

# SKOMER ISLAND: The Excavation of a prehistoric field lynchet associated with the North Stream settlement

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**County:** Pembrokeshire

**Community:** Marloes and St Brides

**NGR:** SM 72254 09917

**NPRN:** 421796

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**Date of Survey:** 30-31<sup>st</sup> March 2016

**Surveyed by:** Louise Barker, Oliver Davis, Sarah Davies, Toby Driver, Bob Johnston

**Report Author:** Louise Barker, Oliver Davis, Toby Driver, Bob Johnston, with specialist contributions by Wendy Carruthers and Julia Webb

**Illustrations:** As above

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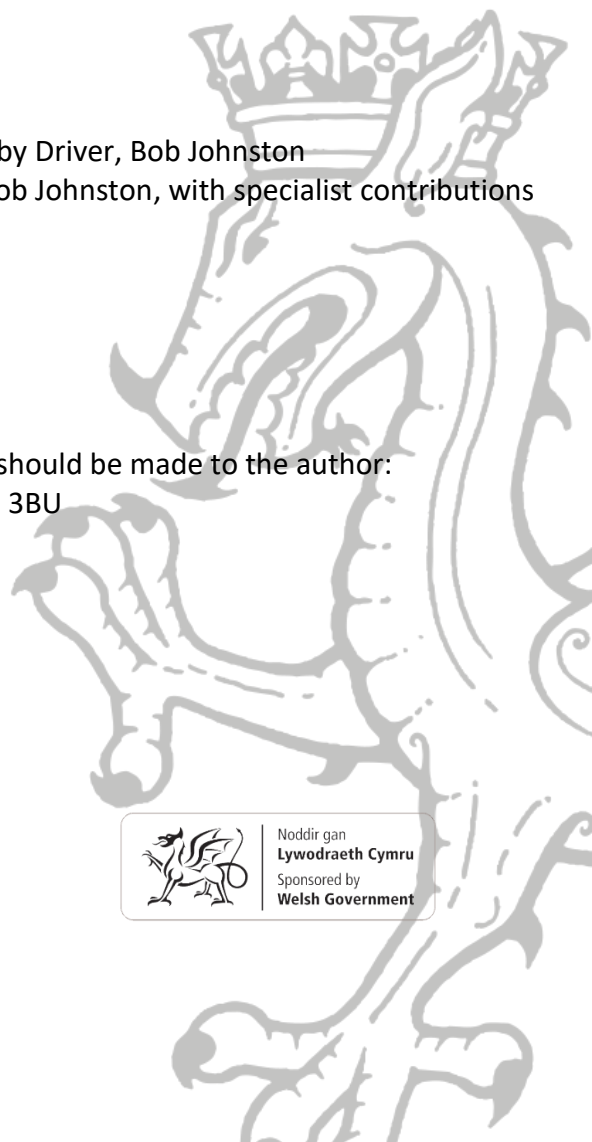
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## 1. Summary

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*A collaborative research project between the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW), University of Sheffield and Cardiff University completed a fourth season of fieldwork and research on the [renowned prehistoric landscape](#) of Skomer Island (SM 7269 0946 NPRNs 24369 & 402711)<sup>1</sup> in Pembrokeshire, west Wales, between 30-31<sup>st</sup> March 2016 (see Barker et al. 2012; 2012b; 2013 & 2015). The work was undertaken in partnership with Aberystwyth University and the University of Gloucester.*

*Skomer is a heavily protected landscape managed largely for the benefit of its extraordinary and internationally-renowned birdlife. It is owned by Natural Resources Wales and managed by the Wildlife Trust of South and West Wales as a National Nature Reserve, with large parts of the island a Scheduled Ancient Monument (PE181) and the sea a Marine Nature Reserve. In addition to the current research project, two other archaeological studies have been undertaken on the island, both in the twentieth century: the first by Professor W. F. Grimes in the 1940s (Grimes 1950) and the second by Professor John G. Evans in the 1980s (Evans 1990).*

