

Analysis of the wood charcoal macro-remains from SLS test pits.

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INTRODUCTION

This report details the findings of the investigation of charcoal macro-remains recovered from archaeological contexts during exploratory test pitting of sites in north-western Scotland as part of the Sea Loch Survey (SLS), itself a part of the Scotland's First Settlers project. Analysis of the charcoal samples was undertaken to assess evidence of the contemporary local vegetation and the nature of wood use at these sites.

METHODOLOGY

Only material from contexts described as 'prehistoric' (on the basis of associated lithics) was considered for analysis. None of the sites for which contextual information was poor or provisional dating suggested that occupation was more recent were subject to further investigation. Charcoals from the following three test pit sites (table x) were analysed:

Table x. Scotland's First Settlers: Sea Loch Survey, charcoal analysis

Site	context	context description
SFS 10 Allt na Uamha: Shell midden	2	Limpet/periwinkle shell midden
	4	Black gritty soil
SFS 152 Doire na Guaile: Shell midden	3	Limpet/periwinkle shell midden
SFS 171 Meall na h'Airde: Sea cave	1	Loose shell and dry black soil
	2	Loose stones; context 1 running through voids

Each sample was sorted by ordering individual fragments into groups according to similarities in size and gross morphological characteristics. A hand lens (x10) was used to examine anatomic features (*ie* porosity) in transverse section to aid this process. Where possible, a total of 25 fragments composed of representatives from each fragment type group from each sample was then examined microscopically. Each fragment was pressure fractured to produce sections in the transverse, radial and tangential

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planes. Sections were supported in a sand bath and examined using an epi-illuminating microscope at magnifications up to x400. Identification was made with reference to descriptions in Schweingruber's (1990) '*Anatomy of European Woods*'. Nomenclature follows Stace (1997).

RESULTS

Table 2. lists the eight positively identified taxa from the five contexts and shows the absolute number of fragments of each taxon per sample. The quantity of fragments examined is below the recommended minimum (100 fragments per sample/context) for the full recovery of principal taxa from sites in temperate regions (Keepax 1988). It cannot therefore be assumed that all the woods exploited and/or present in the landscape are actually represented. Site SFS171, Meall na h'Airde, contained the greatest range of taxa, six in each of the contexts studied. Four of the taxa in these contexts, including *Quercus* (Oak) and *Fraxinus* (Ash), were not identified in the other samples examined. Measured in terms of absolute fragment numbers, there appears to be no significant difference in the relative abundance of each taxon present in these two contexts. In contrast, both samples from site SFS 10, Allt na Uamha, were dominated by a single taxon, *Betula* (Birch). Though a single fragment of *Alnus* sp. (Alder) was tentatively identified (context 2), the only other taxon present in any quantity at this site was *Corylus avellana* (Hazel). Very few fragments from SFS152, Doire na Guaile, were suitable for identification (>2mm). However, three taxa were identified among the seven fragments from context 3. This context also contained a single fragment of Hazel nutshell. It is not known if the fragment in this context tentatively identified as *Prunus* sp. derived from Blackthorn (*P. spinosa*) or one of the Cherries indigenous to the British Isles (*i.e.* *P. padus* , *P. avium*).

Table 2

SLS Wood charcoal analysis full results						
SITE/TEST PIT	SFS 171 TP1		SFS 10 TP 1		SFS 152 TP 1	
CONTEXT	1	2	2	4	3	Totals
<i>Alnus glutinosa</i> (Alder)				1		1
<i>Betula spp.</i> (Birch)	6	3	18	21	4	52
<i>Calluna vulgaris</i> (Heather)	3	1				4
<i>Corylus avellana</i> (Hazel)	5	4	7	3	1	20
<i>Fraxinus excelsior</i> (Ash)	1	3				4
<i>Pinus sylvestris</i> (Scots Pine)	6	5				11
<i>Quercus spp.</i> (Oak)	4	9				13
<i>c.f Prunus sp.</i> (Blackthorn/cherry)					1	1
Nut shell (Hazel)					1	1
Totals	25	25	25	25	7	107

DISCUSSION.

Given the low level of investigation carried out any inferences made should be treated with caution. Most of the charcoal examined was associated with midden deposits and probably represents discarded hearth debris accumulated over unknown periods of time. The presence of *Betula* and *Corylus* in every sample examined suggests that these taxa formed the principal fuel. This seems particularly so as regards the vegetation around sites Allt na Uamha (SFS10) and Doire na Guaile (SFS 152). However, further analysis of samples from these sites could recover taxa not recorded in the present study.

The range of fuelwoods used on site Meall na h'Airde (SFS171) appears to have been more diverse than that of the other sites studied and could reflect a correspondingly diverse array of vegetation types. Alongside areas of Birch woodland and Hazel scrub, the presence of *Calluna* (Heather), probably growing in association with *Pinus* (Scots Pine), indicates areas of heathland. The fragment of Hazel nutshell indicates that in some areas this taxon was growing in the open or at the woodland edge. *Quercus* and *Fraxinus* are large woodland trees and possibly formed stands of more dense closed canopy woodland. The presence of these taxa in early contexts at this site is of interest given that both taxa were absent from Mesolithic midden deposits at Sand rockshelter (Austin, section xxx). However, at present it is not known if

these deposits are more or less contemporary with those at Sand. The quantity of fragments of each taxon identified in an archaeological context cannot be taken as an accurate reflection of the actual former abundance of each taxon in the landscape (Smart & Hoffman 1988). Whilst the evidence suggests that fuelwood was acquired from different vegetation types the relative proportions of these vegetation types in the past remains speculative. Nonetheless the presence of *Betula* and *Corylus* in the vicinity of all three sites and in each sample may indicate that this association was the most frequently occurring form of woody vegetation in this part of Scotland in prehistory.

No direct evidence was recovered to indicate what criteria, if any, were employed whilst gathering wood. The range of plants represented, particularly at Meall na h'Airde (SFS171), suggests that fuelwood collection was largely a matter of gathering those woods most readily available. If some form of selection/avoidance was practised it seems that it involved little more than taking into consideration the burning qualities of the woods available. That most of the woods identified, notably *Quercus*, *Fraxinus*, *Betula*, and *Corylus*, are excellent fuelwoods, whereas *Calluna* is good for kindling and providing light, supports this inference.

CONCLUDING REMARKS.

Despite the small number of samples examined a surprisingly diverse range of taxa was identified. Further work may increase the number of taxa identified from individual contexts and thus provide a more complete understanding of the vegetation around each site and the nature of fuelwood exploitation. It would be of some value in particular to establish more convincingly whether or not the difference in taxon diversity between sites observed here holds true and is an accurate reflection of the contemporary vegetation

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