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ARCHAEOLOGICAL MONITORING AND DATA RETRIEVAL FOR THE COLLBRAN PIPELINE PROJECT IN GARFIELD AND MESA COUNTIES, COLORADO

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Bureau of Land Management
Northwest Colorado District Office
Grand Junction, Colorado

Abstract

At the request of Enterprise Products Partners, the Bureau of Land Management (BLM), and the U.S. Forest Service (USFS), Grand River Institute (GRI) conducted a cultural resource monitor and data retrieval for the Collbran Pipeline Project in Garfield and Mesa Counties, Colorado. The project was supervised by Carl E. Conner (Principal Investigator). Fieldwork was conducted under BLM Antiquities Permit No. C-52775 and USFS Special Use Permit No. PAW89016. The cultural resource monitor began on the 9th of June 2009 and terminated on the 9th of September 2009. Archaeological excavations to supplement the data retrieved during the monitoring took place late in 2009 and throughout 2010.

Significant cultural resources were identified during the project. Excavations yielded radiocarbon dates that span occupations from the Early Archaic through the Historic Ute. Fifty-three dates were obtained from 22 sites, and their conventional radiocarbon ages range from 5990±40 BP (5ME16789.F3, Beta-263486) to 370 BP (5ME16097.F4, Beta-248418). Substantial pithouses were found dating to approximately 2800 and 4600 years ago. That of the more recent age is directly associated with a cultural phenomenon first identified in the early 1980's during excavations within the Battlement Mesa Community. It has subsequently been named by these authors the Battlement Mesa Complex, and is characterized by a particular style of pithouse and distinctive groundstone artifacts.

The BLM and USFS decision to require monitoring of the Collbran Pipeline construction due to the relatively high density of recorded cultural resources in its vicinity proved its soundness. Also, the construction monitoring and subsequent excavations have demonstrated that suspect areas (i.e. prime site locales based on surface water procurement – usually related to catchments in small drainages), but lacking in surficial cultural evidence, are likely to contain significant archaeological data in subsurface contexts.

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Part 2

CHAPTER 6.0 DISCUSSION

Archaeological investigations for the Collbran Pipeline Project were guided by a framework of research questions that were drawn from the known cultural background and applied to specific sites and to the inter-relationship of sites within the geographically defined area around the north, west and south flanks of Battlement Mesa. Questions posed for the evaluation phase of the study focused on site integrity and temporal juxtaposition. Primary concerns during the data retrieval phase were the development of a cultural chronology and the reconstruction of paleoenvironmental conditions.

6.1 Cultural Chronology

The definable periods of occupation reach 6000 years into the past and represent occupations during the Archaic, Formative, Late Prehistoric and Historic periods. Diagnostic projectile points were sorely lacking from the surfaces of most of the sites and is attributed to collection by artifact hunters during modern times. Despite the lack of diagnostic artifacts, these investigations did result in a substantial account of the past six millennia, adding significantly new information to the known cultural sequence.

The earliest period of occupation that can be supported by radiocarbon dating falls within the Early Archaic period. Subsequent Middle and Late Archaic, Formative, Late Prehistoric, and Historic Ute occupations identified around the base of Battlement Mesa are likewise substantiated by radiocarbon data. Excavations along the Collbran Pipeline Project (Figure 6.1-1) yielded a total of fifty-three radiocarbon dates (Appendix A). All were from charcoal which, of course, introduces the possibility of old wood use or built-in bias, both of which may yield dates older than the actual behavioral event. Nonetheless, the Collbran dates tend to cluster well, suggesting that these problems are not significantly skewing the actual temporal placements.

The temporal distribution of the Collbran dates is shown in Figure 6.1-2, a probability density histogram. The histogram is generated by summing the relative probabilities of the single and/or multiple intercepts of each calibration result on the y-axis with the x-axis increments set at 25 years. Calibration was accomplished with Calib.exe version 6.1.1 using the intcal09 calibration curve. The heaviest concentration occurs between 1500 BC and AD 1000 which is typical for the region, reflecting Late Archaic hunter-gatherer occupation lasting well into what is, in some portions of the state, the Formative period. Of special interest is the well-formed cluster between 4400 and 4900 BC which represents the Middle Archaic pithouse occupation at 5ME16789. The smaller more recent cluster at 3000 to 3500 BC also represents pithouse construction at this site.

In addition, it is useful to analyze intra-site contemporaneity of radiocarbon dates to, where warranted, pool selected sets of dates to calculate means and reduce the associated standard errors. The following contemporaneity tests and pooling calculations were accomplished using analytic features of Calib.exe version 6.1.1.

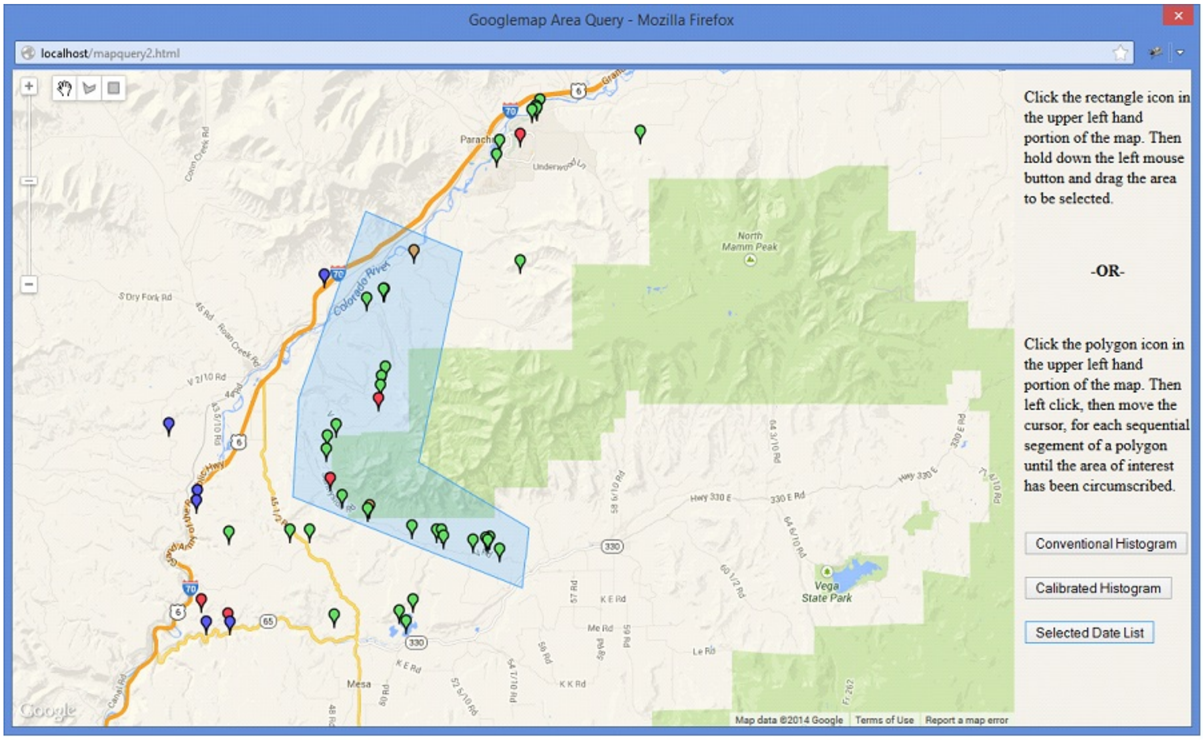

Figure 6.1-1. Spatial distribution of the Collbran Project sites (light blue polygon) as shown in the Colorado Radiocarbon Database Website.

5GF4337
Beta-267633, 267630 and 267631 are contemporaneous at the .05 level with a pooled average of 2030+/-30 BP; cal. 156 BC to AD 52.
Beta-267632 and Beta 267629 are contemporaneous at the .05 level with a pooled average of 2285+/-50 BP; cal. 411 to 201 BC.

5ME113
The four dates, Beta-260143, 260144, 267655 and 267635, range from 1720+/-40 BP to 500+/-40 BP and no two dates are contemporaneous.

5ME16097
Beta-267637, 3680+/-40 BP and Beta-248418, 370+/40 BP are separated in time by over 3000 years. The first calibrates to 2196 – 1948 BC. The second calibrates to 1446 – 1635 AD.

5ME16102
The three dates, Beta-267640, 267638 and 267639, range from 2590+/-50 to 1300+/-60 BP and no two dates are contemporaneous.

5ME16117
Beta-303001, 1550+/-60 BP; cal. 390-640 AD, and Beta-303002, 1720+/-70 BP; cal. 130-520 AD are not statistically contemporaneous.

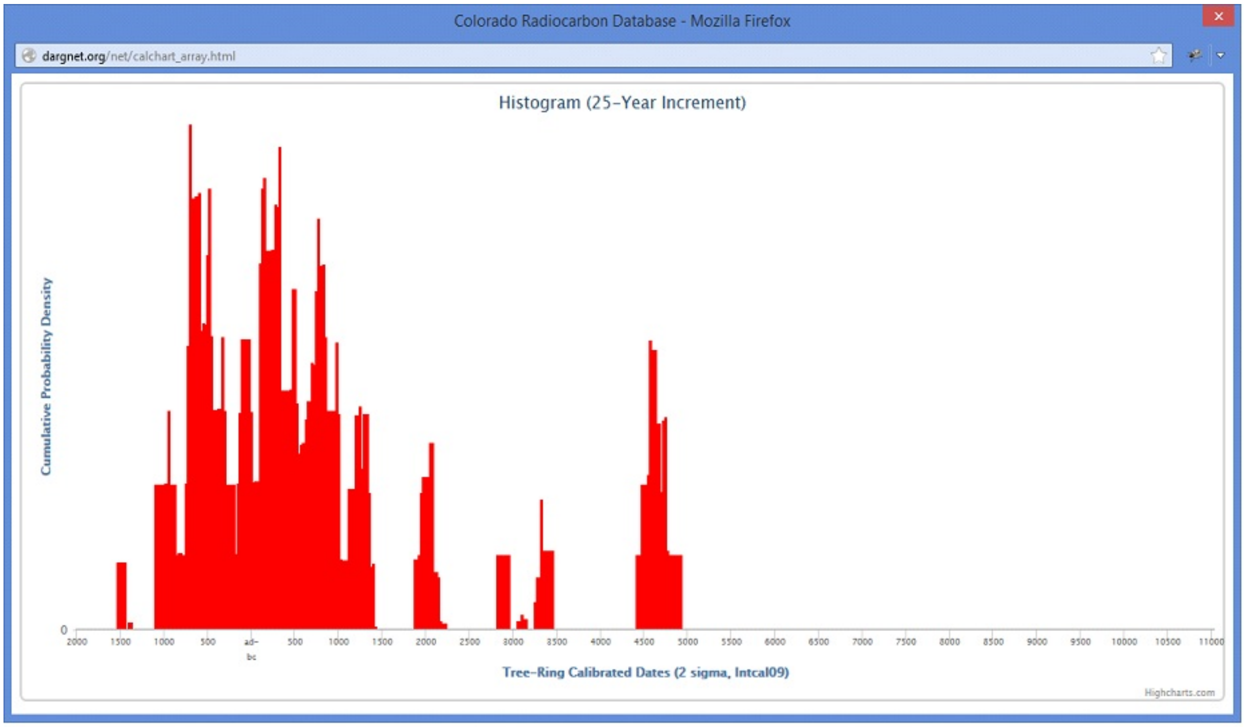

Figure 6.1-2. Probability density histogram of the Collbran Pipeline Project radiocarbon dates (Generated via the Colorado Radiocarbon Database Website).

