
20_0019_0004	prov 4	SP	6515144,0	284922,4	16,54	20	265	13,25	189	233	1,24	7,1
20_0019_0005	prov 5	SP	6515139,8	284930,5	15,87	34	112	3,29	20	99	4,83	6,7
20_0019_0006	prov 6	SP	6515139,8	284930,5	15,84	57	178	3,12	27	67	2,43	6,1
20_0019_0007	prov 7	SP	6515139,8	284930,4	15,76	58	102	1,76	75	117	1,57	5,6
20_0019_0008	prov 8	SP	6515139,8	284930,5	15,72	42	84	2,00	75	123	1,64	3,1
20_0019_0009	prov 21	SP	6515144,4	284926,8	16,98	51	126	2,47	29	112	3,84	5,7
20_0019_0010	prov 22	SP	6515144,3	284926,8	16,90	42	93	2,21	76	145	1,9	4,7
20_0019_0011	prov 23	SP	6515144,4	284926,8	16,80	36	46	1,28	140	169	1,2	3,0
20_0019_0012	prov 28	SP	6515140,5	284927,2	16,84	28	119	4,25	25	86	3,47	6,2
20_0019_0013	prov 29	SP	6515140,5	284927,2	16,74	29	40	1,38	73	97	1,34	3,9
20_0019_0014	prov 30	SP	6515140,6	284927,3	16,70	39	44	1,13	99	152	1,54	2,4
20_0019_0015	prov 31	SP	6515142,8	284928,1	16,98	34	190	5,59	23	104	4,6	7,7
20_0019_0016	prov 32	SP	6515142,8	284928,1	16,86	37	152	4,11	25	126	5	8,3
20_0019_0017	prov 33	SP	6515142,9	284928,1	16,81	23	41	1,78	55	104	1,87	3,2
20_0019_0018	prov 34	SP	6515142,9	284928,1	16,73	40	55	1,38	111	170	1,54	3,1
20_0019_0019	prov 35	SP	6515142,0	284927,5	16,94	45	180	4,00	20	94	4,6	5,9
20_0019_0020	prov 36	SP	6515142,0	284927,5	16,86	34	125	3,68	20	92	4,59	5,9
20_0019_0021	prov 37	SP	6515142,0	284927,5	16,73	25	30	1,20	89	120	1,34	2,7
20_0019_0022	prov 38	SP	6515141,9	284927,5	16,59	20	63	3,15	104	136	1,31	2,5
20_0019_0023	prov 39	SP	6515141,7	284923,7	16,92	51	259	5,08	43	106	2,47	9,9
20_0019_0024	prov 40	SP	6515141,7	284923,7	16,85	40	174	4,35	108	148	1,37	7,9
20_0019_0025	prov 41	SP	6515141,7	284923,8	16,74	37	201	5,43	149	224	1,5	4,2
20_0019_0026	prov 42	SP	6515141,9	284922,5	16,92	53	202	3,81	20	147	7,17	14,7
20_0019_0027	prov 43	SP	6515142,0	284922,5	16,78	45	271	6,02	21	102	4,76	11,2
20_0019_0028	prov 44	SP	6515142,1	284922,5	16,65	19	92	4,84	107	116	1,09	4,9
20_0019_0029	prov 55	SP	6515145,0	284929,4	16,98	58	102	1,76	303	548	1,81	12,7
20_0019_0030	prov 60	SP	6515145,0	284929,4	16,92	33	50	1,52	937	1206	1,29	10,5
20_0019_0031	prov 76	SP	6515142,0	284931,6	16,87	28	101	3,61	19	153	8,14	10,8
20_0019_0032	prov 77	SP	6515142,0	284931,6	16,79	28	163	5,82	18	103	5,64	8,3
20_0019_0033	prov 78	SP	6515142,0	284931,6	16,70	26	107	4,12	18	75	4,2	9,4
20_0019_0034	prov 79	SP	6515142,0	284931,6	16,59	22	56	2,55	18	79	4,31	6,5
20_0019_0035	prov 80	SP	6515142,4	284929,2	16,95	38	138	3,63	13	83	6,37	5,8
20_0019_0036	prov 81	SP	6515142,3	284929,2	16,89	29	81	2,79	27	89	3,31	5,5
20_0019_0037	prov 82	SP	6515142,3	284929,2	16,79	26	62	2,38	42	120	2,86	5,4
20_0019_0038	prov 83	SP	6515142,3	284929,2	16,69	24	31	1,29	84	129	1,53	2,5
20_0020_0001	prov 24	MP	6515142,4	284923,4	16,75	33	136	4,07	53	89	1,7	9,9
20_0020_0002	prov 47	MP	6515139,8	284927,2	15,84	29	44	1,50	24	51	2,2	2,7
20_0020_0003	prov 54	MP	6515145,0	284929,5	16,98	59	107	1,81	648	974	1,5	11,7
20_0020_0004	prov 68	MP	6515141,9	284922,0	16,77	55	248	4,48	28	85	3,0	7,6
20_0020_0005	prov 84	MP	6515142,3	284929,3	16,75	22	31	1,42	116	171	1,5	2,5

