

ASSESSING IRON AGE MARSH-FORTS

by

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Volume 2 of 2

APPENDICES 1-7

Marsh-fort Gazetteer
The Berth – Excavation and finds archive
The Berth and its causeways – Archival evidence
The Berth – site visit record
The Berth - radiocarbon dates
The Berth - palaeoenvironmental samples – volume
and weight
The Berth - Coleoptera and plant macrofossils – full species lists

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		c	5	IRON AGE MARSH-FORTS - ENGLAND AND WALES														2			E.	40					
																					1			LEGEND	Group 1 Marsh-fort used for ritual/non- domestic purposes	Group 2 Possible marsh- fort: ritual/non-domestic functionality	Group 3 Possible marsh-fort. Evidence is predominantly domestic; potential economic centre or territorial marker
Region	Site	Grid Ref	Location			Size	Period			Environment	Classified as	Finds	Entrance	Function	Morphology	Internal Features	Selected Refs	Visit	Fletcher analysis	Hillfort Atlas lar	e location/	monumentality/	MIA/LIA	Lengthy landscape	Localised	Non-domestic:	Summary
					-														(in Van der Noort et al 2007)	= marsh-fort siz	marshlan setting	morphology	chronology	chronology/ discontinuity of use	woodland clearance/ pasture	possible ceremonial or ritual use	1
-			Regional context	Elevation OD	Topography	-	Pre Iron Age	Iron Age	Post Iron Age/ Roman								-					-		-		-	
Cambridgesnire	Arbury Camp, Hinton (dest)	6160	gravel (extraction) to west; R Cam river valley	13000	Wandlebury)	Sna	occupation	4th-2ndL BC 410-160 cal BC - 380-40 cal BC	koman re-use		Fort; enclosure	Leatherwork(?); human scapula	monumentai eastern entrance	Stock pen ? Seasonal enclosure? Possible territorial marker	Unvaliate; timber gateway (E)	No occupational evidence - 'empty'	Evans & Knight 2002		Y		ľ		•		unk		A seasonal camp) territorial marker, Possibly a ceremonial centre, territorial marker or marsh-fort?
	Belsars Hill, Willingham	TL 4231702	 Southern end of Cambridgeshire fens 	Sm OD	fen edge	2.57 ha			medieval ring- work; possible motte-and-bailey	no p/environmental analysis; modern pasture	Enclosure; univallate hillfort/ plateau fort		east/west (medieval?); north? (Iron Age)		Univallate; bisected by the Aldreth Causeway		Kenney & Oswald 1996			Y x	×	x	unk		unk	unk	Limited information; univaliate hillfort/enclosure in fenland; possible territorial marker
	Borough Fen	TF 1908 0729	Southernmost of a string of forts defining Corieltauvi/ Catulvellauni border	3m OD	On a peninsular projecting into the fen; buried beneath alluvium during the Roman period	3.8ha		ditched enclosure with elevated interior; buildings; abandoned in later prehistory		Grazed pastureland	Earthwork enclosure; circular	Defleshed horse skull with 'placed' potsherd	eastern; inturned gateway	similarities with Belsars Hill	Bivallate; circular	Occupational evidence ; pottery	Malim and Mckenna 1994		Ŷ	Y V	√ drained r	rsh 🖌	V	unk	unk	x	Based on the evidence, the site may be a possible territorial marker or domestic enclosure of some standing
	Borough Hill, Sawston	TL 471 494		20mOD	on low chalk hill 2- 3m above surroundings, R Can flows to South	8ha	Early Mesolithic to Late Bronze Age lithics; pre- Iron Age buried soils	Animal remains; daub; IA pottery; spindle whorl	Loomweight; A/Saxon potery	woodland cleared at an unknown date	Multivaliate hillfort				Univallate fort became developed as large multivallate hilfort	Features include pits, enclosures (identified by geophysical investigation and test- pitting)	Thomas and Taylor 2011			· · · · · · · · · · · · · · · · · · ·	~	Ý	~		1	x	Domestic evidence; possible territorial marker; defences augmented by river bend
	Stonea Camp, Wimblington	TL 448 930	Surrounding BA ring ditches & barrows nearby	0mOD	Earthworks on a gravel Island, utilising natural topography	4.05ha (inner D) 6.07ha (outer D) 9.61ha (outer)	Bronze Age burials	phased development; 3rdC BC-1stC AD	Roman fort respecting(?)earl ier evidence; possible site (see also Holkham) of the final iceni/Roman battle	Originally dense oak and birch (became managed) woodland; grazed pastureland;no arable	Multivaliate hillfort	Human remains (inc physical violence); metalwork/ coins; pottery; limited range of animal bones		Delimiting space; ceremonial/ burial	Multivallate;4 phases with periods of abandonment	Little Iron Age settlement evidence; short occupation in AD 1stC	Malim 2005; Hall and Coles 1994	y	Ŷ	Y V	~	×		×	-	×	Morphology, size, chronology and urage indicate a marsh-fort
	Wardy Hill	TL 478 820	Prominent spur north of Ely on the fen edge	Sm OD	Commanded the approach to the marsh area of The Cove	ca 2ha (?)	Bronze Age evidence	large artefactual assemblage ; Late Iron Age	strong LIA/Roman evidence into Flavian period	open grassland conditions with local stands of woodland; cultivation at some distance from the ringwork, probably on Wardy Hill itself; 4 honey bees indicate honey production ?? Hedging inferring "Invisible boundaries"	Iron Age ringwork	Human remains; shrine complex?, coir, metalwork?, coir, animal bone; large artefact assemblage		'farmstead- like' - residential and refuge with symbolic overtones (Evans 2003)	Complex and imregular (inclue) multi dentances inc cuauxeava y water gate; nested enclosures;	Limited occupational evidence not warranting the size of defences; 'double ring work and 6 round houses'	Boast, Hall and Whitelaw 1991; Evans 2003; Malim 2005	У	Y	Y X	Ý		v	*		~	Morphology and Chronology constant as an aniin march/ort, a possible control point governing fen acces: possibly a chieftain's centre
Cheshire	Dakmere	SJ 57606783	Cheshire Meres region	75m0D	lake shore promontory	.9ha	Neolithic evidence	Iron Age fortifications	Roman evidence (pilae) may have been introduced from another location		Promontory hillfort	VCP			Univallate	none evident; excavation of ramparts only	Forde Johnston 1962; Garner 2014; Leah et al 1998	У		Y x	×	×	V	unk	unk	unk	Small but monumental fortification commanding the lake edge; possible marsh fort
	Peckforton	SJ 54305767	Cheshire Meres region	75mOD	lake shore promontory	.35ha		Assumed Iron Age		cleared woodland; arable	Promontory hillfort				Univallate	none evident; no excavation	Garner 2014; Schoenwetter 1982	y		Y X	~	x	Ý	x	~	unk	A small enclosure on the edge of a mere.
Gloucestershire	Oldbury Camp	ST 6103928	Severn estuary - east	10mOD	Estuary; alongside River Pill	4.04ha	Mesolithic worked flint?	IA pottery; iron working	Roman coins	amongst saltings/tidal estuary	enclosure	Scant pottery finds	north?	unknown	Partly bivallate ; outer rampart is higher than inner suggesting a possible livestock enclosure; possible wharf (artificial platform) but could be later mutilation		exc Howell & Iles 1979; excavation ongoing (Sth Glos CC)	y		Y V	~		~	unk	unk	unk	Ongoing excavation should provide more evidence; possible control point on the Severn estuary or trading port
	Salmonsbury Camp	SP1720	Bourton on the Water	130mOD	valley bottom	23ha + 6ha annex	Neolithic causewayed enclosure?; Bronze Age ring ditch; flints;axe; arrowheads; pottery	2 phases of LIA occupation; round houses; pottery; pits; metalwork/ing; currency bars ;querns; human remains;coins	AD1st-4thC; coins; pits; pottery; A/Saxon inhumation	At the junction/angle of Rivers Dikler/ Windrush; gravel terrace bounded on 2 sides by swamp/lake	'hillfort'/ fortified settlement /oppidum?	large artefact assemblage	E to river	Settlement; enclosed oppidum (see also Oram's Arbour, Winchester; Dyke Hills)	bivallate ; extension to annex flanked by marsh		Dunning 1931; 1976	Y		Y V	~		v	×	unk	x;	Multi-functional, multi-period enciosure/oppidum; evidence of continuous use and importance. Possible marsh-fort
Hampshire	Bullsdown Camp	SU 67085838	Nr Basingstoke	55mOD	gently rounded hill on N edge of plateau overlooking bend in Bow Brook, near confluence with River Lodden	4ha/8ha footprint					Multivallate hillfort/Later Iron Age oppidum		NW		Multivailate OD fort ; three banks/ditches;		Williams-Freeman, J.P. 1915.			Y V	×		unk	unk	unk	unk	Field systems and marshland surround this fortification, but evidence is too limited to draw a conclusion

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<u>.</u>																		1					1	LEGEND	Group 1 Marsh-fort used for ritual/non- domestic purposes	Group 2 Possible marsh- fort: ritual/non-domestic functionality	Group 3 Possible marsh-fort. Evidence is predominantly domestic; potential economic centre or territorial marker
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Region	Site	Grid Ref	Location			Size	Period			Environment	Classified as	Finds	Entrance	Function	Morphology	Internal Features	Selected Refs	Visit	Fletcher analysis H (in Van der = Noort et al 2007)	llfort Atlas large marsh-fort size	location/ marshland setting	monumentality/ morphology	MIA/LIA chronology	Lengthy landscape chronology/ discontinuity of use	Localised woodland clearance/ pasture	Non-domestic; possible ceremonial or ritual use	Summary
	The Automa	71 005 113	Regional context	Elevation OD	Topography	7.76-	Pre Iron Age	Iron Age	Post Iron Age/ Roman	hillstere fuelles	defensive		Mir and M		the fill we lists		Strachia Daubland						-				
	Redbourne		Hempstead; adjacent to M1		shallow east-west valley and close proximity to a small tributary of the river Ver	2.300	pottery finds in groups of pits suggests earlier origins	on morphology		minarope,/ vancy	enclosure			suggests focal point in surounding area			and Bridgman 2012.									ui sa	hadscape; insufficient evidence
Herefordshire	Eaton Camp	SO 454393	Nr Credenhill		Large, steep sided and unusually sited, triangular, inland promontory fort at confluence of Cage Brook and River Wye and opposite to Credenhill hillfort	7ha		Ramparts ca 600BC		promontory overlooking river confluence	Hillfort/ Promonotory camp/ Valley Fort	MIA ceramics; Droitwich briquetage; crucible; cattle bones and part human skull as deposits	NW		Uni-bivallate; possible annex	hut platforms	Dorling 1931; Atkinson 2011	Ŷ		~	×	~	~	unk	unk	x	Promontory fort overlooking River Wye
-	Risbury Camp	50 541 552	SE of Leominster	110mOD	flat topped knoll overlooked by surrounding hills; at junction between two brooks	3.2 ha (enc); 11.3ha (footprint)			chance finds of Roman pottery (interior)		Hillfort; Dyer included as a valley fort				Multivallate; may have incorporated watercourses into defences; revetted. Entrances to E(simple) and W (inturned)	summit may be artifically flattened		Y		~	×	×	unk	unk	unk	unk	Possible control point at river junction; evidence too limited to draw conclusion
LincoInshire	Burgh Banks	SK 9559 3305	LincoInshire Wolds	100mOD	Lying 500m to the SW of Old Somerby on glacial till with surrounding peat and alluvium deposits	3.3ha		undated			monument	unk	unk		possible univallate hillfort; oval shape; similar to Tattershall Thorpe	unk				~	possible	unk	unk	unk	unk	unk	Insufficient evidence
	Tattershall Thorpe	TF223598	Lincolnshire Wolds	9.2m OD	Overlooks Rivers Bain & Witham	1.8ha	Mesolithic and Neolithic flints; Late Bronze Age charcoal	MIA/LIA ; 400±90bc (Malim 2005); 780 - 200cal BC (Van de Noort 2007)	Roman evidence	surrounding pasture	Small bivallate hillfort; seasonal corral? Causeway to N (now dest) was probable entrance	Artefacts assc with settlement (loom weights; beehive quern); Neolithic stone axe; some metalwork	south east facing entrance	morphological connection to Kirskstead/Old Abbey Farm	Bivallate		Chowne, Girling, Grieg 1986	g	Ŷ	x	×	¥	v	~	×	unk	One of several defended enclosures in the Lincolnthie Fens, occupying a strategic point between the River Witham and the Iron Age cost. Possible marsh-fort
	Kirkstead/ Old Abbey Farm	TF 195 608	2.5km from Tattershall Thorpe	SmOD	'commanding position'	1.00ha					Small multivallate hilfort			very similar to Tattershall Thorpe	Multivallate; triple ditch ovold					x	×	×	~	unk	unk	unk	One of several defended enclosures in the Lincolnshire Fen; occupied similar location to Tattershall Thorpe. Insufficient information
Northumberland	Hetha Burn West	NT 8788 2748	Lowish area in Cheviots.	200mOD	Near Hetha Burn, in the shadow of the heavily defended Great Hetha	.2ha		Iron Age evidence	Roman settlement close by	Surrounded by cultivation evidence	Enclosed settlement; scooped settlement; trackways				Bivallate with trackways	none	MacLauchlan 1867		Ŷ	x	v	×	unk	unk	unk	unk	A likely annex to Great Hetha. Small enclosure on river, possibly for stock control
Norfolk/Suffolk	Bloodgate Hill, South Creake (dest)	TF 84 35	1.2km from R Burn	61m OD	Almost the highest point in the valley with good viewsheds	3.5ha	Lithics; internal area encompasses a ring ditch at its highest/ central point	IA sherds; metal working debris, knife, weight, flake, scraper	pottery; brooch; coin; cosmetic pestle	Open grassland	Hillfort	lithics, metalwork; skull; IA sherds; Roman finds	north east		Univallate; circular		Penn et al 2006; Davies Gregory et al 1991			*	x	¥	V	×	unk	possible	Sizeable fortification and possible control point in shallow valley; possible central Bronze Age round barrow; limited settlement evidence. However, some distance from wetland
	Boney's Island, Beccles	TM 4309 9086		5m OD	spur of heath jutting into Beccles Marshes	unknown; circa 3ha		slight evidence			Oval, uni/bi- vallate 'marsh fort' ; bank/ditch				Single, possibly a double, bank and ditch				Υ?	unk	×	x	unk	unk	unk	×	Too little evidence to draw a conclusion; lack of monumentality suggests enclosure
	Burgh	TM 22 52	9km NE of Ipswich	25m OD	Low lying clay ; close to River Lark	7ha	Mesolithic, Neolithic and Bronze Age remains	Human and animal remains; Late Iron Age and Belgic pottery; metalworking materials; brooches; bracelet	Hypercaust and tesselated floor; possibly a Roman villa site; evidence into AD4thC		Hillfort; rectilinear enclosure	human remains at the base of a pit		LIA/Early Roman small oppidum?	Quadrilateral double ditched rectilinear enclosure;		Martin 1988		Ŷ	~	×	Ý	~	~	unk	x	A large endosure/fortification with mainly LIA and extensive Romano- British evidence. Usage was probably domestic, ableti with a lengthy chronology. Close to River Lark
	Clare Camp	TL768458	Frontier location on the outer borders of the Trinovantes territory, just south of the Iceni heartland	60mOD	Low lying clay ; marshy ground to east	3.9ha		Post holes of Late Bronze Age/Early Iron Age date	None		enclosure/ hillfort				Multivallate ; E entrance; inturned ditches at E end		Martin 1999		Ŷ	~	~	×	x.	-	unk	x	A fortification with defences augmented by marshland and a possible causeuxy. Scant evidence suggests a possible territorial marker

