

FLOTATION SAMPLING PROCEDURE

Autumn 2014



Fig. 1: Constructed flotation unit.

Monasticism in Iceland

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1. INTRODUCTION

In autumn 2014 Scott Riddell and Hrafnhildur Halldórsdóttir were tasked by Steinunn Kristjánsdóttir on behalf of the Monasticism in Iceland project to process bulk soil samples in preparation for later analysis for plant macro-fossils. Eleven bulk soil samples were acquired in the summer (2014) from five sites believed to have supported a monastery during the medieval period in Iceland. The following describes the equipment and procedure applied to the process.

2. METHOD & EQUIPMENT

The flotation unit (**Fig. 1**) was constructed in accordance with the unit featured on the cover of the Skriduklaustur macrobotanical report (Shaw 2014). The size of the mesh in the unit was c. 0.5 mm.¹ Cold water was derived from a municipal source. Sieves were placed beneath the overflow of the flotation unit. The Retch Stainless Steel sieves were 20 cm in diameter with mesh sizes given as follows: 4 mm, 1 mm, 250 µm, 125 µm.² The soil samples were emptied into the flotation unit and if necessary, gently broken up. Inorganic fines less than 0.5 mm were deposited in the bottom of the unit while organic material floated and washed out via the overflow into the awaiting sieves. Inorganic material greater than 0.5 mm was retained in the mesh. The flotation process usually took between 45 minutes to 1 hour to complete. The arising flot was dried on trays indoors (windows were kept closed) before being bagged and labelled. Residues were also retained, dried, bagged and labelled accordingly. Overall, the procedure was led by English Heritage Guidelines on retrieving material through flotation (Jones 2011).

3. FIELD CONDITIONS

Flotation was conducted outdoors on the University of Iceland campus during October 2014 (**Fig. 2**). Weather conditions were cold but usually above freezing with flotation halted during windy and/or wet weather. Shelter was also accrued from the doorway of a storage cupboard in the basement of the building where the water outlet was situated.

Surrounding vegetation communities are identified as follows (**Fig. 2**).

- a) Amenity planting (exotic species)
- b) Amenity grassland
- c) Juniper (*Juniperus spp.*) (inc. cultivars)
- d) Birch (*Betula spp.*) (inc. cultivars)
- e) Protected wetland area (semi-natural habitat).

¹ In lieu of plastic mesh (unavailable in Iceland), net curtain was used; common archaeological field practice in Iceland.

² Copper mesh sieves would have been preferable as they are more resistant to deviation in mesh size.



Fig. 2: University of Iceland Campus with flotation site (*) and surrounding vegetation communities identified (a-e).

No information is available for the plant communities occurring at the bulk sample sites.

4. SOIL SAMPLES

There are 11 bulk soil samples. The entire bulk soil sample was processed for Viðey (KLI-2014-28-031), Reynistaðir (KLI-2014-21-014) and Helgafell (KLI-2014-16-002). The bulk samples for Bær and Trumbsvalir were divided with half processed for plant

macro-fossils (**Table 1.**) and the other half retained for processing for invertebrate macro-fossils.³

Table 1: KL1-2014 Bulk sample descriptions (inc. pre- and post processing observations).

Context KL1-2014	Monastic site	Weight (g)	Volume (l) ⁴	Bulk ⁵	Flot	Residue
28-031	Viðey	3388	5	Peat ash	Burnt bone, charcoal & slag/pumice	
16-002	Helgafell	2236	4.5	Dark, peaty, fibrous	Roots, grass stems/leaves, small twigs (inc. buds)	Frost-shattered stones
21-014	Reynistaðir	1619	2	Peat ash, silty gravel	Plant fibres, Crowberry berry (<i>Empetrum nigrum</i>), charcoal	Angular & sub- angular/abrad ed stones.
51-1	Bær	1620	2	Clay, silt & gravel	Burnt bone, charcoal	Sub-angular stones
51-2	Bær	849	1	Red clay, sand & gravel	Burnt bone, charcoal & slag/pumice (organic matter limited)	
51-6	Bær	1906	2	Turves (red), ash from burnt dung (yellowish white). gravel, silt & clay	Burnt bone (organic matter limited)	
51-11	Bær	492	0.5	Soot, burnt bone	Burnt bone & charcoal	Burnt bone, charcoal & wood
39-001	Trumbsvalir (Þingeyrar)	1697	2	Sandy gravel	Plant fibres	
39-005	Trumbsvalir (Þingeyrar)	521	0.75	Silt	Root fibres, wood fragments & burnt bone	
39-006 (K2)	Trumbsvalir (Þingeyrar)	1438	2	Peat ash, red, fine silt	Root fibres, stems and charcoal	
39-012 (J4)	Trumbsvalir (Þingeyrar)	1148	2		Burnt bone, charcoal, root fibres & moss	

³ The retained bulk soil samples are in cold storage at the Faculty of Environment & Life Sciences, University of Iceland.

⁴ The volumes of the samples are small largely due to the scale of the exploratory excavations at each site.

⁵ These are general comments, not a complete soil description.

REFERENCES

Jones, D.M. (2011) *Environmental Archaeology: A Guide to the Theory and Practice of methods, from Sampling and Recovery to Post-excavation (2nd edition)*, English Heritage, Swindon.

Shaw, P. (2012) *Analysis of Soil Samples from Skriðuklaustur I*, Skýrslur Skriðuklausturannsókna XXXIV, Skriðuklausturannsóknir, Reykjavík.