Rescue excavations at Runde

An Eroding Burial Cairn and Truncated Iron Age House

Askeladden ID 45876-4, 45876-1

Runde gnr. 9 bnr. 13, Herøy k. Møre og Romsdal

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CONTENTS

INTRODUCTION - 45876-4

Between the 26th-30th September 2013, a team from the *Seksjon for ytre kulturminnevern*, Universitetsmuseet i Bergen carried out rescue excavation of an eroding stone cairn, believed to be the remains of a burial mound (ID 45876-4) at **Runde gnr. 9 bnr. 13, Herøy k. Møre og Romsdal.** The rationale for this work is outlined below:

> "Røysresten inngår i en kulturminnelokalitet bestående av 5 enkeltminner som til sammen antas å representere et yngre jernalders gårdsanlegg id 45876. Hovedstrukturen er en veggvollmarkert tuft, enkeltminne 1. 10 m ØSØ for denne ligger en gravrøys med bautastein (trolig helle satt opp i nyere tid), enkeltminne 2. Disse ble påvist i 1961 (Per Fett). Nordre del av tuften gikk tapt som følge av ulovlig grusuttak senere på 1960 – tallet. Historisk museum foretok i 1972 en mindre utgravning i tuften i området som grenser mot grustaket (innberetning top.ark, Universitetsmuseet i Bergen). Funn av jernnagle, ildflint og fire bukfragmenter av kleberkar antyder en datering til vikingtid. I forbindelse med befaring v/ Møre og Romsdal i 1992 ble det påvist ytterligere tre enkeltminner ved tuften. Disse består av to røyser, der den ene, enkeltminne 3, ligger rett øst for tuften ut mot grustakskanten og den andre, enkeltminne 4, ligger igjen som en rest av en røys på kanten av grustaket. Anslagsvis ¾ av denne røysen er ødelagt av grustaket. I tilegg ble en mulig mindre tuft, enkeltminne 5, lokalisert 15 m vest for enkeltminne 1, med åpning vendt mot stortuftens vestre langvegg (befaringsnotat ved Lars Narmo 04.02.1992). I forbindelse med plan for tiltak i nærområdet ble det 31.10.12 foretatt en felles befaring på stedet med representanter for fylkeskommunen (Trond Linge), Riksantikvaren (Jostein Gundersen) og Universitetsmuseet i Bergen (Asle Bruen Olsen). Det ble da konstatert at enkeltminne 5 ikke er en tuft, men del av et steingjerde som trolig er fra nyere tid. Det ble videre brakt på det rene at enkeltminne 4 ut fra synlig oppbygging i kantsnittet må være rest av en gravrøys."
>
> (Asle Bruen Olsen UiB, to Riksantikvaren, Arkeologiseksjonen, dated 04.12.12)

The team comprised Howell Magnus Roberts (field leader) and Morten Ramstad (Forsker). The team returned to Runde of the 22nd October, in order to record and sample the endangered section of a substantial stone walled building (ID 45876-1), believed to be a dwelling.

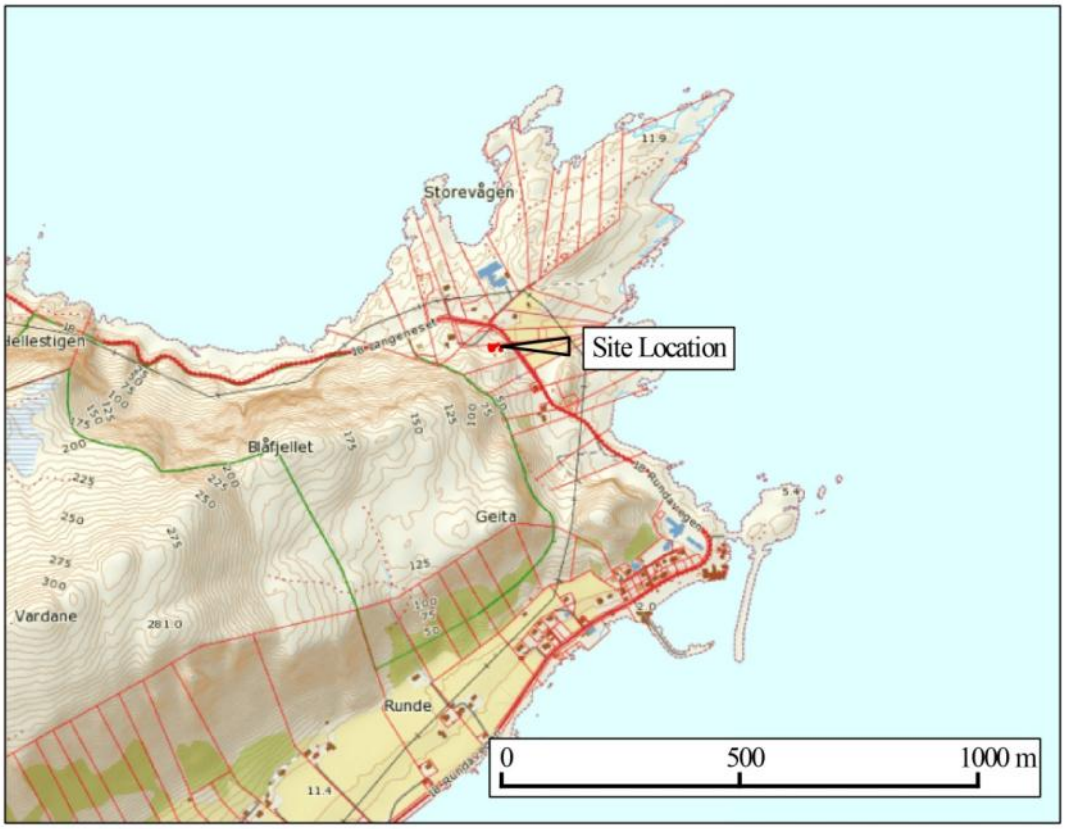

Figure 1 - Site Location (from gislink.no)

Figure 2 - View over the Site, from the south.
(Structure 45876-1 is beneath felled trees, to the left of the red summer house**).**

Imminent development of the land directly north (and downslope) of the remains (underway in Figure 2, dated 22/10/13) was determined to endanger the fragmentary remains of cairn

45876-4, and excavation was undertaken to recover such information as possible prior to any further erosion or disruption.

Figure 3 - Site Plan (modified from gislink.no)
(Features in red, limit of excavation in yellow)

METHOD

The outline location of all surviving remains was mapped using a Leica 1200 series total station theodolite (see Figure 3). The eroding and overgrown section of Cairn 45876-4 was cleaned manually, and photographed. An excavation area measuring circa 7m (north-south) and 2.5m (east-west) was established, its limits being determined by the erosion face to the north and by mature standing trees to the south. Turf, topsoil, and loose material were removed with hand tools. The section was recorded in detail by scale drawing and by conventional digital photography. Additionally, the remains were also recorded by oblique digital photography, and by sub-vertical pole aerial photography for the purposes of photogrammetric reconstruction.

After detailed recording, the remainder of the cairn was dismantled by hand, with additional stages of cleaning and recording as deemed necessary. Excavation was discontinued at the sterile natural basement. No artefacts were recovered, and no convincing structural remains were encountered. The detailed records are presented below.