*The [2016 excavation](#) opened a small trench measuring 0.5m x 4.3m across a large prehistoric field lynchet located 74m due west of Hut Group 6 in the North Stream settlement. The lynchet was found to have developed upon a mass of stones and small boulders cleared from the field, and not to be a simple earthen bank. Despite the high number of stones within the soil matrix, no built revetment was identified. Bracken roots were seen to penetrate to 32cm in the relatively stone-free context (202), but down as far as 42-56cms in the coarse stone matrix of context (206). The bracken penetration had carried much modern material down into the core of the lynchet, making it difficult to recover of secure charcoal deposits suitable for radiocarbon dating from flotation. A number of small flint artefacts were found as well as a possible sherd of prehistoric pottery (see table below), following processing of bulk samples. A number of soil samples were taken for the purposes of palaeoenvironmental analysis, the sampling undertaken in close cooperation with Sarah Davies from Aberystwyth University. Samples for Optically Stimulated Luminescence were also taken from the northern section of the trench but the loose soil and stone matrix proved unsuitable for dating using this method. Pollen was analysed by Julia Webb at the University of Gloucester. The 2016 excavation season was curtailed in scope and duration by the effects of Storm Katie, limiting the visit to 2 days with one overnight stay on the island.*

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<sup>1</sup>

[http://www.coflein.gov.uk/en/site\\_search/?action=site&pnmrname=&pnprn=24369&pclasssub=&pclassgrp=&pfreetext=&pperiod=&pcommunity=&pcouname=&poldcounty=](http://www.coflein.gov.uk/en/site_search/?action=site&pnmrname=&pnprn=24369&pclasssub=&pclassgrp=&pfreetext=&pperiod=&pcommunity=&pcouname=&poldcounty=)

*In addition to the excavation the short 2016 season nevertheless provided an opportunity to carry out further geophysical surveys to locate buried archaeology beneath the improved historic fields in the centre of the island, building on similar work carried out in 2012 & 2014. Survey in 2016 focused on a selection of further fields close to the centre of the island near the Island Farm.*

## **2. Background to Project**

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This Skomer Island Project is a collaboration between RCAHMW, University of Sheffield and Cardiff University. It was initiated in 2011 and has four aims:

1. Develop a new landscape history of Skomer that takes account of the complex and multi-layered character of the field archaeology.
2. Establish absolute chronological markers for key phases in the development of Skomer's landscape.
3. Reconstruct the environmental history of the island and assess the changing impact of human occupation.
4. Support the organisations responsible for Skomer in applying the research outcomes of the project to the conservation management of the island's historic and natural environment.

### **Completed archaeological research 2008-2015**

The project was initiated following targeted aerial reconnaissance in 2008, which yielded new information about the island's field systems and hinted at greater complexity and longevity of human settlement on the island. This led to the commissioning of a new 0.5m LiDAR survey of the island (completed in 2010-11), with follow-up ground reconnaissance and survey completed during the first season of fieldwork in April 2011. This involved 3 days of walkover surveys and site visits including characterisation of the northern field system associated with the North Stream settlement (Barker *et al.* 2011; 2012, 295) and plans and elevation drawings of new discoveries including standing stone pairs, and a sub-megalithic site in the north of the island (Barker *et al.* 2015). The results of this work revealed new information about the island's settlements, field

systems and ritual monuments demonstrating a much deeper chronology for the island than had previously been considered (Evans 1990, 255).

In April 2012, the second season of work saw geophysical survey (gradiometer and resistance) undertaken in two areas of the island, one inside and one outside the scheduled area (Barker *et al.* 2013). There were two objectives:

1. Evaluate the preservation of sub-surface archaeological features within areas cleared and improved in the eighteenth and nineteenth centuries.
2. Evaluate the preservation of sub-surface archaeological features within areas of prehistoric relict field systems and settlements.

The results highlighted the potential of geophysical survey techniques for identifying sub-surface archaeological features.

The [2014 excavation](#) (Barker, L., Davis, O., Driver, T., and Johnston, B. 2014; 2015) demonstrated that undisturbed archaeological deposits survive on Skomer from which it is possible to obtain scientific dates and environmental samples. The 2016 field season proposed to build on this work and methodology to identify more absolute chronological markers for key phases in the development of the Island along with further environmental sampling to more accurately reconstruct the environmental history of the island. No fieldwork was carried out in 2015.