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4	Holki	kham .	TF 87437	Regional context	Elevation OD	Southern end of	2.5ha	Pre Iron Age Mesolithic and	Iron Age Poss IA sherds,	Post Iron Age/ Roman Possible site of	Originally surrounded	Slight univallate	IA sherds	northern		Multivallate ; causeway ;		Clarke 1936; Davies	y	Y	Y	x 🗸	~	~	~	salt marsh	human remains/unk	Although evidence is severely limited,
			44722	(modern); .65km from coast road (the old coastline)		natural sandspit within 1.5km of coast; tidal saltmarsh on 3 sides		Neolithic worked flint	'armour' and human remains	final battle between Iceni and Romans; trading port? fortress against Vikings?	on 3 sides by salt marsh	hilfort		'entrance'; access was along sandspit which formed narrow causeway on north side; W, S & E sides were open water		south facing entrance protected by out works		Gregory et al 1991 (Iron Age forts of Norfolk); Davies 1996										the lengthy chronology, highly unusual morphology and location indicates something more than a straightforward enclosure - possibly a (small) marsh-fort
	Narb	borough	TF 7514 1308	.2km from south bank of River Nar; close to crossing of Icknield Way	15m OD	Fen edge; built on a natural knoll	1.56ha	Worked flint; burnt flakes	Evidence - limited; IA sherd	. RB sherds		Hillfort	IA and Roman pottery	south		Univallate; irregular oval		Clarke 1940; Davies Gregory et al 1991 (Iron Age forts of Norfolk)		Y		×	x	~	unk	unk	unk	Fortification which possibly controlled a river crossing
	Thar	rston	TM 191962	400m west of Tasburgh hillfort	20mOD	Located on floodplain of River Tas	8.7ha		some Iron Age sherds (but may also be Anglo Saxon)	Roman coin hoard		poss hillfort									Ŷ	× ×	~	unk	unk	unk	unk	Too little evidence to determine marsh-fort status; a possible twin with Tasburgh
	Wart	rham Camp	TF 94887 41808	River Stiffkey	15m OD	River & marshes provide defence to W	3ha; 1.5ha enclosed in interior	Neolithic lithics; Bronze Age barrow (Fiddler's Hill)	11 sherds of IA pottery	Romano-British pottery + tegulae, flue tile, copper-alloy brooch (Roman occupation up to 2C AD)		Small, bivallate circular fortification	Timber structure on crest of inner bank; pottery; metalwork	south west towards the River Stiffkey		Bivallate; circular; with adjacent smaller (IA) enclosure (TF 9458641050); later causeways at entrances (NW and S)	limited occupational evidence; a geophysical survey of the interior indiated a relatively empty space (pers comm; Prof. M Bell)	Gregory et al 1996; Davies Gregory et al 1991 (Iron Age Forts of Norfolk)	Y	Ŷ		× ×	V	v	v	unk	x3	A lengthy chronology, however, (limited) Iron Age evidence suggests that this was a domestic site and a possible control point on River Stiffkey
Nottinghamshi	re Asloc	ckton :	SK740409	between Nottingham and Grantham	20m OD	Lowland	up to 20ha	Neolithic pit ; post hole; Bronze age pit; post hole	Double ditch enclosure/ settlement	Ditched enclosure		enclosed settlement with evidence of feasting				Multivaliate settlement complex of ditched enclosures		Transactions of the Thoroton Society of Nottinghamshire 97/1993, 146-7; Chadwick 2010				×	Ý	·	unk	unk	x	Complex settlement and enclosure with evidence of feasting
Oxfordshire	Abin	ıgdon, The zyard (dest)	SU 499 972	Thames Valley	SOmOD	Thames floodplain	lha	earty prehistoric phase - Neolithic flints; LBA pottery	IA guily - 200BC onwards	developed into small Roman town	floodplain	momument (enclosed settlement)	multi-period finds; 3 Roman burials and a ditch; IA gully		enclosed oppidum	three curved ditches which utilised diverted streams as defence		Alien 1991;1993;1994				×	v	v	v	unk	×	Important enclosed settlement/oppidum utilising river as defence; LIA; lengthy chronology
	Burro	roway :	SP 3089 0037	7km NW of Cherbury	65m OD	Floodplain between R. Thames and Burroway Brook	2ha		LIA univallate enclosure		floodplain; alluviation from LIA onwards	enclosure; IA farmstead	EIA/MIA pottery but enclosure is LIA enclosure.	NW/NE	farmstead	univallate enclosure; timber ramparts (burnt)	roundhouses;pits	Sutton 1966				×	x	✓ possibly	x	unk	×	Extended settlement on floodplain; enclosure is LIA
	Cherl	rbury Camp	SU 37417 96279	Near Uffington Camp(39 prehistoric records in 2km radius)	70m OD	Valley bottom; marshy site	9.63ha	Multiperiod use dating from the Neolithic	Early to Middle Iron Age	Roman evidence		Multivallate hillfort; Dyer referred to it as a valley fort	2 Neolithic axes; Bronze Age arrow and scraper; Iron Age sherds, Roman pottery and nails		focal point of 'open settlement'; Exclusively domestic?	Multivallate hillfort triple bank and ditch	Eastern entrance with cobbled 'roadway'/ causeway; dry stone revetement wall; pit complex; round houses	Bradford 1940; Hingley 1983	Y		Y	× ×	~	~	x	unk	x	Multi-period, multi-use settlement; a fortification controlling the surrounding marshland
	Cassi (larg	sington Mill :	SP 448 099	Upper Thames valley	60m OD	River Tharmes/Evenlode confluence; valley floodplain; gravel terrace	up to 13ha	Multiperiod site spanning Neolithic to medieval	Large Iron Age enclosure			Large Iron Age enclosure; 'The Great Enclosure'; Dyer included as a valley fort	Multiple; settlement and burial complex			Multi-chronology (Neolithic- Medieval) including very large sub circular iron Age enclosure which encompassed earlier sites including burials; 6 entrances; post-medieval water mill	Multiple including hut circles	Sutton 1966; Lambrici 2009	Y			× ×	~	v	~	×	possible	Multiperiod, multi-use settlement and ceremonial site; possibly a marsh-fort, now largely destroyed
	Dyke	e Hills	SU 5738 9358	south of Dorchester; Thames Valley	50mOD	promontory overlooking confluence of Rivers Thame and Thames	46ha :	early BA barrows		LIA/RB	overlooking fioodplain	earthworks and enclosed settlement	some human bone; RB coins		Enclosed oppidum/ settlement. (see also Oram's Arbour, Winchester; Salmonsbury)	triangular - two large banks cut off a promonotory bordered on two sides by rivers	multiple roundhouse structures, rewctangular structures, linear features and pits	Sutton 1966; Lambrici 2009				✓ river promont	sry 🗸	V	x		×	Limited evidence of pro-iron Age occupation; Romano-British oppidum/enclosed settlement
Shropshire	The E	Berth	SJ 43012361	North Shrops wetlands	85m OD	Natural gravel mounds within a peat basin	6ha		Iron Age finds; ramparts	Roman pottery ; legend of post Roman usage; association with King Arthur	alder-carr; wet pasture	Multivallate hilfort	Iron Age and Roman pottery; VCP; bead ;metalwork (inc Berth Cauldron)			2 enclosures connected by (post-med) upstanding causeways ; 3rd causeway possibly contemporary with the monument	Iron Age postholes?	Morris and Gelling 1991; Stratscan 2011	Ŷ	Ŷ	Y	× ×	×	×	×		✓ /unk (deposition of Berth Cauldron)	Marsh-fort; highly unusual morphology; Internal evidence for settlement is unproven; Berth Cauldron discovered on site
	Bom	nere Wood :	53501080	south of River Severn, near Bayston Hill	75m OD	occupying a glacial ridge between Bomere & Shomere Pools; just possibly surrounded by water in Iron Age						hillfort				Possibly natural. Historic England have indicated it was to be delisted (March 2014)	none	Page, W. ed. 1908	Y		Y	on a higher ric above Bornere pool	ge unk	unk	unk	unk	unk	Natural – possibly anthropogenically enhanced

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			Regional context	Elevation OD	Topography		Pre Iron Age	Iron Age	Post Iron Age/ Roman																Ĺ		
	Castle Farm (dest)	51 747078	South or Weald Moors	now under reservoir		103		enclosure with Romano-British evidence									K06 1991	area		×	×	x	×	Ĺ	unk	x	enclosure; evidence limited; site now destroyed
	Pan Castle	SJ 52624047	North Shrops wetlands	105m OD	Low lying marshland	d 6ha (Motte & Bailey)					Motte & Bailey							У		unk	~	unk	unk	unk	unk	unk	Too little evidence to suggest anything other than a Motte and Bailey
	Pave Lane	SJ 7563 1645	North Shrops wetlands	100m OD	Adjacent to the Weald Moors	3ha				pastoral	small Iron Age hillfort ; farmstead				Multivallate enclosure ; SW entrance with cobbled causeway; possible NE	Possible roundhouses	Smith 1991	У		~	~	4	·	unk	×	×	A large defended farmstead/enclosure; evidence is domestic
															entrance?										-		
	Stocketts Enclosure	3069	wetlands	90m 0D	Lake shore, controlling land between Sweat Mere and Whattall Moss; on the shores of Crose Mere	./na(/)					Motte & Balley	sheath?) fragments; torc fragment; quern fragment						y		*	•	•	x	unx	•	unx	Landscape context and a rew mos could suggests this was possibly a (small) marsh-fort before use as a Motte and Bailey
-	Wall Camp	SJ 68080 17802	North Shrops wetlands	55m OD	'Island' in low lying peat basin (the Weald Moors) with accert to flooded	12ha	Mesolithic flints; burnt mounds	Evidence and dating	Small amount of evidence	Organic deposits compromised due to peat wastage	Multivallate hillfort	Iron Age pottery; VCP; bead; possible Roman		Stock corrall? Ritual site? Settlement?	Multivallate with complex earthworks put of proporition to domestic within company according	4 posters; round houses?	Malim and Malim 2010; Bond 1991	у	Ŷ	Y Ý	~	·	~	1	unk	x, however, Telford Torc was found nearby	In spite of some domestic evidence, monumentality and landscape context suggest this as a marsh-fort; the Telford tors was found example
					area to east							torc nearby			floodplain												
	Whittington Castle	SJ 32543113	North Shrops wetlands	90m OD	Lowlying river setting; 2km E of Old Oswestry Iron	4ha					Medieval Castle				Multiple banked IA enclosure both internal and external to the castle site			Y		~	~	~	<i>√</i> ?	unk	unk	unk	Evidence is limited and dominated by the medieval castle; nevertheless, this was a sizeable, riverside Iron Age
					Age hillfort																						settlement and possible marsh-fort. Possibly twinned with Old Oswestry
Somerset	Athelney	ST 344293	Somerset Levels	rising to 12m OD	Natural mound rising above saltmarsh in the Parratt valley	Athelney Hill covers ca8ha		Poss Iron Age earthworks (identified by Time Team)	King Alfred's stronghold AD878		Fort								Υ?	×	×	unk	possible	unk	unk	unk	Occupying an isle on the Somerset Levels; evidence is too limited to draw conclusions
Wales	Dinas Dinlle	SH 437563	Cliff setting with marsh land; a low	25m OD	'mount of sand and gravel on the verge	d 1.6ha	Possible round barrow	Ramparts and ditches enclose a	Roman potsherds, coins,		Early defensive enclosure; hillfort				Large multivallate	Huts?	Griffiths 1994		Y	x	×	~	~	x	x	x	Promontory hillfort on coast; eroding rapidly
			knoll partly cut into by the sea with a possible creek providing a sheltered landing place (Hogg:1975:188)		of a great marsh' (Pennant 1773-76); on the summit of a drumlin			defensive central area	intaglio																		
	Bryn Maen Caerau, Cellan, Dyfed	SN 59704836	Site now occupied by Cellan (village)	140m OD	a few metres above the Afon Teifi	.8ha	possibly Neolithic/	palisade							Older palisaded enclosure succeeded by rampart and		Murphy, K, Ramsey, R. and Page, M. 2006			Y X	river terrace	~	~	×	unk	unk	Long history of occupation, possibly a defended farmstead on a river terrace
-					floodplain		certainly early Bronze Age.								ditch late Bronze Age/early Iron Age.												
-	y Werthyr, Bryngwran, Isle of Anglesey	SH 37457820	y Wethyr village, Anglesey	45m OD	low knoll above the marshes around Afon Caradog Site	3.7ha		Bronze-iron terret							Bivallate; terracing but no ditches; no internal features		Livens, R. G. 1965.			Y Ý	~	·	×	unk	unk	unk	Lacks evidence but fulfilling a central function in marshland; its proximity to Llyn Cerrig Bach may be significant
					almost isolated by marsh. 7km from Llyn Cerrig Bach and adjacent to the only outcrop og gneiss or Ynys Mon	j n																					
Warwickshire	Harborough Banks	SP 18453 71033	Warwickshire pastoral	118mOD	on the slope of a slight hollow overlooked by higher ground on the W, N and E	10.8ha					hillfort	1 sherd LIA pottery			possible univallate enclosure mostly destroyed		Higley 1988				×	Ý	?	unk	unk	unk	Large univallate enclosure; limited information
Worcestershire	Gadbury Bank	50793316	Commands River Severn valley between Bredon and the Malvern Hills	Hill rising steeply to 55m from 25m OD	Severn valley; streams cross the valley floor	4ha		Iron Age potsherds			Univallate hillfort							y			x	×	~	unk	unk	x	Promontory hillfort in river valley
	Kempsey	SO 848 491	River Severn valley, at junction with	10m OD	Natural gravel terrace in flood	ca 1ha?					Hillfort/ promontory fort				Utilised natural gravel terracing		O Neill 1956	y		x	~	x	unk	unk	unk	×	Evidence is too limited to draw conclusions; possibly a control point
			Hatfield Brook; commands river valley between Malvern and Bredon Hills		plain; early Anglo Saxon church and burials										· · · ·												along the River Severn

H	4 B	c			1		٩	×	I	1	κ. Γ	IRC	ON AGE	MARSH	FORTS	- ENGLAND		S	3	U	Ŧ	w X	¥.	1		44	×	AD.
-				T																					LEGEND	Group 1 Marsh-fort used for ritual/non- domestic purposes	Group 2 Possible marsh- fort: ritual/non-domestic functionality	Group 3 Possible marsh-fort. Evidence is predominantly domestic; potential economic centre or territorial marker
	Region Site	Grid Re	f Location				Size	Period			Environment	Classified as	Finds	Entrance	Function	Morphology	Internal Features	Selected Refs	Visit	Fletcher analysis (in Van der Noort et al 2007)	Hillfort Atlas = marsh-fort	large location/ size marshland setting	monumentality/ morphology	MIA/LIA chronology	Lengthy landscape chronology/ discontinuity of use	Localised woodland clearance/ pasture	Non-domestic; possible ceremonial or ritual use	Summary
			Regional c	context El	levation OD	Topography		Pre Iron Age	Iron Age	Post Iron Age/ Roman																		
	Island Covert	50 8433	85 c. 1km fro Severn at I upon Seve	im River 15 Upton Irrn.	5-20m OD	In the middle of a swampy thicket	.28ha					poss marsh fort				oval ; univallate?			Y		Ŷ	×	x	unk	unk	unk	unk (local name suggests 'stronghold' in Old English)	Too little evidence to draw any conclusions
	Yorkshire Sutton Comm South Yorks	on, 5856212	 Surrounde brickwork system; wi cluster of I metalwork 	ed by Sr field (thin a BA k finds	m OD	Lowlying marsh land; access to Shirley Pool	6ha	Mesolithic flints; Early Bronze Age mortuary structure	2 phases; see - Finds Morphology / Internal		Construction colincides with woodland clearance; local environment would have been comparatively open	Enclosure; 'marsh fort '	Multiple - cremated human bone and human and animal remains ; gold 'ingot'; charred grain; ladder; glass bead		Ceremonial/ ritual ? No occupational evidence	Multivallate double enclosure, joined by causeway over Hampole Back; monumental east entrance leading to another causeway; period of disuse	4 posters; 'temenos'/ mortuary enclosures; well	Whiting 1936;Parker Pearson & Sydes 1997; Van de Noort et al 2007	Ŷ	Y	Ŷ	× ×	*	~	-	×	*	Marsh-fort
	Potteric Carr	SK 5900	Part of a s	eries of 5r	m OD	Lowland ; associated	i .4ha/1.7ha		EBA-MIA enclosure,		Wet floodplain	Enclosure				Multivallate/ triple ditched		Riley 1980; Rackham				x 🗸	~	~	x	×	x	Its very small size and lack of other
		9950	enclosure fieldwork complexes lying lands	and s in low scape		with livestock movements on to River Thorne			broadly contemporary with Sutton Common; c14 dating - 390-100 BC.		conditions with alder carr woodland, but also some evidence for cereal cultivation near the site					enclosure comlpex ; east facing entrance. Internal circular structure		and Scalfe 2000 and Deegan 2004 (both cited in Chadwick:1199)										features suggests this is an enclosure however its location is unusual
	Little Smeato North Yorks	n, SE5351!	8 In a region context of work field	nal 10 i brick- i patterns	0m OD	Alongside a water course (R Went) , 4km NW of Sutton Common; on a boundary between undulating limestone hills to NW and floodplain to SE; may have been accessible by boat	.4ha (inner enclosure) .9ha (?)	Worked Mesolithic flints	Earthwork evidence		Woodland, but also some evidence for cereal cultivation near the site	Ditched enclosure				Ditched enclosure; 4 circuits, not necessarily contemporary, elaborate E (changed to SE) facing entrance; pos smaller N entrance	Possible ring gullies	Riley 1980; Deegan 2007 (cited in Chadwick 2010:831)				x			·	x	unk	Unurual morphology and acetto via the adjustet river suggest this as a standard state of the second state of the second second second state of the second second second second second second second second second second second second second se
	Moorhouse F Tickhill, South	rm, SK 6089 Yorks	28 Overlain ir a modern	n part by 10 farm	Dm OD		ca4ha (?)					Enclosed settlement				Multivallate' double/triple ditched		Riley 1980; Chadiwck 2010				~ ~	-	×	unk	unk	unk	Sizeable, important enclosure on the peat edge controlling wetland resources; possibly a marsh-fort. Lacks information
	Croft Rd Finni South Yorks	ngley, SK 6845 9900		Sr	m OD	Slight gravel prominence in an extreme low lying landscape	unk		see Morphology	associated with trackway and field system		Enclosure; field system; trackway				Multivallate/ sub-circular enclosure & later trapezoidal enclosure; traciavay;	Pits; postholes; roundhouse?; well/cistern	Webb and Whittingham 2001 (cited in Chadwck 2010:1112). Elliott, Platt and Webb, 2012				unk			×	x	x	most likely an enclosure
	Skipwith Com	mon 58 6550 3	45 Vale of Yo common I: high densi cropmarks	rk; 10 land with lity of s	OmOD	poorly drained soils with standing water	unk	flint blades; dense concentration of tumuli	Arras' square barrow cemetery; enclosure	Late Roman pottery	flat common land	Iron Age enclosure	Multiple			multivallate enclosure amongst complex of numerous other enclosures and cropmarks		Finney 1994; Van der Noort 2004		Ŷ		unk 🗸	·	unk	unk	unk	unk	An enclosure within a settlement and funerary complex; insufficient detail to determine marsh-fort status

Peter Gelling was a Lecturer in Archaeology at the University of Birmingham and during the early 1960s he undertook several excavations at the Berth. These were joint exercises undertaken by undergraduates and members of the Ludlow Group of the Shropshire Archaeological Society. Prior to this, the Berth had featured in antiquarian accounts, (e.g.Hartshorne, 1841; Downman, 1906) supplemented by myth and folklore (Jackson, 1883), and been visited and 'surveyed' by the Shropshire Archaeological Society (Chitty, 1937/8). The Berth Cauldron (see below) was recovered from the site in 1906.

Excavations at the Berth were not written up in detail (perhaps due in part to Gelling's untimely death) but two notes were published in the West Midlands Archaeology Journal (Gelling, 1962/5; Gelling, 1964), one article was published on the wider subject of *'Dark Age Pottery or Iron Age Ovens?'* (Gelling and Stanford, 1965 (1967)) and a field note was included in the publications of the Hillfort Studies Group (Guilbert et al., 1977). In the 1980s, some pottery finds were analysed by Dr Elaine Morris, University of Southampton (Morris and Gelling, 1991).

This appendix is not offered as an expert summary but is intended to draw together the excavational archive to aid the interpretation of the Berth marsh-fort.

