**Supplementary material**

Table S1 Radiocarbon dates from the cremation graves from Broechem (calibration OxCal v4.3 (Bronk Ramsey 2009); IntCal13 atmospheric curve (Reimer et al. 2013)) .

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Grave** | **Sex** | **Age (category or years)** | **Sample type** | **Lab code** | **14C age (years BP)** | **Calibration 2σ**  **(calendar years)**  **> IntCal13** | **Cultural date range (calendar years)** |
| 26 | indet. | adult | tibia human | RICH-24802 | 1640 ± 32 | 335 AD (78.3%) 474 AD  485 AD (17.1%) 535 AD | / |
| 75 | M?? | 16-20 | tibia human | RICH-23351 | 1518 ± 30 | 428 AD (27.7%) 495 AD  506 AD (67.7%) 610 AD | 520/530-600/610 |
| *Alnus* sp. charcoal | RICH-25810 | 1478 ± 25 | 545 AD (95.4%) 639 AD |
| 83 | F?? | 16-20 | indet. long bone human | RICH-24744 | 1492 ± 29 | 436 AD ( 1.1%) 446 AD  472 AD ( 2.1%) 486 AD  535 AD (92.2%) 642 AD | 520/530-600/610 |
| *Betula* sp. charcoal | RICH-25805 | 1577 ± 27 | 415 AD (95.4%) 545 AD |
| *Quercus* sp.charcoal | RICH-25961 | 1087 ± 28 | 894 AD (31.5%) 931 AD  936 AD (63.9%) 1015 AD |
| 85 | indet. | 20-30 | femur human | RICH-24805 | 1627 ± 26 | 352 AD ( 2.2%) 366 AD  380 AD (67.3%) 474 AD  485 AD (25.9%) 535 AD | 520/530-630/640 |
| animal bone | RICH-24805.2.1 | 1536 ± 27 | 427 AD (95.4%) 588 AD |
| *Alnus* sp. charcoal | RICH-25798 | 1546 ± 29 | 424 AD (95.4%) 575 AD |
| 88 | F?? | adult | femur human | RICH-24850 | 1620 ± 27 | 385 AD (95.4%) 536 AD | / |
| animal bone | RICH-24850.2.1 | 1508 ± 26 | 431 AD (13.7%) 490 AD  531 AD (81.7%) 619 AD |
| 92 | indet. | 20-30 | long bone human | RICH-24731 | 1487 ± 28 | 475 AD ( 0.9%) 484 AD  536 AD (94.5%) 644 AD | / |
| 105 | F | 30-40 | femur human | RICH- 24828 | 1488 ± 25 | 540 AD (95.4%) 637 AD | 600/610-660/670 |
| 100 | indet. | 18-24 | *Quercus* sp. charcoal | RICH-25965 | 1648 ± 28 | 332 AD (87.1%) 433 AD  489 AD ( 8.3%) 532 AD | after or contemporaneous with 600/610-630/640 |
| 150 | M?? | adult | long bone human | RICH-24849 | 1632 ± 28 | 344 AD (73.7%) 474 AD  486 AD (21.7%) 535 AD | 560/570-630/640 |
| pig, calcaneus | RICH-24849.2.1 | 1517 ± 26 | 430 AD (23.4%) 493 AD  512 AD ( 0.7%) 516 AD  529 AD (71.3%) 608 AD |
| *Alnus* sp. charcoal | RICH-25808 | 1536 ± 24 | 427 AD (95.4%) 585 AD |
| *Quercus* sp. charcoal | RICH-25966 | 1686 ± 29 | 257 AD (13.1%) 296 AD  320 AD (82.3%) 418 AD |
| 163 | indet. | adult | long bone human | RICH-24742 | 1479 ± 28 | 542 AD (95.4%) 641 AD | after or contemporaneous with 560/570-630/640 |
| *Corylus avellana* charcoal | RICH-25799 | 1504 ± 30 | 432 AD (14.0%) 490 AD  531 AD (81.4%) 636 AD |