The results of fieldwork so far undertaken has been published in various editions of *CBA Cymru/Wales Archaeology Wales* (Barker *et al.* 2011; 2012 & 2015) and in a paper by the project team '*Puffins amidst prehistory: reinterpreting the complex landscape of Skomer Island*' in '*Reflections on the Past. Essays in honour of Frances Lynch*' edited by William J Britnell and Robert J Silvester (2012). Information has also been made available through *Coflein* the on-line historic environment record of RCAHMW with project archive placed in the National Monuments Record of Wales (NMRW). See the main online record for the Skomer field systems [here](#) and the 2014 Hut Group 8 excavation records [here](#).

Copies of all the publications have been sent to the Skomer Wardens and two exhibition panels

relating to the archaeology on Skomer and the Skomer have been permanently mounted in the island visitor centre.

### 3. Excavation Location

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The 2016 excavation opened a small trench measuring 0.5m x 4.3m across a large prehistoric field lynchet located 74m due west of Hut Group 6 in the North Stream settlement. Scheduled Monument Consent and SSSI consent was granted on the basis that the precise location of the trench (measuring no larger than 10m x 2m in any configuration, and to a maximum depth of 1.5-

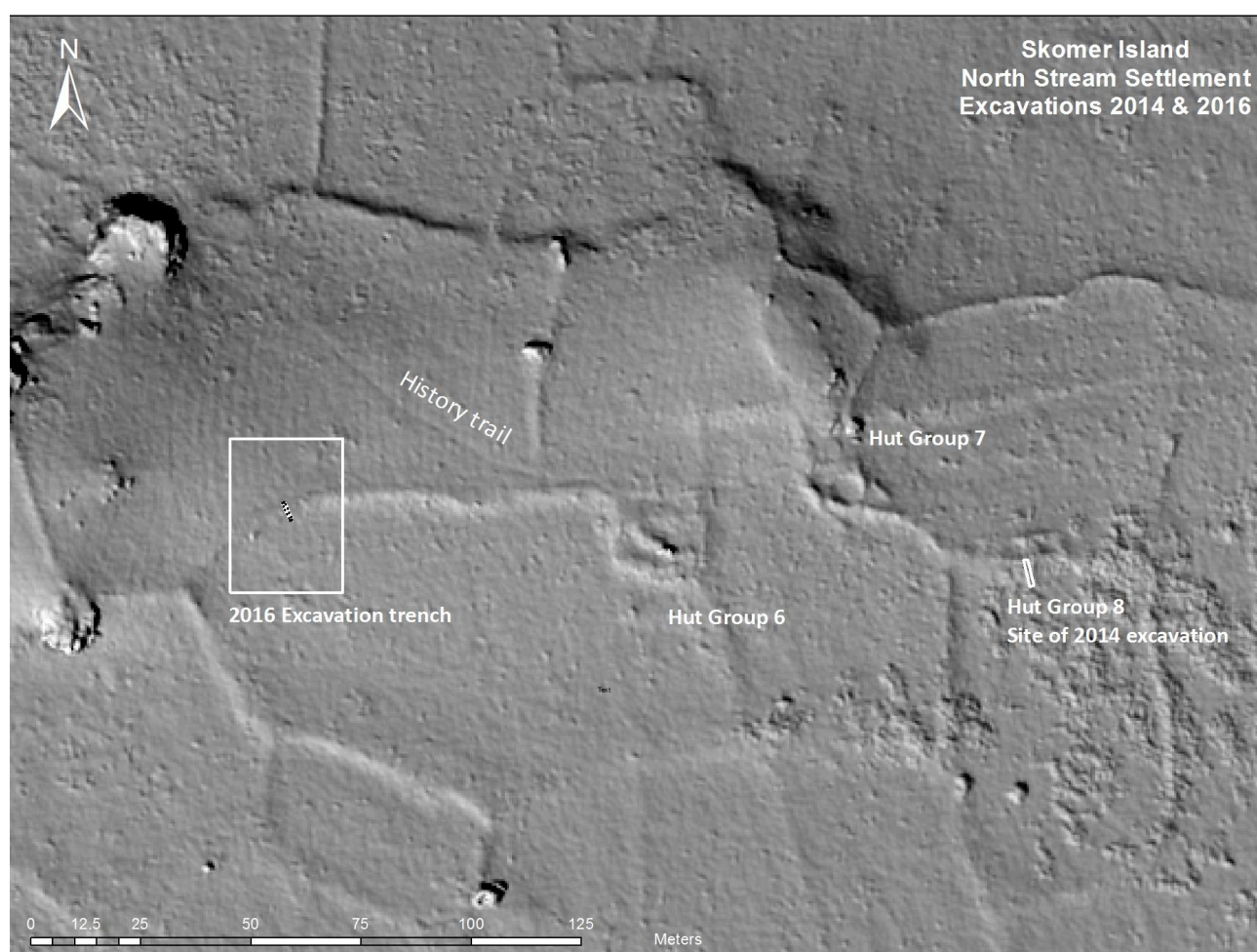


Figure 1. Location of the 2016 excavation trench in the context of the North Stream Settlement, with the site of the earlier 2014 excavation (a mound of burnt stone at Hut Group 8) to the east (Crown Copyright RCAHMW).



*Figure 2. Location of the 2016 excavation trench (spoil tip marked by line) as seen from Old Farm in the centre of the island, looking north-west (DS2016\_078\_009).*

2m) within the North Stream settlement would be agreed on site in close discussion with the wardens, and this was duly done.

The selected lynchet borders the southern edge of the major outcrop and plateau which dominates the northern side of the North Stream Settlement. Previous fieldwork by the team in 2012 identified these more substantial lynchets as potentially the earliest phase of enclosure at this, the highest point on the northern part of the island, with cultivation, enclosure and settlement potentially then expanding outwards and downslope over subsequent phases.

The Skomer LiDAR survey shows slight earthworks of narrow north-south cultivation ridges crossing the summit of the outcrop plateau and running up to – and potentially over – the lynchet. Although these may be prehistoric in origin it is equally likely they are of a later date.





