Supplementary information for:

**Identifying bird remains using ancient DNA barcoding**

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**Table S1.**  Identity of the sampled avian bones. Approximate ages are denoted as Eemian, Late Glacial (LG), Early Holocene (EH) and Roman.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Lab ID** | **Specimen label** | **Site** | **Material** | **Age** | **Identification** |
| J1 | MER (9) TR A, Spit 5 | Merlin's Cave, UK | Right humerus | LG/EH 1 | J.S |
| J2 | MER (9) TR A, Spit 5 | Merlin's Cave, UK | Proximal left humerus | LG/EH 1 | J.S |
| J3 | MER (9) TR A, Spit 5 | Merlin's Cave, UK | Right humerus | LG/EH 1 | J.S |
| J4 | MER (8) TR A, Spit 4 | Merlin's Cave, UK | Carpometacarpus | LG/EH 1 | J.S |
| J5 | 1987.2 /I/ (972) | Beddingham Villa, UK | Right humerus | Roman 2 | J.S |
| J6 | 1987.2 /I/ (14) | Beddingham Villa, UK | Right humerus | Roman 2 | J.S |
| J7 | 1987.2 /I/ (101) | Beddingham Villa, UK | Tarsometatarsus | Roman 2 | J.S |
| J8 | MER (2) W. front initial clean | Merlin's Cave, UK | Distal left humerus | LG/EH 1 | J.S |
| J9 | 1987.2 /I/ (367) | Beddingham Villa, UK | Left tibiotarsus shaft | Roman 2 | J.S |
| J10 | 1987.2 /I/ (367) | Beddingham Villa, UK | Proximal right carpometacarpus | Roman 2 | J.S |
| J11 | 1987.2 /I/ (367) | Beddingham Villa, UK | Distal left carpometacarpus | Roman 2 | J.S |
| J12 | 1987.2 /I/ (79) | Beddingham Villa, UK | Left humerus (juvenile) | Roman 2 | J.S |
| J13 | 1987.2 /I/ (79) | Beddingham Villa, UK | Left tarsometatarsus shaft | Roman 2 | J.S |
| J14 | MER (8) TR A, Spit 4 | Merlin's Cave, UK | Right coracoid fragment | LG/EH 1 | J.S |
| J15 | MER (8) TR A, Spit 4 | Merlin's Cave, UK | Right ulna | LG/EH 1 | J.S |
| J16 | MER (8) TR A Spit 7 | Merlin's Cave, UK | Right coracoid fragment | LG/EH 1 | J.S |
| J17 | MER (8) TR A Spit 7 | Merlin's Cave, UK | Synsacrum fragment | LG/EH 1 | J.S |
| J18 | JM 96, TC2, Area A, Spit 5 | Joint Mitnor, UK | Coracoid fragment | Eemian 3 | J.S |
| J19 | AF OBZ/649, Layer II | Oblazowa Cave, Poland | Right tarsometatarsus | LG 4 | T.T |
| J20 | AF OBZ/610, Layer IV | Oblazowa Cave, Poland | Left carpometacarpus | LG 4 | T.T |
| J21 | AF OBZ/602, Layer IV-VI | Oblazowa Cave, Poland | Distal left carpometacarpus | LG 4 | Z.B |
| J22 | AF OBZ/450, Layer IV | Oblazowa Cave, Poland | Left carpometacarpus | LG 4 | T.T |
| J23 | AF OBZ/459, Layer II | Oblazowa Cave, Poland | Distal left humerus | LG 4 | T.T |
| J24 | AF OBZ/483, Layer II | Oblazowa Cave, Poland | Proximal right ulna | LG 4 | T.T |
| J25 | AF OBZ/482, Layer II | Oblazowa Cave, Poland | Right ulna | LG 4 | T.T |

1 Mean of published dates from the same site is 11 k BP [1][.](#_ENREF_1) 2 Rudling [2][.](#_ENREF_2) 3 The Eemian in Britain is dated to 125 k BP [3][.](#_ENREF_3) 4 Published dates from the sampled layers are 13 k BP (layer II) and 18 k BP and 29 k BP (layer V) [4][.](#_ENREF_4)