RESULTS

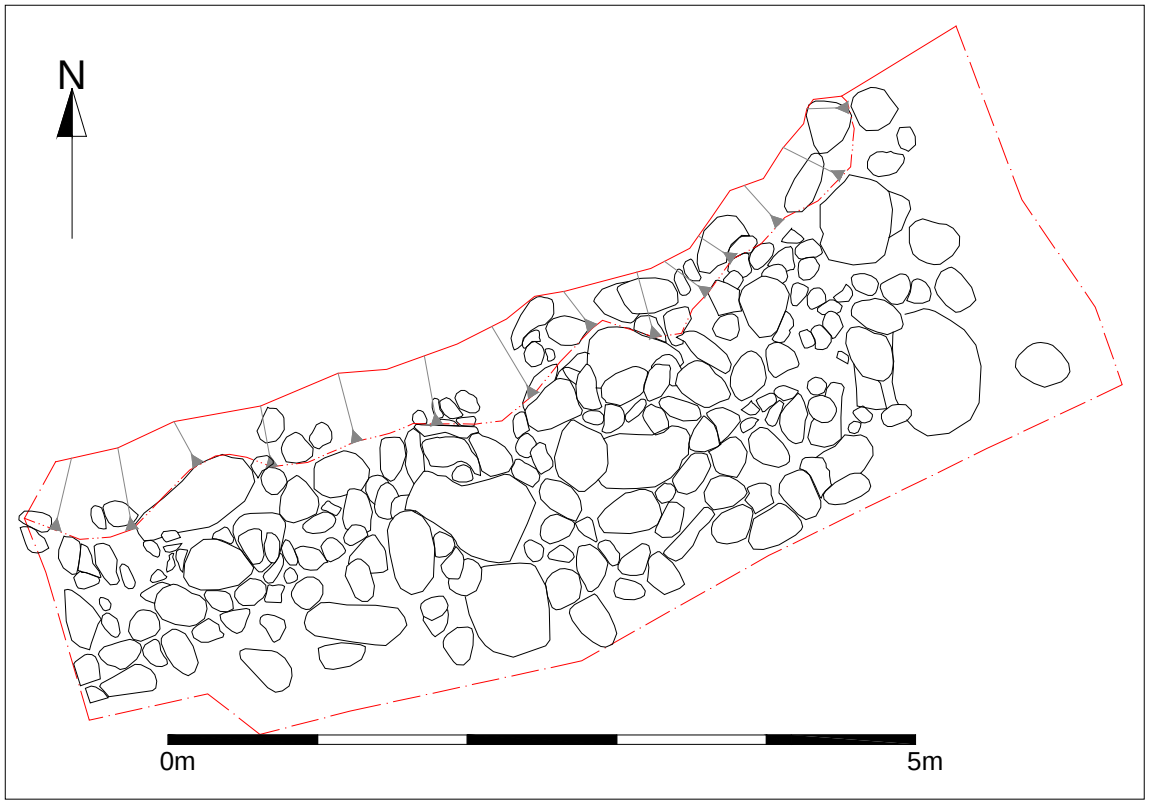

Figure 4 - Detailed plan of 45876-4

Figure 5 - Pseudo orthophoto, derived from photomosaic.

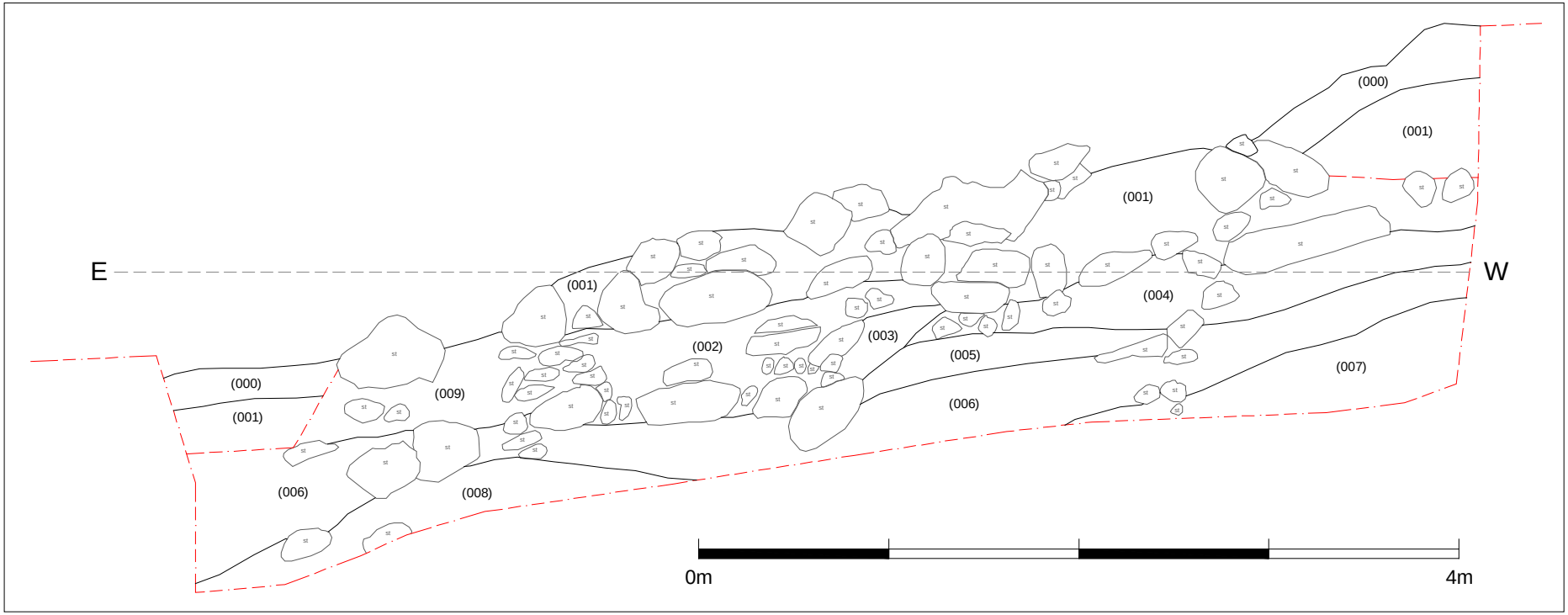

Figure 6 - North facing section of 45876-4

(000) - Topsoil - moss/grass 5YR-2.5/2
(001) - Large irregular unsorted stones up to 10-70cms, in matrix of very dark brown/black, sandy silt, firm to friable, High organic content, intense root action. Upper cairn constuction. Stones are mostly rounded cobbles, but also contain angular and sub-angular laminar slabs.
(002) - Dark orange brown sandy silt, firm to friable, root action, iron pan at base. "Fill" of possible chamber at centre of cairn base
(003) - Mixed brown/grey sandy silt, with frequent degraded small laminar stones.
(004/009) - Dark brown sandy silt, with frequent small rounded stones, circa 10cms. Pre-exisiting natural ground surface prior to cairn construction.
(005) - Mid yellow/orange silty sand, frequent small to medium sub-rounded stones. Natural.
(006) - Dark orange brown sand and gravels, moderate rounded stones up to 20cms. Natural
(007) - Grey/green sand and gravel, frequent rounded stones. Natural.
(008) - Grey/black concreted/indurated sands and gravels. Natural

Figure 7 - North facing section of 45876-4, prior to removal of tuf and topsoil.