Figure 3. *View of the excavation trench and lynchet from the south-west, showing intact stone facing in foreground and outcropping rock in middle distance (DS2016\_078\_003).*

The 2014 excavation demonstrated that undisturbed archaeological deposits do survive on Skomer from which it is possible to obtain scientific dates and environmental samples. We proposed to build on this work and methodology in the 2016 excavation to identify more absolute chronological markers for key phases in the development of the Island along with further environmental sampling to more accurately reconstruct the environmental history of the island. It was hoped that a large substantial lynchet would preserve intact palaeoenvironmental material and early land surfaces sealed beneath at its lower levels, allowing documentation of farming methods, crops and the local environment that prevailed in prehistory derived from the analysis of soil samples.

#### 4. Excavation Methodology and Sampling Strategy

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Figure 4. *Pre-excavation view of the trench location from the east, with a 1 metre scale. The relatively stone-free nature of the chosen lynchet section is evident in this view (DS2016\_078\_001).*

The 2016 evaluation excavation aimed to assess the archaeological potential for undisturbed archaeological deposits surviving behind or beneath the prehistoric field systems on the island, the principle archaeological resource. The specific location of the trench through the lynchet was selected as it lacked an obvious intact outer stone facing and fewer larger stones and boulders were present in its surface, suggesting that it would present a less problematic excavation and allow the recovery of a more intact soil sequence in section.

Acrow props were carried out to Skomer for this field season in case shoring up was required for a deeper, narrow trench to prevent the risk of collapse. In the event the trench did not exceed the



Figure 5. Initial work in progress at the trench, 30<sup>th</sup> March 2016, with plastic laid down to contain spoil and prevent damage to surrounding ground surface. View from south-east (DS2016\_078\_005)



Figure 6. The upper levels of the trench exposed following the removal of topsoil (201), showing a mass of loose, tumbled field stone in the upper layers of context. View from south (206; DS2016\_078\_006).

stated depth of 0.9m (in the Risk Assessment, cross-referenced to the HSE) at which point shoring would have been required.