| *Quercus* sp. charcoal | RICH-25967 | 1581 ± 28 | 410 AD (95.4%) 544 AD |
| 173 | indet. | 20-40 | tibia? human | RICH-24826 | 1589 ± 26 | 410 AD (95.4%) 540 AD | / |
| pig, femur | RICH-24826.2.1 | 1479 ± 28 | 542 AD (95.4%) 641 AD |
| *Alnus* sp. charcoal | RICH-25796 | 1664 ± 29 | 260 AD ( 3.7%) 280 AD  324 AD (91.1%) 429 AD  497 AD ( 0.6%) 504 AD |
| 216 | indet. | adult | long bone human | RICH-24803 | 1432 ± 28 | 576 AD (95.4%) 656 AD | / |
| *Alnus* sp. charcoal | RICH-25804 | 1483 ± 25 | 543 AD (95.4%) 636 AD |
| 229 | F | 25-35 | human bone | KIA-26750 | 1520 ± 30 | 428 AD (29.9%) 498 AD  505 AD (65.5%) 609 AD | 530/555-610/640 |
| human bone | KIA-26753 | 1550 ± 25 | 426 AD (95.4%) 566 AD |
| pig, calcaneus | RICH-25913 | 1497 ± 26 | 436 AD ( 1.1%) 445 AD  472 AD ( 2.1%) 486 AD  535 AD (92.2%) 638 AD |
| 243 | F? | 20-25 | human bone | KIA-26752 | 1465 ± 25 | 554 AD (95.4%) 644 AD | 560/570-600/610 |
| 250 | M?+F?? | 20-40 | long bone human | RICH-24743 | 1514 ± 27 | 430 AD (21.0%) 493 AD  513 AD ( 0.4%) 516 AD  530 AD (74.0%) 612 AD | 560/570-600/610 |
| 270 | M?? | 20-40 | long bone human | RICH-24825 | 1571 ± 26 | 420 AD (95.4%) 546 AD | / |
| 272 | F?? | adult | long bone human | RICH-23349 | 1478 ± 31 | 538 AD (95.4%) 646 AD | 560/570-630/640 |
| *Salix* sp. charcoal | RICH-25809 | 213 ± 24 | 1646 AD (33.0%) 1682 AD  1737 AD ( 4.8%) 1756 AD  1761 AD (41.9%) 1804 AD  1936 AD (15.7%) ... |
| *Quercus* sp. charcoal | RICH-25957 | 1529 ± 28 | 428 AD (38.7%) 498 AD  504 AD (56.7%) 600 AD |
| 302 | M?? | 40+ | femur human | RICH-24827.2.1 | 1430 ± 26 | 580 AD (95.4%) 656 AD | / |
| 306 | indet. | adult | long bone human | RICH-23268 | 1434 ± 31 | 570 AD (95.4%) 656 AD | / |
| 323 | M? | adult | long bone human | RICH-23312 | 1472 ± 31 | 543 AD (95.4%) 645 AD | 560/570-630/640 |
| 369 | indet. | adult | long bone human | RICH-23339 | 1631 ± 30 | 344 AD (71.7%) 474 AD  485 AD (23.7%) 535 AD | / |
| animal bone | RICH-25910 | 1531 ± 25 | 428 AD (40.4%) 496 AD  506 AD (55.0%) 596 AD |
| *Alnus* sp. charcoal | RICH-25801 | 1642 ± 30 | 334 AD (78.2%) 435 AD  449 AD ( 2.9%) 471 AD  486 AD (14.3%) 534 AD |
| 371 | F? | adult | long bone human | RICH-23310 | 1599 ± 29 | 400 AD (95.4%) 538 AD | 470/480-540 |
| 372 | indet. | adult | long bone human | RICH-23350 | 1558 ± 31 | 420 AD (95.4%) 568 AD | / |
| *Betula* sp. charcoal | RICH-25811 | 1555 ± 27 | 424 AD (95.4%) 562 AD |
| *Quercus* sp.charcoal | RICH-25964 | 1535 ± 28 | 428 AD (95.4%) 592 AD |
| 373 | indet. | juvenile | long bone human | RICH-23341 | 1669 ± 30 | 258 AD ( 5.7%) 284 AD  290 AD ( 0.4%) 295 AD  321 AD (89.3%) 428 AD | after or contemporaneous with 470/480-560/570 |