1. The Gelling Archive

The material archive is held by Shropshire Council Archive Services who have attempted to reconstruct the dig plan and activities from notes and diagrams, but the raw data is very fragmentary. The archive comprises:

- a) Photographs eighty-seven black and white slides which show aspects of the excavations and some of the finds, plus forty-two colour slides, some of which repeat the black and white slides
- b) Two notebooks, plus a summary provided by Shropshire Council which probably accessed at least one more notebook
- c) A trench plan (labelled Trench G but see below), with an additional plan of post holes
- d) A typed note by Gelling
- e) A range of pottery and artefacts (NB Some finds are missing and some were not recorded see Table 1)

Margaret Gelling (Peter Gelling's wife, and an eminent toponymist) contributed a further twentyfour colour slides. Apart from two later site plans in the Shropshire Council HER, no other archival material is known.

The raw data from the site excavations is difficult to decipher. The 150+ digitised slides (including duplicates/near duplicates) depict the kind of student archaeological dig typical of the 1960s. Land Rovers were used for site access (seen parked on the causeways). Today's Health and Safety requirements were absent, volunteers digging in open-toed sandals, wearing suits in some cases, in narrow, deep trenches which would now require bracing/support. The photographs cover site orientation, trenches in various stages of development, the gradual uncovering of cobbled floors and post holes, occasional finds (organic material, a large pottery rim), and the in-filling of at least one trench. The location of the trenches is apparent in relation to the Berth main mound. None of the photographs is captioned, except for an occasional reference to date or place on Margaret Gelling's slides - 'Jan 66' or 'Baschurch'.

There are two notebooks in the archive, but there may have been more; they are often written in a shorthand. The trench plan has no key and is capable of multiple interpretations. The finds are unlabelled. At the same time as Gelling's excavation, the site was also being dug by Ernie Jenks (*pers. comm.* Shelagh Hampton), a well-known Shropshire archaeologist who had also worked on the excavations at Sharpstone Hill (Barker et al., 1991). Jenks published no reports; his finds escaped analysis or record and, apart from some photographs, are now lost.

This summary is the first comprehensive account of all finds from the Berth. The following can be gleaned:-

- Fig. 1 shows the areas of excavation as well as the location of chance finds. The placement of the find of 'slave chains' (see below), which came from Jenks' trench, came from a map supplied by Mrs Lea (adjacent farm).
- A 50'x12' trench was excavated in the 1962 excavation, in two sections Trenches A and B, separated by a baulk to a depth of about 6'. This trench is shown clearly in the photographs immediately to the northwest of the in-turned entrance of the main enclosure. According to Shropshire Council's archive, A and B were amalgamated under the heading of Trench G. Trench A is the more northerly Fig. 2.
- A long (in excess of 139' according to the notebook), separate, and shallower trench confusingly labelled Trench/Site D was excavated further north of Trench G, through the main rampart.

- Squares D1 and D2 are placed by Shropshire Council at the north/east end of Trench G; they are not obvious from any photographs and are referred to as short entries in the archive notebook Fig. 2. However, another plan (by Smithson in the Shropshire Council HER) indicates that these squares were at the end of Trench D.
- It is unclear whether all trenches and squares were open during both excavations or whether any belonged to Jenks. Labelling several trenches 'D' might imply they were opened in different seasons.



Fig. 1 Berth schematic plan - adapted from Morris and Gelling 1991



Fig. 2 Trench A and B = Trench G/Squares D1and2/Site or Trench D (Gelling Collection - Shropshire Council Archive)

- The dig was characteristically wet, at least in places. A pump is shown in use in one trench (Trench D? looking east) although it is clearly summer (Fig. 3).
- Fig. 4 shows Trench G, looking east towards the smaller enclosure; there is standing water in the background and a lack of leaf cover. This photograph is labelled 'Jan 66' in Margaret Gelling's archive. The baulk between the trenches is also much eroded suggesting that the trench had perhaps been exposed during the winter period, which would fit with a critical comment from the current farmer (Howard Edwards) of trenches being left open and jeopardising livestock during these earlier excavations.



Fig. 3 Trench D (?) showing the need for a pump to remove ground water – looking east? (Gelling Collection - Shropshire Council Archive)



Fig. 4 Trench A and B = G ? looking east – Margaret Gelling Collection



1.1. Trenches A and B aka Trench G

Fig. 5 Trenches A and B/G with stone features looking east (?)(Gelling Collection - Shropshire Council Archive)

Trenches A and B are shown separated by a baulk; at this stage, Squares D1 and D2 are absent. A notebook highlights a series of contexts and finds:-

- Sherds associated with a line of stones running diagonally (2-5, superficial?)
- a diagonal line of stones in a dark layer (44,45)
- La Tène III brooch (51-57)
- rough cobbles (75,76), cobbles (82, 108-9)
- a clay floor sealing a 'very hard floor ' just above natural (117-121)
- a clay floor in a second occupational level at 56" depth (123)
- slight traces of occupation above natural gravel (126-7)
- lowest cobbled layer at 5'6" depth

Another site notebook (Site G and assumed to be the same as Trench G, possibly representing a second season?) details the following:

- A-Type rim of bright red ware
- 1/2 blue glass bead
- a 'very definite floor' (possibly 117-121)
- red pottery, black pottery, iron nail, quern fragment from 'the A end' (unk?)
- an iron knife and red pottery from 'the B end' (unk?)
- A and B ends were separated by a heavy black occupation deposit
- a cobbled floor
- bone across the area
- a pebble floor (lying in clean sand and black humus, with red pottery, bone and a little charcoal)
- a cobble path edged with large stones
- a large piece of daub possibly Fig. 6? (though this may equally be VCP/briquetage used in the transportation of salt)



Fig. 6 Daub or VCP (Gelling Collection - Shropshire Council Archive)

1.2. Squares D1 and D2

These excavated squares were either at the north/east end of Trench G or possibly the internal end of Trench D. They achieved a depth of at least 18", but although there are context numbers, there is no indication of the size of the area in the record, nor are they apparent on any photographs. However Square D1 produced information and artefactual evidence viz. a heavily cobbled layer, a curved iron stud, a '*very definite*' floor level made of ash and charcoal, a spindle whorl, and '*a rim of red ware*' (Fig. 7, now missing, but identified from the photographs by Elaine Morris (*pers. comm.*) as possibly Severn Valley Ware – see below). Other finds include more (buff and orange) pottery sherds.



Fig. 7 Red Rim in D1? (Gelling Collection - Shropshire Council Archive)

Assuming that Shropshire Council's interpretation is correct and by combining the notebooks and summary plan for Trench G and Squares D1 and D2, the following diagram of features and finds can be drawn:



Fig. 8 Trench A/B (Trench G?). Squares D1/2 and associated finds (adapted from Gelling Collection - Shropshire Council Archive)

1.3. Trench D

The notebook record for **Trench D** (Site D? – see Fig. 2) indicates a trench approx. 139' long and around 2' deep. Unlike Trench G, this was a single narrow trench with no dividing baulk. It produced a dark grey layer (possibly humic? possibly Fig. 13) above a stone layer (at a depth of 1'3"), and a *'certainly coherent occupational layer'* at a depth of 21"-24". The *'foot of a wall'* appeared at a depth of 53" and a duck-stamped sherd at 23" deep. Two possible slingstones, a long thin piece of iron, miscellaneous teeth and bones (animal), an iron point and a piece of iron were recovered.



Fig. 9 Cobbled area/possible stone collapse (Gelling Collection - Shropshire Council Archive)



The relationship between Trenches G and D is shown in Fig. 10:

Fig. 10 Trenches G and D, looking from the main mound towards the smaller enclosure linked by causeways – Margaret Gelling Archive

The only elevation plan from the whole excavation has been labelled as Trench G by Shropshire Council - Fig. 11; there is no key, and the drawing appears to be only one half of a trench which breaches the rampart. The plan illustrates a series of contexts and groups of stone including a stone collapse three-quarters of the way along the profile. A series of numbers runs along the plan from left to right, starting at '84' and finishing at '141'. Although this has been labelled as Trench G, it may be a better match for Trench/Site D. It is not clear whether the numbers relate to contexts or measurements. In the schematic plan of the wider site (Fig. 1), Trench/Site D spans the rampart, and the 'stone collapse' shown on the plan may be that shown in Fig. 9 or could be the 'foot of a wall' already mentioned.

1.4. Elevation Plan – Trench G or D(?)

'84' 080 0 00000 '141' 3 SECTION DRAWINGS -TRENCH G (including1 plan of Trenches A+B which combine to make Trench (Berr) G Stone collapse?

Fig. 11 Trench G or D? (Gelling Collection - Shropshire Council Archive)

A semi-circle of post holes (a,b,c,d,e in Fig. 12) was recorded in Trench G (Trench D?), along with stone deposits near the 'edge of the black' – see Fig. 12. 'The black' (see Fig. 13) could refer to Gelling's excavation having found the peat layer (about 60cm below the ground surface and consistent with terrestrial mapping undertaken as part of the June 2016 excavation), but also raises the question of whether the ramparts when built encountered the wet peat layer also.



Fig. 12 Detail from Trench D/G plan showing post holes (Gelling Collection - Shropshire Council Archive)



Fig. 13 Trench D? - possible dark grey layer (Gelling Collection - Shropshire Council Archive)

A number of post holes can be seen in the photographic evidence (see Fig. 14), and are substantial in size (*circa* 46cm). They are difficult to relate to any specific area, but Gelling refers to big post-holes for a substantial building found in Trench D (Gelling, 1962/5; Gelling, 1964). Some of the 'post holes' shown in Fig. 15 appear more as lined pits (for grain deposits?); others could accommodate palisade posts. If the 'stone wall' referred to by Gelling is that shown in Fig. 16, it is inconclusive and could simply be the product of poor excavation (stratigraphy can be seen between the stones in this example).

Gelling referred to '3 layers of occupation' (Gelling, 1962/5; Gelling, 1964) separated by sterile layers. These may be decipherable from close-up photographs of the stratigraphy (Fig. 17). Layer 1 could be a beaten clay floor, as described in the archival notebook. VCP was found at every level, but artefact and ceramic finds came exclusively from the uppermost Layer 3 (dated Roman by ceramic analysis (Morris and Gelling, 1991)).



Fig. 14 Post Hole – location unknown (Gelling Collection - Shropshire Council Archive)



Fig. 15 Post Hole group? (Gelling Collection - Shropshire Council Archive)



Fig. 16 'Stone Wall'? (Gelling Collection - Shropshire Council Archive)



Fig. 17 Stratigraphy - Trench G showing floor levels (Gelling Collection - Shropshire Council Archive)

2. The written evidence

Two short summary reports were published in the West Midlands Archaeological Newssheet 1962/5, and 1964. From the 1962 excavation, Gelling recorded '*both Iron Age and late Roman occupation*' (Gelling, 1962/5), and gave an indication of some of the finds (for example, the La Tène III brooch and one sherd of duck-stamped pottery), therefore the 1962 excavation obviously opened up at least Trench G. He was certain that no post-Roman occupation had been found.

In 1964, Gelling records two buildings in an area about 50yds north-west of the main entrance (Gelling, 1964); the earlier was of Iron Age date whilst the later one was identified as AD fourthcentury delineated by a line of large post-holes 15'-16' apart– see Fig. 14. Given the distance from the entrance, this is likely to be the long, thin Trench D, but no post-holes are recorded in the dig diary.

The next account comes in *'Dark Age Pottery or Iron Age Ovens?'* (Gelling and Stanford, 1965 (1967)), for which the typed note 1d) was clearly a draft. The account concentrated on the coarse red pottery that came from all levels on the site (VCP/Very Coarse Ware also known as briquetage - see below), in particular, its date and its crude appearance. In this article the site is described as having *'an in-turned entrance'* behind which *'an area 50'x12' was completely excavated'*, with excavations achieving a depth of 6'(given the dimensions, likely to be Trench G). Gelling also concluded that there were three layers of occupation separated by sterile layers (see possibly Fig. 17). The lowest level had suffered some flooding. The La Tène III brooch was recovered from the higher level, and *'some 4th Century pottery turned up some thirty yards away'* (see below).Gelling concluded that VCP could not have been used for salt production/transportation, as the internal surface of the pots would have been too rough, and too much precious salt would have been lost. Instead, he and Stanford speculated that the pots were used as a type of oven, *'inverted over a bun'* to protect the contents from direct contact with fire (ibid: 1965 (1967):90). Morris has subsequently concluded that VCP is the detritus of salt containers from inland brine springs, traceable to the point of origin in either Droitwich or Cheshire; the fragments from the Berth are all Cheshire VCP.

In 1977, the site was visited by the Hillfort Studies Group (Guilbert et al., 1977). In the accompanying note, Gelling reports the 1962/3 excavation as a *'trial'*, describing the ramparts as of slight construction of stone and gravel, with a markedly in-turned entrance, faced on the exterior with larger stones to prevent erosion from the lake that was presumed to have surrounded the site. Two trenches were described as being opened, the main one closest to the entrance providing the bulk of the material (i.e. Trenches A and B/Trench G), whilst a long cutting was made further away which indicated not more than one period of occupation (Trench D). The causeways were also mentioned.

3. The finds

This summary records both chance finds and those recovered from the excavations. A full list can be found in Table 1.

3.1. Organic remains

No organic evidence is retained in the archival collection. However, animal remains (plentiful bone, some teeth, including that of a large mammal) and charcoal are recorded in an excavation notebook in Trenches D and G together with a burnt floor.

A handful of grain (possibly charred spelt *Triticum spelta*; *pers comm* Dr W. Smith) is recorded in photograph, although it is not certain that the photograph relates to the Berth as Gelling was also excavating at Caynham Camp (*pers,comm*. Shelagh Hampton). However, assuming it was from the Berth, the superficial implication is of a site used for domestic/ agricultural purposes. This is supported by one photograph of finds (Fig. 19) of what may be badly corroded agricultural implements, including a billhook (compare agricultural implements from Glastonbury Lake Village -Fig. 20) and possible scale-tang knife, although the palaeoenvironmental evidence does not support this. None survive.



Fig. 18 Grain (Gelling Collection - Shropshire Council Archive)



Fig. 19 Iron agricultural Implements? (Gelling Collection - Shropshire Council Archive)



Fig. 20 Glastonbury Billhooks from http://billhooks.co.uk/history/roman-billhooks/ accessed May 2016

3.2. Metalwork

3.2.1. The Berth Cauldron

The recovery of the Berth Cauldron preceded any excavation or investigation. Found in 1906 by Mr Wood cutting turf on behalf of Mr Richard Wall, the cauldron is 45cm x 30.5cm diameter and weighs 3.5lb. It is copper-alloy spun in one piece; there are two iron attachments on the neck with two rivets and a single rivet hole. A perforation at the centre of the base measures 1/5", and is thought to be part of the vessel's manufacture (Hawkes, 1951:184). It would also have allowed it to sink if it were placed in water.





Fig. 21 The Berth Cauldron (British Museum) together with its findspot; the Berth main enclosure is in the background

The vessel was found at the junction of Berth Pool stream and the southern causeway – see Fig. 1 and Fig. 21 (Smith, 1907). It may have been carried there by water flow from Berth Pool, but is more likely to be a directly deposited votive offering. A combination of its shape and manufacturing technique places it in Joy's 'Group I - projecting-bellied' cauldrons (Joy, 2014), dating from the midfirst to second -century AD (*pers comms;* Dr J Joy; Dr J Farley (British Museum)). This and similarly pierced cauldrons recovered during the early part of the twentieth-century were initially interpreted as water-clocks (Smith, 1907:324-326), but this conclusion was subsequently overturned (Hawkes, 1951:186-7). The Berth Cauldron was housed at the British Museum and is now on permanent display in the Shrewsbury Museum.

3.2.2. 'Slave chains', 'currency bars', and 'agricultural implements'

The items in Fig. 19 and Fig. 22 survive only in the photograph and probably come from Jenks' trench (see Fig. 1); Gelling makes no mention of them. The chain is about 10" long and was interpreted by Jenks as a 'slave chain'; however it is much smaller and more flimsy than other examples (such as those from Llyn Cerrig Bach, Anglesey - Fig. 23), and may be more akin to a suspension chain for a cauldron (Manning, 1983; Piggott, 1952-3). Mr Jenks is shown demonstrating a replica of the 'slave chains' on a site visit (http://www.megalithic.co.uk/article.php?sid=7668 accessed May 2016)

The additional two pieces of iron in Fig. 22 appear to be currency bars. These are normally considered Middle Iron Age objects but continued to be deposited into the first-century AD, often in hoards (Hingley, 2006:218), in enclosed settlements and hillforts (Hingley, 2006:227), and frequently at settlement boundaries (Hingley, 2006:238). The ones at the Berth appear to be Malvernian type (Crew, 1995). These are culturally significant artefacts and have been found in some quantity in the West Midlands - hoards were recovered from Meon Hill, Warwickshire and the Malvern Hills (Bowden, 2005:27). With limited sources for the raw material (probably the Forest of Dean in this instance (Hurst, 2017:137)), their production and subsequent burial was imbued with meaning. Not only do they reinforce the Berth as part of a much wider trading network, but also suggest that the ramparts were in some way 'invested' possibly at the time of creation or rebuilding. Unfortunately, as with the 'slave chains' and the agricultural implements, there is no information regarding their current whereabouts.



Fig. 22 Slave chains and currency bars (?)(Gelling Collection - Shropshire Council Archive)



Fig. 23 Slave chains from Llyn Cerrig Bach http://www.museumwales.ac.uk/iron_age_teachers/artefacts/gang_chain/accessed May 2016

3.2.3. La Tène III brooch

The (badly corroded) brooch in the Shropshire Council Archive has been categorised as La Tène III (Gelling, 1964; Guilbert et al., 1977). The most frequently recovered Roman brooch in Shropshire is Colchester-derivative Polden Hill style (AD 75-175) and this brooch looks similar ¹.Such artefacts were clearly in use in North Shropshire in the Late Iron Age/ Roman period. Its date appears contemporary with the Berth Cauldron, and is likely to have been the result of deliberate deposition (Haselgrove, 1997:51).There was a marked rise in brooch deposition from early first-century AD, albeit that the sample reviewed is drawn from predominantly the south and east of England and around the Somerset Levels (Haselgrove, 1997:60). Possibly associated with increasingly wet conditions and final abandonment, unusually high numbers of brooches were recovered from the Meare and Glastonbury sites, where deposition began as early as the fourth- and third-centuries BC at Meare (Haselgrove, 1997). The Berth has a number of comparison points with the Somerset Lake Villages in terms of location and chronology.