5ME16129
Beta-267644 and Beta-267643 are contemporaneous at the .05 level with a pooled average of 1570+/-45 BP; cal. 405 – 591 AD.

5ME16784
Beta-303004 and Beta-303005 are contemporaneous at the .05 level with a pooled average of 3100±20 BP; cal. 1427 – 1314 BC. A third date is Beta-263483, 2340+/-60; cal. 720 – 240 BC.

5ME16785
Beta-267648 and Beta-267647 are contemporaneous at the .05 level with a pooled average of 2425+/-35 BP; cal. 751-401 BC.

5ME16786
Beta-303007 and Beta-263484 are contemporaneous at the .05 level with a pooled average of 2780+/-40 BP; cal. 1017 – 829 BC. The remaining three dates range from 2440+/-30 to 3020+/-30 BP; 1380 – 410 BC.

5ME16789
Beta-303011 and Beta-303012 are contemporaneous at the .05 level with a pooled average of 3720+/-20 BP; cal. 2197-2036 BC.
(cont.)

Beta-303014 and Beta-263487 are contemporaneous at the .05 level with a pooled average of 4605+/-30 BP; cal. 3501-3139 BC. This provides a fairly accurate bracket for the latest pithouse occupation of the site.

Beta-304089, Beta-303009, Beta-303010 and Beta-263485 are contemporaneous at the .05 level with a pooled average of 5820+/-20 BP; cal. 4765-4606 BC. This provides a fairly accurate bracket for the earliest pithouse occupation of the site. The remaining two dates range from 5990+/-40 to 4320+/-30 BP; cal 4990-2890 BC.

5ME16791
Beta-267651 and Beta-267652 are contemporaneous at the .05 level with a pooled average of 1470+/-35 BP; cal. 541 – 648 AD.

Sites 5GF4351, 5ME16134, 5ME16549, 5ME16175, 5ME16716, 5ME16782, 5ME16783, 5ME16858, 5ME16859 and 5ME948 each produced a single date. These range from ca. 3000 – 2000 BP; cal. 1400 BC to 1 AD. The resultant set of determinations, reduced through pooling, is shown below in Table 2.

Table 6.1-1. Reduced set of Collbran Pipeline Project radiocarbon dates after intra-site contemporaneity tests and subsequent pooling of means and standard errors.

Site Number	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age	Calibrated AD/BC Date
5ME16097 Beta-248418	300±40 BP	-20.9 o/oo	370±40 BP	Cal AD 1440 to AD 1640
5ME113 Beta-267655	410±40 BP	-19.3 o/oo	500±40 BP	Cal AD 1400 to AD 1450
5ME113 Beta-260144	930±40 BP	-22.2 o/oo	980±60 BP	Cal AD 970 to AD 1200
5ME16102 Beta-267640	1240±60 BP	-21.4 o/oo	1300±60 BP	Cal AD 640 to AD 880
5ME113 Beta-260143	1400±40 BP	-21.1 o/oo	1460±40 BP	Cal AD 540 to AD 650
5ME16791 Beta-267651 Beta-267652			1470±35 BP	Cal AD 542 to AD 648
5ME16102 Beta-267638	1500±60 BP	-23.8 o/oo	1520±60 BP	Cal AD 410 to AD 650
5ME16117 Beta-303001	1480±50 BP	-20.5 o/oo	1550±60 BP	Cal AD 390 to AD 640

Site Number	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age	Calibrated AD/BC Date
5ME16129 Beta-267643 Beta-267644			1570±45 BP	Cal AD 405 to AD 591
5ME113 Beta-267635	1650±40 BP	-20.9 o/oo	1720±40 BP	Cal AD 230 to AD 410
5ME16117 Beta-303002	1670±70 BP	–21.7 o/oo	1720±70 BP	Cal AD 130 to AD 520
5ME16549 Beta-267646	1920±40 BP	-21.4 0/00	1980±40 BP	Cal BC 50 to AD 90
5GF4351 Beta-267634	1900±40 BP	-19.6 o/oo	1990±40 BP	Cal BC 60 to AD 80
5GF4337 Beta-267633 Beta-267630 Beta-267631			2030±30 BP	Cal BC 156 to AD 52
5ME948 Beta-267636	1990±60 BP	-20.7 0/00	2060±60 BP	Cal BC 340 to AD 60
5ME16783 Beta-267650	2050±90 BP	-20.0 0/00	2130±90 BP	Cal BC 390 to AD 60
5ME16859 Beta-267654	2100±40 BP	-19.5 o/oo	2190±40 BP	Cal BC 380 to BC 160
5ME16134 Beta-267645	2120±40 BP	-19.7 o/oo	2200±40 BP	Cal BC 380 to BC 170
5ME16105 Beta-267641 Beta-267642			2230±40 BP	Cal BC 387 to BC 203
5GF4337 Beta-267632 Beta-267629			2285±50 BP	Cal BC 411 to BC 201
5ME16784 Beta-263483	2280±60 BP	-21.9 0/00	2340±60 BP	Cal BC 720 to BC 240
5ME16785 Beta-267648 Beta-267647			2425±35 BP	Cal BC 751 to BC 401
5ME16786 Beta-303006	2380±30 BP	-21.3 o/oo	2440±30 BP	Cal BC 750 to BC 410
5ME16102 Beta-267639	2530±50 BP	-21.0 o/oo	2590±50 BP	Cal BC 820 to BC 590

Site Number	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age	Calibrated AD/BC Date
5ME16786 Beta-282180	2530±40 BP	-19.5 o/oo	2620±40 BP	Cal BC 830 to BC 770
5ME16858 Beta-267653	2550±60 BP	-20.6 o/oo	2620±70 BP	Cal BC 910 to BC 550
5ME16786 Beta-303007 Beta-263484			2780±40 BP	Cal BC 1017 to BC 829
5ME16715 Beta-267649	2900±40 BP	-21.0 0/00	2790±40 BP	Cal BC 1360 to BC 1050
5ME16716 Beta-267656	2920±40 BP	-21.9 0/00	2970±40 BP	Cal BC 1360 to BC 1050
5ME16782 Beta-303003	2890±50 BP	-19.3 o/oo	2980±50 BP	Cal BC 1380 to BC 1040
5ME16786 Beta-303008	2950±30 BP	-21.0 o/oo	3020±30 BP	Cal BC 1380 to BC 1200
5ME16784 Beta-303004 Beta-303005			3100±20 BP	Cal BC 1427 to BC 1314
5ME16097 Beta-267637	3620±40 BP	-21.3 0/00	3680±40 BP	Cal BC 2190 to BC 1950
5ME16789 Beta-303011 Beta-303012			3720±20 BP	Cal BC 2197 to BC 2036
5ME16789 Beta-303013	4300±30 BP	-23.8 o/oo	4320±30 BP	Cal BC 3010 to BC 2890
5ME16789 Beta-303014 Beta-263487			4605±30 BP	Cal BC 3501 to BC 3139
5ME16789 Beta-304089 Beta-303009 Beta-303010 Beta-263485			5820±20 BP	Cal BC 4765 to BC 4606
5ME16789 Beta-263486	5910±40 BP	-20.4 o/oo	5990±40 BP	Cal BC 4990 to BC 4790

6.2 Quaternary Geology of Archaeological Sites

There were 41 sites or isolated features affected by the Collbran Pipeline, either previously or newly recorded; 22 of these sites produced 52 radiocarbon ages (cultural and natural) ranging from 370 to 5990 RCYBP (conventional ages; section 6.1). The largest number of these sites were contained in late Holocene loess deposits, chiefly mixed loess and sheet wash (or sheet flow) alluvium, and uncovered during surface blading. The remainder, contained in middle and early late Holocene loess and mixed alluvium, or on the contact between middle and late Holocene deposits, were exposed during trench excavations. The notable gaps (>500 years) in the sequence of ages are between 3130-3680, 3750-4320, and 4610-5740 RCYBP. Gaps of 260-320 years in the sequence are noted between 980-1300, 1720-1980, and 4320-4600 RCYBP. These gaps may represent periods of increased erosion rather than cultural abandonment of the area.

As discussed earlier, there are three late Holocene loess sheet deposits. The upper two sheets contain fewer aged occupations (represented by thirteen ^{14}C ages from six sites) because surface erosion has deflated the deposits at intervals and the hearth features they once contained are generally reduced to thermally altered rock scatters or thin reworked ash and charcoal layers. Only two features from sites 5ME113 and 5ME16097 produced ages in the third late Holocene loess, deposited during the Little Ice Age. Better stabilized and partially protected from surface erosion, eleven ^{14}C dates in the second loess sheet range from 980 to 1720 RCYBP and date components on five sites (5ME113, 5ME16102, 5ME16117, 5ME16129, and 5ME16791; the first site has three ages, and the latter four sites have two ages each).

Archaeological components in the first late Holocene loess deposit are better preserved because of cementation of the deposits that contain them, although many show evidence they were deflated to some degree before burial or during later erosional episodes. Twenty-three ages from fourteen sites range between 1980 and 2790 RCYBP. Five ages come from 5GF4337, four from 5ME16786, and two each from 5ME16105 and 5ME16785. Sites 5GF4351, 5ME948, 5ME16102, 5ME16134, 5ME16549, 5ME16715, 5ME16783, 5ME16784, 5ME16858, and 5ME16859 all produced one age each. Three dates from 5ME16786 (2790, 2760 and 2620 RCYBP) were obtained from a confirmed pit-structure and represent two occupations of the structure. The remaining twenty dates are representative of thermal features of varying types.

Three sites—5ME16716, 5ME16782, and 5ME16789—produced twelve cultural ages on the upper contact of, or within, the middle Holocene loess ranging from 2970 to 5990 RCYBP; 5ME16789 produced ten dates, including the eight oldest ages between 4320 and 5990 RCYBP. Four of these oldest ages are from three confirmed or suspected house pits (5860, 5810 and 4610 and 4600 RCYBP). A date of 2970 RCYBP obtained from site 5ME16716 is from an unidentified feature that evidences features (a possible posthole with jacal) associated with pit structures. The remaining seven radiocarbon dates were obtained from various thermal features–either slab-lined or un-lined. Additionally, site 5ME16786 yielded a radiocarbon date of 3020 RCYBP from what may be an unidentified cultural component, however excavation did not reveal any additional evidence to support definite classification as such.

There are three aspects that need to be considered in the interpretation of the radiocarbon data presented above. First is the archaeological aspect which delimits cultural use of the area, second is the effect of episodic weathering (physical and chemical) in the late Holocene deposits, and third is the bias in discovery affected by pipeline construction. If the data were assumed to represent an unbiased cultural record, the data would point to heavy use between 1980 and 2790 RCYBP and somewhat sporadic use before and after.

However, considering the episodic deposition and erosion noted by Miller (1992; in prep) as well as Chen and Associates (Conner and Langdon 1987), after about 3000 years ago, combined with resultant chemical weathering, the latter part of the record is clearly biased. Numerous surface sites in the region are undated and consist of debitage and scattered heat altered rock that were formerly contained in unconsolidated loess. The increase of datable features associated with the first late Holocene loess is a result of more advanced in-place or syngenetic weathering that has cemented the deposits in place and retarded surface erosion due to deflation.