Pollenanalys
MAL 2020_0020_06-08
Tanumshede, Bohuslän

Jan-Erik Wallin

INLEDNING
3 prover har analyserats på polleninnehållet. Pollenproverna är insamlade från tre olika stensättningar, prov 46 (mal nr 06) från stensättning 5360, prov 52 (mal nr 07) från stensättning 2462 och prov 69 (mal nr 08) från stensättning 5359. Undersökningslokalens läge är ca 1.5 km väster om Tanumshede, vid Nedre Norgården.



Figur 1. Översikt över lokalen och de analyserade pollenprovens lokalisering.

METODER
Pollenanalys
Proverna är insamlad av utgrävningspersonal, i samband med den ordinarie utgrävningen. Proverna behandlades enligt standardmetoden för pollenanrikning beskriven i t.ex. Moore et al. (1991). Återstoden, det koncentrerade pollenmaterialet, färgades med saffraninfärgad glycerin. Vid identifiering av pollentyperna användes bestämningsnycklar av Beug (1961) och Moore et al. (1991). Vid pollenanalys av jordprover finns en viss risk för att vissa växtarter med tjockskaliga pollenkorn får en överrepresentation i analysen (t. ex korgblommiga växter). Att pollenkornen har ett tjockt skal minskar risken för nedbrytning jämfört med tunnskaliga pollenkorn. I proverna har inte noterats att tjockskaliga pollen skulle vara överrepresenterade.

RESULTAT

Proverna innehöll sådan mängd av pollen att en analys var möjlig. Proverna innehöll även kolpartiklar.

Pollensammansättningen i proverna visar att trädvegetationen bestod av tall, björk och al. Hasselsnår förekom på lokalen. Låga procentandelar av granpollen fanns i proverna, vilket skulle tyda att proverna är yngre än 1500 år (Berglund et al 1996). Granen etablerade sig (som växande granbestånd) vid västkusten ca 1500 år sedan. I rösemiljöer kan sedimentlagrens genomsläpplighet vara större än i andra mer slutna sedimenttyper, vilket gör att viss kontamination är möjlig.

I pollenproverna noterades stora mängder med pollen från ljung. Förekomsten av ljungpollen indikerar ljunghed.
Pollen som indikerar odling eller bete har hittats i proverna. Sädesslagspollen från korn har hittats i samtliga prover. Pollen från råg har hittats i proverna 52 (mal nr 07) och 69 (mal nr 08). Andelen sädesslagspollen är dock lågt, vilket skulle tyda att några större odlingar inte förekommit i den omedelbara närheten. Störningsindikerande pollen förekommer i samtliga prover. Störningsindikerande pollen visar att närmiljön har förändrats av mänsklig verksamhet. I första hand har landskapet öppnats för bete och sädesslagsodling.

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Tabell 1: Tanumshede, Bohuslän
MAL 2020-020 Pollenanalys