DISCUSSION

Although poorly preserved and clearly largely destroyed by erosion, the cairn is interpreted as being anthropogenic in origin. A number of large irregular slabs appear to demarcate the "core" of the cairn (see Figures 4 and 5), an area perhaps 5m in diameter, of which no more than 25% survives. The cairn survived to a height of less than 0.80m. At the centre/east of the section is a possible negative feature or depression, circa 1m in width and up to 0.75m in depth as seen in section (see Figure 6, Context 002). This feature could conceivably represent the outer limits of chamber or demarcated area within the cairn. However, excavation revealed no further evidence of deliberate structure.

It is thought the cairn would have originally been sub-circular in form, extending to the north of the surviving portion. No dating evidence was recovered, but it is thought likely to be associated with the surviving cairns. It is suggested that the cairn forms part of a Late Iron Age cultural landscape, although this is recognised as an unproven hypothesis.

INTRODUCTION - 45876-1

During excavation of Cairn 45876-4, substantial tree growth was noted within and around the remains of Ruin 45876-1. Furthermore, this structure was seen to be at risk from further erosion, and tree felling was in progress at the site. Small scale excavation had been previously carried out in 1972 (see Appendix 2), although an archival search produced no further information on this work. Current surface topography was seen to indicate that the 1972 excavation had focused of the northern limit of the structure, adjacent to the erosion face. It is thought that this erosion face has retreated over the interceding 40 years. Tree growth within the ruin during this period is also of concern.

METHOD

A small, shallow trench was open at the edge of the apparent 1972 excavation area, measuring circa 4m x 0.5m. The trench extended from the high point over the eastern wall, to the lowest centre point of the building. Turf and topsoil was removed by hand, and excavation proceeded only to a depth sufficient to determine the survival of in-situ occupational deposits, and to permit sampling for 14c dating. Micromorphology samples were also recovered for potential future research.

Figure 8 - Section, 45876-1

RESULTS

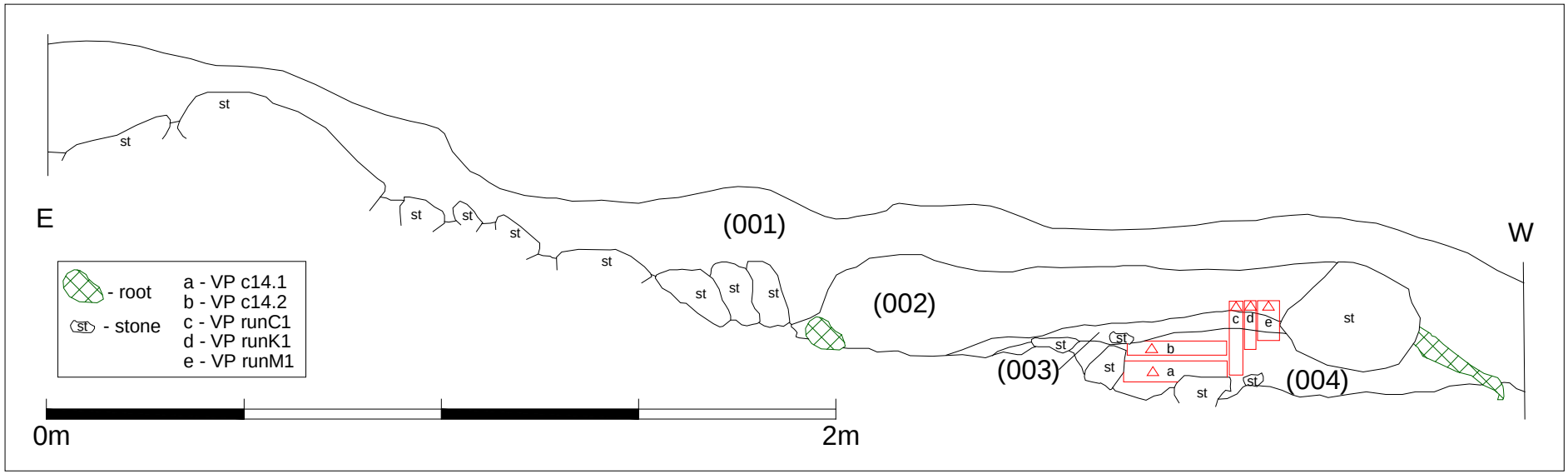

Figure 9 - North facing section, 45876-1

Ruin 45876-1 - Context descriptions.

Recorded in saturated conditions, overcast/cloudy/rainy

(001) - Waterlogged Topsoil - peat/moss/grass 5YR-2.5/2

(002) - Layered organic decayed peat. Upper boundary diffuse. Reddish black 2.5YR-2.5/1

(003) - Very dark grey (5YR-3/1) silty clay sand with angular clasts. Quartzite grains, mm to sub mm. Occasional small charcoal fragments, less than 2%. Boundaries sharp and linear.

(004) - Black charcoal layer with very little mineral content, amorphous organic content. Slightly greasy. Flattish oriented clasts, circa 5cm, sub-rounded/weathered. Charcoal fragments cm to sub mm size. Interpreted as an occupation surface.

DATING

The house structure was partially excavated in the summer of 1972 by Sigrid Kaland and Geir Helgen on behalf of Bergen Museum. No report is currently available, and the recovered artefacts (including iron nails, 4 fragments of steatite vessel and flint strike-a-lights - see Bruen Olsen, above) are not available for study.
Subsequent case documentation offers varying interpretations.

In 1989 Kjersti Randers indicates...

> "Situasjonen viser ei tufterest (trolig fra Vikingetid/tidlig middelalder) hvorav mellom 1/3 og 1/2-del er fjernet." (UiB archive number 4115)

A survey of the remains by Lars Erik Narmo, Møre og Romsdal Fylkeskommune, from February 1992 suggests...

> "Av form virker hustufta å være et typisk eksempel på et langhus med steinbygde vegger fra romertid/folkevandringstid." (UiB archive number 4117)

However, new radiocarbon dates from this structure indicate an earlier date. Samples were taken from the upper (VPc14.2/Rundehus2) and lower (VPc14.1/Rundehus1) parts of Layer 4 in the exposed section (see Figure 9). Suitable materials were selected by Dendroecologist A J Kirchhefer (see Appendix 3, Samples Run1 and Run2). From these selections, the following materials were submitted for dating:
Sample Run1/Rundehus1 (lower): Heather (*lyng* / *Ericaceae*)
Sample Run2/Rundehus2 (upper): Deciduous tree bark (*løvtre*) and Heather (*lyng* / *Ericaceae*)

The dating results are as follows (see also Appendix 4)

Beta - 371016 2350 +/- 30 BP -27.9 o/oo 2300 +/- 30 BP
SAMPLE : Rundehus1
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal BC 400 to 360 (Cal BP 2350 to 2310) AND Cal BC 270 to 260 (Cal BP 2220 to 2210)

Beta - 371017 2470 +/- 30 BP -26.2 o/oo 2450 +/- 30 BP
SAMPLE : Rundehus2
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal BC 760 to 680 (Cal BP 2710 to 2630) AND Cal BC 670 to 410 (Cal BP 2620 to 2360)

(extract from Beta Analytic Inc. report, dated 31/1/14).