Fig. 24 La Tène 111 brooch (Gelling Collection - Shropshire Council Archive)

⁽https://finds.org.uk/database/search/results/q/roman+brooch/county/Shropshire/broadperiod/ROMAN/obje ctType/BROOCH May 2016).

3.2.4. Metalwork fragments

There are five fragments of metalwork, all recovered from Trenches D and G and Site D1, in the Shropshire Council Archive's Gelling Collection, although seven fragments are referred to in Gelling's notebooks. All are in poor condition and none have been curated. Their original purpose is difficult to decipher. The example shown in Fig. 25 is approx. 9" long and may be part of a currency bar; alternatively, it may be the dagger referenced in Gelling's notebooks. The fragments shown in Fig. 26 may be nails and/or the remains of agricultural implements.



Fig. 25 Metalwork fragment (Gelling Collection - Shropshire Council Archive)



Fig. 26 Metalwork fragments (Gelling Collection - Shropshire Council Archive)

3.3. Pottery

The pottery provides the best evidence for occupation, function and dating of the site and was analysed by Morris in the 1980s (Morris and Gelling, 1991). The actual material is now missing, although confusingly, some pottery is present in the Shropshire Council's Gelling Collection.

Morris identified thirty-one Iron Age sherds, the majority of which indicate wares from the wider Welsh Marches. Malvernian Ware (twenty-six sherds) is normally dated between the fifth-century BC and the first-century AD and originated *circa* 53 miles to the south. Clee Hills dolerite fabric (one sherd) dates to the later pre-Roman period and originated circa 30 miles south. East Midlands Scored Ware is also present, which could originate from any context within the West/East Midlands with Keuper Marl deposits and is predominantly first-century AD. Three sherds of Severn Valley Ware were also identified, providing evidence for Romano-British occupation at the Berth at any time from AD50 until AD fourth-century. Severn Valley Ware does not appear at Wroxeter/Viroconium until after the departure of Legio XX around AD80, but flourished in the thirdfourth-century AD (Webster, 1976) suggesting a later rather than earlier date for the Berth pottery. There are several conclusions possible from this assemblage. Firstly, Malvernian ware was spread by a 'down-the-line' exchange mechanism (Morris, 1996:44-45) involving kinship ties and indicating a complex social network across the Marches. Secondly, the ceramic assemblage spans the mid- to late- Iron Age and into the Romano-British period, and reflects discontinuity of occupation at the Berth. Hill's conclusions that decorated pottery was frequently deposited at spatial and conceptual boundaries may be applicable in this context, although its significance in a principally aceramic society such as the Cornovii may have been different (Hill, 1995b:109).

The Berth produced a range of non-pottery ceramics – briquetage, a spindle whorl and some fired clay and daub. Large quantities of briquetage/VCP, used for the transportation of salt, have been recovered from hillfort and enclosure sites across the Welsh Marches. Originating from one of two salt producing centres - Droitwich or Cheshire - its distribution frequently reflects a north/south divide, with Cheshire VCP being more frequent in more northerly hillforts (Morris, 1985). Large quantities were recovered from Croft Ambrey (56 sherds, 454gm) (Stanford, 1980:68), the Breiddin (926 sherds, 3136.00gm) (Musson et al., 1991), Collfryn, Powys (2839 sherds, 13,285gm) (Britnell et al., 1989; Kinory, 2012) and Wall Camp (89 sherds, 272gm) (Morris, 1991). Cheshire briquetage was in use between the fifth-century BC and the early Roman period (Morris, 1985); the earliest was recovered from Beeston Castle (Royle and Woodward, 1993), and the latest from Collfryn (Britnell et al., 1989). The Berth's assemblage is all Cheshire briquetage (120 sherds, 1678.5gm) providing a date for the Berth's occupation and indicating the importance of salt for the Berth's inhabitants. Matthews has suggested that the Cheshire salt was traded by sea around the Welsh coast, and

thence north by river (1999). Conversely, Dorling et al (2017:81) emphasised terrestrial transportation citing the substantial Iron Age road at Atcham (Malim and Hayes, 2010) as one possible route. The combination of briquetage from Cheshire and ceramics from as far south as Malvern confirms that the Berth looked both north and south for its traded wares.

Two spindle whorls, one recovered from Square D1, suggest domestic occupation and that spinning was part of life at the Berth; no loom weights were recovered, but the excavation was fragmentary and a conclusion (spinning versus weaving) cannot be drawn on this evidence. A pestle and mortar, although in the same box as the Berth finds, may or may not be from the site and was never referred to in the diaries.



Fig. 27 Spindle whorl (one of two) (Gelling Collection - Shropshire Council Archive)

Morris also identified a possible crucible used for bronze/metal working (Morris and Gelling, 1991). As the collection that Morris analysed is lost, this is unlikely to be the crucible in the Gelling Archive (Fig. 28), hence there might be two. The crucibles provide evidence for bronze metalworking on site. This activity was not unusual in small, self-sufficient Iron Age settlements (Hill, 1995a:63) including crannogs (Crone, 1993), where a secluded water-protected environment may have been an appropriate setting for something that is semi-dangerous and fire-prone. However, it is also

associated with high-status sites (for example, Danebury) and the transformative act associated with metalworking may also have had ritual connotations (e.g. Budd and Taylor, 1995).

More pottery is referred to in the dig diaries (all missing) viz.:

- Site/Trench G -A Type rim of bright red ware; red and black pottery; daub. This might be that shown in Fig. 7, which from the photograph only, was identified by Morris as Severn Valley Ware (*pers comm:* Dr E. Morris).
- Square D1 pottery sherd; 2 medium thin buff sherds; 1 very thin orange sherd; rim 'red ware'



Fig. 28 Metalworking crucible (Gelling Collection - Shropshire Council Archive)

3.4. Miscellaneous

A quern stone fragment (Trench G) and two possible slingstones (Trench D) were recorded in the notebooks but are missing, as is a blue glass bead fragment (Trench G). A whole bead of turquoise glass was recovered from the top of the mound as a chance find (in a rabbit-hole) and is held by Dr Denise Allen. The glass is definitely Roman, and may have been imported as a piece prior to reworking (*pers comm*: Dr D. Allen). Occasional glass beads are not uncommon on Iron Age sites; they are thought to be used for personal decoration or as decorative items on horse harnesses (e.g. Foulds, 2014; Lewis, 2015).



Fig. 29 Bead (D. Allen - personal collection)

4. Summary

The following conclusions can be drawn from the combined evidence:

- 1. From the stratigraphy, Gelling concluded three layers of occupation, with the pottery providing the basis of the chronology.
- Earlier Iron Age
 - Cheshire briquetage is present in all occupational layers. It was in use from the fifthcentury BC to the early Roman period. It also indicates that salt was an important commodity from the earliest stages of the Berth's occupation.
- Middle to Late Iron Age / Early Roman
 - The Iron Age pottery is representative of a mid- to late- Iron Age occupation although there is no indication which layer of occupation this pottery was recovered from (Layer 2 or 3). Some of the metalwork (currency bars, billhooks) may also be part of this period.
 - The Berth Cauldron, La Tène III brooch and glass bead may belong to the early Roman period
- Roman/ Later Roman
 - Severn Valley Ware suggests usage during the Roman period but is chronologically unspecific.
 - The recorded floors and post holes indicate that there were buildings on site close to the in-turned entrance. Gelling interpreted one set of post holes as a substantial building from a later occupation. The post holes could also refer to an enclosing palisade.
- 2. The nature of the occupation is unclear. Superficially, many artefacts (bead, metalwork, spindle whorls, quern fragment), the briquetage, and the animal and grain findings, suggest domestic use. However, the assemblage shares some characteristics with the findings at Sutton Common (Van de Noort et al., 2007) where the conclusion was that the marsh-fort was used for non-domestic purposes. The currency bars may be foundation deposits (Hingley, 1997). Ritual use could be further supported by the deposition of the Berth Cauldron and the La Tène III brooch at the entrance to the fort. When looking at Iron Age deposits in Wessex, Hill concluded that small finds recovered from the archaeological record were more likely to be ritual than rubbish (Hill, 1995b:108), and that metalwork including brooches is unlikely to be 'lost'.

In summary, there was a presence at The Berth during the Middle to Late Iron Age and again in the Roman period, possibly as late as the third- or fourth-century AD. Several artefacts suggest that the area was used for the deposition of special objects.
Summary of Finds	Where found	Notes	Current location
CHANCE FINDS			
The Berth Cauldron	Intersection of Berth stream	Date and typology verified by Jody Joy/ Julia	Shrewsbury Museum
	and causeway	Farley – Late Iron Age/ Early Roman	
Turquoise Bead – whole	Top of the Berth mound	Found by Dr Denise Allen and confirmed as	D. Allen personal collection
		Romano-British	
FROM EXCAVATION			
Metalwork			
'Slave Chains'	Unknown	All from the Jenks' excavation but not	Unknown
		mentioned in Gelling's notebooks and present in	
Two (possible) currency bars	Unknown	photographs only. Jenks is shown on the	Unknown
		Megalithic Portal demonstrating the chains	
Five agricultural implements	Unknown	http://www.megalithic.co.uk/article.php	Unknown
including a possible billhook			
One La Tène 111 brooch	Trench G - 24" down; 19'3"		Council Archive
	across		

Summary of Finds	Where found	Notes	Current location
Blade (possibly a dagger)	D? or D1	Difficult to separate these items; a count of the	The Council Archive holds 5
Point	D? or D1	metalwork items held by the Shropshire Archive	pieces of metalwork
Nail	'A' end of G	(5) agrees roughly with Gelling's notebook (7);	
Knife	'B' end of G	the 'curved iron stud' may be missing.	
Iron fragment	D? or D1		
Iron bar (in 2 pieces)	D? or D1		
Curved iron stud	D1		
Organic			
Animal remains (bone, teeth)	Trenches D and G	Bone and teeth are mentioned in the notebook	Unknown
		but are missing. No mention is made of the	
Charred Grain	Unknown	grain which exists only as a photograph (and	Unknown
		may be included with the Berth photographs by	
		mistake). Dr W. Smith examined the photograph	
		of the grain and suggested possible charred	
		spelt.	
Charcoal	Trench G (with red pottery);		Unknown
	Square D1		

Summary of Finds	Where found	Notes	Current location
Pottery			
IA Pottery 31 sherds	Unknown		Unknown
Mavernian Ware	Possibly D1 or G	When Elaine Morris analysed the pottery	
• Gp A - 16		findings, she accessed them at the 'West	
• Gp C – 2		Midlands Museum'. Her findings are	
• Gp D – 8 (inc duck		summarised in the 1991 Morris and Gelling	
stamped ware?)		report but this location and the assemblage	
Clee Hills dolerite Fabric		cannot be traced.	
(1 sherd)		Some additional items shown in photograph or	
Midlands scored ware		mentioned in the notebooks were clearly not	
(12 sherds)		part of her summary, such as the red rim and	
Cheshire Stony VCP	In all 3 layers but scant in	the base/side of a bowl (which she has	Unknown
(<i>circa</i> 130 sherds)	bottom layer	subsequently identified as Severn Valley Ware –	Some VCP is held in the
		pers comm. E Morris), 'bright red ware' or 'black	Council Archive
Romano-British Severn Valley	Unknown	pottery'.	Unknown
Ware (3 sherds)	Possibly D1 or G		
Daub/ Fired clay	Unknown		Unknown. Some possibly
(7)	Possibly D1 or G		held in the Council Archive

Summary of Finds	Where found	Notes	Current location
Possible bronze working	Unknown		Possibly that held by Council
crucible	Possibly D1 or G		Archive
Miscellaneous			
2 sling stones (?)	Site D – high in the stratum,	All mentioned in the notebook but missing	Unknown
	rear tail of rampart		
1/2 blue glass bead	The 'A' end of Trench G		Unknown
Quern fragment	The 'A' end of Trench G		Unknown
Wooden object	Unknown		Council Archive
Pestle and mortar	Unknown	Although this item is included with the Gelling	Council Archive
		finds, it is not mentioned in any record and may	
		not originate from the Berth.	

Appendix 3 - The Berth and its causeways - Archival Research

It has long been assumed from antiquarian records (see below) that that the Berth's two upstanding causeways were contemporary with the rest of the Iron Age marsh-fort, connecting the enclosures and providing access to the main enclosure across wet ground. It is also assumed Berth Pool has remained the same size throughout history. The issues are linked because they both affect the way in which the monument could be accessed. Although the North West Wetlands Survey of Shropshire and Staffordshire (NWWS) (Leah et al., 1998:61-64) summarised the Berth's historic records, detailing changes in ownership, access rights to Berth Pool (used for the harvesting of reed rather than fishing), and the lowering and raising of lake levels by 2'8" (1809: Shrops Archive 6000/17409), neither the causeways nor the extent of Berth Pool were addressed.

Considering the importance of both to the way in which the marsh-fort functioned, it is surprising that they have escaped scrutiny. Recent excavation of the causeways has shown that they are probably post-medieval in construction (Chapman, Smith and Norton, 2017; however, the underlying deposits of the north-south causeway have returned an Iron Age radiocarbon date and this anomaly is discussed in the thesis). Therefore, access to the main enclosure required an alternative route, which appears to have been along a third causeway which joined the small and large enclosures across a neck of marshland toward the north-east of the monument. This new information raises questions over the functionality of the south-east 'entrance' which appears to have accessed only marshy ground and/or an enlarged Berth Pool.

However, the post-medieval causeways remain integral to the life to the monument and form part of the Berth's Scheduled Area (Scheduled Monument 1004770). Their provenance and the development of Berth Pool can be traced via a review the historic records. This appendix summarises the Berth's archival history using records from the Shropshire Archive and the British Library.

1. Historic mapping

The earliest map, dated 1731 (Fig. 1; Shrops Archive 6000/17389), shows a large area called Byrth (sic) Bank. Berth Pool is shown similar to its modern limit (later maps show no variation) draining east via Berth Stream; neither enclosures nor causeways are detailed. The field south of the Berth Stream is divided, but whether these divisions were causeways, field divisions, or drains is unclear. A document summarising a dispute over the reed cutting and other rights at Berth Pool also dates to 1731/2 (Shrops Archive 6000/17387).



Fig. 1 Map dated 1731; Shropshire Archive 6000/17389

Throughout the eighteenth and nineteenth-centuries and alongside the establishment of the Ordnance Survey, mapping techniques increased in accuracy. Several generic maps of Shropshire are available from this period, such as Cowleys Improved map (1744), the Bowles map (1789) and the Greenwood map (1827). These maps were geared towards providing information about land ownership, roads and routeways; the earthworks and causeways at the Berth do not feature. However, the Rocque map (1752; Fig. 2) shows 'The Burth' as an area of heathland or woodland crossed by a roadway running north-south, connecting Weston Lullingfields (north of the Berth) with the Baschurch/Myddle road (south of the Berth). This road, which bifurcates half-way, does not exist on other maps, and it is suggested that the line of the road was a track following higher drier ground (Leah et al., 1998:62). The Rocque map is imprecise regarding where this higher ground was, as some landmarks are missing (notably Berth Pool) or unclear ('Eyton Pools' could represent Fenemere, Marton or Birchgrove Pools). The area of 'The Burth' is roughly the same shape/size as that in the 1731 map.



Fig. 2 The Rocque Map 1752: Shropshire Archive 552/8/916

The Baschurch Parish map of 1794 (Fig. 3; Shropshire Archive P22/L/1/1) shows The Byrth (sic) as a very specific area (marked green, perhaps denoting the woodland or heath indicated on the Rocque map), and reflects the 1731 map in its orientation, the shape of the area and the positioning of Berth Pool. Despite assertions by NWWS (Leah et al., 1998:63, Fig.21), the Berth's monumental earthworks and causeways are not shown on this map.



Fig. 3 1794 Baschurch Parish Map; Shropshire Archive P22/L/1/1

During the early part of the nineteenth-century, the Berth was sketched by John Buckler and appeared in several more maps created as a result of the process of Enclosure. Drawings in the Buckler Collection (British Library Add MS 36379, 8 *et seq;* Fig. 4 and Fig. 5) detail an ancient monument in the *'parish of Baschurch about 10 miles north of Shrewsbury'*. The sketch was one of many undertaken by Buckler at this time, and these drawings (part of his Shrewsbury series) may

have been on behalf of the antiquarian, historian and owner of the Stourhead Estate, Sir Richard Colt Hoare, who was sufficiently interested to make comment on the reverse of the sketch:

'In examining these works, I am inclined to think they were raised for <u>religious</u> not <u>military</u> purposes - and one strong reason for this supposition is that the <u>vallum</u> has its foss (?) or ditch <u>with inside</u> the works which is the case with the celebrated works at Abury (sic) in Wiltshire and in many other instances which have fallen under my notice; whereas in works of <u>defence</u>, the ditch was always placed on the outside of the ramparts. Both Abury and Stonehenge had their avenues leading to them. We know also from papages (pages?) in the Scriptures that religious circles were placed <u>on high places</u> of which I have recorded many instances in my history of Ancient Wilts.'

Dated May 31st 1821, these two sketches depict an open landscape with Berth Pool to the left. The ramparts are shown surrounding Berth Hill which is accessed via the causeways; the small enclosure is detailed. The causeways were clearly extant at the time. They appear level with the surrounding topography, whilst today they are upstanding to around 1m-1.5m, suggesting that there has been reduction in the peat surface in the intervening 200 years. The ground to the east of the main causeway is described as 'swampy' in one sketch. A gap is apparent in the east-west causeway just before the entrance to the main enclosure. Although Berth Stream does not feature in the Buckler drawings, it features on maps both before and after.

The Inclosure map (Shrops Archive X/QE/ 1/2/42;Fig. 6), also 1821, shows the land area around the Berth divided between Messrs. Bowman, Parton and Wakeman, with new field boundaries which run across both fortifications. The entrance to the main enclosure is evident, and the northern edge of Berth Pool is shown, but no causeways are detailed. The extent to which Byrth Bank as detailed in the 1731 map has been sub-divided can be seen when these maps are overlaid (Fig. 7).