Another factor that biases discovery in a project like this is how the features are exposed. The initial removal of "topsoil" in the relatively broad swath across the right-of-way normally removes the upper loess deposits exclusively and enhances the discovery of the better preserved cultural deposits in the first late Holocene loess, but deposits older than about 3000 years are normally only exposed in the narrow confines of the trench. The middle Holocene loess was deposited during a prolonged cool/moist interval and oxidation has destroyed the most visible evidence of cultural horizons—dense charcoal and ash—except in large concentrations such as those found in pit houses. It is no accident that the five oldest ages come from confirmed or suspected pit houses (a younger pit house in the first late Holocene loess was also found in the trench).

The cultural implications of the radiocarbon aged features is elusive, but the frequency of ages in more restricted temporal periods is meaningful. The high frequency of ages from components in the first late Holocene loess is due largely to preservation of the loess due to geochemical processes and topsoil removal over the width of the right-of-way. Fewer features or datable horizons above the consolidated first late Holocene loess is due to recent deflation, which removes datable materials, as well as complete or partial removal with the topsoil—the combined deposit is normally less than 20cm thick. Unaged features on sites 5GF4352, 5ME16114, 5ME16548, 5ME16691, 5ME16787, and 5ME16857 were in unconsolidated loess and are less than 2000 years old; most were noted to be poorly preserved. A Late Archaic projectile point found on the surface of 5ME16782 points to deflation of the upper two late Holocene loess deposits and part of the first late Holocene loess deposit as well, and is less than 2500 years old. A large lithic scatter on site 5ME16860, and a mix of lithic and historic materials at sites 5ME16790 and 5ME16133 probably all date to the last several centuries.

These ten sites go a long way to balance the apparent disparity in the frequency of aged cultural deposits in the first late Holocene loess and the later two loess deposits.

Fewer aged features older than about 3000 years ago are a reflection of near complete oxidation of charcoal and ash due to environmental conditions. The lack of Paleoindian sites in buried context results from the same difficulties, but is further complicated by Paleoindian land use patterns and smaller aboriginal populations and hence fewer sites altogether at the time. Surface finds of Paleoindian diagnostics are not uncommon, and some buried sites are known. The discovery of buried Paleoindian sites is also hampered by the simple fact that the pipeline trench in many areas was simply not deep enough to expose the critical deposits of that age.

It should be apparent that any blanket statement that the area was most heavily occupied between 1980 and 2790 RCYBP is not sustainable, not to mention misleading. Any assumption that the environment was better suited for cultural use only at that time is equally hazardous.

What the data do indicate is interesting. As noted above, four of the eight oldest ages in the middle Holocene loess are from confirmed or suspected pit houses, and if the earliest part of the first late Holocene loess is compared, then three of the five oldest ages (2620 to 2790 RCYBP) are from a confirmed pit house. Confirmed house features are documented in sites 5ME16789 (with ages of 4600, 4610, 5810 and 5860 RCYBP) and 5ME16786 (2790, 2760 and 2620 RCYBP). At site 5ME16716 the field records indicate a small amount of jacal from a possible posthole, a charcoal deposit typical of pit house fill, and underlying oxidation which may indicate it was a pit house; the charcoal aged to 2970 RCYBP. It may not have been recognized as a house pit because blading removed critical evidence in the first pass, therefore, given the viewable evidence, it appeared to represent a hearth rather than anything larger.

The three gaps in the radiocarbon record between 3130-3680, 3750-4320, and 4610-5740 RCYBP are difficult to interpret in a cultural sense. They likely represent periods of erosion and not necessarily abandonment of the area by cultural groups. Three additional ^{14}C dates of 3070, 3130, and 3680 were collected from deposits of charcoal and/or ash derived from natural fires and redeposited via water transport; the former two were located within a poorly sorted deposit of slopewash, while the latter date was obtained from a lense of clay substrate. Chen and Associates (Conner and Langdon 1987) note a mudflow event in the Battlement Mesa area some time between about 2800-3200 years ago, followed by an extended period) of dry climate (ca. 1900-2800 years ago). The ash and charcoal that yielded the 3680 date was probably redeposited via a single event of heavy rainfall.

6.3 Architectural Remains

The archaeological monitoring resulted in the identification of two distinct pithouse structures. The one at site 5ME16786 turned out to be of the same type as at 5GF126 – found at Battlement Mesa Community – and yielded essentially the same date, ca. 2770 BP. Unfortunately, the newly found structure had been damaged by trenching for two pipelines, but the archaeological excavation of what remained of the pithouse proved to be fortuitous. Another well defined pithouse was found at 5GF16789 that dated ca. 4660 BP. Three or four potential house pits were identified but disturbance by natural erosion and pipeline construction precluded their complete documentation. These ranged in dates from about 5750 to 6000 BP. These structures had shallow, dish-shaped floors and several had associated storage cists.

6.3.1 Late Archaic Pithouses

This section discusses two pithouse structures located on the benchland area south of the Colorado River roughly between Battlement Mesa Community and the town of De Beque – specifically at sites 5GF126 and 5ME16786. The former was excavated in 1980 during the Battlement Mesa Community Project for Exxon. These two pit-structures exhibit similar morphology and have distinctive associated artifacts. The two sites provide evidence that, by about 2800 years ago, the technology to construct a pithouse was well developed locally.

6.3.1.1 Pithouse at 5GF126, Locus I

In the early 1980's when it was discovered, the 5GF126 pithouse was the first prehistoric pit structure recorded north of the Four Corners Area. Named the Kewclaw Site, it is located on the second river terrace above the Colorado River just north of Eaton Spring, and situated on the nose of a narrow, gently west-sloping, interfluvial ridge at an elevation of 5420 feet. The site was originally identified as two fairly dense artifact concentrations covering an open sage area of about 4500 m^2. The sage flat is bounded by scattered juniper trees.

The site was mapped and surface collected in two loci (I and II), then subsurface tested. Diagnostics recovered from the surface included a knife and projectile point representing Late Prehistoric period. In Locus I, excavations first revealed a hearth feature measuring 80cm x 60cm and having a maximum depth of 10cm (15cm below pgs). The hearth fill contained broken basalt cobbles, ash-stained soils, and charcoal, and the north rim of the hearth held a single vertical basalt slab measuring 40cm x 15cm x 10cm. Radiocarbon taken from the feature fill dated 2500±50 BP.

Excavations below that feature exposed a roughly circular, basin-shaped depression measuring approximately 4.5m in diameter and up to 65cm in depth (Plate 6.3-1). Eight small, shallow holes around and within the perimeter of the pit-house and a single large hole at the center of the floor implied the presence of a superstructure, presumably constructed of wooden poles (Figure 6.3-1). The eight outer holes, designated Features C through J, provided only the barest of outlines; it is probable that other postholes were either missing or unrecognizable due to their shallow nature or to weathering prior to the structure's burial. Features C and D were round, basalt-lined holes measuring 16-18cm and 23-26cm in diameter and 12cm and 10cm deep, respectively. Both were found in the southwest quadrant of the pithouse, 60-80 cm from the rim. Feature E, also within the pithouse's south perimeter, measured 16-21 cm in diameter and 18 cm deep. Feature I was identified in the center of the north half of the structure. Ovoid (32 x 14 cm) in shape and 8 cm deep, this feature contained basalt pieces that may have lined the hole (similar to C and D) or may have been naturally occurring. Features F, G, H, and J, all located along the perimeter of the pithouse, were round to ovoid and ranged from 14-20cm in diameter and 9-14cm deep.

A large, irregular depression was found excavated below the floor level of the pithouse slightly northwest of center. Designated Feature N, the depression measured 85 x 65cm and 12-36cm deep. Within the feature, a hole approximately 28cm in diameter had been excavated to a depth of 90cm below floor level. The fill of the feature differed from that of the rest of the pithouse, the upper portion being brown, sandy/clayey silt and the lower being a very loosely consolidated tan, sandy/clayey silt. The very bottom of the deep hole exhibited a tan, very sandy/pebbly fill. Several explanations of Feature N are possible: a) it may have been the housing for a support post during construction of the superstructure that was subsequently removed; b) it may have housed a permanent support pole and was the first feature filled when the superstructure was destroyed; or c) it may have been dug for storage purposes.

The posthole pattern of the structure is not clearly understood because so few holes were found and a somewhat irregular pattern was present along the south side. Possibly the entryway was located there; or, perhaps it was located along the west side where the floor and slope naturally converge. The postholes along the walls were vertical and indicated vertical positioning of the posts. Had they continued around the circumference of the pithouse at intervals of that between postholes G and F, eight perimeter posts and two doorposts would have been present. From these, horizontal logs could have been laid to a centerpole to complete the superstructure. (A centerpole is one explanation for the large hole found near the center of the structure.) The large perimeter posts and central post could have been juniper, pinyon, or cottonwood--all available in the immediate area. Smaller diameter branches could have been laid to form a roof, then covered with brush and earth. The smaller-diameter material that likely covered the superstructure may have been cut locally from chokecherry brush, which may explain the large amount of chokecherry pollen found on the floor of the feature.

Just east of Feature N was a hearth occupying a shallow, asymmetrically oblong basin dug into the pithouse floor. Designated Feature K, the basin measured 80x55cm and was 8-18cm deep. The southeast portion of the basin had been artificially filled with a tan, very sandy silt prior to construction of a fire in the hearth. The remainder of the basin contained 5-7cm of grey-brown ashy fill and numerous chunks of charcoal as large as 2-3cm across.

Plate 6.3-1. Excavation of the Kewclaw site Pithouse, 5GF126. Outline of pithouse is clearly visible. Archaeologist is working on removing contents of hearth feature. Small post holes are visible on perimeter and large central posthole is located to right of figure's head.