These indicate activity in the Pre Roman Iron Age, or even possibly across the BA/IA boundary. The dates are however inverted in regard to their physical location in the profile.

DISCUSSION

The ruin was mapped as surviving to a length of up to 14.5m x 10.5m externally. Internal dimensions (as visible on the surface) are 11.5m in length and 4.5m in width. The western wall survives to the greater length, and appears slightly curved. The structure is aligned NNW to SSE, and its internal structure in unknown. Per Fett (see above) indicates an opening, possibly an entrance, in the northern gable. The small test section excavated in 2013 indicates the current survival of occupational deposits at the (lower) centre of the ruin, and suggests a tumbled stone wall of up to 1m in height. Significant intrusive root action is noted throughout the section, and recent tree growth has clearly compromised preservation. However, the current condition of the remains still has significant potential for further research and preservation by record.

The threat posed to the remains at Runde has long been documented, but continues to be an active issue some fifty years later. Per Fett's photographs from July 1961 (see Figure 10) show a structure as yet unaffected by truncation and tree growth. His notes indicate a ruin some 16m in length and 10m in width (UiB Arkeologisk Institutt Top.Ark. 004092).

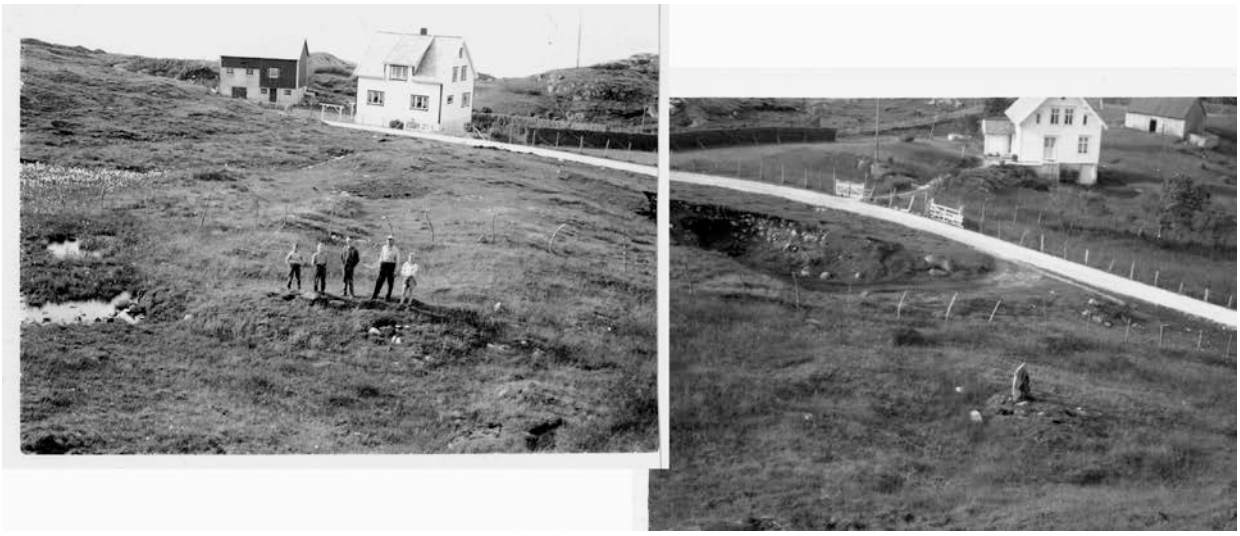

Figure 10 - Per Fett's photographs from Runde, July 1961 (pseudo-panorama)
(from UiB Arkeologisk Institutt Top.Ark. 004092)

It is thought that future re-growth of trees and/or other land use change could further damage the surviving archaeology. Regular monitoring is recommended. The erosion threat to this structure is such that further mitigation might be required.