Many field system boundaries are severely affected by burrows and bracken roots, but some of the largest lynchets have the potential to retain intact sediments towards their base and it is this hypothesis we wanted to test. It was hoped that if sealed deposits were successfully encountered samples could be obtained for palaeoenvironmental analysis, AMS Radiocarbon dating and Optically Stimulated Luminescence (OSL) dating.

As with the 2014 excavation a sheet of tough silage plastic was laid out alongside the trench to allow spoil to be stacked without causing damage to the ground surface. Stones were stacked separately. Turf was initially removed and then excavation proceeded through the layers of the lynchet.

The 2016 excavation season was curtailed in scope and duration by the effects of Storm Katie, limiting the visit to 2 days with one overnight stay on the island.

## **5. Results of the excavation**

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Although limited considerably in time and extent, this evaluation trench nevertheless provides the first excavated cross-section of a field lynchet on prehistoric Skomer and sheds valuable light on the preservation of buried contexts and the potential for the recovery of samples. A number of large stones cleared from the field to the north were encountered within the lynchet but no built revetment was identified. A far larger, earthfast boulder encountered in the lower part of the trench and left *in-situ* may either be a 'grounder' stone located in the boundary or even a pre-existing stone around and against which the lynchet has formed.

Bracken roots were seen to penetrate to 0.32m in the relatively stone-free context (202), but down as far as 0.42-0.56ms in the coarse stone matrix of context (206). In all six contexts were identified;

The loose topsoil layer (201) contained many grass roots and bluebell bulbs, and overlay (202), a dark humic soil interpreted as former ploughsoil of the prehistoric fields to the north of the lynchet. Bracken roots penetrated to 0.32m depth. Context (202) merged on the south side with the stonier

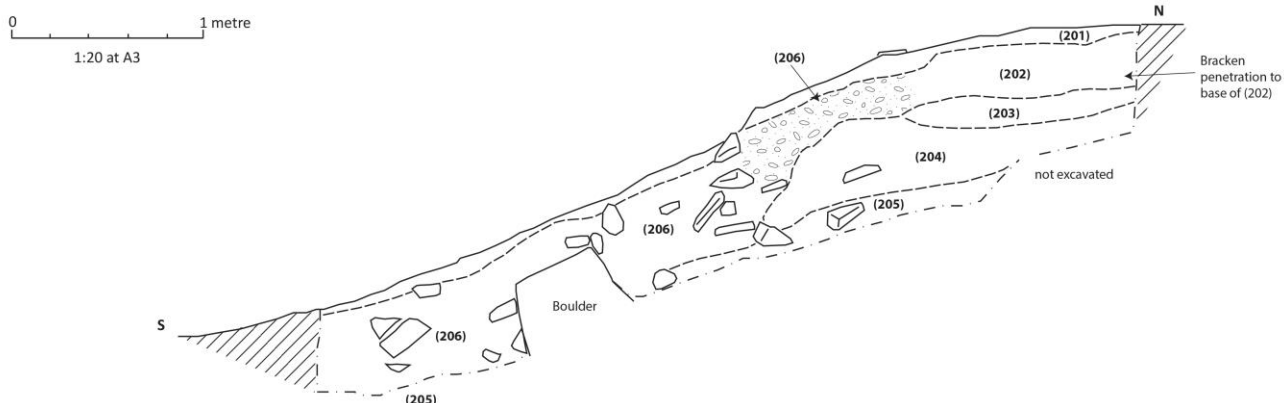


Figure 7. West section through the North Stream lynchet (Crown Copyright RCAHMW)

matrix of (206) containing frequent sub-angular large stones was interpreted as the southern part of (202) demonstrating the clearance of field stone into the bank; the layer was penetrated by bracken roots down to 0.56m. Context (203) underlay (202), and was a dark humic soil similar in matrix to (202) but with fewer roots; it was interpreted as a possible lower ploughsoil.

Context (204) comprised a grey-brown, slightly stony layer with small (0.06cm) stone inclusions, interpreted as a lower ploughsoil below (202/203) with minor elements of stone clearance at the south end. Ultimately context (205) was reached, a firm orange-grey-brown natural deposit with many sub-angular stones.