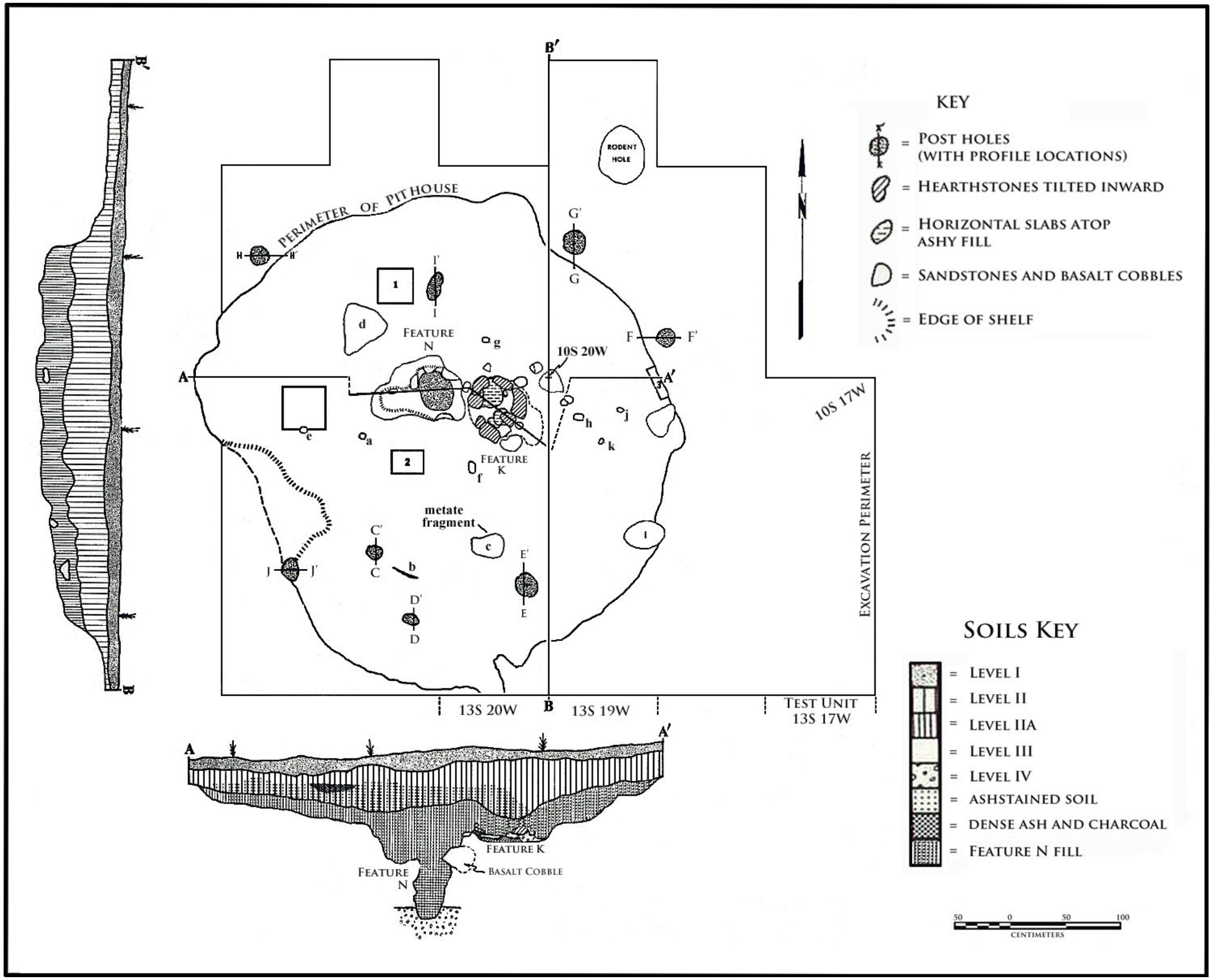

Figure 6.3-1. Plan and profile views of the Kewclaw Site, 5GF126 Locus 1, Feat. 5, Pithouse.

Atop the ashy fill were several basalt slabs, which presumably comprised a cooking surface. Directly atop these slabs was a circle of basalt pieces sloping toward the center. A carbon date of 2770±60 BP was obtained from the charcoal of Feature K.

The majority of portable household artifacts found in situ on the pithouse floor were clustered around features N and K. These included six pieces of groundstone (three manos, a mano fragment, a metate, a metate fragment), two choppers, a fragment of utilized bone (awl-like), a large utilized basalt cobble, and a sandstone slab. A comparison of tool frequencies shows that implements used in floral processing are as common as tools used in hunting and meat processing. An interest in personal adornment and decorative arts is indicated by the presence of bone bead fragments and yellow pigment. Trade with or travel to northwest Colorado-northeast Utah is implied by several gilsonite chunks, a material known to have been used by the later Fremont people to line and waterproof baskets (Wormington 1955:92).

Plate 6.3-2. Projectile points recovered from the pithouse fill included three complete corner- notched projectile points.

Also found on the floor of the pithouse was a large corner-notched projectile point and just 10cm above the original floor, and possibly representing another occupation of the pithouse, were two corner-notched points, both smaller than that from the floor (Plate 6.3.2). One is very similar in outline to the Rose Spring corner-notched arrow point, which is commonly associated with the spread of the bow and arrow; and, its presence suggests that the technology of the bow and arrow may have been introduced to this area much earlier than previously believed. Of course, small points were also used with atlatls (dart throwers), but one of the key indicators of an arrow point is its relatively thinner, lighter nature. The fact that the Rose Spring-like point was found in association with a second projectile – one much broader and thicker with deep corner notches, and clearly a dart point – suggests it was also of that genera.

Evidence has been presented for the coeval use of use of the bow and arrow and atlatl at the stratified Dry Creek Rockshelter in western Idaho on the northeast periphery of the Great Basin (Webster 1980). There, Webster identifies apparent arrow points found in association with dart points as early as 3300 BP, and he notes their use was apparently well established by 2400-1950 BP. He states, however, that they did not become the dominant weapon at that site until ca. 1700 BP. More recent studies of projectile points from dated contexts of sites in the Great Basin indicate the transition from the atlatl to the bow and arrow occurred ca. AD 300-600 (Bettinger and Eerkens 1999; and, Mesoudi and O'Brien 2008).

Importantly, a small, distinctly loaf-shaped sandstone mano was one of the groundstone pieces found on the pithouse floor. It was pecked and ground on all sides to a sub-rectangular (nearly cubic) form (Plate 6.3-3). Similar specimens were observed at Locus II and in local collections. This distinctive mano type is an artifact type that is distinctly diagnostic of these Late Archaic people who occupied the benchlands south of the Colorado River.

Plate 6.3-3. Loaf-shaped manos recovered from 5GF126: Top found on surface, bottom located on pithouse floor.

Pollen samples were obtained from the pithouse floor, as ground stone washes, and from the hearth. Analysis of the samples indicated that the floral food resources most relied upon were the seed producing plants. Predominant was pollen from goosefoot and other pig weeds, which are forbes that produce a pound or more of seeds from a few plants during late summer (for use or storage) and edible greens from early spring to late fall.

Indian rice grass, nightshade, Hackberry, and cactus were washed from the metate found upside down on the pithouse floor. Interestingly, the ricegrass pollen was notably large, suggestive of possible human manipulation. In fact, ricegrass is well suited for such manipulation as are goosefoot and pigweed, because they all grow well in poor or disturbed ground and their large grains are easily harvested.

Identifiable faunal remains from the pithouse included two species of rabbits, mule deer, and a marmot, all of which are common to the area on a year round basis. Deer were probably more prevalent during the late fall and early spring months, although the river corridor would have provided ample forage and cover throughout the year as it does today.

6.3.1.2 Site 5ME16786

The pithouse of site 5ME16786, discovered during monitoring for the Collbran Pipeline, turned out to be the same type and yielded essentially the same date as that found at Battlement Mesa Community site 5GF126. It exhibited no surface cultural manifestations. The lowest component at the site was the floor of a pit structure identified approximately 1.5m below surface. At the time of discovery, it consisted of a faint, lenticular ash stain in the trench wall that measured roughly 3.8m in diameter and up to 40cm in depth. Prior to excavation, the newly found structure was damaged by trenching for a second pipeline located south of and parallel to the first. Despite these disturbances, archaeological excavation of what remained of the pithouse proved to be very fortuitous.

The possibility of interior features was evinced in the trench wall by a faint, basin-shaped anomaly along the floor of the structure. This anomaly was suspected to be the central hearth, and a charcoal sample collected during the monitor was sent to Beta Analytic in Miami, Florida, for processing. The sample yielded a conventional radiocarbon date of 2760±70 BP (Beta No. 263484).

At the time of excavation, the pithouse of 5ME16786 had already been disturbed by two pipeline trenches (Figure 6.3-2; left and right of the illustrated floor remains). Despite the damage, what remained was an arrangement of interior features including two hearths, a storage cyst (or cache) with three manos, and two postholes. A second thermal feature measuring approximately 50cm in diameter and 10cm in depth was excavated near the southeast perimeter of the pit structure and may represent a later occupation because a conventional radiocarbon age of 2620±40 BP (Beta No. 282180) was obtained.

Only a few chipped stone artifacts were found in-situ on the floor. These included three flakes and one composite tool consisting of a burin and spokeshave. Numerous chipped stone artifacts, including a corner-notched projectile point (Plate 6.3-4), were recovered at variable depths above the floor of the structure. The level of recovery for the projectile point appears to be coincident with the hearth feature dating 2620±40 BP (Beta No. 282180). Similar points were recovered from 5GF126 and also the Koch site (5ME635), which is located on the benchland south of DeBeque above the Colorado River. There, five projectile points were collected from the surface, and were associated with a conventional radiocarbon age of 2717±82 BP (Alexander and Martin 1980: 39).

Plate 6.3-4. Corner-notched point recovered from pithouse, 5ME16786.

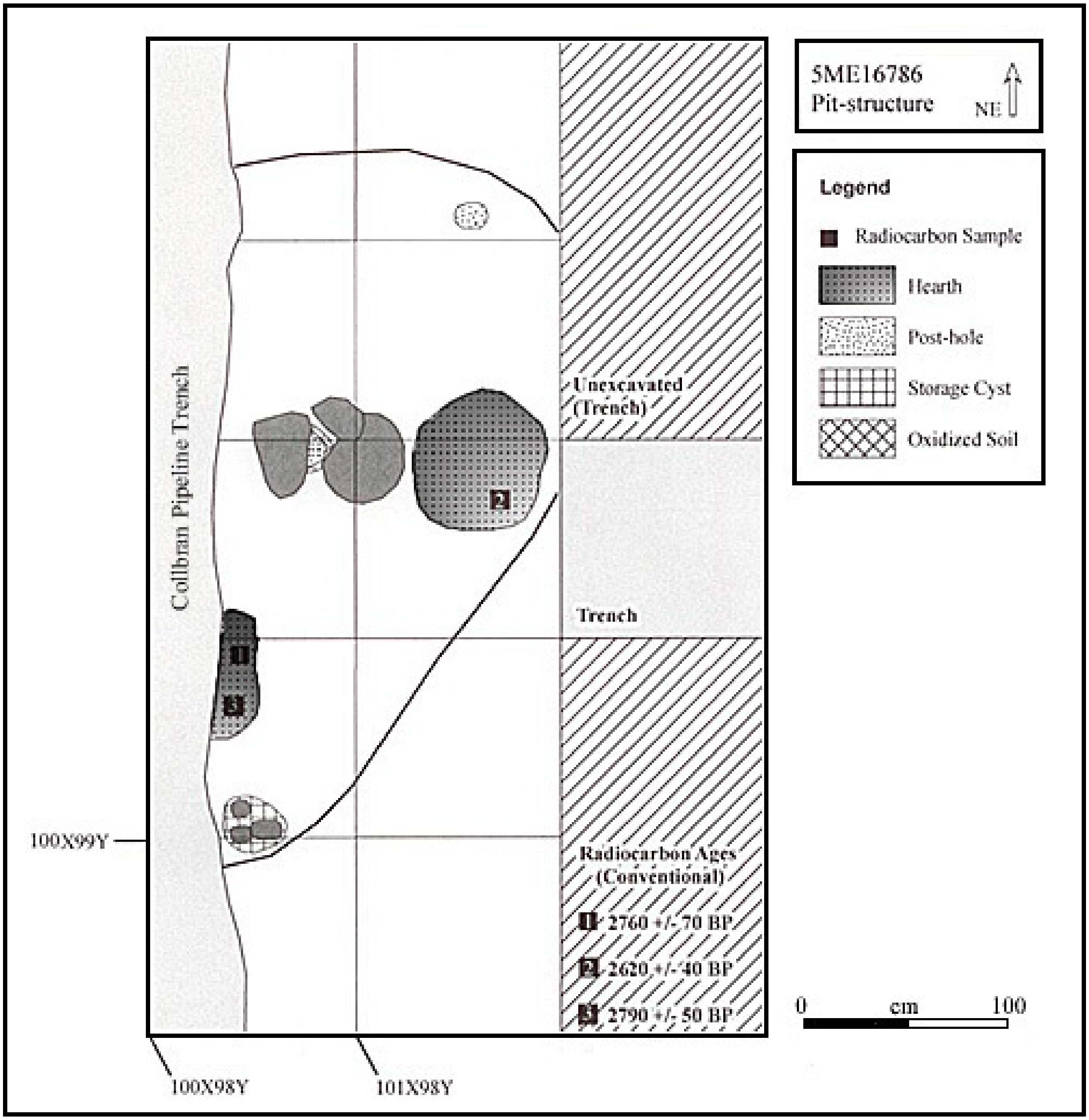

Figure 6.3-2. Schematic of the floor of the pithouse showing the area remaining after disturbance by two pipeline trench excavations.