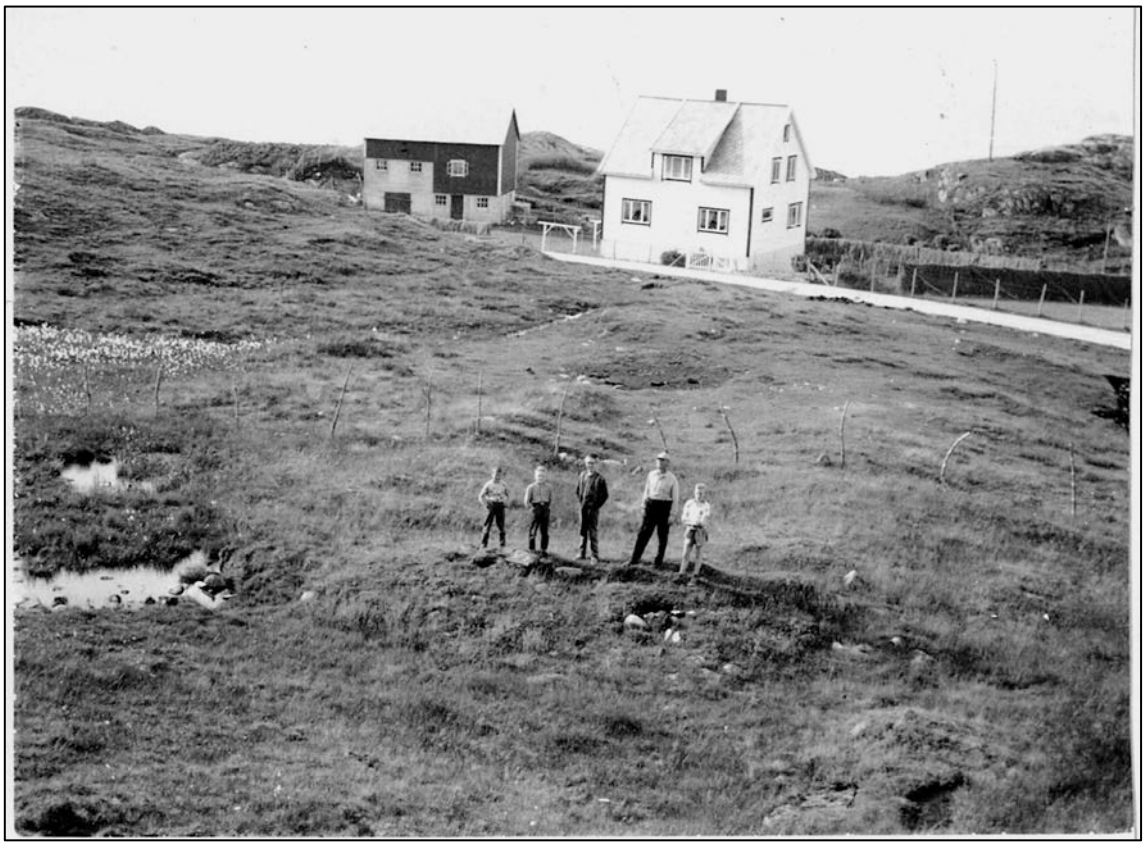

Figure 11 - View over structure, from SSE

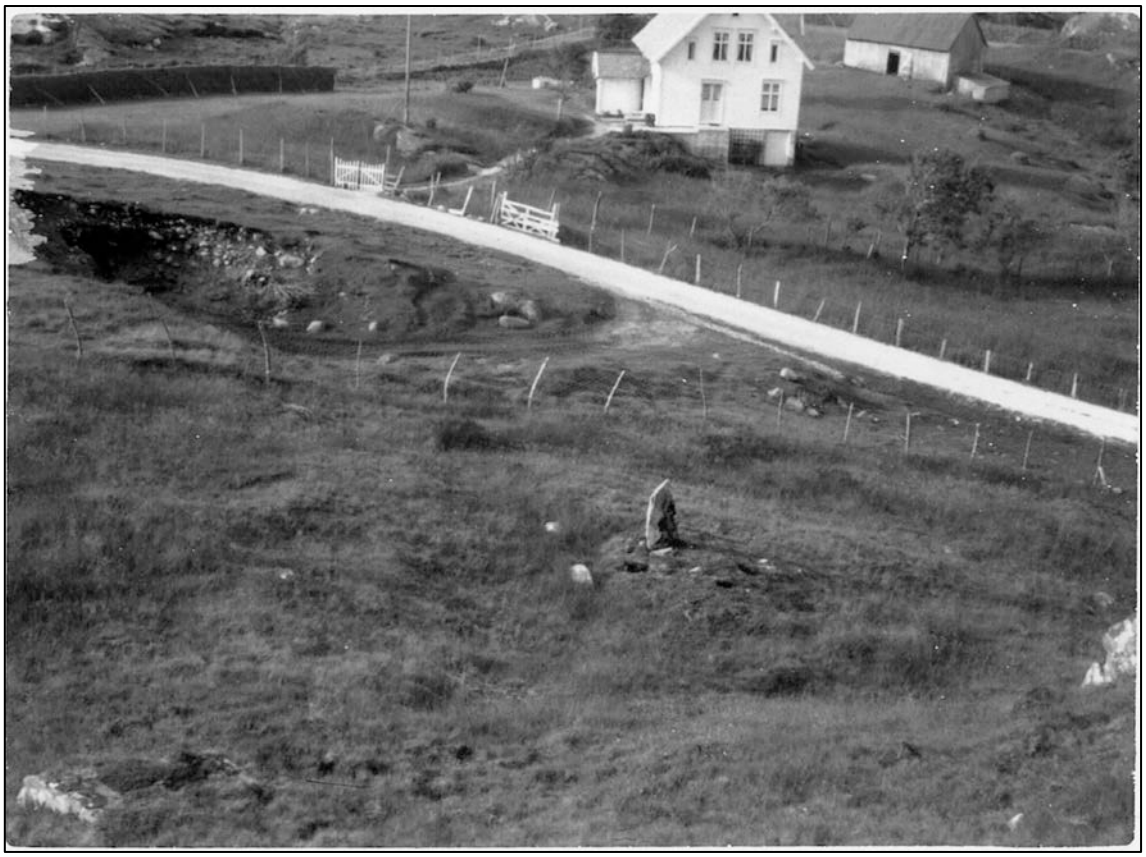

Figure 12 - View over cairns, from SSW

Prior to further research, it remains difficult to wholly reconcile the contradictory dating suggestions. The radiocarbon results indicate older material higher in the recorded section. This at least implies some mobility of material in the soil column and/or later redeposition of eroded/truncated material. It remains conceivable that the radiocarbon dates represent residual material derived from a large scale burning-off of heather and deciduous scrub. However, no such extensive burning horizon was noted during the excavation of Cairn 45876-4, at a distance of only 10-15m from the sampling location.

Despite that caveat, all of the available dating evidence is consistent with an occupation date in the Pre-Roman Iron Age. Although the large scale use of soapstone vessels has traditionally been taken as an indicator for the Viking Period, earlier use is also attested. Lars Pilø (1990: 89) argues for the commencement of soapstone production in Norway as early as circa 800BC (Late Bronze Age), with a gap in production in the centuries prior to the Viking Period. Storemyr and Heldal (2002) argue for an expansion of soapstone use and the production of vessels from 500BC onwards, citing Skjolsvøld's work at the Bubakk/Kviknes quarry (Skjolsvøld 1969) for production between 500-200BC.

The apparent form of the structural remains at Runde are thought to be more typical of the Later Iron Age. Without further knowledge of the interior structure, and the extent of structural collapse and/or modification, this point cannot yet be resolved.

REFERENCES

Pilø, L. H., 1990
Early soapstone vessels in Norway from the Late Bronze Age to the Early Roman Iron Age. *Acta archaeologica.* Vol. 60, København : Munksgaard.

Skjolsvøld, A. 1969
Et keltertids klebersteinsbrudd fra Kvikne. *Viking* 33: 201-238

Storemyr, P. and Heldal, T. 2002.
Soapstone Production through Norwegian History: Geology, Properties, Quarrying and Use. In: J. Herrmann, N. Herz, N. and R. Newman (eds.): *ASMOSIA 5, Interdisciplinary Studies on Ancient Stone – Proceedings of the Fifth International Conference of the Association for the Study of Marble and Other Stones in Antiquity, Museum of Fine Arts, Boston, June 11-15, 1998*. London: Archetype Publications, 359-369

Appendix 1 - Photo Register

A) Canon DSLR

Frame	Motive	Direction (camera facing)	ID	Date
IMG_3581	Eroding section prior to cleaning. MR, 1m scale.	S	HMR	25.9.13
IMG_3582	Eroding section prior to cleaning. MR, 1m scale.	S	HMR	25.9.13
IMG_3583	Section after cleaning, with setting. 1m scale.	S	HMR	26.9.13
IMG_3584	Section after cleaning	S	HMR	26.9.13
IMG_3585	Section after cleaning	S	HMR	26.9.13
IMG_3586	Section after cleaning	S	HMR	26.9.13
IMG_3587	Section after cleaning	S	HMR	26.9.13
IMG_3588	Section after cleaning. Detail of western portion.	S	HMR	26.9.13
IMG_3589	Section after cleaning. Detail of eastern portion.	S	HMR	26.9.13
IMG_3590	Section after cleaning	S	HMR	26.9.13
IMG_3591	Section after cleaning	S	HMR	26.9.13
IMG_3592	Section after cleaning. With horizontal datum, 1m scale	S	HMR	26.9.13
IMG_3593	Section after cleaning. With horizontal datum, 1m scale	S	HMR	26.9.13
IMG_3594	MR discusses work with resident.	S	HMR	27.9.13
IMG_3595	Section after removal of topsoil and loose stones.	S	HMR	27.9.13
IMG_3596	Section after removal of topsoil and loose stones.	S	HMR	27.9.13
IMG_3597	Section after removal of topsoil and loose stones. 1m scale	S	HMR	27.9.13
IMG_3598	Section after removal of topsoil and loose stones. 1m scale	S	HMR	27.9.13
IMG_3599	Remains in plan	W	HMR	30.9.13
IMG_3600	Remains in plan	E	HMR	30.9.13
IMG_3601	Remains in plan. 1m scale	E	HMR	30.9.13
IMG_3602	Edge of cairn to west apparent at LOE.	SW	HMR	30.9.13
IMG_3710	Western part of House section (blurred)	S	HMR	22.10.13
IMG_3711	Western part of House section, 1m scale	S	HMR	22.10.13
IMG_3712	Oblique view of House section, 1m scale	SE	HMR	22.10.13
IMG_3713	Detail, floor deposits in section, centre of House	S	MR	22.10.13
IMG_3714	Detail, floor deposits in section, centre of House	S	MR	22.10.13
IMG_3715	Detail, floor deposits in section, centre of House	S	MR	22.10.13
IMG_3716	Detail, floor deposits in section, centre of House	S	MR	22.10.13
IMG_3717	Oblique view of House section, HMR	SW	MR	22.10.13
IMG_3718	Oblique view of House section, AB	SE	MR	22.10.13
IMG_3719	Site overview	N	MR	22.10.13