The 1841-1844 Baschurch Parish Tithe Apportionment Map (Fig. 8) is next in the archival series and shows further subdivision. The area enclosed by Bowman in 1821, containing the small enclosure, half the large enclosure and Berth Hill, and the land where the east-west causeway should lie, was divided into three and labelled 'Byrth'. Whether these extra subdivisions represent a change in ownership is not obvious, but by 1841, the small and large enclosures were separated by a field boundary, possibly related to the gravel extraction which was known to take place at the site (see below). Much of the land is labelled as *leasow* (rough pasture). The three fields west of the Berth labelled Juglar's Grave are possibly the site of Bronze Age ring ditches (Shropshire HER 2451). Fig. 9 depicts the 1821 and 1841-44 maps overlaid.



Fig. 4 Buckler Collection: one of two sketches of the Berth; (British Library Add MS 36379, 8 et seq)



Fig. 5 Buckler Collection: two of two sketches of the Berth (British Library Add MS 36379, 8 et seq)



Fig. 6 1821 Berth Inclosure Map: Shropshire Archive



Fig. 7 1731 and 1821 maps overlaid, indicating extent of land enclosure



Fig. 8 Baschurch Parish 1841 - 1844, based on tithe apportionment





2. Ordnance Survey; HER maps

The first Ordnance Survey map of the Berth (1830/1833) shows earthworks at the Berth labelled 'Ancient Works' (Fig. 10); the causeways first appear on the 1890 map series (Fig. 11). There is a gap between Buckler's 1821 sketch which includes the causeways and the Ordnance Survey map in 1890, although this could simply reflect the development of the mapping programme during the nineteenth-century.

The 1890s map provides detail of the earthworks, which show signs of possible mutilation; this disturbance is apparent in modern times around the entrances to both enclosures and is confirmed by modern schematic maps held in the HER (HER 129; Tyler; Smithson; Fig. 12). The Berth was subject to gravel extraction from at least the 1840s onwards (see Hartshorne's account below) and a quarry site is recognised on the south-western side of the main enclosure (Fig. 13). Additionally, two possible extraction sites close to Berth Pool are depicted on the 1970s OS map (originally thought to be part of the Iron Age earthworks; *pers.comm.* Howard Edwards, landowner) (Fig. 14; Fig. 15), indicating that quarrying was ongoing during the twentieth-century. Gravel/aggregate extraction does not feature in the Berth's archival records, however, before modern planning laws existed, agreement would have most likely have been a private matter between landowner and quarrier (*pers comm*; Graham French, Shropshire Council Planning Dept.). A planning application for gravel extraction near the Berth was turned down as recently as the 1980s.



Fig. 10 1830 Ordnance Survey (Market_Drayton_1830_1840 (http://www.visionofbritain.org.uk/ - accessed Feb 2016)







Fig. 12 Tyler's map of the Berth made in the 1980s; Shropshire HER



Fig. 13 The Berth, looking north showing the west side of the main enclosure, the flat top of Berth Hill and the quarry scar (bottom left) (Deacon 2016)



Fig. 14 Ordnance Survey; Historic Mapping 1970s; available via http://digimap.edina.ac.uk/; accessed Feb 2017



Fig. 15 One of the possible gravel extraction sites on the southern side of the Berth's main enclosure (Norton 2014)

3. The written evidence

Turning to the written record, the '*waters that issue out of the Burgh poole*' are mentioned in Gough's '*A History of Myddle*' published around 1700 (Hey, 1981:31); this gossipy account of village life in Myddle, a village about 3km due east of the Berth, confirms that Berth Stream was in existence in the early eighteenth-century, reinforcing the 1731 map. Therefore Berth Stream is not a modern drain.

Antiquarian writers wrote extensively about low-lying fortifications, possibly because they were accessible and, unlike smaller, less monumental enclosure sites, had survived ploughing. The Berth features in numerous antiquarian records and collections of folklore, and writers concentrate on providing descriptions of the earthworks, the causeways and the connection the monument may have had with Cynddylan, seventh-century Price of Powys.

The first historic reference to the Berth was made by Parkes (Drawings of Shropshire: Baschurch; D. Parkes; British Library Add MS21012:1801-1832) who described the monument as a *'remarkable British fastness'*. This account also included the first reference to the causeways which were separately described as *'a low road of small heaped stones'* connecting the enclosures east-west, and *'a sort of causeway'* providing access to the south across the marshy ground. The Berth's enclosures and causeways were further described by Owen and Blakeway in *'A History of Shrewsbury'* (Owen and Blakeway 1825), which used an enhance version of Buckler's sketch as its frontispiece (Shropshire Archive X6001/16/1/198/97). The causeways were described with similar wording to that used by Parkes, but in more detail. The gap between the causeway and the entrance to the main enclosure was noted (this is not obvious today), speculating that it would be crossed by *'a kind of rude drawbridge'*, and two *'outworks'* of heaped stone were identified at that entrance (Owen and Blakeway, 1825:8). Owen, Blakeway and Parkes noted high earthworks at the entrance to the small enclosure.

In *Salopia Antiqua* (Hartshorne, 1841:172-176), Hartshorne covered the Berth, its enclosures and its causeways in some detail. The east-west causeway was described as being at the same level as the bog 'notwithstanding all the draining which the land has undergone' (Hartshorne, 1841:174), and discernible mainly by discolouration to the vegetation (this matches with Buckler's sketch). He concluded that the stones were brought from a gravel pit, 'a quarter of a mile distant' (the quarry on the south-west of Berth Hill). Hartshorne also described the 'two great heaps of stones' which he labelled towers, outside the main entrance. Hartshorne was an eye-witness to the ongoing destruction of these stone heaps, and provided an account of the vast quantity of stone which had already been deposited in the bog 'or carried away to mend the neighbouring roads'. Hartshorne

also described a stream which cut off the causeway before it reached the entrance; this interruption to the causeway had already been noted by Owen and Blakeway, although the path of the Berth Stream does not tally either with their account or the modern stream position. Moving towards the smaller enclosure, *'the Inferior Work'*, Hartshorne described a high, thick hedge which crossed the causeway (Hartshorne, 1841:176), which may represent the new field boundary shown on the 1841 Tithe map. The entrance to the smaller enclosure was between two elevated mounds (unchanged in modern morphology), and Hartshorne suggested that the small enclosure was surrounded by a water-filled ditch. Both modern and antiquarian maps show a drain to the east of the small enclosure, but no surrounding stream, and this reference remains a mystery. Hartshorne concluded that this was a formidable and highly defendable fortification. Bagshaw, in his 1851 *'History, gazetteer and directory of Shropshire'*, referred to the Berth's enclosures as being connected by a low road made of stones *'by incredible labour'* (Bagshaw, 1851:212-3).

The Berth has attracted a wealth of folklore, and the legend that the Berth is the site of the grave of Cynddylan, seventh-century prince of Powys, is recounted by all the antiquarian authors (Parkes, 1801-1832; Owen and Blakeway 1825; Hartshorne, 1841; Bagshaw, 1851). According to an anthology of early Welsh poem (*Canu Heledd*, part of *Canu Llywarch Hen*), Cynddylan died fighting the Anglo-Saxons, and was buried at *Eglwyseu Bassa*, 'the churches of Bassa', interpreted as Baschurch. Possibly influenced by this legend, the Berth was proposed as a centre for the lowland Cornovii after the seat of government had transferred away from Wroxeter (Trinder, 1983:22; Gelling, 1992:25). This myth is also used in modern texts as part of an argument linking Baschurch and the Berth with the legend of King Arthur (Phillips and Keatman 1992:169 et seq). In *'Shropshire folk-lore – a sheaf of gleanings'*, Jackson describes how attempts to build a church on Berth Hill were continually thwarted by unknown forces (the Devil), who, overnight, demolished day-time progress (Jackson, 1883:9), and how those same forces threw the proposed church bells into Berth Pool from whence they were never recovered (Jackson, 1883:68).

The Berth was recorded in the Victoria County History (Page, 1908:408 et seq), which also documented the recovery of the Berth Cauldron in 1906. This vessel was recovered from the intersection of Berth Stream with the north-south causeway; an account of its discovery including its precise location are recorded in the Proceedings of the Society of Antiquaries (London) (Smith, 1907:324-326). Although there was no reason to contradict this original account, Auden suggested that the Cauldron was recovered from Berth Pool (Auden, 1918:64), but as the finding was made during peat cutting, the original location is more likely. The Cauldron was originally interpreted as a water-clock but this theory was overturned by Hawkes (Hawkes, 1951). It was also regarded as Late

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Roman (e.g.Tyler, 1981) and indicative of occupation. [At one point the Berth was seen as a post-Roman administrative centre, after the abandonment of Viroconium (Rowley, 1972:43 et seq)]. However, it is now regarded as Early Roman (*pers comm.* Dr. J. Joy, University of Cambridge; Dr J. Farley, British Museum) and assigned to Joy's 'Group I - projecting-bellied' cauldrons (Joy, 2014:331-2), mid-first to second-century AD.

Edward Downman (Downman, 1906) included the Berth in his 'Ancient earthworks of Shropshire' (Shrops Archive 6001/297) (Fig. 16), a handwritten volume of maps and sketches; it also detailed several other marsh-fort candidates notably Wall Camp, near Kynnersley and Pan Castle, near Whitchurch. Downman's plan reflected the OS maps, without indicating any gravel extraction, although Downman noted that the entrances are '*in chaos*'. The elevation of the north-south causeway (N---O) shows a rise of 5ft, similar to modern elevation suggesting that, by the early twentieth-century, the surrounding swampy ground had shrunk. This valuable document was completed in the same year as the Berth Cauldron was found. Where shown, all maps (OS, Downman) show that the causeway is bisected by Berth Stream rather than the other way around suggesting that the current gap in the causeway appears to have always been present. Modern landowners record that it was bridged until comparatively recently (*pers comms:* Rod Timmis and Howard Edwards). Extensive drainage in the wider Baschurch/Weston Lullingfields area in the 1860s was recorded in Rowley's modern *History of Shropshire* (Rowley, 1972:170).

Modern archaeological and historical interest in the Berth was recorded from 1929 onwards, mainly by the well-known Shropshire archaeologist and historian Lily Chitty, either as the result of site visits by the local historic society, or in published texts (Chitty, 1923-32; Chitty, 1937/8; Chitty, 1956). The preferred interpretation during the early twentieth-century was that the Berth was a lake dwelling or crannog and it was assumed that the site would have been surrounded by water in antiquity (see above). The original entrance, with towers, was recorded as being to the north-north-east (Chitty, 1923-32). This is anomalous as the entrance to the main enclosure faces south-east although, curiously, is suggestive of the third causeway and entrance discovered as part of recent excavations (Chapman, Smith and Norton, 2017). A summary and diagram of the Berth was completed Miss R A Brown in 1951 (Brown, 1951) but adds no extra details.

Appendix 3 – The Berth and its causeways - Archival Research



Fig. 16 'Ancient earthworks of Shropshire' The Berth: Shropshire Archive (Downman, 1906)

Coda

The monument's name is derived from the Old English *burf*, meaning 'stronghold' (*pers.comm*. Dr.John Baker, University of Nottingham), but this nomenclature is used widely; several prehistoric monuments incorporate the name in their title for example, Berth Hill Camp, Maer (Staffordshire HER 00023) and Abdon Burf Hillfort (Shrops HER 00182).

4. Summary

This appendix consolidates the historic evidence relating to the Berth, Berth Pool and the Berth's causeways. The Berth's surroundings are described in historic maps and records from the 1730s onwards. The enclosures feature from the early nineteenth-century onwards, together with the causeways. The maps are consistent in both their depiction of the size of Berth Pool and the direction and location of Berth Stream. There are no indications that water surrounded the enclosures, although there is reference to the surrounds being swampy (Buckler, 1787 - 1897).

Antiquarians and map-makers described what they saw and assumed that the Berth's causeways formed part of the *'ancient works'*. Recent excavation (Chapman, Smith and Norton, 2017) and comparison to other similar structures locally (Blockley and Shaw, unpublished) have shown that the causeways are most likely to be post-medieval and built to facilitate gravel extraction. This conclusion does not contradict the historic evidence. The causeways do not appear in any depiction of the Berth before Buckler's sketches in 1821, whilst the first written account of their presence dates from the early nineteenth-century (Parkes, 1801-1832). They were being used to transport stone/gravel at the time of Hartshorne's visit around 1840 (1841:175). Additionally, the 1841 Tithe Map (Fig. 8) suggests that land around the Berth was subdivided during the early nineteenth-century; gravel may have been extracted by separate owners, and shipped out along different routes - south from the main enclosure along the north-south causeway, and east through the small enclosure across solid land to the Marton road - hence the need for two causeways. It would be reasonable to conclude therefore that the causeways were built before 1800. The anomaly of the Iron Age sub-surface identified beneath the north-south causeway is discussed elsewhere in the thesis.

The follow-on question of how the main enclosure was accessed prior to the causeways being built has also now been substantially resolved by the identification of a putative third causeway running between the gravel spit and the north-eastern part of the main enclosure. Although this causeway is somewhat ephemeral, it leads to an entrance in the north-east ramparts of the main enclosure (Chapman, Smith and Norton, 2017). This makes the south-east 'entrance' redundant for all practical purposes, and raises questions regarding its function.

Date	Location	Purpose	Ground and	Outcomes
			weather	
			conditions	
March	The Berth	Initial site visit	Fair; ground	Reconnaissance and photographic record
2014	- whole		waterlogged between	
	site		enclosures	
July/	Berth			Eight cores (maximum depth - 7m+) were
August	Main	Exploratory visits to		recorded summarising the peat stratigraphy
2014 (2ioite)	Causeway	both sites to	Fair to sunny; ground	in areas of pasture surrounding the Berth;
(3 VISITS)	and Berth	and profile of the	damp but passable	radiocarbon dates obtained which establish
	Pasture	neat denosits		stratigranhy
	rusture			Stratigraphy
	Wall			Six cores were recorded of the peat
	Camp			stratigraphy near to Wall Camp (maximum
				depth - 1.9m)
December	Berth	Obtain organic	Overcast to wet, with	Samples unobtainable; visit abandoned
2014	North	material for analysis	very poor ground	
	Pasture		conditions (deep	
	-		mud)	
May 2015	Berth	Obtain organic	Fine weather; ground	6m+ core obtained for pollen analysis plus a
	Posturo	material for analysis	the pasture were	parallel 2m core obtailled (1m-3m depth) for
	rasture		sinking to their hocks	selected to radiocarbon dating
Januarv	The Berth	assessment of site for	Fine and clear with	Photographic record obtained: the causeways
2016	- whole	summer excavation;	exceptionally good	were agreed as suitable locations for summer
	site	liaison with	light for photography;	field school (to be led by Dr H Chapman);
		landowner	flooded pasture	landowner agreement
June 2016	Berth	Peat profiling;	Weather fine	Excavation and palaeoenvironmental analysis
	North and	causeway excavation;	deteriorating to	of causeways concluded; stratigraphic coring
	South	obtain samples for	thunderstorms and	completed of key sites in the Berth's peat
	Pastures	palaeoenvironmental	leading to localised	basin
		analysis; field school	flooding on site and in	
		training	on the final two days	
December	Field	Obtain organic	Fine, dry and	7m+ core obtained for post-glacial pollen
2016	adjacent	deposits for	exceptionally cold;	analysis. Plant macrofossil and insect analysis
	to Berth	additional	ground was damp but	of selected layers, undertaken by Yuxaio
	Main	palaeoenvironmental	solid and workable	Kang, Masters student, and report produced;
	Causeway	analysis		samples selected to radiocarbon dating
June 2017	Berth	Further peat profiling	Weather fine with	Profiling of the stratigraphy surrounding the
	Main	in Berth North Field;	rain and showers;	Berth was completed and modelled in ArcGIS
	Enclosure	excavation of Berth	ground damp but	10.2 and Strater software programmes. The
	and Berth	north-east entrance	workable	excavation concluded successfully
	Field	field school training		
	ileiu			

Appendix 4 – The Berth - Site Visit Record

UBANo	Sample ID	Material Type	¹⁴ C Age	±	F14C	±
UBA-32479	Berth 1, trench 1	larch?	2141	25	0.7660	0.0024
UBA-32480	Berth2, trench 1	larch?	2266	30	0.7542	0.0028

Henry Chapman University of Birmingham Department of Classics, Ancient History and Arch Edgbaston Birmingham, West Midlands B15 2TT England VAT No. GB729856187 Customer No. 2310432



¹⁴CHRONO Centre Queens University Belfast
42 Fitzwilliam Street
Belfast BT9 6AX Northern Ireland

Radiocarbon Date Certificate

Laboratory Identification: UBA-32479					
2017-08-28					
Berth Shropshire					
Berth 1, trench 1					
wood					
AAA					
Henry Chapman					

Conventional ¹⁴ C	
Age:	2141±25 BP
	using AMS
Fraction corrected	δ ¹³ C

Henry Chapman University of Birmingham Department of Classics, Ancient History and Arch Edgbaston Birmingham, West Midlands B15 2TT England VAT No. GB729856187 Customer No. 2310432



¹⁴CHRONO Centre Queens University Belfast
42 Fitzwilliam
Street
Belfast BT9 6AX
Northern Ireland

Radiocarbon Date Certificate

Laboratory Identification:	UBA-32480
Date of Measurement:	2017-07-31
Site:	Berth Shropshire
Sample ID:	Berth2, trench 1
Material Dated:	wood
Pretreatment:	AAA
Submitted by:	Henry Chapman

Conventional ¹⁴C Age: 2266±30 BP using AMS Fraction corrected δ¹³C

Information about radiocarbon calibration

RADIOCARBON CALIBRATION PROGRAM* CALIB REV7.0.0 Copyright 1986-2013 M Stuiver and PJ Reimer *To be used in conjunction with: Stuiver, M., and Reimer, P.J., 1993, Radiocarbon, 35, 215-230. Annotated results (text) - -Export file - c14res.csv Berth 1 tr UBA-32479 Radiocarbon Age BP 2141 +/- 25 # Reimer et al. 2013 Calibration data set: intcal13.14c % area enclosed cal AD age ranges relative area under probability distribution 68.3 (1 sigma) cal BC 343- 325 0.138 204- 157 0.707 134- 116 0.155 95.4 (2 sigma) cal BC 351- 299 0.189 227- 223 0.005 210- 91 0.796 70- 61 0.010 Berth2 tre UBA-32480 Radiocarbon Age BP 2266 +/- 30 Calibration data set: intcall3.14c # Reimer et al. 2013 % area enclosed cal AD age ranges relative area under probability distribution 68.3 (1 sigma) cal BC 393- 357 0.596 283- 256 0.307 245- 236 0.097 95.4 (2 sigma) cal BC 398- 350 0.474 305- 210 0.526 References for calibration datasets: Reimer PJ, Bard E, Bayliss A, Beck JW, Blackwell PG, Bronk Ramsey C, Buck CE Cheng H, Edwards RL, Friedrich M, Grootes PM, Guilderson TP, Haflidason H, Hajdas I, Hatté C, Heaton TJ, Hogg AG, Hughen KA, Kaiser KF, Kromer B, Manning SW, Niu M, Reimer RW, Richards DA, Scott EM, Southon JR, Turney CSM, van der Plicht J. IntCall3 and MARINE13 radiocarbon age calibration curves 0-50000 years calBP Radiocarbon 55(4). DOI: 10.2458/azu_js_rc.55.16947 Comments: * This standard deviation (error) includes a lab error multiplier. ** 1 sigma = square root of (sample std. dev.^2 + curve std. dev.^2) ** 2 sigma = 2 x square root of (sample std. dev.^2 + curve std. dev.^2) where 2 = quantity squared. [] = calibrated range impinges on end of calibration data set 0* represents a "negative" age BP 1955* or 1960* denote influence of nuclear testing C-14 NOTE: Cal ages and ranges are rounded to the nearest year which may be too precise in many instances. Users are advised to round results to the nearest 10 yr for samples with standard deviation in the radiocarbon age greater than 50 yr.