The majority of the ground stone collected from the interior of the structure was fragmented. Many evinced sharp, jagged fractures indicating exposure to fire. But three very distinctive, complete manos were recovered from a storage cist discovered near the southwest perimeter of the structure. It measured approximately 30cm in diameter and 15cm in depth. The manos are pecked and ground on all four surfaces to produce a sub-rectangular (nearly cubic) form (Plate 6.3-5). Opposite of these distinctive manos an extremely well made, very thin (2cm) metate was recovered from the floor. The edges were pecked to produce an ovoid shape (50x40cm) and the surface was ground as well as pecked to form a thin, slab metate. It exhibits a slightly ground area that corresponds to one of the manos (FS50) found in the cache. The metate also exhibits notching in the center of each side, probably for attaching carrying straps for its transportation (Plate 6.3-6). The metate is cracked across its surface and was probably broken during grinding use. The unmodified bottom of the metate exhibits dark charcoal and ash-staining across its entire surface indicating its possible use as a comal as well, probably after it was broken.

Plate 6.3-5. Manos from pithouse floor cache, 5ME16786.

A pollen sample from sediment underneath the metate grinding surface produced: Amaranthaceae (shadscale), Artemisia (sage), Cupressaceae (juniper), Pinus (pine/pinyon), Sarcobatus (greasewood). Similarly, the pollen wash from the distal grinding surface of the associated matched mano produced: Amaranthaceae, Cupressaceae, and Sarcobatus. Pollen washes from the distal grinding surface of the other two manos from 5ME16786 produced: Artemisia, Cupressaceae, and Asteraceae (sunflower family).

Plate 6.3-6. Metate recovered from the pithouse floor near the hearth feature dating 2760±70 BP. Scale in centimeters.

6.3.2 Diagnostic Groundstone of the Late Archaic

Craft specialization among this Late Archaic culture is represented by probably the most important artifacts found on the pithouse floor of 5GF126 and in a cache in the floor of the 5ME16786 pithouse – a loaf mano shaped like a rectangular block with convex sides (Plate 6.3-7). This artifact type demonstrates a particular skill in pecking. Because it was found at 5GF126 among others which did not exhibit the same level of technological skill, this mano may have been acquired from the surplus production of another person within the group and possibly outside the group that occupied the pithouse. The existence of other such manos in the area suggests that the occupants of the two pithouse were not isolated but rather were part of a cultural group that inhabited the area. Close examination of several of these and several others of this type found in the region was completed by Brian O'Neil. The following summarizes his findings.

Five complete manos and one fragment were analyzed for this study from four sites: 5GF101 (one complete mano surface collection); 5GF126 - (one complete mano from floor of pithouse); 5GF1184 (one fragment from surface); and 5ME16786 - (three complete manos from cache in pithouse). Notably, the manos are all made from heavy, dense materials: four of the manos are orthoquartzite, and two are fine-grained sandstone. The texture on three of the orthoquartzite manos are medium-grained and one is fine grained. All of the grinding faces on all of the five complete manos exhibit extensive dimpling from resharpening.

Three of the complete manos are plano-convex in cross-section, and one is biconvex. Specimen FS50 from 5ME16786 is unique in that it is quadrilateral in cross-section. The fragmentary mano is too small to make an adequate comparative determination. The size range for the complete manos are: Length ranges: 95.7-113.4mm, average 101mm; Width ranges: 80.4-82.7mm, average 81.4mm; and, Thickness ranges: 56.5-84.2mm, average 66.2mm.

The preliminary use-wear analysis indicates that the mano's shape may have been chosen so that a single mano could be used on both a basin metate or a slab metate. The convex proximal side on two of the specimen (5ME16786, FS50 and FS51) exhibit wear patterns associated with a circular grinding motion consistent with a basin metate (Adams, 2002). However, pecking/resharpening of the proximal faces on two of the other manos (5ME16786, FS52 and 5GF126, FS-E386B) may have obliterated much of the circular grinding use wear associated with a basin metate. Conversely, the distal side of all five of the complete manos exhibits a plano-convex grinding surface with a heavy use-wear pattern on the leading and trailing edges of the convexity indicating a push-pull grinding motion consistent with a slab metate.

Metates associated with the pithouses and found near the hearth features are both slab types. However, a basin metate (.s90) was found exposed in the side of a small wash at 5GF109. Testing to recover that metate and to examine the surrounding area revealed no associated cultural materials, but the metate is distinct in the fact that it is notched on two sides for transportation with carrying straps (Plate 6.3-7).

Plate 6.3-7. Shallow basin metate recovered from 5GF109 (.s90), which exhibits side notching for transportation.

6.3.3 Settlement and Subsistence -- Late Archaic

Along the Upper Colorado River, between DeBeque and Dotsero, there is evidence of a well-developed Late Archaic culture characterized by pithouse habitation, associated storage cists, and a subsistence based on the gathering of wild resources. The best evidence of this comes from the pithouses at 5GF126 and 5ME16786. The following discusses the findings at these sites relative to the Late Archaic settlement/subsistence patterns of the region and provides an overview of how these people lived.

The pithouses at 5GF126 and 5ME16786 were apparently isolated on benches above the Colorado River and near secondary water sources. These topographic situations and the isolation of each structure (not within a village orientation) indicates that the structures were so located as to take advantage of good drainage and solar energy. There is nothing to suggest that the sites were selected for defensive purposes. It is probable that there were others in the area that were similarly situated on prominences above the river, adjacent to the numerous spring-fed drainages that emanate from the remnant river terraces.

For a pre-agricultural sedentary group to survive in an area, several dependent conditions are necessary. The climate must be favorable, regularly reliable food resources must exist, and there must be an even distribution of periodic resources. If these are not available within a 10-km radius, then the group must migrate or establish temporary resource procurement camps to obtain those resources (Roper 1979). Within a 10-km radius of 5GF126 is a 4,000' (1220 m) variation in elevation spanning three environmental zones: the Upper Sonoran, transitional, and montane. Most of the lands included in this radius lie within the Upper Sonoran life zone, below about 6500 feet. Here, the sagebrush grassland, pinyon-juniper, and riparian vegetation communities predominate. From about 6500 feet to about 8200 feet is the transitional zone in which the mountain shrub community is dominant. This grades into the montane zone, which supports aspen-spruce and mountain meadow vegetation communities. Mountain shrub communities can also be found in isolated pockets along the creeks, gullies, and springs at lower elevations. The remnant terraces of the Colorado River between De Beque and Dotsero could have provided the basic resource requirements for territorial permanence, given favorable climatic conditions.

Pollen samples from the 5GF126 pithouse were obtained from the floor, as groundstone washes, and from the hearth; Table 6.3-1 lists the plants found in the feature and outlines resource maturation and use. Analysis of the pollen samples indicated that the floral food resources most relied upon were the seed-producing plants. Predominant was pollen from Chenopodium-Amaranthus (goosefoot and other pigweed), forbs which can produce a pound or more of seeds from a few plants during late summer (for use or storage) and edible greens from early spring to late fall.

Indian ricegrass (Oryzopsis), nightshade (Physalis), hackberry (Celtis), and cactus (Opuntia spp.) were washed from the upside-down metate found on the pithouse floor. The ricegrass pollen was notably large, suggestive of possible human manipulation of this plant (seeds and pollen enlarge over time during the domestication process). Ricegrass is well suited for such manipulation (as are goosefoot and amaranth) because it grows well in poor or disturbed ground and its large grains are easily harvested.

The member of the nightshade family, Physalis, identified in the soil beneath the metate is uncertain, but the ground cherry is a likely possibility. The ground cherry produces a small pea-size fruit (that resembles a tomato) in a bladder. The fruit may be eaten raw. A large quantity of Celtis, or hackberry, pollen was found not only in the soil under the metate but also in the wash from Mano A and in the sample taken from the hearth fill. Hackberry, a member of the elm family, is found along streams or in dry canyons locally. It produces a small sweetish yellow to red fruit which is edible raw or when dried it can be ground whole into flour.

The prickly pear cactus produces a fruit which has a thin layer of edible pulp between the rind and the seed. The pulp is sweet and gelatinous and can be scraped away from the rind after removal of the seeds. The pulp can be dried for later use; the seeds can be parched and ground into a meal.

A large quantity of Celtis, or hackberry, pollen was found not only in the soil under the metate but also in the wash from Mano A and in the sample taken from the hearth fill. Hackberry, a member of the elm family, is found along streams or in dry canyons locally. It produces a small sweetish yellow to red fruit which is edible raw or when dried it can be ground whole into flour.

Table 6.3-1. Plant use as indicated from pollen analyses, Feature 5 (pithouse), 5GF126-I

Type/Name	**Sample Provenience**	**Uses and Periods of Use**
	BERRY PLANTS	
Hackberry - Celtis	Mano A , Metate C, and soil beneath Hearth K fill	Berries eaten (mature July-August but also dried for storage)
Chokecherry - Prunus	Mano E, Hearth K slabs, floor sample	Berries eaten (August-Sept.), medicinal uses, wood-utility (yearly)
Nightshade - Physalis	Soil beneath Metate C	Berries eaten (May-August)
Juniper - Juniperus	In pithouse, Hearth K fill 20 cm bpgs - burnt berry	Berries eaten, wood and bark-utility (yearly)

Type/Name	Sample Provenience	Uses and Periods of Use
SEED PLANTS		
Pigweed - Amaranthus	Pithouse floor sample; also, feature above pithouse (10-20cm) dating ca. 2500BP contained burnt seeds	Greens eaten (spring-fall), seeds eaten and used for ceremonial functions (late summer gathering, storage through winter), medicinal
Milkweed - Aclepias	Feature 6, 5GF126, Locus II (hearth float sample) burnt seed (ca. 2550 BP); and, in pithouse Hearth K fill (70 cm bpgs) burnt seed	Flowers, young shoots and leaves eaten (spring), seeds, inner wall of pod eaten (summer-fall), flowers produce brown sugar when boiled (spring), fiber-utility (yearly)
Goosefoot - Chenopodium	Pithouse floor sample; and, feature abv. pithouse (10-20 cm) contained burnt cheno-am seeds dated 2500 BP	Greens eaten (spring-fall), seeds eaten (late summer-early fall), storage through winter
Sulfur flower or Wild Buckwheat - Polygonaceae Eriogonum	Mano E	Seeds and greens eaten (late summer-fall, storage thru winter), herb-medicine (yearly)
Common sunflower - Helianthus	Pithouse floor sample	Seeds eaten, roasted for drink, produce purple dye, head boiled for oil and yellow dye (spring-fall), roots medicinal, fiber-utility (yearly-storage thru winter), cultivated by some historic Indian groups
Flax - Linum	Mano A	Seeds eaten (summer-early fall), fiber-utility, medicinal (yearly)
Mallow - Malvaceal	In pithouse, Hearth K (20 cm b.pgs) burnt seed	Seeds and greens eaten (spring-fall), medicinal
Indian ricegrass - Gaminae Oryzopsis	Metate C and soil beneath	Seeds eaten (May-August), storage
Knotweed - Polygonum Aviculare	Mano E	Greens eaten (spring), seeds and roots eaten, leaves seasoning (Feb.-Nov.)
Groundsel - Senecio	Mano E	Medicinal (matures in summer)

Type/Name	Sample Provenience	Uses and Periods of Use
LEAF PLANTS		
Mint family - Labiatae	Hearth K slabs	Greens eaten (spring-fall), medicinal
Purselane - Portulaea	Mano E, Mano I	Greens eaten (spring-fall
Prickly pear - Opuntia spp.	Mano E, soil beneath metate, Hearth K slabs	Seeds of fruit eaten, fruit and new joints eaten (yearly)

Identifiable faunal remains from the 5GF126 pithouse included two species of rabbits, mule deer, and a marmot, all of which are common to the area on a year-round basis. Deer were probably more prevalent during the late fall to early spring months, although the river corridor would have provided ample forage and cover throughout the year as it does today.