Frame	Motive	Direction (camera facing)	ID	Date
IMG_3720	Landscape setting/ site overview	N	MR	22.10.13
IMG_3721	Landscape setting/ site overview	N	MR	22.10.13
IMG_3722	Landscape setting/ site overview	N	MR	22.10.13
IMG_3723	Landscape setting/ site overview	N	MR	22.10.13
IMG_3724	Landscape setting	NE	MR	22.10.13
IMG_3725	Landscape setting	N	MR	22.10.13
IMG_3726	Landscape setting	NNW	MR	22.10.13
IMG_3727	Landscape setting	NW	MR	22.10.13
IMG_3728	Landscape setting	WNW	MR	22.10.13
IMG_3736	Micromorph samples in situ, House section	S	AB	22.10.13

B) Sony Compact (sub-vertical / modelling)

Frame	Motive	Direction (camera facing)	ID	Date
DSC00217	Section through mound, cleaned.	S	HMR	26.9.13
DSC00218	Section through mound, cleaned.	S	HMR	26.9.13
DSC00219	Oblique view after deturfing. For modelling.	S	HMR	27.9.13
DSC00220	Oblique view after deturfing. For modelling.	S	HMR	27.9.13
DSC00221	Oblique view after deturfing. For modelling.	SE	HMR	27.9.13
DSC00222	Oblique view after deturfing. For modelling.	S	HMR	27.9.13
DSC00223	Oblique view after deturfing. For modelling.	SE	HMR	27.9.13
DSC00224	Oblique view after deturfing. For modelling.	E	HMR	27.9.13
DSC00225	Oblique view after deturfing. For modelling.	E	HMR	27.9.13
DSC00226	Oblique view after deturfing. For modelling.	ENE	HMR	27.9.13
DSC00227	Oblique view after deturfing. For modelling.	ENE	HMR	27.9.13
DSC00228	Oblique view after deturfing. For modelling. Western limit	N	HMR	27.9.13
DSC00229	Oblique view after deturfing. For modelling. Western limit	W	HMR	27.9.13
DSC00230	Oblique view after deturfing. For modelling. Central.	N	HMR	27.9.13
DSC00231	Oblique view after deturfing. For modelling. Central.	N/vertical	HMR	27.9.13
DSC00232	Oblique view after deturfing. For modelling. Centre-east	N/vertical	HMR	27.9.13
DSC00233	Oblique view after deturfing. For modelling. Centre-west	N/vertical	HMR	27.9.13
DSC00234	Oblique view after deturfing. For modelling. Centre-west	N/vertical	HMR	27.9.13

Frame	Motive	Direction (camera facing)	ID	Date
DSC00235	Oblique view after deturfing. For modelling. Eastern limit	N/vertical	HMR	27.9.13
DSC00236	Oblique view after deturfing. For modelling.	WNW	HMR	27.9.13
DSC00237	Oblique view after deturfing. For modelling.	W	HMR	27.9.13
DSC00238	Oblique view after deturfing. For modelling. Eastern limit	W	HMR	27.9.13
DSC00239	Oblique view after deturfing. For modelling.	W	HMR	27.9.13
DSC00240	Oblique view after deturfing. For modelling.	W	HMR	27.9.13
DSC00241	Oblique view after deturfing. For modelling.	SW	HMR	27.9.13
DSC00242	Oblique view after deturfing. For modelling.	SSW	HMR	27.9.13
DSC00243	Oblique view after deturfing. For modelling.	S	HMR	27.9.13
DSC00244	Plan view - E to W - 1	W/vertical	HMR/MR	27.9.13
DSC00245	Plan view - E to W - 2	W/vertical	HMR/MR	27.9.13
DSC00246	Plan view - E to W - 3	W/vertical	HMR/MR	27.9.13
DSC00247	Plan view - E to W - 4	W/vertical	HMR/MR	27.9.13
DSC00248	Plan view - E to W - 5	W/vertical	HMR/MR	27.9.13
DSC00249	Plan view - E to W - 4 (repeat)	W/vertical	HMR/MR	27.9.13
DSC00250	Plan view - W to E -1	E/vertical	HMR/MR	27.9.13
DSC00251	Plan view - W to E -2	S/vertical	HMR/MR	27.9.13
DSC00252	Plan view - W to E -3	S/vertical	HMR/MR	27.9.13
DSC00253	Plan view - W to E -4	S/vertical	HMR/MR	27.9.13
DSC00254	Plan view - W to E -5	S/vertical	HMR/MR	27.9.13
DSC00255	Plan view - W to E - 5 (repeat)	S/vertical	HMR/MR	27.9.13
DSC00256	Plan view (higher) - E to W -1	S/vertical	HMR/MR	27.9.13
DSC00257	Plan view (higher) - E to W -2	S/vertical	HMR/MR	27.9.13
DSC00258	Plan view (higher) - E to W -3	S/vertical	HMR/MR	27.9.13
DSC00259	Level 2, oblique, for modelling.	SW	HMR	30.9.13
DSC00260	Level 2, oblique, for modelling.	W	HMR	30.9.13
DSC00261	Level 2, oblique, for modelling.	NW	HMR	30.9.13
DSC00262	Level 2, oblique, for modelling. Eastern portion	N	HMR	30.9.13
DSC00263	Level 2, oblique, for modelling. Centre-east	N	HMR	30.9.13
DSC00264	Level 2, oblique, for modelling. Centre	N	HMR	30.9.13
DSC00265	Level 2, oblique, for modelling. Centre-west	N	HMR	30.9.13
DSC00266	Level 2, oblique, for modelling. West	N	HMR	30.9.13
DSC00267	Level 2, oblique, for modelling.	E	HMR	30.9.13
DSC00268	Level 2, oblique, for modelling.	SE	HMR	30.9.13
DSC00270	Level 2, oblique, for modelling. Western portion	S	HMR	30.9.13
DSC00271	Level 2, oblique, for modelling. Western portion	S	HMR	30.9.13
DSC00272	Level 2, oblique, for modelling. Western portion	S	HMR	30.9.13
DSC00273	Level 2, oblique, for modelling. Central	S	HMR	30.9.13
DSC00274	Level 2, oblique, for modelling. Eastern	S	HMR	30.9.13

Frame	Motive	Direction (camera facing)	ID	Date
DSC00275	Level 2, oblique, for modelling. Eastern	S	HMR	30.9.13
DSC00276	Level 2, oblique, for modelling.	S	HMR	30.9.13
DSC00277	Level 2, plan view, E to W - 1	S/vertical	HMR/MR	30.9.13
DSC00278	Level 2, plan view, E to W - 2	S/vertical	HMR/MR	30.9.13
DSC00279	(blurred - action)	S/vertical	HMR/MR	30.9.13
DSC00280	Level 2, plan view, E to W - 3	S/vertical	HMR/MR	30.9.13
DSC00281	Level 2, plan view, E to W - 4	S/vertical	HMR/MR	30.9.13
DSC00282	Level 2, plan view (higher) E	N/vertical	HMR/MR	30.9.13
DSC00283	Level 2, plan view (higher) E	N/vertical	HMR/MR	30.9.13
DSC00284	Level 2, plan view (higher) W	N/vertical	HMR/MR	30.9.13
DSC00285	Level 2, plan view (higher) central	S/vertical	HMR/MR	30.9.13
DSC00286	Level 2, plan view (higher) W	S/vertical	HMR/MR	30.9.13

Appendix 2 - Letter confirming 1972 excavation

004102

21. mars 1972.
BM/kbj.

