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

1 Mean of published dates from the same site is 11 k BP [1]. 2 Rudling [2]. 3 The Eemian in Britain is dated to 125 k BP [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].
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 5" (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 | 100 | 74 | 0 | 0 | 1 | 74 | 296 | 369 | 4E-34 | 137 |
| J25 | Eremophila alpestris albigula voucher MFUM 20042 16S ribosomal RNA gene, partial sequence; mitochondrial 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].
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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