The cool temperate and boreal environmental conditions of the region required that the hunter/gatherers be collectors – storing food for part of the year and organizing into procurement groups (Binford 1980:9,13). It is posited that these groups had a base or "residential" camp near a vital resource (most often water) and established outlying camps where food could be easily procured, processed, and transported back to the main camp (ibid.). The pithouse structures at 5GF126 and 5ME16786 were apparently base camps, but whether they were occupied year-round or reused on a seasonal basis is uncertain.

The degree of sedentariness of the Late Archaic occupants of 5GF126 and 5ME16786 can be assessed by several factors. First, technological sophistication is found in the construction of the pithouses. A level of permanence beyond a single season's occupation can be inferred from the tool crafting specialization in the preparation of the loaf-shaped manos and the large portable metates. The sedentary nature of the this cultural group is also supported by wild plant manipulation as evidenced by the unusually large Indian ricegrass pollen found under the overturned metate on the pithouse floor of 5GF126; because, during the domestication process – which takes a long time – the pollen size gradually increases (Niederberger 1979:140).

The descriptions of the Late Archaic pithouses and their associated diagnostic artifacts in this section best describes what the authors are calling the *Battlement Mesa Complex*.

6.3.4 Middle Archaic Houses

In site 5ME16789, a pithouse (Feature10) was exposed by the pipeline trench at an approximate depth of 120cm below vertical datum. A charcoal sample was obtained in 2009 when the structure was exposed in the trench wall and yielded a conventional radiocarbon date of 4600±40BP (Beta No. 263487). A second radiocarbon date was obtained in 2010 from the floor of the pithouse (Feature 17) and yielded a conventional date of 4610±40BP (Beta No. 303014). During excavation, a roughly circular (approximately 5m diameter), basin-shaped depression (0-15cm) containing a highly patterned arrangement of six floor features (Figure 5.11-5). Chipped stone, ground stone and bone were recovered from the structure.

Evidence suggested that the basin was excavated into the slope on the southeast and northeast perimeter to an approximate depth of 15cm. The pithouse wall depth diminished to the north where the excavated edge was no longer visible. To the northwest, the edge of the floor basin was defined by scattered large rocks that may once have formed part of the northwest wall of the structure. The opening appears to have been placed on its southwestern edge, which was destroyed during trenching activity. However, the profile of the south side of the trench reveals the character of the likely entrance to the shelter. In that profile is an ash stain with two lobes that penetrate the ground to lower levels than the surrounding stain (Figure 5.11-4). This appears to be indicative of pathways exiting the pithouse and the presence of a central post at the entrance (removed by pipeline construction). It is also indicative of an open wall or entry on the southwest side. Metcalf and Reed (2011:77) note finding similarly arranged house pit structures in northwest Colorado:

> Similar in some ways to the NN House, a number of project area house pits were noted to have incomplete walls or walls that were only defined by a low lip, most often on the downhill sides. Many of the project house pits were built into slopes, with the back wall cut more steeply into the slope deposits in order to achieve a flat floor, a characteristic also noted by Shields (1998:82) for houses in this area. The creation of a flat floor apparently often resulted in this lack of a defined wall on the downhill side, and thus archaeologists have sometimes proposed that entrances were on the downhill side of such house pits. A downhill entrance was specifically suggested for the 44 House at site 5MF2990, the Blue Knife Site house pit (5MF3198), Feature 1 at the Vortex Site (5MF3587), Structure B at Mouse House Site (5MF6175), and Feature 15 at site 5MF6255.

Metcalf and Reed (ibid.) then go on to state the NN pithouse "may then be similar to a Havasupai three-sided or double lean-to structure depicted in the Handbook of North American Indians, Southwest, Vol. 10 (Schwartz 1983, Figure 42). In the photograph [shown in this report as Plate 6.3-8], the lean-to is an open, three-sided shelter with a forked tree trunk or branch used as a center support. Walls are brush, with dirt mounded around their base. It appears there may be an interior hearth [set off-center]. The open work area in front of the shelter is flat and closely matches the floor elevation under the shelter." Notably, there appears to be two areas of smoke indicating two fire pits within the shelter.

Importantly, the fragment of the diagnostic projectile point found with the 5ME16789 pithouse is an Elko type, which implies cultural influence from the Great Basin. Subsequent occupations in the region, as that identified in the McClane Rockshelter, indicates influence

Plate 6.3-8. Three-sided lean-to structure characterized as a "double lean-to" that was utilized at Havasupai and depicted in the Handbook of North American Indians, Southwest, Vol. II (Schwartz 1983, Figure 42).

from the Plains and Northern Rocky Mountains by McKean Complex groups (Berry et al. 2013). Three levels within that shelter dating between ca. 4500-3000BP exhibited characteristics of house pit structures found in open sites by the arrangement of thermal and storage features. Winter occupation is suspected for these three earliest habitations, which were likely facilitated by the construction of a pole or brush wall around the perimeter of the overhang.

6.4 Paleoclimate and Settlement Patterns

This section examines the effects of paleoclimatic conditions on prehistoric occupations. However, it is recognized that the prehistoric occupation of an area was not based exclusively on environmental variation but on social and economic factors of the cultural groups present (Dean et al. 1985:537-538).

Investigations of prehistoric cultures and geoclimatic and bioclimatic conditions on the Colorado Plateau indicate that cultural and demographic change coincided with environmental fluctuations (Euler et al. 1979:1089). Using information gathered from Black Mesa, Mesa Verde, Navajo Reservoir, and Canyon de Chelly, Euler et al. concluded that prehistoric Puebloan populations moved to higher elevations or down along major drainages during dry periods. In wetter times, these people moved into the canyonlands and other low areas, where surface water supplies are normally scant during dry times (ibid:1097-1098). A similar pattern was likely exhibited in the settlement/subsistence patterns of the Archaic populations.

Simply, fluctuations in effective moisture vary and are cyclic. Minor fluctuations – although they have little effect on the vertical displacement of less sensitive floral communities or species such as juniper, greasewood, saltbush, and sagebrush – greatly affect both the number and variety of grasses and forbs that are available. An increase in effective moisture would have caused an expansion of the grasslands and an increase in the carrying capacity of the valleys for the humans and the large game they hunted. O'Connell (1975:22), from his excavations in the Western Great Basin, stated that grass seeds were probably the most important summer food resource for prehistoric collectors and may have provided a basis for the development of semi-sedentary or sedentary lifestyles during extended moist periods or times of reliable summer precipitation. Regionally, Glade Hadden reports for sites in the Douglas Creek drainage, the seeds in greatest abundance in hearth features used for parching were Cheno-Ams [goosefoot and amaranth] (Hauck 1993:263-294).

Dry periods of long duration generally result in the upward vertical displacement of montane vegetation and pinyon pine forestation; in the valleys, greasewood-saltbush communities spread and encroach upon sagebrush-floral communities. Extreme shifts in vegetation show up in the pollen record. One of the best indicators of such changes is the contrasting pollen counts of pinyon and juniper: warmer, drier periods are marked by increased juniper pollen, while cooler, moister periods are represented by a higher percentage of pine pollen (Euler et al. 1979:1095).

The seed-bearing forbs and grasses, on which the prehistoric people around the base of Battlement Mesa are thought to have depended, cross-cut several environmental zones (between 4500 ft and 9000 ft) and are very sensitive to effective moisture. During wet periods, the availability of this narrow range of plant foods at lower elevations in the summer may have obviated seasonal migration. Drier episodes would have required the hunter-gatherer to be seasonally migratory – to exploit the higher elevations for seeds in the summer and the lower elevations (where the food gathering period is extended) in late fall to early spring. Natural shelters, such as rockshelters, would have better served a transient people during drier times. Extremely dry periods would have pushed the migratory cycle into higher elevations altogether (above 7000 feet) and may even have allowed territorial permanence there. Thus, times of greatest movement of populations probably occurred during transitional, moderately dry episodes.

6.5 Conclusions

In review of these finding, several indications are of note. The first and most obvious is that various styles of houses (pithouses, house pits, sheltered houses and surface structures) were constructed throughout the Archaic occupation of the mountains of Colorado. All were sophisticated and involved a commitment in time and effort, and exhibit a multi-generational knowledge base. These Archaic sites with substantial architecture likely functioned as base camps that were used year-round or at least for most of a year. This is where food was stored, where women, children and the infirm were positioned, and from which resource gathering forays were staged. It also appears that most represent a hamlet type orientation for sheltering small groups. Many of these house localities exhibit reoccupation over hundreds of years. This implies periodic abandonment or shifts in base cap locations in response to environmental conditions.

The finds from regional, early Middle Archaic houses (ca. 5000-4000 RCYBP) have included obsidian from sources located as far away as New Mexico and Idaho, which indicates either a sophisticated trade network or long distance travel during that time. Similarly, the Late Archaic pithouses of the Battlement Mesa Complex have evidence of trade for or resource procurement of Gilsonite [non-trademarked mineral name is uintaite or uintahite], a form of natural asphalt found only in the Uintah Basin of Utah. It is a product the aboriginals heated and used to line baskets.

Seed-based procurement, processing and likely manipulation of cheno-ams and Indian ricegrass is central to the proposed sedentary economies of the Archaic period. Additionally, the reliance on these seed plants and the methods of manipulation likely contributed to the acceptance, dispersal and development of high altitude maize during the Late Archaic-Early Formative transition.

In summary, the debates over the various types of hunter-gatherer methods of procurement strategies typically involve two culturally defined types: residentially mobile foragers, a term that applies to mobile groups that rely on seasonal rounds, and logistically mobile collectors, a term for sedentary or semi-sedentary groups who relied on, manipulated and stored seed resources. The return to a seasonal-round strategy for a collector based culture during environmental extremes is insufficient to describe the latter's response to dramatic changes in effective moisture. Their abandonment and reestablishment of a base camp in response to resource depletion or environmental change was a horizontal movement to a similar environmental niche for the former and a vertical movement in elevation for the latter. That is, during dry periods the Archaic collector moved to higher elevations or down along permanent drainages, and during wet periods movement was to the lower elevations near secondary water sources (springs, small drainage catchments, etc.). Such would be in response to the increased ground water and seed resources there, along with an associated increase in faunal resources. Seasonal vertical movement between the higher and lower elevations was probably greater during periods of dry extremes.

The description for the Late Archaic sedentary culture – the Battlement Mesa Complex – fits well the elusive Basketmaker I category, the original Pecos classification for Ancestral Puebloans. However, it is best to move away from defining the regional Archaic cultures according to either the Great Basin (i.e. the Stewardian model) or Southwest classifications, and refocus on the Mountain Tradition concepts proposed by Kevin Black (1991).

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APPENDIX A: Radiocarbon Results

Table A-1. List of radiocarbon dates derived from sites along the Collbran Pipeline that were monitored, tested, or subject to data retrieval.