Vegkontoret i Møre og Romsdal
Julsundvn. 7,
Boks 128
6401 MOLDE

Sak 140/70

Grustak på Runde, Herøy, Sunnmøre.

I 1970 ble Historisk museum gjort oppmerksom på at et grustak var i drift på eiendommen til Alfred Runde på Runde (gnr. 9) i Herøy kommune. Da grustaket truet fredete fornminner, ble det stoppet etter at kommuneingeniøren i Herøy var blitt informert
./. (se vedlagte kopi av brev fra kommuneingeniøren).
Ved befaring på stedet høsten 1971, ble det klarlagt at grustaket var kommet så nær en hustuft på eiendommen til Einar Runde (se kartkopi med fornminner og grustak inntegnet) at denne står i fare for å rase ut. Historisk museum anser det derfor nødvendig med en utgravning av den truete delen av hustufta. Undersøkelsen er planlagt 1/6 - 7/6 1972, og den er foreløpig kostnadsberegnet til ca. kr. 6.000.-

I henhold til Lov om fornminne av 1951 (§ 6) plikter Statens Vegvesen å bekoste denne undersøkelsen, og vi tør be om at kr. 6.000.- blir avsatt til dette formålet.

Bjørn Myhre
konservator

Gjenpart: Einar Runde
6096 RUNDE

Appendix 3 - Identification of charred plant materials

Treslagsbestemmelse/sortering av arkeologisk trekull fra Runde, Fosnavåg og Fosnavåghavn

Oppdragsgiver:	Universitetsmuseet i Bergen, Seksjon for ytre kulturminnevern, SFYK Postboks 7800, 5020 Bergen
Avtale/kontakt:	Morten Ramstad, 10.12.2013
Rapport dato:	29.12.2013
Utarbeidet ved:	Dendroøkologen A. J. Kirchhefer, Skogåsvegen 6, 9011 Tromsø Epost: post@dendro.no, mob.: 995 30 332 Org.-nr.: 994 482 181 MVA

Konklusjon:	Samtlige prøver inneholder trekull som er egnet til radiokarbondatering. I noen tilfeller ble det sortert i første- (lyng, bark, kvist) og andrevalg (kortlevd løvtre, furukvist). Førstevalget kan bestå av lite materiale (fos 3 og 4). Også hasselnøttskall i prøve hav 12 kan vurderes som førstevalg til datering. Av ukurante treslag fant jeg furu i fire prøver, men ingen potensielt langlevde løvtrær som eik.

METODE

Målet ved sorteringsarbeidet er å plukke et minimum av 10 trekullfragmenter per prøve (= pose) som er egnet til radiokarbondatering. Består prøven av mange små fragmenter, forsøkes det å plukke et antall tilsvarende 0,05 g. For å kunne studere cellestrukturen må trekullfragmentene knekkes minst én og helst tre ganger. Antall trekullbiter i tabellene henviser til antallet fragmenter før analysen, mens posen med sortert trekull til radiokarbonanalyse vil inneholde det minst 3- til 4-dobbelte antallet.

Treslagsbestemmelsen foretas under stereolupe med 40-320x forstørrelse (Nikon AZ100). Trekullprøvene blir veidd til nærmeste 0,01 g (Sagitta 600 g). Som feilkilder skal det nevnes at prøvenes vekt befinner seg ofte ved den nedre grensen av vektas måleamplitude samtidig som trekullets fuktighetsinnhold kan variere.

Muligheten til artsbestemmelse av trekull innenfor henholdsvis bartrær, diffusporete løvtrær og lyng er noe begrenset. Imidlertid vil de ulike artene av nordlige, diffusporete løvtre som bjørk og vierarter oppnå omtrent samme, relativt korte levealder. Jeg anser det derfor for uproblematisk å slå disse sammen i dateringsformål. Blant trekullfragmentene blir slike med bark eller barkkant, spesielt kvister og forkullete røtter foretrukket. Fragmenter av bartrær og potensielt gamle, ringporete løvtrær som eik, skal normalt forkastes.

Tabell 1: Resultater. Kortlevd løvtre: diffusporet med porer solitær (f.eks rogn) og/eller i korte radier (f.eks bjørk, vier, osp, hegg). Furuandel beregnet på basis av antall bestemte fragmenter.

prøve	gram totalt	gram til datering	fragmenter til datering	kommentarer
run 1	1,94	0,08	4 lyng	lyng diameter 2-4 mm; alternativ 1 bark + 10 kortlevd løvtre (0,24 g); største fragment = bein/potteskår?
run 2	na	0,04	1 lyng, 1 bark	lyng diameter 2 mm; alternativ til datering: 10 kortlevd løvtre (derav 1 bjørk, 0,28 g); 1 bein/potteskår.
fos 1	1,03	0,37	10 løvtre	minst 60 % og antakeligvis alt bjørk.
fos 2	1,57	0,70	10 løvtre	minst 40 % og antakeligvis alt bjørk.
fos 3	2,30	0,03	2 lyng	lyng diameter 2-3 mm; alternativ til datering: 1 furukvist (4 mm, 0,07 g) eller 8 bjørk (0.27 g); furuandel 23 %.
fos 4	0,15	0,02	5 bark	alternativ til datering: 9 løvtre (0,07 g); forkastet: 3 furu (18 %).
fos 5	2,07	0,12	3 bjørk	3 løvtre (kvist, 3-13 mm diameter), den største av disse er sikker bjørk.
fos 7	0,61	0,19	10 bjørk	3 sikker og antakeligvis alt bjørk.
fos 8	0,28	0,21	10 bjørk	Ingen kvist eller barkkant.
hav 6	0,75	0,51	11 bjørk	5 furu (31 %), meget lite rest.
hav 9	1,45	0,60	13 bjørk	kastet: stein (0,75 g) og 1 furu (7 %).
hav 12	0,17	0,12	7 bjørk	minst 2 bjørkekvister (6-7 mm diameter); 3 hasselnøttskall (0,03 g).
hav 14	0,68	0,68	4 løvtre	antakeligvis bjørk.
hav 18	~0,38	0,20	1 bark	alternativ: 10 bjørk (0,15 g).
hav 20	0,58	0,40	10 løvtre	kortlevd løvtre.
hav 22	0,17	0,12	2 løvtre	kortlevd løvtre; 1 ubestemmelig forkastet