No artefacts were found during the excavation but processing of the coarse samples yielded small fragments of flint, pottery and glass (203) and flint and glass (206; Table 1 below). A number of soil samples were taken for the purposes of palaeoenvironmental analysis, the on-site sampling undertaken in close cooperation with Sarah Davies from Aberystwyth University. Samples for OSL were also taken from the northern section of the trench but the loose soil and stone matrix proved unsuitable for dating using this method. The occurrence of small pieces of flint debitage and pottery suggests the presence of domestic rubbish here on the periphery of a settled area, potentially resulting from the manuring of rubbish onto the fields. The presence of glass is more problematic and, as is suggested in Section 6 below, indicates likely contamination of lower contexts (203) and (206) due to the penetration of bracken roots into the looser soil matrix.



Figure 6. *General view from the south-east of the excavation on the first day (DS2016\_078\_007)*



Figure 7. *Post excavation view of the trench from the south-east with 1m scales. The quantity of stone removed from this very narrow trench can be appreciated. (DS2016\_078\_010)*



Figure 8. *Recording in progress using GNSS (DS2016\_078\_012).*



Figure 9. *General view from the south-east with Oliver Davis and Sarah Davies discussing sampling locations (DS2016\_078\_011).*

## 6. Environmental Sampling

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Bulk soil samples of 10 litres were taken from four archaeological contexts (202, 203, 204, and 206). These were processed by standard flotation methods. The flot was retained on a 0.5 mm mesh. Coarse residues were dried and fractionated using 10 mm, 4 mm and 2 mm sieves.

### *The coarse residues*

The coarse-sieved samples were principally composed of small pebbles of local volcanic basalts and contained very little artefactual material. A small number of artefacts were recovered however and are listed in Table 1.

The small assemblage of material is indicative of occupation-type activity close-by, but the generally abraded nature of the artefacts suggests they are not *in situ*. Contamination of apparently sealed contexts is also very likely in soft, rooty, peaty soils where small items can be washed or carried downwards. Small fragments of glass found in contexts 203 and 206 presumably derive from relatively modern activity which has contaminated lower levels.

Artefact type	Context	
	203	206
Flint	4 fragments of debitage, 12 mm in size. 3 of the fragments have been burnt	1 fragment of debitage probably from prep of a core, <6mm in size
Pottery	Possible pot sherd, very abraded in a reddy-orange oxidised fabric, no visible temper, <20 mm in size	
Glass	2 fragments of glass <4 mm in size	2 fragments of glass <6 mm in size

Table 1: Artefacts recovered from coarse residues



### **The flots.** *Wendy Carruthers*

The flots were dry-sieved through a stack of 3 mm, 1 mm and 250 micron meshed sieves in order to improve the efficiency of the scanning for charred plant remains. An Olympus SZX7 stereoscopic microscope was used for the assessment.

The flots all contained abundant fibrous uncharred roots and rootlets, in addition to occasional small fragments of charcoal and traces of charred plant remains. Occasional uncharred, modern seeds (with a fresh appearance and viable embryo) were also present. The fibrous material appears to be modern, although it may have been preserved for some time within acidic peat-like deposits. The charred plant remains are listed in Table 2.

The small assemblages are typical of heathland vegetation, containing charred Ericaceae fruits (heathers and ling) and occasional additional plants of acidic soils such as sheep's sorrel (*Rumex acetosella*), gorse (*Ulex* sp.) and heath grass (*Danthonia decumbens*). A few charred general weeds of disturbed or cultivated soils were also present (black bindweed (*Fallopia convolvulus*) and redshank/persicary (*Persicaria maculosa/lapathifolia*)). Ribwort plantain (*Plantago lanceolata*), heath grass and sheep's sorrel were probably growing in grassy, more open areas within stands of heathers.

Given the mixed nature of the deposits it is likely that the charred material derives from recent episodes of burning rather than more ancient activities on the island.