<>

(Variables: d13C = -28.60 o/oo)



1 Sigma calibrated results 68% probability



Database used INTCAL13

References

References to Intercept Method

A Simplified Approach to Calibrating C14 Dates, Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2) : 317-322 References to Database INTCAL13

Reimer, et.al., 2013, Radiocarbon55(4).

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(Variables: d13C = -28.70 o/oo)

Laboratory number			Beta-453321 3BBMC16-2 (170-180cm)							
	Conventional radiocarbon age			ge	3860 ± 30 BP					
2 Sigma calibrated result 95% probability					ult ty	cal BC 2 cal BC 2	2460 - 2 2260 - 2	2270 2205	(cal BP (cal BP	4410 - 4220) 4210 - 4155)
Intercept	of rac	liocarbon	age with	n calibratio curv	on /e	cal BC 2 cal BC 2 cal BC 2	2335 (ca 2325 (ca 2300 (ca	al BP 428 al BP 427 al BP 425	85) 75) 60)	
		1 Sigm	a calibra 68%	ated resu probabili	lts ity	cal BC 2 cal BC 2 cal BC 2	2435 - 2 2405 - 2 2350 - 2	2420 2380 2285	(cal BP (cal BP (cal BP	4385 - 4370) 4355 - 4330) 4300 - 4235)
	:	3860 ± 30 BP								Plant
	3975	ł		I	I	I		1	1	
	3925-	ľ,								
tion (BF	3900-									_
termina	3875 -	<u> </u>			┼┼┑					-
bon de	3850-						V.			-
Radiocar	3825-	₽						1 HAVA	,	-



3800

3775-

3750-

2500

References

References to Intercept Method

A Simplified Approach to Calibrating C14 Dates, Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2) : 317-322 References to Database INTCAL13

2350

Calibrated date (calBC)

2300

2250

2200

2150

Reimer, et.al., 2013, Radiocarbon55(4).

2450

2400

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Ronald Hatfield Christopher Patrick Deputy Directors

August 28, 2014

Mrs. Shelagh Norton Stock Barn, Leigh Court Barns Leigh, Worcester, WR6 5LB United Kingdom

RE: Radiocarbon Dating Results For Samples 1BBMC1 1.70, 1BBMC2 3.25, 2BBMC4 1.6-1.7

Dear Mrs. Norton:

Enclosed are the radiocarbon dating results for three samples recently sent to us. As usual, the method of analysis is listed on the report with the results and calibration data is provided where applicable. The Conventional Radiocarbon Ages have all been corrected for total fractionation effects and where applicable, calibration was performed using 2013 calibration databases (cited on the graph pages).

The web directory containing the table of results and PDF download also contains pictures, a cvs spreadsheet download option and a quality assurance report containing expected vs. measured values for 3-5 working standards analyzed simultaneously with your samples.

Reported results are accredited to ISO-17025 standards and all chemistry was performed here in our laboratories and counted in our own accelerators here in Miami. Since Beta is not a teaching laboratory, only graduates trained to strict protocols of the ISO-17025 program participated in the analyses.

As always Conventional Radiocarbon Ages and sigmas are rounded to the nearest 10 years per the conventions of the 1977 International Radiocarbon Conference. When counting statistics produce sigmas lower than +/- 30 years, a conservative +/- 30 BP is cited for the result.

When interpreting the results, please consider any communications you may have had with us regarding the samples. As always, your inquiries are most welcome. If you have any questions or would like further details of the analyses, please do not hesitate to contact us.

The cost of analysis was previously invoiced. As always, if you have any questions or would like to discuss the results, don't hesitate to contact me.

Sincerely,

Jarden Hood

BETA ANALYTIC INC.

DR. M.A. TAMERS and MR. D.G. HOOD

4985 S.W. 74 COURT MIAMI, FLORIDA, USA 33155 PH: 305-667-5167 FAX:305-663-0964 beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Mrs. Shelagh Norton

BETA

Report Date: 8/28/2014

Stock Barn, Leigh Court Barns

Material Received: 8/8/2014

Sample Data	Measured	13C/12C	Conventional
-	Radiocarbon Age	Ratio	Radiocarbon Age(*)
Beta - 387078	3320 +/- 30 BP	-27.3 0/00	3280 +/- 30 BP
SAMPLE: 1BBMC1 1.70			
ANALYSIS : AMS-Standard delive	ery		
MATERIAL/PRETREATMENT :	(wood): acid/alkali/acid		
2 SIGMA CALIBRATION :	Cal BC 1625 to 1500 (Cal BP 3575 to 3	450)	
Beta - 387079	4890 +/- 30 BP	-27.5 0/00	4850 +/- 30 BP
SAMPLE: 1BBMC2 3.25			
ANALYSIS : AMS-Standard delive	ery		
MATERIAL/PRETREATMENT :	(plant material): acid/alkali/acid		
2 SIGMA CALIBRATION :	Cal BC 3690 to 3680 (Cal BP 5640 to 5 and Cal BC 3550 to 3540 (Cal BP 5500	630) and Cal BC 3660 to 5490)	to 3635 (Cal BP 5610 to 5585)
Beta - 387080	2510 +/- 30 BP	-28.2 0/00	2460 +/- 30 BP
SAMPLE : 2BBMC4 1.6-1.7			
ANALYSIS : AMS-Standard delive	ery		
MATERIAL/PRETREATMENT :	(wood): acid/alkali/acid		
2 SIGMA CALIBRATION :	Cal BC 765 to 410 (Cal BP 2715 to 236	0)	

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.

(Variables: C13/C12 = -27.3 o/oo : lab. mult = 1)

Laboratory number	Beta-387078
Conventional radiocarbon age	3280 ± 30 BP
2 Sigma calibrated result 95% probability	Cal BC 1625 to 1500 (Cal BP 3575 to 3450)
Intercept of radiocarbon age with calibration curve	Cal BC 1595 (Cal BP 3545) Cal BC 1585 (Cal BP 3535) Cal BC 1530 (Cal BP 3480)

1 Sigma calibrated results 68% probability Cal BC 1610 to 1505 (Cal BP 3560 to 3455)



Database used INTCAL13

References

Mathematics used for calibration scenario

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

References to INTCAL13 database

Reimer PJ et al. IntCal13 and Marine13 radiocarbon age calibration curves 0-50,000 years cal BP. Radiocarbon 55(4):1869-1887.

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(Variables: C13/C12 = -27.5 o/oo : lab. mult = 1)

Laboratory number	Beta-387079
Conventional radiocarbon age	4850 ± 30 BP
2 Sigma calibrated result 95% probability	Cal BC 3690 to 3680 (Cal BP 5640 to 5630) Cal BC 3660 to 3635 (Cal BP 5610 to 5585) Cal BC 3550 to 3540 (Cal BP 5500 to 5490)
Intercept of radiocarbon age with calibration curve	Cal BC 3640 (Cal BP 5590)

1 Sigma calibrated results 68% probability Cal BC 3650 to 3635 (Cal BP 5600 to 5585)



Database used INTCAL13

References

Mathematics used for calibration scenario

A Simplified Approach to Calibrating C14 Dates, Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322 References to INTCAL13 database

Reimer PJ et al. IntCal13 and Marine13 radiocarbon age calibration curves 0-50,000 years cal BP. Radiocarbon 55(4):1869-1887.

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(Variables: C13/C12 = -28.2 o/oo : lab. mult = 1)

Laboratory number	Beta-387080	
Conventional radiocarbon age	2460 ± 30 BP	
2 Sigma calibrated result 95% probability	Cal BC 765 to 410 (Cal BP 2715 to 2360)	
Intercept of radiocarbon age with calibration curve	Cal BC 730 (Cal BP 2680) Cal BC 690 (Cal BP 2640) Cal BC 660 (Cal BP 2610) Cal BC 650 (Cal BP 2600) Cal BC 540 (Cal BP 2490)	
1 Sigma calibrated results	Cal BC 750 to 695 (Cal BD 2700 to 2625)	

 Sigma calibrated results
 Cal BC 750 to 685 (Cal BP 2700 to 2635)

 68% probability
 Cal BC 665 to 640 (Cal BP 2615 to 2590)

 Cal BC 590 to 510 (Cal BP 2540 to 2460)



Database used INTCAL13

References

Mathematics used for calibration scenario

A Simplified Approach to Calibrating C14 Dates, Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322 References to INTCAL13 database

Reimer PJ et al. IntCal13 and Marine13 radiocarbon age calibration curves 0-50,000 years cal BP. Radiocarbon 55(4):1869-1887.

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Report on C-14 dating in the Poznań Radiocarbon Laboratory

Customer:	Shelagh Norton College of Arts and Law University of Birmingham
Job no.:	B15 2TT- Edgbaston, Birmingham United Kingdom 10390/15
Sample name	Lab. no. Age 14C Remark

and an end a set of the set of th		0	
The Berth BNP 15 (2) (1A)	Poz-77442	6120 ± 40 BP	label: 1A 100-110
The Berth BNP 15 (2) (1B)	Poz-0	>0 BP	reserve label: 1B 100-110
The Berth BNP 15 (2) (2A)	Poz-77444	7060 ± 50 BP	label: 2A 140-150, 0.8mgC
The Berth BNP 15 (2) (2B)	Poz-0	>0 BP	reserve label: 2B 140-150
The Berth BNP 15 (2) (3A)	Poz-77445	7280 ± 90 BP	label: 3A 160-170, 0.2mgC
The Berth BNP 15 (2) (3B)	Poz-0	>0 BP	reserve label: 3B 160-170
The Berth BNP 15 (2) (4A)	Poz-77446	6950 ± 100 BP	label: 4A 180-190, 0.08mgC
The Berth BNP 15 (2) (4B)	Poz-0	>0 BP	reserve label: 4B 180-190
The Berth BNP 15 (2) (5A)	Poz-77546	8710 ± 50 BP	label: 5A 290-300, 0.6mgC
The Berth BNP 15 (2) (5B)	Poz-0	>0 BP	reserve label: 5B 290-300

Comments: Results of calibration of 14C dates enclosed

Head of the Laboratory

Prof. dr hab. Tomasz Goslar

18-01-2016

Job no.: 10390/15

Page 1 from 1

APPENDIX 6 - Palaeoenvironmental samples by volume/weight

Berth North Pasture BNP15			
Sample location/ Depth cm	Volume – ml	Weight - kg	Washed weight - kg
100-110	600	4.5	2.5
110-120	600	4.5	3.5
120-130	600	4.8	3.25
130-140	700	4.9	3.2
140-150	600	4.9	3.0
150-160	500	3.3	2.7
160-170	500	3.0	2.3
170-180	500	3.1	2.4
180-190	500	3.3	2.4
190-200	500	2.9	2.3
200-210	500	3.7	2.6
210-220	500	3.5	2.0
220-230	460	2.6	2.0
230-240	500	2.5	2.0
240-250	500	2.2	2.5
250-260	500	2.3	2.0
260-270	500	2.2	1.8
270-280	500	2.9	2.8
280-290	500	2.7	1.2
290-300	500	2.2	1.2

Berth Main Causeway – 3BBMC16			
Sample location/ Depth cm	Volume – ml	Weight - kg	Washed weight - kg
130-140	650	3.50	2.0
150-160	750	5.0	2.0
170-180	800	4.9	1.5

Berth - Causeway Excavation - 2016																						
Sample location/ Depth cm	Volume – L/mL	Weight - kg	Washed weight - kg																			
Trench 1- 0-10cm																						
Total sample/ insects	10	8kg	2.5 kg																			
Plants	500ml	350g	250g																			
Trench 1 - 10-20cm																						
Total sample/ insects	91	8kg	3.25kg																			
Plants	500ml	400g	310g																			
Trench 2 - 0-10cm																						
Total sample/ insects	41	5kg	2.5kg																			
Plants	500ml	300g	200g																			
Trench 2 – 10-20cm																						
Total sample/ insects	4.51	5.5kg	3.00kg																			
Plants	500ml	285g	200g																			
Trench 3 - 0-10cm																						
Total sample/ insects	8.51	5.5kg	4.0kg																			
Plants	500ml	550g	250g																			
Trench 3 - 10-20cm																						
Total sample/ insects	8.51	6.2kg	4.5kg																			
Plants	500ml	650g	300g																			
The Berth – Coleoptera	a — Full sp	ecies	list (N	INI) –	BERT	H NO	RTH P	ASTU	RE (BI	NP15)												
---	-------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	-----------------	--------------------------
Nomenclature follows Lucht; ordering follows Elias 2012	Habitat	100 - 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300	Species count: MNI
GYRINIDAE																						
Gyrinus spp.	A/R								1	1					1		2	1	1	3	1	11
DYTISCIDAE																						
Agabus affinis (Payk.)	A/R								1								1					2
Agabus guttatus (Payk.)	A/R												1									1
Agabus spp.	A/R						1	1				1			1							4
Ilybius spp.	A/R											1										1
Hydroporus elongatulus Sturm	A/R												1									1
Hydroporus scalesianus Steph.	A/R								1	1		1	1		1							5
Hydroporus spp.	A/R								3		1						1					5
Porhydrus lineatus (F.)	A/R																1					1
Hygrotus inaequalis (F.)	A/R												1				1					2
CARABIDAE																						
Elaphrus lapponicus Gyll.	DA						1															1
<i>Trechus quadristriatus</i> (Schrank.)/ <i>obtusus</i> Er.	U										1											1
Bembidion doris (Panz.)	DA																1					1
Pterostichus melanarius (III.)	U								1													1
Pterostichus gracilis (Dej.)	DA										2	1			2							5
Pterostichus diligens (Sturm.)	DA																		1			1
Pterostichus strenuus (Panz.)	U				1				1					1								3
Pterostichus spp.	U															1		2				3

The Berth – Coleoptera	a — Full sp	ecies l	list (N	INI) —	BERT	H NOI	RTH P	ASTU	RE (BI	NP15)												
Nomenclature follows Lucht; ordering follows Elias 2012	Habitat	100 - 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300	Species count: MNI
Agonum gracile Sturm	DA				2																	2
Agonum spp.	U				1									1								2
Carabidae indet.	U				1			1	1		1		2		2							8
HELOPHORIDAE																						
Helophorus brevipalpis Bedel	A/R													1								1
HYDROPHILIDAE																						
Chaetarthria seminulum (Hbst.)	A/R														1							1
Enochrus affinis (Thun.)	A/R								1													1
Enochrus melanocephalus (Ol.)	A/R																2					2
Enochrus cf testaceus (F.)	A/R																	1				1
Enochrus spp.	A/R												1									1
Helochares punctatus Sharp	A/R																	1				1
Hydrobius fuscipes (L.)	DA								1	1	1	1	2		2	1	2		3	1		15
cf Hydrobius fuscipes (L.)	DA																3					3
Laccobius sinuatus Mots.	A/R																1					1
Laccobius spp.	A/R						2		2		1				1							6
Coelostoma orbiculare (F.)	A/R																	3		1		4
Cercyon sternalis Steph.	A/R				1																	1
Cercyon tristis (III.)	A/R						4												1			5
Cercyon (aquatic) spp.	A/R	1	1	1	3		2	1	1	2	1	1	4	1	1	5	2					27
Hydrophilidae indet.	U											1										1
HYDRAENIDAE																						

The Berth – Coleoptera	a – Full sp	ecies	list (N	INI) —	BERT	H NOI	RTH P	ASTU	RE (BI	NP15)												
Nomenclature follows Lucht; ordering follows Elias 2012	Habitat	100 - 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300	Species count: MNI
Hydraena riparia (Kug.)	A/R									1							2					3
Hydraena cf rufipes Curtis	A/R																			1		1
Hydraena testacea Curtis	A/R				2																	2
Hydraena spp.	A/R			1	1	1	1	1	1		2	1	3	3	3	6	5	4	3	3	1	40
Ochthebius minimus (F.)	A/R						1									1	1					3
Ochthebius spp.	DA				1	1		1							1		2	2	4			12
Limnebius spp.	A/R							2			3	3	2	2	1	2	2			1	1	19
PTILIIDAE																						
<i>Ptiliidae</i> indet.	w													1								1
LEIODIDAE																						
Agathidium spp.	w				1																	1
SILPHIDAE																						
Silpha spp.	R																2					2
STAPHYLINIDAE																						
Lesteva spp.	U						3							1								4
Olophrum piceum (Gyll.)	w							1														1
Olophrum spp.	U						2		1	1												4
Eusphalerum primulae (Steph.)	w																			1		1
Eusphalerum spp.	R																				1	1
Omalium spp.	R								1													1
Euplectus decipiens Raff.	R								1													1
Euplectus spp.	R														1							1
Brachygluta fossulata (Reich.) (LOST)	DA											1										1