| animal bone | RICH-23997 | 1583 ± 29 | 409 AD (95.4%) 544 AD |
| *Betula* sp. charcoal | RICH-25797.1.1  RICH-25797.1.2 | 1552 ± 20 | 427 AD (95.4%) 556 AD |
| 374 | F | adult | tibia human | RICH-23348 | 1851 ± 31 | 84 AD (95.4%) 236 AD | 470/480-520/530 |
| animal bone | RICH-23862 | 1585 ± 30 | 406 AD (95.4%) 544 AD |
| *Corylus avellana* charcoal | RICH-25800 | 1512 ± 30 | 428 AD (21.6%) 494 AD  508 AD ( 1.7%) 520 AD  527 AD (72.1%) 620 AD |
| 377 | M | 40+ | long bone human | RICH-23297 | 1622 ± 30 | 356 AD ( 1.4%) 365 AD  380 AD (94.0%) 538 AD | 440/450-520/530 |
| pig, patella | RICH-25912 | 1543 ± 26 | 426 AD (95.4%) 576 AD |
| *Betula* sp. charcoal | RICH-25802 | 1636 ± 29 | 340 AD (72.4%) 435 AD  447 AD ( 4.3%) 472 AD  486 AD (18.7%) 534 AD |
| *Quercus* sp.charcoal | RICH-25962 | 1548 ± 29 | 424 AD (95.4%) 574 AD |
| 379 | indet. | adult | long bone human | RICH-23313 | 1621 ± 29 | 382 AD (95.4%) 538 AD | / |
| *Betula* sp. charcoal | RICH-25795 | 1664 ± 29 | 260 AD ( 3.7%) 280 AD  324 AD (91.1%) 429 AD  497 AD ( 0.6%) 504 AD |
| *Quercus* sp.charcoal | RICH-25959 | 1647 ± 29 | 332 AD (84.8%) 434 AD  458 AD ( 0.8%) 467 AD  488 AD ( 9.8%) 533 AD |
| 384 | F? | adult | long bone human | RICH-23340 | 1629 ± 32 | 346 AD ( 5.9%) 370 AD  376 AD (62.7%) 476 AD  482 AD (26.8%) 536 AD | / |
| pig, femur | RICH-25911 | 1348 ± 27 | 640 AD (90.0%) 710 AD  746 AD ( 5.4%) 764 AD |
| 386 | F? | adult | femur human | RICH-23311 | 1685 ± 33 | 256 AD (15.5%) 300 AD  316 AD (79.9%) 421 AD | 470/480-520/530 |
| long bone human | RICH-23998 | 1599 ± 28 | 402 AD (95.4%) 538 AD |
| 466 | F | 20-40 | long bone human | RICH-23269 | 1433 ± 30 | 572 AD (95.4%) 656 AD | / |
| *Alnus* sp. charcoal | RICH-25807.1.1  RICH-25807.1.2 | 1433 ± 19 | 593 AD (95.4%) 653 AD |
| *Quercus* sp.charcoal | RICH-25960 | 1661 ± 29 | 260 AD ( 3.0%) 279 AD  326 AD (90.4%) 430 AD  494 AD ( 1.4%) 508 AD  520 AD ( 0.6%) 527 AD |
| 492 | indet. | 40+ | long bone human | RICH-24804 | 1578 ± 26 | 416 AD (95.4%) 544 AD | / |
| *Alnus* sp. charcoal | RICH-25803 | 1506 ± 25 | 432 AD (10.4%) 490 AD  532 AD (85.0%) 620 AD |
| *Quercus* sp. charcoal | RICH-25958 | 1541 ± 29 | 426 AD (95.4%) 584 AD |
| 510 | indet. | adult | long bone human | RICH-23270 | 1456 ± 30 | 554 AD (95.4%) 650 AD | 560/570-630/640 |
| *Alnus* sp. charcoal | RICH-25806 | 1523 ± 24 | 430 AD (29.2%) 493 AD  512 AD ( 0.9%) 516 AD  529 AD (65.3%) 602 AD |
| *Quercus* sp.charcoal | RICH-25963 | 176 ± 27 | 1658 AD (18.1%) 1695 AD  1726 AD (53.9%) 1814 AD  1837 AD ( 0.7%) 1843 AD  1852 AD ( 1.9%) 1868 AD  1917 AD (20.8%) ... |