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Appendix 4 - Calibrated radiocarbon diagrams

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-27.9:lab. mult=1)

Laboratory number: **Beta-371016**

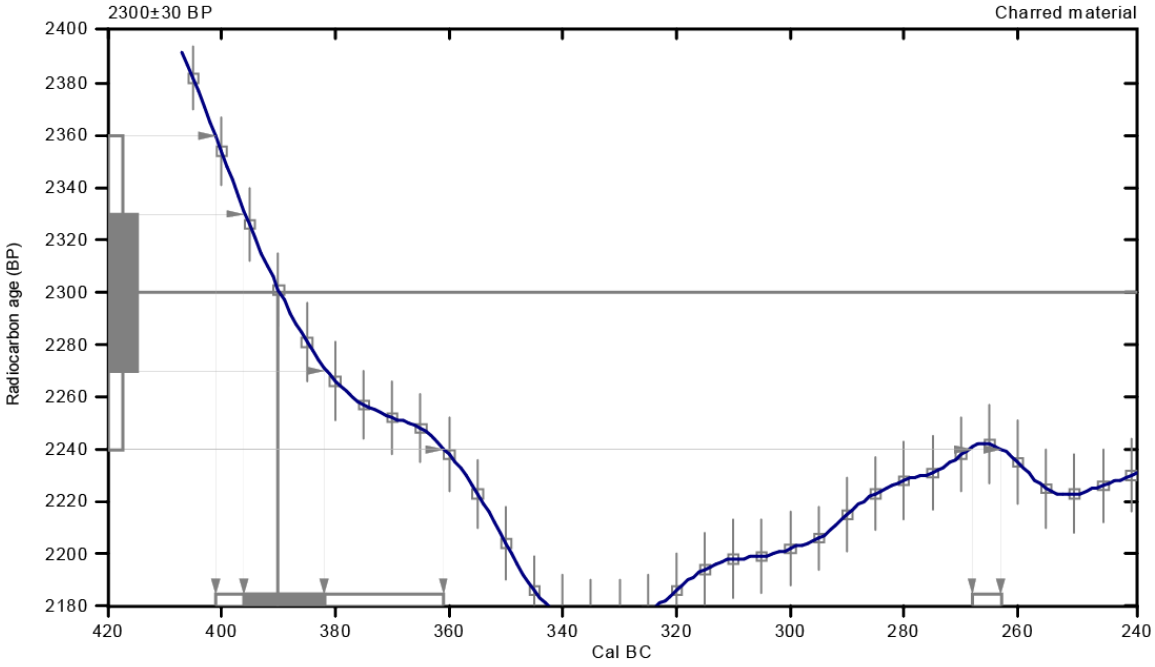
Conventional radiocarbon age: **2300±30 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 400 to 360 (Cal BP 2350 to 2310) and Cal BC 270 to 260 (Cal BP 2220 to 2210)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 390 (Cal BP 2340)

1 Sigma calibrated result: (68% probability) Cal BC 400 to 380 (Cal BP 2350 to 2330)



References:

Database used

INTCAL09

References to INTCAL09 database

Heaton,et.al.,2009, Radiocarbon 51(4):1151-1164, Reimer,et.al, 2009, Radiocarbon 51(4):1111-1150, Stuiver,et.al,1993, Radiocarbon 35(1):137-189, Oeschger,et.al.,1975,Tellus 27:168-192

Mathematics used for calibration scenario

A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322

Beta Analytic Radiocarbon Dating Laboratory
4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@ radiocarbon.com

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.2:lab. mult=1)

Laboratory number: **Beta-371017**

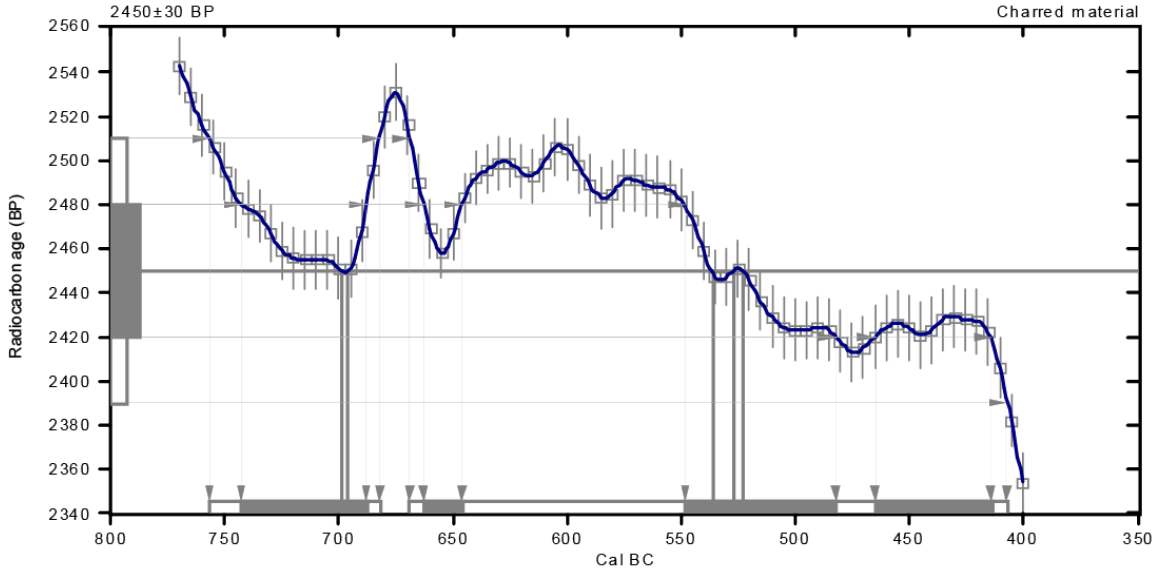
Conventional radiocarbon age: **2450±30 BP**

2 Sigma calibrated results: **Cal BC 760 to 680 (Cal BP 2710 to 2630) and**
(95% probability) **Cal BC 670 to 410 (Cal BP 2620 to 2360)**

Intercept data

Intercepts of radiocarbon age with calibration curve: Cal BC 700 (Cal BP 2650) and
Cal BC 700 (Cal BP 2650) and
Cal BC 540 (Cal BP 2490) and
Cal BC 530 (Cal BP 2480) and
Cal BC 520 (Cal BP 2470)

1 Sigma calibrated results: Cal BC 740 to 690 (Cal BP 2690 to 2640) and
(68% probability) Cal BC 660 to 650 (Cal BP 2610 to 2600) and
Cal BC 550 to 480 (Cal BP 2500 to 2430) and
Cal BC 460 to 410 (Cal BP 2420 to 2360)



References:

Database used

INTCAL09

References to INTCAL09 database

Heaton,et.al.,2009, Radiocarbon 51(4):1151-1164, Reimer,et.al, 2009, Radiocarbon 51(4):1111-1150, Stuiver,et.al,1993, Radiocarbon 35(1):1-244, Oeschger,et.al.,1975,Tellus 27:168-192

Mathematics used for calibration scenario

A Simplified Approach to Calibrating C14 Dates
Talma, A.S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322

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