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age	Calibrated AD/BC Date
5GF4337. F3 Beta-267629	2320±80 BP	-21.1 0/00	2380±80 BP	Cal BC 770 to BC 240
5GF4337. F7 Beta-267630	2040±60 BP	-21.1 0/00	2100±60 BP	Cal BC 360 to AD 20
5GF4337. F8 Beta-267631	1930±60 BP	-22.1 0/00	1980±60 BP	Cal BC 150 to AD 130
5GF4337. F12 Beta-267632	2150±60 BP	-20.2 o/oo	2230±60 BP	Cal BC 400 to BC 160
5GF4337. F14 Beta-267633	1960±50 BP	-21.1 0/00	2020±50 BP	Cal BC 170 to AD 80
5GF4351. FISO Beta-267634	1900±40 BP	-19.6 o/oo	1990±40 BP	Cal BC 60 to AD 80
5ME113. F1 Beta-260143	1400±40 BP	-21.1 o/oo	1460±40 BP	Cal AD 540 to AD 650
5ME113. F2 Beta-260144	930±40 BP	-22.2 o/oo	980±60 BP	Cal AD 970 to AD 1200
5ME113. F3 Beta-267655	410±40 BP	-19.3 o/oo	500±40 BP	Cal AD 1400 to AD 1450
5ME113. F4 Beta-267635	1650±40 BP	-20.9 o/oo	1720±40 BP	Cal AD 230 to AD 410
5ME948. Fl Beta-267636	1990±60 BP	-20.7 0/00	2060±60 BP	Cal BC 340 to AD 60
5ME16097. F3 Beta-267637	3620±40 BP	-21.3 0/00	3680±40 BP	Cal BC 2190 to BC 1950
5ME16097. F4 Beta-248418	300±40 BP	-20.9 o/oo	370±40 BP	Cal AD 1440 to AD 1640
5ME16102. F5 Beta-267638	1500±60 BP	-23.8 o/oo	1520±60 BP	Cal AD 410 to AD 650
5ME16102. F9 Beta-267639	2530±50 BP	-21.0 o/oo	2590±50 BP	Cal BC 820 to BC 590
5ME16102. F14 Beta-267640	1240±60 BP	-21.4 o/oo	1300±60 BP	Cal AD 640 to AD 880
5ME16105. F2 Beta-267641	2190±60 BP	-23.4 o/oo	2220±60 BP	Cal BC 400 to BC 110

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age	Calibrated AD/BC Date
5ME16105. F3 Beta-267642	2170±50 BP	-21.2 o/oo	2240±50 BP	Cal BC 400 to BC 180
5ME16117.15 Beta-303001	1480±50 BP	-20.5 o/oo	1550±60 BP	Cal AD 390 to 640
5ME16117.16 Beta-303002	1670±70 BP	–21.7 o/oo	1720±70 BP	Cal AD 130 to 440 Cal AD 490 to 520
5ME16129. Fl Beta-267643	1560±70 BP	-20.9 o/oo	1630±70 BP	Cal AD 250 to AD 580
5ME16129. F5 Beta-267644	1440±60 BP	-19.6 o/oo	1530±60 BP	Cal AD 410 to AD 640
5ME16134. F6 Beta-267645	2120±40 BP	-19.7 o/oo	2200±40 BP	Cal BC 380 to BC 170
5ME16549. FIS Beta-267646	1920±40 BP	-21.4 0/00	1980±40 BP	Cal BC 50 to AD 90
5ME16715. FIS Beta-267649	2900±40 BP	-21.0 0/00	2790±40 BP	Cal BC 1360 to BC 1050
5ME16716. F5 Beta-267656	2920±40 BP	-21.9 0/00	2970±40 BP	Cal BC 1360 to BC 1050
5ME16782.3F1 Beta-303003	2890±50 BP	-19.3 o/oo	2980±50 BP	Cal BC 1380 to 1040
5ME16783. FIS Beta-267650	2050±90 BP	-20.0 0/00	2130±90 BP	Cal BC 390 to AD 60
5ME16784.F1 Beta-263483	2280±60 BP	-21.9 0/00	2340±60 BP	Cal BC 720 to BC 700 Cal BC 540 to BC 360 Cal BC 290 to BC 240
5ME16784.CS1 Beta-303004	3020±30 BP	-21.9 o/oo	3070±30 BP	Cal BC 1410 to 1270
5ME16784.CS2 Beta-303005	3070±30 BP	-21.2 o/oo	3130±30 BP	Cal BC 1450 to 1380 Cal BC 1330 to 1330
5ME16785. Fl Beta-267647	2430±60 BP	-21.9 o/oo	2480±60 BP	Cal BC 790 to BC 400
5ME16785. F2 Beta-267648	2310±40 BP	-19.4 0/00	2400±40 BP	Cal BC 740 to BC 390
5ME16786.F1 Beta-282180	2530±40 BP	-19.5 o/oo	2620±40 BP	Cal BC 830 to 770
5ME16786.F2 Beta-263484	2710±60 BP	-21.5 o/oo	2760±70 BP	Cal BC 1080 to BC 800

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age	Calibrated AD/BC Date
5ME16786.CS1 Beta-303006	2380±30 BP	-21.3 o/oo	2440±30 BP	Cal BC 750 to 680 Cal BC 670 to 610 Cal BC 600 to 410
5ME16786.CS12 Beta-303007	2730±50 BP	-21.3 o/oo	2790±50 BP	Cal BC 1050 to 820
5ME16786.CS18 Beta-303008	2950±30 BP	-21.0 o/oo	3020±30 BP	Cal BC 1380 to 1200
5ME16789.F2 Beta-263485	5810±40 BP	-24.9 o/oo	5810±40 BP	Cal BC 4770 to BC 4550
5ME16789.F3 Beta-263486	5910±40 BP	-20.4 o/oo	5990±40 BP	Cal BC 4990 to BC 4790
5ME16789.CS2 Beta-303009	5810±40 BP	-22.0 o/oo	5860±40 BP	Cal BC 4800 to BC 4600 Cal BC 4640 to BC 4620
5ME16789.CS3 Beta-303010	5680±40 BP	-20.4 o/oo	5740±40 BP	Cal BC 4700 to BC 4490
5ME16789.911 Beta-304089	5790±40 BP	-21.0 o/oo	5860±40 BP	Cal BC 4800 to BC 4670 Cal BC 4640 to BC 4620
5ME16789.F10 Beta-263487	4540±40 BP	-21.4 o/oo	4600±40 BP	Cal BC 3500 to BC 3430 Cal BC 3380 to BC 3340 Cal BC 3210 to BC 3190
5ME16789.2-1 Beta-303011	3690±30 BP	-21.6 o/oo	3750±30 BP	Cal BC 2280 to 2250 Cal BC 2220 to 2120 Cal BC 2090 to 2040
5ME16789.2-2 Beta-303012	3640±30 BP	-22.0 o/oo	3690±30 BP	Cal BC 2190 to 2180 Cal BC 2140 to 2010 Cal BC 2000 to 1980
5ME16789.2-3 Beta-303013	4300±30 BP	-23.8 o/oo	4320±30 BP	Cal BC 3010 to 2970 Cal BC 2960 to 2890
5ME16789.2-8 Beta-303014	4540±40 BP	-20.5 o/oo	4610±40 BP	Cal BC 3510 to 3420 Cal BC 3380 to 3340
5ME16791. CL1 Beta-267651	1380±60 BP	-20.8 o/oo	1450±60 BP	Cal AD 450 to AD 670
5ME16791. CL2 Beta-267652	1420±40 BP	-21.1 0/00	1480±40 BP	Cal AD 540 to AD 650
5ME16858. F2 Beta-267653	2550±60 BP	-20.6 o/oo	2620±70 BP	Cal BC 910 to BC 550
5ME16859. FIS Beta-267654	2100±40 BP	-19.5 o/oo	2190±40 BP	Cal BC 380 to BC 160

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Mr. Ronald Hatfield
Mr. Christopher Patrick
Deputy Directors

The Radiocarbon Laboratory Accredited to ISO-17025 Testing Standards (PJLA Accreditation #59423)

Final Report

The final report is accessed as a PDF via a secure personal directory on our website. UserID and password are initially provided to you, which you can change to values of your choosing (letters and numbers only). A mailed copy is also sent to you including a statement outlining our analytical procedures, a glossary of pretreatment terms, calendar calibration information, and billing documents. In addition to the analytical result, the final report sheet includes the individual analysis method, the delivery basis, the material type and the individual pretreatments applied.

Pretreatment

Pretreatment methods are reported along with each result. All necessary chemical and mechanical pretreatments of the submitted material were applied at the laboratory to isolate the carbon, which may best represent the time event of interest. When interpreting the results, it is important to consider the pretreatments. Some samples cannot be fully pretreated, making their ^{14}C ages more subjective than samples, which can be fully pretreated. Some materials receive no pretreatments. Please look at the pretreatment indicated for each sample and read the pretreatment glossary to understand the implications.

Analysis

Results reported using the AMS technique were derived from reduction of sample carbon (after pretreatment) to graphite (100 %C), along with standards and backgrounds, with subsequent detection in one of two AMS instruments here in our facilities. Results reported using the radiometric technique were analyzed by synthesizing sample carbon (after pretreatment) to benzene (92% C), measuring for ^{14}C content in one of 53 scintillation spectrometers. If the Extended Counting Service was used, the ^{14}C content was measured for a greatly extended period of time.

The Radiocarbon Age and Calendar Calibration

The Conventional ^{14}C Age and related "percent modern carbon" (pMC) is the result after applying $^{13}C/^{12}C$ corrections to account for isotopic fractionation differences between the sample and modern reference. Always cite both this age and the 13C/12C ratio in your reports and papers (as well as the laboratory number). The Conventional Radiocarbon Age is cited with the units "BP" (Before Present). "Present" is defined as AD 1950 for the purposes of radiocarbon dating. Results are reported as pMC for samples containing more ^{14}C than the modern reference standard. pMC results indicate the material was respiring carbon after the advent of thermo-nuclear weapons testing and is less than ~ 60 years old.

Calendar calibrations are included for applicable materials. If calibrations are not included for a result, it means it was too young, too old, or inappropriate for calibration. The calibration database and mathematics used are cited at the bottom of each calibration printout. The most appropriate approximation of age is the "2 sigma calibrated result". Be sure to cite this as well as the calibration database and mathematics used in your reports and papers.

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Calendar Calibration at Beta Analytic

Calibrations of radiocarbon age determinations are applied to convert BP results to calendar years. The short-term difference between the two is caused by fluctuations in the heliomagnetic modulation of the galactic cosmic radiation and, recently, large scale burning of fossil fuels and nuclear devices testing. Geomagnetic variations are the probable cause of longer-term differences.

The parameters used for the corrections have been obtained through precise analyses of hundreds of samples taken from known-age tree rings of oak, sequoia, and fir up to about 10,000 BP. Calibration using tree-rings to about 12,000 BP is still being researched and provides somewhat less precise correlation. Beyond that, up to about 20,000 BP, correlation using a modeled curve determined from U/Th measurements on corals is used. This data is still highly subjective. Calibrations are provided up to about 19,000 years BP using the most recent calibration data available.

The Pretoria Calibration Procedure (Radiocarbon, Vol 35, No.1, 1993, pg 317) program has been chosen for these calendar calibrations. It uses splines through the tree-ring data as calibration curves, which eliminates a large part of the statistical scatter of the actual data points. The spline calibration allows adjustment of the average curve by a quantified closeness-of-fit parameter to the measured data points. A single spline is used for the precise correlation data available back to 9900 BP for terrestrial samples and about 6900 BP for marine samples. Beyond that, splines are taken on the error limits of the correlation curve to account for the lack of precision in the data points.