The Berth – Coleoptera	ı — Full sp	ecies l	list (N	1NI) —	BERT	H NO	RTH P	ASTU	RE (BI	NP15)												
Nomenclature follows Lucht; ordering follows Elias 2012	Habitat	100 - 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300	Species count: MNI
Brachygluta spp.	DA					2																2
Rybaxis spp.	DA					2												2				4
Bryaxis cf. bulbifer (Reich.)	DA							2														2
Bryaxis curtisii (Leach)	DA					1																1
Bryaxis spp.	DA						2					1										3
Tachinus spp.	R					1																1
Phyllodrepa spp.	R							1														1
Aleocharinae indet.	U					1						1	1	1	1							5
Anotylus rugosus F.	DA				5		1						1									7
Oxytelus/Anotylus spp.	U				4																	4
Platystethus spp.	U						2											1				3
Stenus spp.	U					1		3	1	1	1	1	2	1	1			1				13
Euaesthetus cf. bipunctatus (Ljungh)	DA					1																1
Lathrobium spp.	DA				2					2	1			1								6
Philonthus spp.	U				1			2				1		1								5
Quedius spp.	U																1					1
SCARABAEDIDAE																						
Aphodius sp. cf sphacelatus (Panz.)/prodromus (Brahm)	P/D						1															1
Aphodius spp.	P/D																		1			1
CLAMBIDAE																						
Clambus spp.	R									1												1
SCIRTIDAE																						
Cyphon spp.	DA	1		1	6	4	15	7	9	6	21	10	23	23	35	6	8	6	6	1	6	194

The Berth – Coleoptera	a – Full sp	ecies	list (N	INI) —	BERT	H NOI	RTH P	ASTU	RE (BI	NP15)												
Nomenclature follows Lucht; ordering follows Elias 2012	Habitat	100 - 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300	Species count: MNI
ELMIDAE																						
Oulimnius spp.	A/R																		1	1		2
Riolus subviolaceus (P. Müller)	A/R																	1				1
DRYOPIDAE																						
cf Dryops spp.	DA									1			1		1	3	1		1	1		9
ELATERIDAE																						
Athous haemorrhoidalis (F.)	м														1							1
Athous bicolor (Goeze)	М												1									1
Agriotes cf. pallidulus (III.)	М																		1			1
CANTHARIDAE																						
Cantharis cf. livida L.	М										1				1							2
Cantharis spp.	М								2									1				3
Rhagonycha lignosa (Müll.)	М												1									1
PTINIDAE																						
Dryophilus pusillus (Gyll.)	w													1								1
Ochina ptinoides	\A/																1					1
Anobium spp.	w											1					-					1
LYMEXYLIDAE																						
cf. Hylecoetus spp.	w										1											1
NITIDULIDAE																						
Nitidula indet.	U					1																1
CRYPTOPHAGIDAE																						

The Berth – Coleoptera	a – Full sp	ecies	list (N	INI) —	BERT	H NOI	RTH P	ASTU	RE (BI	NP15)												
Nomenclature follows Lucht; ordering follows Elias 2012	Habitat	100 - 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300	Species count: MNI
Cryptophagus spp.	R (SY)						1															1
Atomaria spp.	R (SY)									1				1								2
COCCINELLIDAE																						
Scymnus frontalis (F.)	М																1					1
CORYLOPHIDAE																						
Corylophus crassidoides (Marsham)	R				2		1		1								1					5
Orthoperus atomus (Gyll.)	R																		4			4
Orthoperus brunnipes (Gyll.)	R													1								1
Orthoperus spp.	R				2	1																3
LATRIDIIDAE																						
Corticaria spp.	R (SY)																3	1				4
Latridiidae spp.	R (SY)							1														1
CERAMBYCIDAE																						
Grammoptera spp.	w									1												1
CHRYSOMELIDAE																						
Donacia crassipes F.	DA														1	1	2		1	1	1	7
Donacia marginata Hoppe	DA					1						1		2		1		2		1		8
Donacia spp.	DA				1			1							1	1	1			1		6
Donacia/Plateumaris spp. indet.	DA								1	1												2
Plateumaris bracatta (Scop.)	DA								1		1		1		2							5
Plateumaris cf rustica (affinis) (Kunze)(LOST)	DA													1								1

The Berth – Coleoptera	a – Full sp	ecies l	list (N	INI) –	BERT	H NOI	RTH P	ASTU	RE (BI	NP15)												
Nomenclature follows Lucht; ordering follows Elias 2012	Habitat	100 - 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300	Species count: MNI
Phaedon spp.	М									1												1
Crepidodera fulvicornis (F.)	W								1				1									2
Chrysomelidae indet.	DA																1					1
APIONIDAE																						
Apion spp.	М							1	2				1	1	1	1	1		1			9
DRYOPHTHORIDAE																						
Dryophthorus corticalis (Payk.)	w																			1		1
ERIRHINIDAE																						
Notaris acridulus L.	DA																	1				1
Thryogenes spp.	DA													1		1						2
Tanysphyrus lemnae (Payk.)	DA																		3	1	1	5
Scolytus scolytus (F.)	W																			1		1
Leperisinus varius (Fabr.)	W														1							1
Dryocoetinus alni (Georg.)	w						1						1									2
Pityophthorus cf pubescens	W									1												1
Pityogenes cf chalcographus	w									1												1
CURCULIONIDAE																						
Curculio cf rubidus (Gyll.)	W																		1			1
Curculio cf villosus F.	W								1													1
Dorytomus cf. longimanus (Forst)	w			1																		1
Rhynchaenus cf quercus L.	w																		1			1
Rhynchaenus cf testaceus	W								2													2

The Berth – Coleoptera	– Full sp	ecies l	ist (M	INI) –	BERT	H NOI	RTH P	ASTU	RE (BN	NP15)												
Nomenclature follows Lucht; ordering follows Elias 2012	Habitat	100 - 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300	Species count: MNI
(Müll.)																						
Rhynchaenus spp.	w												2		2	1	2	1				8
Bagous spp.	DA																1		1	1	1	4
Limnobaris t-album (L.)	DA							1		1							1					3
Limnobaris spp.	DA											1										1
Ceutorhyncus spp.	м	1																				1
Rhyncolus ater L.	w						1								1							2
Neliocarus (Strophosoma) faber (Hbst.)	м										1											1
Strophosoma cf capitatum (Deg.)	w																		1			1
Strophosoma cf melanogrammum (Forst.) /captitatum (Deg.)	w													1								1
Barynotus obscurus (F.)	М																1					1
Otiorhyncus spp.	U													1								1
Sitona cambricus Steph.	DA						1															1
Sitona cf. hispidulus (F.)	М										1											1
Sitona spp.	М					3					1				1				1			6
Curculionidae cf Sitona spp.	М	1																				1
Curculionidae indet.	U											2			1							3
TOTAL MNI		4	1	4	37	21	43	27	39	25	42	31	54	48	69	31	57	31	37	21	13	635

The Berth – C	oleoptera	a – Full spec	cies list (MN	NI) - 3BBMC	C16 (Kang, 2017)
Nomenclature follows Lucht;	Habitat	130-140cm	150-160cm	170-180cm	Main plant associations
		(MNI)	(MNI)	(MNI)	
DYTISCIDAE					
Noterus clavicornis (Geer.)	А		1	1	
CARABIDAE					
Pterostichus diligens (Sturm)		1			
Agonum spp.				5	
Oodes gracilis Villa	DA		1		Phragmites australis (Cav.) Trin. ex Steud. (Common reed)
HYDROPHILIDAE					
Enochrus sp.	А		1		
Chaetarthria seminulum (Hbst.)	А		1		
Cercyon spp.			2		
STAPHYLINIDAE					
Othius melanocephalus (Grav.)		2	1		
Oxytelus nitidulus Grav.	DA		1		
Quedius spp.				1	
SCARABAEIDAE					
Phyllopertha horticola (L.)	М	3			
HELODIDAE/SCIRTIDAE					
Helodidae Gen. & spp. Indet.	А	14	9	10	
THROSCIDAE					
Throscus sp.	W			1	
CANTHARIDAE					
Cantharis spp.				1	
PTINIDAE					
Grynobius planus (F.)	W		3		
CHRYSOMELIDAE					
Donacia crassipes F.	DA	1	1		<i>Nymphaea alba</i> L. and <i>Nuphar lutea</i> (L.) (waterlily)
Agelastica alni (L.)	W	2	1		Alnus spp. (alder)
CURCULIONIDAE					
Limnobaris dolorosa (pilistriata)	DA		2	2	Juncaceae and Cyperaceae (rushes)
<i>(Goeze)</i> (Steph.)					
Rhyncolus ater (chloropus) (L.)	W	1		1	
Bug				1	
TOTAL MNI = 71		24	24	23	

The Berth – Co	oleoptera	– Full spe	cies list (I	MNI) - TRENCH 1
Nomenclature follows Lucht; ordering follows Elias 2012	Habitat	0-10cm (MNI)	10-20cm (MNI)	Main plant associations
GYRINIDAE				
Gyrinus sp.	А		1	
DYTISCIDAE				
Agabus sp. cf chalconatus				
(Panz.)/melanarius Aube	А		1	
Agabus spp.	А	1	1	
Hydroporus melanarius Sturm.	А		1	Sphagnum; Eriophorum
CARABIDAE				
Blethisa multipunctata (L.)	DA	1		
Dyschirius globosus (Hbst.)	DA		1	
Trechus quadristriatus (Schrk) T.				
obtusus Er.	U	1		
Bembidion sp.	U			
Pterostichus strenuus (Panz.)	U		1	
Pterostichus nigrita (Payk.)	DA	1		Carex; Sphagnum
Pterostichus minor (Gyll.)	DA		1	Carex; Sphagnum
Pterostichus spp.	U		1	
Agonum thoreyi Derj.	DA	1		Typha; Carex
Carabidae indet.	U			
HELOPHORIDAE				
Helophorous spp.	А	4	1	
HYDROPHILIDAE				
Cymbiodyta marginella (F.)	DA	2	1	
Hydrobius fuscipes (L.)	U	1	3	
Laccobius sp.	А	1		
Coelostoma orbiculare (F.)	DA	5	4	
Cercyon impressus Sturm.	P/D	1	1	
Cercyon cf pygmaeus (III.)	P/D			
Aquatic Cercyon spp.	А	2	1	
Megasternum concinnum				
(boletophagum) (Marsham)	R		1	
Hydrophilidae indet.	U		3	
HYDRAENIDAE				
Hydraena spp.	А	5	4	

The Berth – Co	oleoptera	– Full spe	cies list (N	MNI) - TRENCH 1
Nomenclature follows Lucht; ordering follows Elias 2012	Habitat	0-10cm (MNI)	10-20cm (MNI)	Main plant associations
Limnebius spp.	А		1	
Ochthebius minimus (F.)	А		1	
Ochthebius spp.	DA	6		
STAPHILINIDAE				
Anthobium unicolor (Marsham)	DA		1	
Lesteva sp.	U	1		
Omalium spp.	R		2	
Phyllodrepa spp.	R	2		
Xylodromus concinnus (Marsham)	R -SY	1		Hay and straw; also grassland
Tachinus sp.	R	1		
Aleocharinidae indet.	U		2	
Anotylus complanatus (Er.)	R	1		
Stenus spp.	U	2	6	
Philonthus spp.	R		2	
Gabrius sp.	R	1		
Pselaphid indet.	U	1	1	
GEOTRUPIDAE				
Geotrupes sp.	P/D	1		
SCARABAEIDAE				
Aphodius prodromus (Brahm)	P/D	2	1	
Aphodius fimentarius (L.)	P/D	2	4	
Aphodius spp.	P/D		1	
Hoplia philanthus (Fues.)	М		1	esp Salix; Pinus
Phyllopertha horticola (L.)	М		6	
SCIRTIDAE				
Cyphon sp.	DA	1		
DASCILLIDAE				
Dascillus cervinus (L.)	М	1		
ELMIDAE				
Oulimnius spp.	А	1		
DRYOPIDAE				
Dryops spp.	DA		1	
HETEROCERIDAE				
Heterocerus marginatus (F.)	DA		1	

The Berth – Co	oleoptera	– Full spe	cies list (N	MNI) - TRENCH 1
Nomenclature follows Lucht; ordering follows Elias 2012	Habitat	0-10cm (MNI)	10-20cm (MNI)	Main plant associations
THROSCIDAE				
Throscus indet.	W		1	
ELATERIDAE				
Ctenicera pectinicornis (L.)	М		1	Lush grassland in old hay meadows
PTINIDAE				
Ptinus fur (L.)	R - SY		1	
Anobium punctatum (Deg.)	L - SY		2	
CORYLOPHIDAE				
Orthoperus cf brunnipes (Gyll.)	R		1	
Orthoperus sp.	R		1	
CHRYSOMELIDAE				
Donacia clavipes F.	DA	1		Phragmites australis
Donacia obscura Gyll.	DA		1	Cyperaceae esp Carex
Donacia vulgaris (Zsch.)	DA		1	Sparganium;Typha;Carex
Plateumaris bracata (Scop.)	DA	1	2	Phragmites australis
Donacia/Plateumaris spp. indet.	DA	1	3	
Phaedon cochleariae (F.)	DA	1	1	Nasturtium officionale
Phaedon spp.	М	1	1	
Altica sp.	М		1	
Chaetocnema concinna (Marsham)	М		1	Polygonaceae; P. aviculare
Chaetocnema sp.	DA		1	
APIONIDAE				
Apion spp.	М		2	Rumex
ERIRHINIDAE				
Notaris acridulus (L.)	DA	1		Glyceria
Tanysphyrus lemnae (Payk.)	DA		1	Lemna sp.
CURCULIONIDAE				
Mecinus pyraster (Hbst.)	М		1	Plantago; P. lanceolata
Limnobaris sp.	DA	1		Cyperaceae
Nedyus quadrimaculatus L.	М		1	Urtica dioica
Alophus triguttatus (F.)	м	1		Plantago;Symphytum; Eupatorium
Barynotus sp.	М		1	
TOTAL MNI = 141		58	83	

KEY		
Habitat groupings follow Kenward (1997),	Robinson (1981; 1983; 1993	2; 2000) and Smith (Smith, 2009)
A = Aquatic	M = Meadow/grassland	R = Decaying organic matter
DA = Damp fen, marsh, swamp, riverbank	W = Woodland	SY = Synanthropic/house fauna
P/D = Pasture/dung		

	The Berth -	- Plant I	Macro	fossil	s — Fı	ull spe	ecies	list (a	bund	ance) — BE	RTH	NORT	Н РА	STUR	E (BN	IP15)					
Taxa Ref: Stace 3rd Ed 2010	Common Name	Habit at	100- 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300
cf <i>Pteridium</i> Gled.ex Scop. sp leaf frags	Bracken	мо							+													
Pinus sylvestris L seeds	Scots Pine	w						+	+	+	+	+			+	+	+	+	+		+	+
Pinus sylvestris L catkin									++						+++		+++		+++		++	+
<i>Pinus sylvestris</i> L needle tips									++	++	++	+		+	+	+	+	+	+	+	+	+
cf <i>Pinus sylvestris</i> L small cone														+					+			
Nymphaea alba L.	White Water-lily	A								+						+	+++	+++	+++	+++	+++	+++
Ranunculus L. sp.	Buttercup family	NS	+	+			+				+											
R. Subgen 1 RANCULUS sp.	Buttercup	NS	+		+										+							
R. acris L./repens L./bulbosus L.	Meadow/ creeping/ bulbous buttercup	OGR? DA?					+															
Ranunculus Subgen. 2 BATRACHIUM (DC.) A. Gray	Crowfoot	DA; OGR?																		+		
Ranunculus cf. aqualitis L. (small)	Common water crowfoot	DA		+																		
Ficaria Schaeff. (Ranunculus subgenus Ficaria (Schaeff.) (L.D.Benson)	Lesser Celandine	DA;W; SCR;																		+		

	The Berth -	- Plant	Macro	ofossi	ls – Fi	ull spe	ecies	list (a	bund	ance) — BE	RTH	NORT	ΓΗ ΡΑ	STUR	E (BN	IP15)					
Taxa Ref: Stace 3rd Ed 2010	Common Name	Habit	100- 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300
cf Thalictrum sp.	Meadow-rues	DA																		+		
cf. <i>Melilotus</i> Mill. sp./ <i>Trifolium</i> L. sp.	Melilots/Clovers	OGR																+				
cf. <i>Trifolium</i> L. sp.	Clover	OGR																+				
<i>Rosaceae</i> indet. (Bud scars)	Rose Family	NS			+				+++				+									
<i>Filipendula ulmaria</i> (L.) Maxim.	Meadowsweet	DA						+		++	++	+	+	+								
<i>Rubus</i> L. sp.	Bramble	NS	+										+									
cf <i>Rubus</i> L. sp. Bud scar	Bramble	NS															+					
Rubus subgenus 5 Idaeobatus Focke cf R. idaeus L. (RASPBERRY FORM)	Raspherry	SCR									+											
Rubus sect. 2 Glandulosus Wimm. & Grab. (R. fructicosus L. agg.)	Bramble	NS	+																			
Potentilla L. sp.	Cinquefoil	NS	++																			
<i>cf Potentilla</i> L. sp.	Cinquefoil	NS					+									+						
Comarum L. sp. cf C.palustre (L.) (Potentilla palustris (L.) Scop.)	Marsh Cinquefoil	DA							++													
Fragaria vesca L.	Wild strawberry	SCR; W	+																			