Art/prov nr. MAL 2020-020	**06 Under kantsten**	**07 Bengömma**	**08 Under kantsten**
Andel pollen i procent (%) Exkl. sporer	**46, S5, L2019 5360**	**52, S6, Tanum 2462**	**69, S5, L2019:5359**
Al (Or)	6.3	7.7	4.4
Björk	28.5	23.4	41.0
Tall (Furu)	10.9	6.9	6.2
Gran	2.2	1.5	1.7
Ek	0.2	0.1	0.2
Lind	0.6	0.6	0.3
Hassel/Pors	1.4	2.0	1.8
En		0.1	0.1
Ljung (Lyng)	36.7	41.2	38.8
Risväxter (obest.)	0.2	0.1	
Sälg/vide (Vier)	0.8	0.2	0.1
Gräs (Gras)	3.3	2.0	1.5
Korgblommiga växter (rörf.), (Turf)	1.3	0.6	0.3
Korgblommiga växter (Tungf.) (Tistel, Lövetann)		0.3	0.4
Smörblommor (Soleie)	3.2	6.2	0.6
Rosväxter (Mure)	1.4	3.8	0.6
Gråbo (Burot)		0.1	0.1
Målla (Meldestokk)	0.3		0.1
Nejlikväxter (Smelle, tjärnblom)	0.4	1.1	0.2
Vänderot	0.2	0.1	0.1
Skallra (Engkall)			0.1
Vicker (Vikke)	0.8	0.1	
Mjölkört		0.3	
Ängssyra/Bergsyra		0.1	0.1
Groblad	0.1	0.1	
Summa störnings indikerande växter (exkl. gräs) %	**7.7**	**12.8**	**2.6**
Korn (Bygg-typ)	0.3	0.2	0.5
Vete/Havre– typ (Hvete-typ)			
Råg (Rug)		0.1	0.2
Summa odlade växter	**0.3**	**0.3**	**0.7**
Starr (Storr)	0.3	0.3	0.2
Älgört (Mjudurt)	0.1	0.1	0.1
Käx (Kjeks)	0.2	0.6	0.1

Kovall		0.1	0.2
Sporer			
Lummer (Kråkefot)	0.2	0.1	
Ormbunkar (Telg)	3.6	0.5	0.5
Pollenanalys **Antal räknade pollen**	**917**	**1430**	**1246**
Analys Jan-Erik Wallin September 2020 Pollenlaboratoriet i Umeå AB	**kol**	**kol**	**kol**

Vilken vegetation indikerar de olika växt-arterna

Svensk (Norska) Latin	***Lövskog***	***Barrskog***	***Ängsmark***	***Åkermark***
Al (Or) *Alnus*	X			
Björk *Betula*	X			
Tall (Furu) *Pinus*		X		
Gran *Picea*		X		
Lind *Tilia*	X			
Ek (Eik) *Quercus*	X			
Alm *Ulmus*	X			
Ask *Fraxinus*	X			
Hassel/Pors *Corylus-type*	X			
Ljung (Lyng) *Calluna*			X	
Risväxter (ex Blåbär) *Ericaceae*				
Sälg/vide (Vier) *Salix*				
En (Einer) *Juniperus*			X	
Gräs (Gras) *Poaceae*			X	X
Korgblommiga växter (rörf.), (Turf) *Asteraceae undiff.*			X	X
Korgblommiga växter (Tungf.) (Tistel, Lövetann) *Cichoriaceae*			X	X
Blåklint (ex Kornblom) *Centaurea type*				X
Smörblommor (Soleie) *Ranunculus type*			X	
Rosväxter (Mure) *Rosaceae undiff.*				
Gråbo (Burot) *Artemisia vulgaris*				X
Groblad *Plantago media/major*			X	
Syror (Syre) *Rumex*			X	
Målla (Meldestokk) *Chenopodiaceae*			X	X
Nejlikväxter (Smelle, tjärnblom) *Caryophyllaceae*			X	X

Mjölkört (Geitrams) *Epilobium*			X	
Spärgel (Bendel) *Spergula*				X
Nässla (Nesle) *Urtica*				X
Måra (Maure) *Galium*				
Humle/Hampa *Humulus-type*				X
Skallra (Engkall) *Rhinanthus*			X	
Vicker (Vikke) *Vicia cracca type*				X
Korn (Bygg-typ) *Hordeum*				X
Vete/Havre – typ (Hvete-typ) *Triticum type*				X
Råg (Rug) *Secale*				X
Starr (Storr) *Cyperaceae*			X	
Älgört (Mjödurt) *Filipendula*				
Kovall (Marimjelle) *Melampyrum*			X	
Käx (Kjeks) *Apiaceae*			X	
Sporer				
Lummer (Kråkefot) *Lycopodium*				
Ormbunkar (Telg) P*olypodiaceae*				
Dvärglummer (Dvergjamne) *Selaginella*				

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