**Table S2**. Output from BLAST+ showing the best taxon match for the successful ancient DNA sequences against the custom database.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Query id** | **Binomen** | **Subject id** | **% Identity** | **Alignment length** | **Mis-matches** | **Gap opens** | **q. start** | **q. end** | **s. start** | **s. end** | **evalue** | **Bit score** |
| J2 | Oenanthe lugubris \* | gi|300432064|gb|HM046851.1| Oenanthe schalowi isolate 447 16S ribosomal RNA gene, partial sequence; mitochondrial | 100 | 74 | 0 | 0 | 119 | 192 | 323 | 396 | 1E-33 | 137 |
| J3 | Oenanthe lugubris \* | gi|300432064|gb|HM046851.1| Oenanthe schalowi isolate 447 16S ribosomal RNA gene, partial sequence; mitochondrial | 100 | 74 | 0 | 0 | 119 | 192 | 323 | 396 | 1E-33 | 137 |
| J4 | Turdus pilaris | Turdus\_pilaris\_NRM20066901\_16S.seq "Contig 23" (1,549) | 98.7 | 78 | 1 | 0 | 1 | 78 | 212 | 289 | 9E-35 | 141 |
| J5 | Turdus merula | Turdus\_merula\_NRM20056091\_16S.seq "Contig 42" (1,549) | 100 | 58 | 0 | 0 | 135 | 192 | 347 | 404 | 9E-25 | 108 |
| J6 | Emberiza calandra | Emberiza\_calandra\_NRM20046026\_16S.seq "Contig 5" (1,550) | 100 | 78 | 0 | 0 | 1 | 78 | 211 | 288 | 7E-36 | 145 |
| J7 | Turdus philomelos | Turdus\_philomelos\_NRM976168\_16S.seq "Contig 13" (1,550) | 100 | 74 | 0 | 0 | 119 | 192 | 331 | 404 | 1E-33 | 137 |
| J8 | Emberiza calandra | Emberiza\_calandra\_NRM20046026\_16S.seq "Contig 5" (1,550) | 100 | 78 | 0 | 0 | 1 | 78 | 211 | 288 | 7E-36 | 145 |
| J9 | Anser anser | gi|544582183|gb|KC984218.1| Anser anser 16S ribosomal RNA gene, partial sequence; mitochondrial | 97.5 | 80 | 1 | 1 | 1 | 80 | 7 | 85 | 1E-33 | 137 |
| J10 | Gallus gallus | gi|29824878|gb|AY236430.1| Gallus gallus 16S ribosomal RNA gene, partial sequence; mitochondrial gene for mitochondrial product | 100 | 78 | 0 | 0 | 1 | 78 | 22 | 99 | 7E-36 | 145 |
| J11 | Columba livia | Columba\_livia\_NRM20076011\_16S.seq "Contig 1" (1,546) | 100 | 75 | 0 | 0 | 1 | 75 | 210 | 284 | 3E-34 | 139 |
| J12 | Gallus gallus | gi|29824878|gb|AY236430.1| Gallus gallus 16S ribosomal RNA gene, partial sequence; mitochondrial gene for mitochondrial product | 98.7 | 79 | 0 | 1 | 1 | 79 | 22 | 99 | 3E-34 | 139 |
| J13 | Anas penelope | Anas\_penelope\_NRM20036435\_16S.seq "Contig 3" (1,557) | 100 | 79 | 0 | 0 | 1 | 79 | 211 | 289 | 2E-36 | 147 |
| J14 | Corvus monedula | Corvus\_monedula\_NRM986450\_16S.seq "Contig 7" (1,548) | 100 | 77 | 0 | 0 | 1 | 77 | 212 | 288 | 2E-35 | 143 |
| J17 | Lagopus muta | Lagopus\_muta\_NRM986101\_16S.seq "Contig 52" (1,554) | 100 | 76 | 0 | 0 | 115 | 190 | 328 | 403 | 8E-35 | 141 |
| J19 | Turdus pilaris | Turdus\_pilaris\_NRM20066901\_16S.seq "Contig 23" (1,549) | 100 | 74 | 0 | 0 | 118 | 191 | 331 | 404 | 1E-33 | 137 |
| J20 | Turdus pilaris | Turdus\_pilaris\_NRM20066901\_16S.seq "Contig 23" (1,549) | 100 | 78 | 0 | 0 | 1 | 78 | 212 | 289 | 7E-36 | 145 |
| J21 | Turdus merula | Turdus\_merula\_NRM20056091\_16S.seq "Contig 42" (1,549) | 100 | 78 | 0 | 0 | 1 | 78 | 212 | 289 | 7E-36 | 145 |
| J22\_(frag2) | Alauda arvensis | Alauda\_arvensis\_NRM996263\_16S.seq "Contig 4" (1,552) | 98.7 | 74 | 1 | 0 | 1 | 74 | 331 | 404 | 5E-33 | 134 |
| J24\_(frag2) | Eremophila alpestris | gi|220900200|gb|FJ465221.1| Eremophila alpestris albigula voucher MFUM 20042 16S ribosomal RNA gene, partial sequence; mitochondrial | 100 | 74 | 0 | 0 | 1 | 74 | 296 | 369 | 4E-34 | 137 |
| J25 | Eremophila alpestris | gi|220900200|gb|FJ465221.1| Eremophila alpestris albigula voucher MFUM 20042 16S ribosomal RNA gene, partial sequence; mitochondrial | 100 | 80 | 0 | 0 | 1 | 80 | 175 | 254 | 5E-37 | 148 |

\* A corrigendum to the associated publication has stated that the deposited *Oenanthe schalowi* sequences were derived from incorrectly labelled specimens, and actually belong to the species *O. lugubris* [5,6][.](#_ENREF_6)

**Figure S1**. Photo of the drilled humerus bone from specimen J1, illustrating the amount of material that is needed for ancient DNA analyses.

**References**

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