	The Berth	– Plant I	Macro	fossi	s – Fi	ull spe	ecies l	list (a	bund	ance) — BE	RTH	NORT	Н РА	STUR	E (BN	IP15)					
Taxa Ref: Stace 3rd Ed 2010	Common Name	Habit at	100- 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300
cf Alchemilla L. sp.	Lady's mantle	OGR; DA														+		+				
Urtica dioica L.	Common nettle	WDG	+++	+	++	+	+		+				+				+				+	
<i>Betula</i> spp seeds	Birch	W; DA			+	++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
Betula spp bracts	Birch					+	++	++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	++
<i>Betula</i> spp catkins	Birch								+++												+	
<i>Betula</i> spp leaf fragments	Birch								++													
Seeds indet. Cf. <i>Betulacae</i> sp.	Birch family						++															
Alnus glutinosa (L.) Gaertn.	Alder	W; DA	++	+++	+++	+++	+++	+++	+++	++	++	++	+			+			+			
Seeds indet. Cf. <i>A.</i> <i>glutinosa</i> (L.) Gaertn.	Alder						++															
Seeds indet cf. <i>Alnus/Ranunculus</i> sp.	Alder			+																		
<i>A. glutinosa</i> (L.) Gaertn. (female catkin flowering)	Alder		+																			
A. glutinosa (L.) Gaertn. (female catkin fruiting)	Alder		+		+++																	
<i>A. glutinosa</i> (L.) Gaertn.(male catkin)	Alder		+				+++															

	The Berth	– Plant I	Macro	fossil	ls – Fi	ull spe	ecies	list (a	bund	ance) — BE	RTH	NORT	Н РА	STUR	E (BN	IP15)					
Taxa Ref: Stace 3rd Ed 2010	Common Name	Habit	100- 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300
Bud scars, catkin													_			-						
fragments. cf A.																						
glutinosa (L.) Gaertn.	Alder				+++								+++									
Corylus avellana L		w;																				
shell fragment	Hazel	SCR									+							+				
Populus L. sp capsule	Poplar	w											+									
Populus L. sp bud scars	Poplar								+				+									
<i>Populus</i> L. sp buds	Poplar								+													
Populus L. sp scales	Poplar								++													
Salix L. sp. (leaf																						
fragment)	Willow	W; DA							+				+									
Salix L. sp. (capsule																						
frag.)	Willow				+		+		+++				++		+				+		++	
Salix L. sp. (bud)	Willow								+++	+++	++	++	+	+++	+	++	+	+	+			
cf Geranium L. sp.	Crane's-bill	NS												+								
<i>Epilobium</i> L. sp.	Willowherb	NS							+				+									
cf <i>Rumex</i> L. sp.	Dock	NS																		+		
Caryophyllaceae/ Amaranthaceae indet	Pink/Goosefoot family	NS	+																			
Moehringia trinervia (L.) Clairv.	Three-nerved Sandwort	W; SCR					+															

	The Berth -	- Plant	Macro	fossil	s – Fi	ull spe	ecies l	list (a	bund	ance) — BE	RTH	NORT	ТН РА	STUR	E (BN	IP15)					
Taxa Ref: Stace 3rd Ed 2010	Common Name	Habit at	100- 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300
cf. <i>Moehringia trinervia</i> L. (Clairv)		W; SCR																			+	
cf. Sagina L. sp.	Pearlwort	OGR																		+		
Silene flos-cuculi (L.) Clairv.	Ragged-Robin	DA; OGR?											+									
cf Vaccinium L. sp.	Cranberry/ Bilberry	мо															+					
<i>Solanum</i> L. sp.	Nightshade	NS			+			+					+									
Solanum nigrum L.	Black nightshade	WDG												+								
Solanum dulcamara L.	Bittersweet	W; DA			+																	
<i>Fraxinus excelsior</i> L ash key	Ash	W; SCR; DA											+									
Plantago major L.	Greater Plantain	WDG; OGR																			+	
<i>Plantago major</i> L. (modern- germinating)	Greater Plantain												+									
Plantago major ssp major	Greater Plantain	WDG; OGR	+																			
Plantago sp. cf P. media	Hoary Plantain	OGR								+												
Callitriche L. sp.	Water-starwort	A; DA															+	+				
Glechoma hederacea L.	Ground-ivy	W; SCR	+																			
Lycopus europaeus L.	Gypsywort	DA		+		++	+	+	++	+			+			+			+			

	The Berth	– Plant	Macro	ofossi	ls — Fi	ull spe	ecies	list (a	bund	ance) – BE	RTH	NORT	ГН РА	STUR	E (BN	IP15)					
Taxa Ref: Stace 3rd Ed 2010	Common Name	Habit	100- 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300
Menyanthes trifoliata L.	Bogbean	А												+						+		
Asteraceae sp. indet.	Daisy family	NS											+									
Carduus L./Cirsium Mill./Centaurea L. sp.	Thistle/ Knapweed	OGR; DA												+								
Cirsium sp.	Thistle	OGR; DA											+									
Centaurea sp.	Knapweed	OGR; WDG											+									
<i>Asteraceae</i> sp. indet. cf <i>Hieracium</i> L.	Hawkweed	OGR; WDG							+													
<i>Asteraceae</i> sp.indet. cf <i>Bidens tripartita</i> L.	Bur-Marigold	DA															+					
Eupatorium cannabium L.	Hemp agrimony	DA; OGR	+	++	+++	+	+++	+	++	+	++		+	+	+	+	++	+	+	+	++	++
<i>Dipsacaceae</i> indet. cf <i>Dipsacus pilosus</i> L. type	Small Teasel	DA; SCR; W				+												+				
Knautia arvensis(L.) Coult.	Field Scabious	OGR										+										
Hedera L. sp. (Leaf fragments)	lvy	NS											+								+	
cf <i>Pimpinella</i> L. sp.	Burnet-saxifrage	OGR; SCR														+						
cf Apium graviolens L.	Wild celery	DA;																	+			

	The Berth	– Plant	Macro	ofossil	s – Fi	ull spe	ecies	list (a	bund	ance) — BE	RTH	NORT	ГН РА	STUR	E (BN	IP15)					
Taxa Ref: Stace 3rd Ed 2010	Common Name	Habit at	100- 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300
Cicuta virosa L.	Cowbane	DA														+						
cf Thyselium palustre (L.) Raf.(= Peucedanum palustre (L.) Moench)	Milk Parsley	DA	+														+					
Sagittaria/Alisma sp.	Arrowhead/ Water-plantain	A;DA		++																		
Alisma L. sp. (core)	Water-plantain	A;DA					+															
Alisma plantago- aquatica L.	Water-plantain	A;DA			+																	
Najas marina L.	Holly-leaved Naiad	А														+		++	++	+++	+++	+++
<i>cf Scheuchzeria</i> <i>palustris</i> L seed	Rannoch-rush	DA; A					+															
cf Scheuchzeria palustris L leaf frag	Rannoch-rush								+													
Potamogeton L. spp.	Pondweed	А							+								+		+	+	+	+
cf Potamogeton L. spp.	Pondweed	А														+						
Zannichellia palustris L	Horned Pondweed	A											+									
Sparganium L. spp.	Bur-reed	A																		+		
Sparganium cf. erectum L.	Branched bur- reed	A	+	++						+						+						

	The Berth -	- Plant I	Macro	fossil	s — Fı	ull spe	ecies	list (a	bund	ance) – BE	RTH	NORT	Н РА	STUR	E (BN	IP15)					
Taxa Ref: Stace 3rd Ed 2010	Common Name	Habit at	100- 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300
Typha L. spp.	Bulrush	A					+++	+	+	+			+	+	+	+	+	+	+			
Juncus L. spp.	Rush	DA																+	+			
Juncus effusus L. type	Soft-rush	DA					+	+														
Luzula DC.sp.	Wood rush	DA;W; SCR															+	+		+	+	+
Cyperaceae indet.	Sedge	DA	+	+	+								+								++	
Bolboschoenus (Asch.) Palla/ Schoenoplectus (Rchb.) sp.	Sea Club- rush/Club-rush	DA													+		+				+	+
Schoenoplectus spp.	Club-rush	DA																++		+		
Cyperaceae indet Schoenoplectus type	cf Club-rush	DA																		+		
Cyperaceae indet. cf Eleocharis R. Br. sp.	Spike-rush	DA						+														
Cladium mariscus L.	Great Fen-sedge	DA;A											+	+	+		+++	+++	+++	+++	+++	+++
Carex L. spp.	Sedge	DA	++	+++	+++	++	+++	+++	+++	+++	+++	+++	+++	+++	+++		+++	++	++	+++		++
Carex L. spp urticle	Sedge	DA							+	+	+		+	++	++	++		+	+	+		+

				10331	<u> </u>			115t (a	Juna	ance) – DL											
Taxa Ref: Stace 3rd Ed 2010	Common Name	Habit at	100- 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300
cf Carex L.sp.	Sedge	DA			+											+++						
Carex sp. cf C. Paniculata L.	Greater Tussock- sedge	DA							+++													
Carex sp. urticle cf C. Hirta L.	Hairy Sedge	DA													+							
Carex Subgenus 2 -C. acutiformis Ehrh./C. riparia Curtis/C. pseudocyperus L.	Lesser /Greater/ Cyperus Pond- sedge	DA							++													
Carex sp. cf C. Sylvatica Huds.	Wood-sedge	W; SCR; DA							++													
Carex sp. cf C. Hostiana DC.	Tawny Sedge	DA							+													
Poaceae indetmedium	Grass	OGR; DA																	+			
cf Poa annua L.	Annual Meadow- grass	WDG; OGR			+																	
Poaceae sp. cf. Alopecurus L.sp.	Foxtail	DA; OGR							+													
Poaceae sp Phleum L. type	Cat's-tail	OGR; WDG																+				
Glyceria R.Br.sp.	Sweet-grass	A; DA							+						+							

	The Berth	– Plant	Nacro	TOSSI	<u> S — F</u> I	ull spe		list (a	ibund	ance)	– BF	RIH	NORI		SIUR	F (RN	IP15)					
Taxa Bafi Staca 2rd Ed				110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	
2010	Common Name	Habit	100-	- 120	-	- 140	-	- 160	- 170	- 180	- 190	- 200	- 210	- 220	- 230	- 240	- 250	- 260	- 270	- 280	- 290	290 - 300
cf Phraamites australis	common Name	at	110	120	150	140	150	100	1/0	100	150	200	210	220	230	240	230	200	270	200	250	300
(Cav) Trin ex Steud - leaf																						l
tips	Common reed	А								+				+	+	+	+			+		1
CHARRED PLANT REMAINS																						
indet.		СН	+++		+				+	+++		++		+	+++	+++		+++	++	+++		
MOLLUSCA	Snails																					
<i>Mollusca</i> sp. indet.		А	+																			
<i>Bithunia</i> sp opercula		А																	+	+++	++ +	+++
CHARACEAE	Stonewort																					
																					++	
Chara sp.		А	+				+										+			+++	+	+++
DAPHNIIDAE	Water fleas																					
Daphnia sp. (ephippa)		А				+			++	+	+	+	+	+								
FORAMINIFERA/DIATOM	Algae	A	++		+																+	
cf OSTEICHTHYES	Fish																					
Fish scales/vertebrae		А																+	+	+	++	+
BRYOPHYTA	Moss																					
Moss indet stalks		МО							+		++		++	+	+							+
Moss indet leaf tips		МО							+++											+	++	
Sphaanum sp.		мо							++										+			

The Berth – Plant Macrofossils – Full species list (abundance) – BERTH NORTH PASTURE (BNP15)																						
Taxa Ref: Stace 3rd Ed 2010	Common Name	Habit at	100- 110	110 - 120	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	170 - 180	180 - 190	190 - 200	200 - 210	210 - 220	220 - 230	230 - 240	240 - 250	250 - 260	260 - 270	270 - 280	280 - 290	290 - 300
IGNOTA																						
Bud scar/ root plate etc		NS	+++	+++	++ +	+++	+++	++ +	+++	++	++ +	++ +				+++					++ +	+++
Catkins indet.		NS													+							
Seeds indet.		NS	+		++					++	++		++	+						+	++ +	
Leaf frags. indet		NS							+++					++			+++					
Herbaceous flower spike		NS												+								
Leaf buds. indet		NS		+					++						+++							
Modern grasses (in floret)		NS	+																			

The Berth - Plant Macrofossils – Full species list (abundance) – 3BBMC16					
			Sample 1	Sample 2	Sample 3
Taxa Ref: Stace 3rd Ed 2010	Common Name	Habitat	130- 140cm	150- 160cm	170- 180cm
Caltha palustris(Caltha radicans T.F. Forst)	marsh-marigold	DA	140011	10000	+
Ranunculus acris L./ repens L./ bulbosus L.	meadow/creeping/	DA/OGR	+		
	bulbous buttercup				
Ranunculus sp unidentified	buttercup	NS		+	
Rubus sect.1 Rubus (sect. Suberecti Lindl)	bramble/blackberry	NS	++	+	
cf. Quercus sp. (poorly preseved)	oak	W	+		
Betula pendula Roth	silver birch	W/DA		+	
Betula pubescens Ehr.	downy birch			+	+
Betula spp.	birch family			+	+++
Alnus glutinosa (L.) Gaertn	alder	W/DA	++	+++	+++
Alnus glutinosa (L.) Gaertn (male cone)	alder				++
Alnus glutinosa (L.) Gaertn (female cone)	alder				+++
Alnus glutinosa (L.) Gaertn (cone	alder		++	++	+++
fragment)					
Oxalis acetosella L.	wood-sorrel	SCR			+
CARYOPHYLLACEAE / Sliene L fragment	campion	NS			+
Solanum sp.	nightshade	NS		+	
Solanum nigrum L.	black nightshade	WDG		+	
Solanum dulcamara L.	bittersweet	W/WDG	+		
cf. Fraxinus excelsior L. panicle	ash	W	+		
Lycopus europeaus L.	gypsywort	DA			+
llex aquifolium L.	holly	W		+	
Menyanthes trifoliata L seed	bogbean	А	+	+	+
Menyanthes trifoliata L valve	bogbean	A	+		
ASTERACEAE indeterminate - fragment	daisy family		+		
Cf. ASTERACEAE- Erigeron L sp.	fleabane	OGR/WDG	+		
Carduus L./Cisium sp.	thistle	OGR/DA	+		
Eupatorium cannabinum L.	hemp agrimony	DA/OGR	++	+	+++
APIACEAE- indeterminate - fragment	carrot family				+
Aethusa cynapium L.	fool's parsley	OGR/WDG		+	+
Aethusa sp. /Sagittaria sp.	fool's parsley/	NS		+	+
	arrowhead				
Alisma gramineum L carpel/ seed	ribbon-leaved	A	+	+	+
	water-plantain				
Potamogeton sp Unidentified	pondweed	А	+	+	+

The Berth - Plant Macrofossils – Full species list (abundance) – 3BBMC16								
			Sample 1	Sample 2	Sample 3			
Taxa Ref: Stace 3rd Ed 2010	Common Name	Habitat	130-	150-	170-			
			140cm	160cm	180cm			
Carex spp 2-sided	sedge	DA	+++	+++	+++			
Carex spp 3-sided	sedge	DA	++	+++	+++			
POACEAE sp indeterminate	grass family	OGR/DA	+					
IGNOTA			++	+++	+++			

The Berth - Plant Macrofossil - Full species list (abundance) - TRENCH 1						
Taxa Ref: Stace 3rd Ed 2010	Common name	Habitat	0-10cm	10-20cm		
Ranunculus Subgen. 1 Ranunculus sp.	buttercup	NS	++			
Ranunculus sceleratus L.	celery leaved buttercup	DA	+++	+		
R. Subgen. Batrachium (DC.) A. Gray	crowfoot	DA	+++	+++		
Rubus sect. 2 Glandulosus (fructicosus L. agg.)	bramble	NS	+	+		
Potentilla sp.	cinquefoil	OGR	++	++		
Aphanes arvensis L.	parsley piert	OGR		+		
Urtica dioica L.	nettle	WDG	++	+++		
Seed indet cf <i>Myrica gale</i> L.	bog myrtle	DA		+		
Alnus glutinosa (L.) Gaertn.	alder	W	+++	+++		
A. glutinosa (L.) Gaertn. (female catkin fruiting)	alder	W	++	+		
A. glutinosa (L.) Gaertn.(male catkin)	alder	W		+		
Oxalis acetosella L.	wood sorrell	SCR	++	+		
Salix sp. (capsule frag.)	willow	W	+			
Viola sp.	violet	NS	+	+		
Linum catharticum L.	linseed	MO	+	+		
Rorippa Scop. sp. (immature)	yellow cress	DA		+		
Nasturtium officinale W.T Aiton	water cress	DA		+		
Persicaria lapathifolia (L.) Delarbre	knotweed	OGR		+		
Polygonum aviculare L.	knotgrass	OGR	+	+		
Solanum sp.	nightshade	NS		+		
Hyoscyamus niger L.	henbane	WDG	+	+		
cf. Mentha aquatica L.	water mint	DA	+	+		
Centaurea sp.	thistle	OGR		+		
Asteraceae sp. indet.	daisy family	NS		+		
Bidens cernua L.	bur marigold	DA	+			
Bidens sp. cf cernua L.	bur marigold	DA	+			
Sambucus nigra L.	elder	SCR	+	+		
Hydrocotyle vulgaris L.	marsh pennywort	SCR	++	++		
Oenanthe crocata L.	water dropwort	DA	+			
Apium graveolens L.	celery	DA	+			
Cicuta virosa L.	cowbane	DA	+			
Apiaceae indet.	Umbellifer family	NS	+			
Lemna sp. L.	duckweed	A	+			
Sagittaria/Alisma sp.	arrowhead/ water-	DA		+		
	plantain					

The Berth - Plant Macrofossil - Full species list (abundance) - TRENCH 1							
Taxa Ref: Stace 3rd Ed 2010	Common name	Habitat	0-10cm	10-20cm			
Potamogeton sp(p).	pondweed	A	+				
Zannichellia palustris L.	horned pondweed	A	+	+			
J. effusus type	rush	DA	+	+			
Bolboschoenus/ Schoenoplectus sp.	sedge	DA	+	+			
Cladium mariscus L. Pohl.	great fen-sedge	DA	+				
Carex L. spp.	sedge	DA	+++	+++			
Poaceae indet small	grass	OGR	+	++			
Poaceae indetmedium	grass	OGR	+	+			
Glyceria sp.	sweet-grass	A	++	++			
Chara sp.	stonewort	A		+			
Charred plant remains		СН		++			
IGNOTA		NS	++	++			

KEY

Habitat	Abundance - 1-5 fragments + ; 6-20 fragments ++ ; 21+ fragments +++					
A=Aquatic/Riverine	W=Woodland	CH=Charred				
DA = Damp Fen	SCR=Scrub/Hedgerow	WDG = Waste/Disturbed Ground				
MO=Moorland	OGR = Open Grassland	NS = Non Specific				