Charred plant remains	Context			
	202	203	204	206
<i>Ulex</i> sp. (gorse seed) GE		cf. 1		
<i>Fallopia convolvulus</i> (L.) A.Love (black bindweed achene) CD			1e	
<i>Persicaria maculosa/lapathifolia</i> (L.) Gray (pale persicaria achene) CDw			1	
<i>Rumex acetosella</i> L. (sheep's sorrel achene) EoGCas		1	1	
<i>Montia fontana</i> ssp. <i>chondrosperma</i> (Fenzl.) Walters (blinks seed) w	+			
Indeterminate Ericaceae fruits	+++		1	1
<i>Plantago lanceolata</i> L. (ribwort plantain seed) Go		1		
<i>Danthonia decumbens</i> (L.) DC (heath-grass caryopsis) EGa			1	
Indeterminate tuber	+			
	not fully sorted	sorted	sorted	sorted

Table 2: Charred plant remains from contexts 202, 203, 204 and 206

### Report supporting pollen diagram (Table 3). Julia Webb

Of the upper deposit 205, the pollen mainly consists of grasses, with some cereals. The fungal spores support these finds with two types incorporated in the soil that are associated with grass/heathland and open environments. Fungal spore Hdv 495 is known to be associated with the epidermal remains of *Molinia* (Hooghiemstra and Van Geel, 1998), and so suggests a proportion of the poaceae identified in the pollen could be the often invasive, damp loving perennial grass. A significant number (15%) of cereal pollen grains were identified, tending to indicate that the ground was cleared for cultivation.

Context 204 indicates a similar open grassy habitat, but with greater diversity of grassland species (more inclusion of Lactuaceae and Asteraceae), evidence of cereal is less apparent. Fungal spores incorporated in the soil at this locale support the open grassland habitat (Cugney et al 2010).

Context 203 is largely similar to 204, but the first indication of the environment switching to a more heathland habitat is present. Grasses and herbs are still dominant, as are the fungal spores to support the interpretation of an open environment. Charcoal and spheroidal carbonaceous particles were noted in abundance indicating localised fire events. Potentially grassland fires gave way to heathland regeneration.

Ericaceae is dominant along with grass in context 202. Fungal spores supporting *Molinia* and open habitat are declining as are the grassland herbs. An environment with low diversity, but dominated by heaths and grasses, with some rumex is likely at the time this soil was formed.

Preservation of pollen was excellent in the surface turf sample 201. Ericaceae is present in lower quantities than at sample 202 and grasses are still dominant. Fungal spores are rare. *Plantago* (often associated with human intervention) is present in more significant levels than previously in the excavation, but many species currently dominant on the island (rumex and Caryophyllaceae, in particular) are absent.

## 7. Conclusions

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The 2016 evaluation excavation was largely successful in its aims to assess and sample buried archaeological deposits surviving behind or beneath a prehistoric field boundary on Skomer Island for the purposes of environmental and chronological analysis. The position of the trench, and the lynchet, were both carefully considered prior to excavation with the aim to locate a boundary section as intact and stone-free as possible.

In practice, the depth of penetration by bracken roots into the loose soil matrix could not have been foreseen and this, together with the considerable quantity of cleared field stone removed from even this modest trench, both conspired to render the buried contexts less secure and less intact for sampling than would have been hoped for. It proved impossible to recover secure soil samples suitable for OSL dating. However, good pollen sequences were obtained from the bulk samples giving an environmental narrative which unfortunately lacks a chronological framework. The somewhat disturbed condition of the upper contexts of this lynchet also stand as a proxy indicator for management purposes of the potential condition of other prehistoric earthworks across the northern part of Skomer.

Many of the constraints and problems encountered in this first excavation of a prehistoric lynchet greatly informed the far more successful excavation of a deeper lynchet close to South Stream in April of 2017, which is the subject of a separate report.

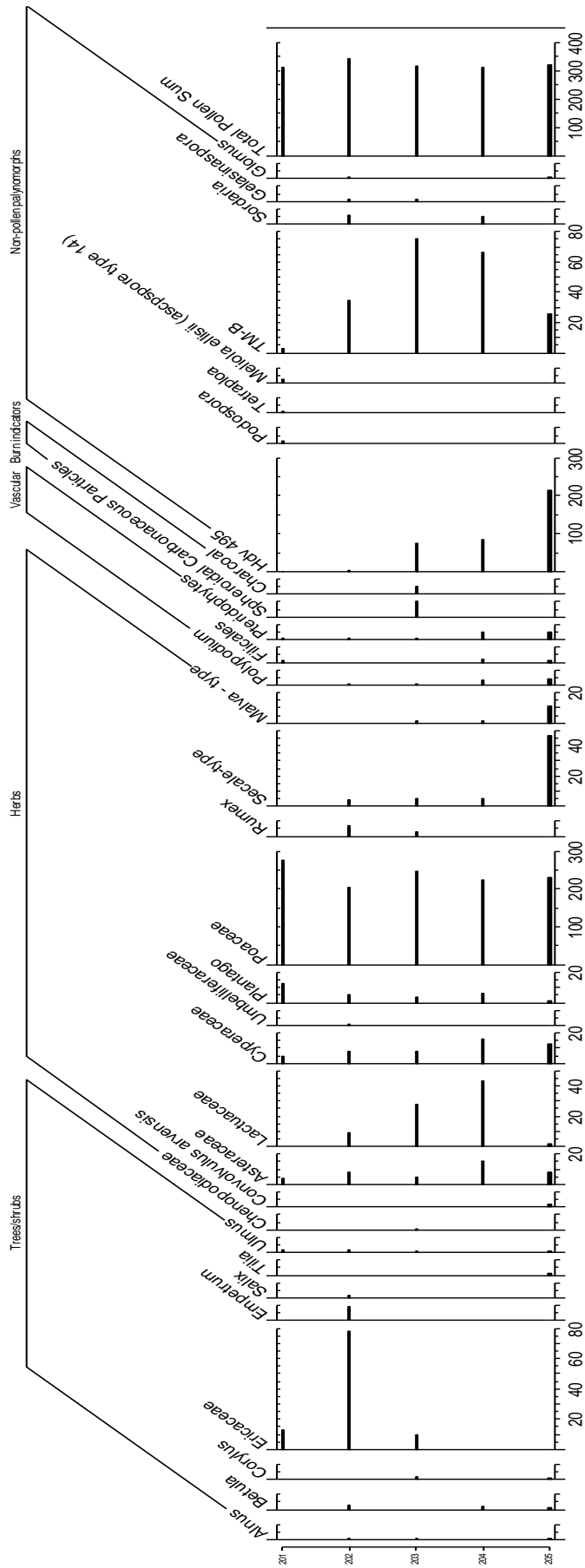


Table 3. Pollen diagram (J. Webb)

## 8. Appendix

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### Skomer – context list

CONTEXT NUMBER	TYPE	DESCRIPTION
SKM16 - 201	Deposit	Topsoil layer, uppermost, many grass roots and bluebell bulbs
202	Deposit	Dark humic soil with bracken roots penetrating to c.32cm. Former ploughsoil of north field, merging with stonier matrix to south (206). Munsell 5YR 2.5/1, black
203	Deposit	Dark humic soil, fewer roots. Same soil matrix as (202), without roots. Possible lower ploughsoil. Munsell 5YR, 2.5/1 black
204	Deposit	Grey-brown, slightly stony with small, 6cm stone inclusions. Thought to be lower ploughsoil below (202/203), early phase of ploughsoil with minor stone clearance at south end. Firm clay-silt. Munsell 2.5 YR 3/3, dark reddish brown
205		Natural, very firm orange-grey-brown deposit with sub-angular stones up to 20cm, Not excavated. Sterile natural gritty, firm clay. Munsell 7.5 YR, 4/6, strong brown.
206	Deposit	Dark, humic, with roots, frequent sub angular large stones, interpreted as southern part of (202), the clearance of field stone into bank. Munsell 5YR, 2.5/2. Dark reddish brown.

## 9. Acknowledgements

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The authors are, once again, indebted to Birgitte Buche and Ed Stubbings, Skomer Wardens, for helping to process our original permissions for fieldwork on the island, for accommodating us, and for assisting both with the selection of the excavation location and with the provision of tools and other equipment. We are grateful to Polly Groom at Cadw for granting scheduled monument consent for our work, to Chris Lawrence, Senior Conservation Officer at Natural Resources Wales for SSSI consent, and to the Advisory Committee and staff of the Wildlife Trust for South and West Wales.

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