In describing our calibration curves, the solid bars represent one sigma statistics (68% probability) and the hollow bars represent two sigma statistics (95% probability). Marine carbonate samples that have been corrected for $^{13}C/^{12}C$, have also been corrected for both global and local geographic reservoir effects (as published in Radiocarbon, Volume 35, Number 1, 1993) prior to the calibration. Marine carbonates that have not been corrected for $^{13}C/^{12}C$ are adjusted by an assumed value of 0 %0 in addition to the reservoir corrections. Reservoir corrections for fresh water carbonates are usually unknown and are generally not accounted for in those calibrations. In the absence of measured $^{13}C/^{12}C$ ratios, a typical value of -5 %0 is assumed for freshwater carbonates.

(Caveat: the correlation curve for organic materials assume that the material dated was living for exactly ten years (e.g. a collection of 10 individual tree rings taken from the outer portion of a tree that was cut down to produce the sample in the feature dated). For other materials, the maximum and minimum calibrated age ranges given by the computer program are uncertain. The possibility of an "old wood effect" must also be considered, as well as the potential inclusion of younger or older material in matrix samples. Since these factors are in determinant error in most cases, these calendar calibration results should be used only for illustrative purposes. In the case of carbonates, reservoir correction is theoretical and the local variations are real, highly variable and dependent on provenience. Since imprecision in the correlation data beyond 10,000 years is high, calibrations in this range are likely to change in the future with refinement in the correlation curve. The age ranges and especially the intercept ages generated by the program must be considered as approximations.)

PRETREATMENT GLOSSARY
Standard Pretreatment Protocols at Beta Analytic

Unless otherwise requested by a submitter or discussed in a final date report, the following procedures apply to pretreatment of samples submitted for analysis. This glossary defines the pretreatment methods applied to each result listed on the date report form (e.g. you will see the designation "acid/alkali/acid" listed along with the result for a charcoal sample receiving such pretreatment).

Pretreatment of submitted materials is required to eliminate secondary carbon components. These components, if not eliminated, could result in a radiocarbon date, which is too young or too old. Pretreatment does not ensure that the radiocarbon date will represent the time event of interest. This is determined by the sample integrity. Effects such as the old wood effect, burned intrusive roots, bioturbation, secondary deposition, secondary biogenic activity incorporating recent carbon (bacteria) and the analysis of multiple components of differing age are just some examples of potential problems. The pretreatment philosophy is to reduce the sample to a single component, where possible, to minimize the added subjectivity associated with these types of problems. If you suspect your sample requires special pretreatment considerations be sure to tell the laboratory prior to analysis.

"acid/alkali/acid"

The sample was first gently crushed/dispersed in deionized water. It was then given hot HCI acid washes to eliminate carbonates and alkali washes (NaOH) to remove secondary organic acids. The alkali washes were followed by a final acid rinse to neutralize the solution prior to drying. Chemical concentrations, temperatures, exposure times, and number of repetitions, were applied accordingly with the uniqueness of the sample. Each chemical solution was neutralized prior to application of the next. During these serial rinses, mechanical contaminants such as associated sediments and rootlets were eliminated. This type of pretreatment is considered a "full pretreatment". On occasion the report will list the pretreatment as "acid/alkali/acid - insolubles" to specify which fraction of the sample was analyzed. This is done on occasion with sediments (See "acid/alkali/acid - solubles"

Typically applied to: charcoal, wood, some peats, some sediments, and textiles "acid/alkali/acid - solubles"

On occasion the alkali soluble fraction will be analyzed. This is a special case where soil conditions imply that the soluble fraction will provide a more accurate date. It is also used on some occasions to verify the present/absence or degree of contamination present from secondary organic acids. The sample was first pretreated with acid to remove any carbonates and to weaken organic bonds. After the alkali washes (as discussed above) are used, the solution containing the alkali soluble fraction is isolated/filtered and combined with acid. The soluble fraction, which precipitates, is rinsed and dried prior to combustion.

"acid/alkali/acid/cellulose extraction"

Following full acid/alkali/acid pretreatments, the sample is bathed in (sodium chlorite) $NaClO_2$ under very controlled conditions (Ph = 3, temperature = 70 degrees C). This eliminates all components except wood cellulose. It is useful for woods that are either very old or highly contaminated.

Applied to: wood

"acid washes"

Surface area was increased as much a possible. Solid chunks were crushed, fibrous materials were shredded, and sediments were dispersed. Acid (HCI) was applied repeatedly to ensure the absence of carbonates. Chemical concentrations, temperatures, exposure times, and number of repetitions, were applied accordingly with the uniqueness of each sample. The sample was not be subjected to alkali washes to ensure the absence of secondary organic acids for intentional reasons. The most common reason is that the primary carbon is soluble in the alkali. Dating results reflect the total organic content of the analyzed material. Their accuracy depends on the researcher's ability to subjectively eliminate potential contaminants based on contextual facts.

Typically applied to: organic sediments, some peats, small wood or charcoal, special cases

PRETREATMENT GLOSSARY
Standard Pretreatment Protocols at Beta Analytic
(Continued)

"collagen extraction: with alkali" or "collagen extraction: without alkali"

The material was first tested for friability ("softness"). Very soft bone material is an indication of the potential absence of the collagen fraction (basal bone protein acting as a "reinforcing agent" within the crystalline apatite structure). It was then washed in de-ionized water, the surface scraped free of the outer most layers and then gently crushed. Dilute, cold HCl acid was repeatedly applied and replenished until the mineral fraction (bone apatite) was eliminated. The collagen was then dissected and inspected for rootlets. Any rootlets present were also removed when replenishing the acid solutions. "With alkali" refers to additional pretreatment with sodium hydroxide (NaOH) to ensure the absence of secondary organic acids. "Without alkali" refers to the NaOH step being skipped due to poor preservation conditions, which could result in removal of all available organics if performed.

Typically applied to: bones

"acid etch"

The calcareous material was first washed in de-ionized water, removing associated organic sediments and debris (where present). The material was then crushed/dispersed and repeatedly subjected to HCl etches to eliminate secondary carbonate components. In the case of thick shells, the surfaces were physically abraded prior to etching down to a hard, primary core remained. In the case of porous carbonate nodules and caliches, very long exposure times were applied to allow infiltration of the acid. Acid exposure times, concentrations, and number of repetitions, were applied accordingly with the uniqueness of the sample.

Typically applied to: shells, caliches, and calcareous nodules

"neutralized"

Carbonates precipitated from ground water are usually submitted in an alkaline condition (ammonium hydroxide or sodium hydroxide solution). Typically this solution is neutralized in the original sample container, using deionized water. If larger volume dilution was required, the precipitate and solution were transferred to a sealed separatory flask and rinsed to neutrality. Exposure to atmosphere was minimal.

Typically applied to: Strontium carbonate, Barium carbonate
(i.e. precipitated ground water samples)

"carbonate precipitation"

Dissolved carbon dioxide and carbonate species are precipitated from submitted water by complexing them as ammonium carbonate. Strontium chloride is added to the ammonium carbonate solution and strontium carbonate is precipitated for the analysis. The result is representative of the dissolved inorganic carbon within the water. Results are reported as "water DIC".

Applied to: water

"solvent extraction"

The sample was subjected to a series of solvent baths typically consisting of benzene, toluene, hexane, pentane, and/or acetone. This is usually performed prior to acid/alkali/acid pretreatments.

Applied to: textiles, prevalent or suspected cases of pitch/tar contamination, conserved materials.

"none"

No laboratory pretreatments were applied. Special requests and pre-laboratory pretreatment usually accounts for this.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.1:lab. mult=1)

Laboratory number: **Beta-267629**

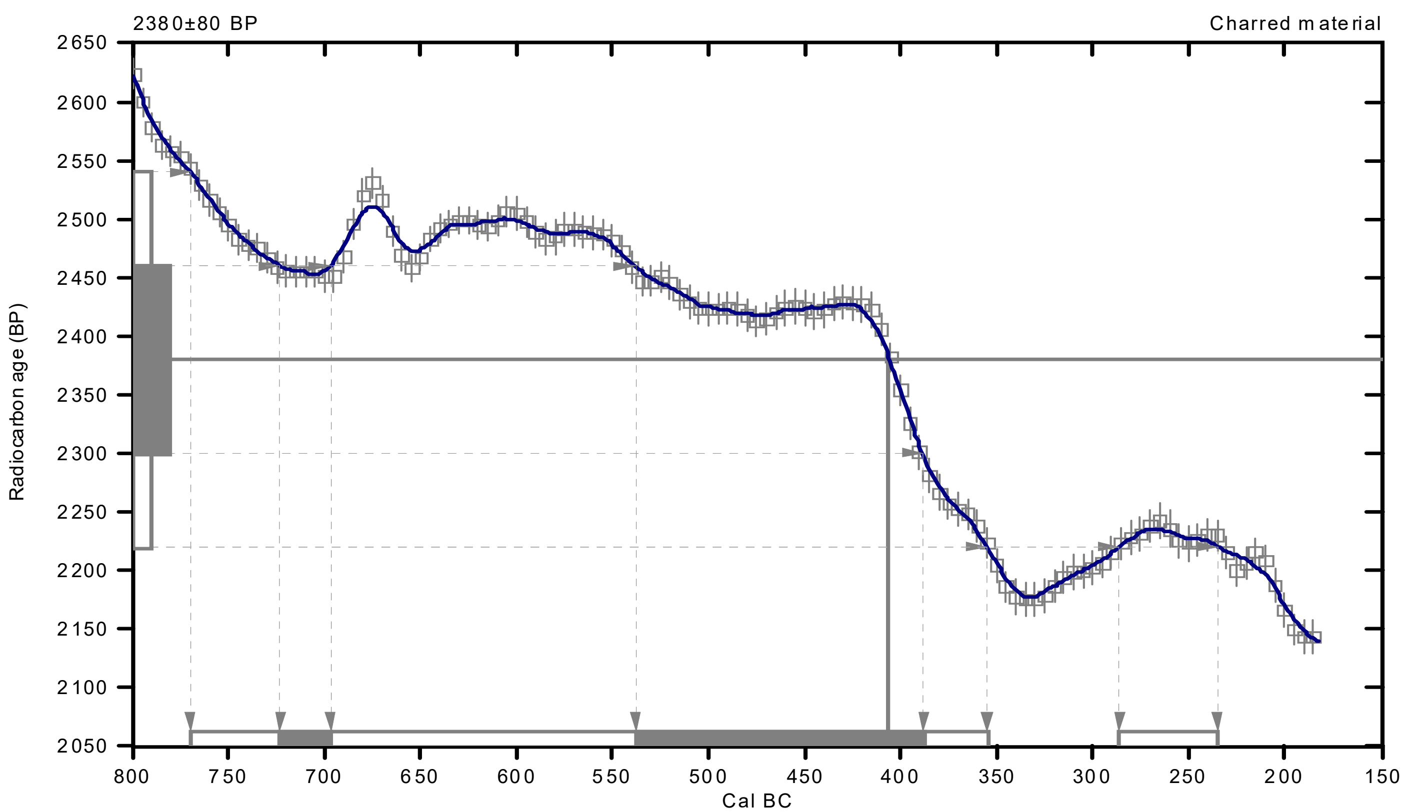
Conventional radiocarbon age: **2380±80 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 770 to 360 (Cal BP 2720 to 2300) and Cal BC 290 to 240 (Cal BP 2240 to 2180)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 410 (Cal BP 2360)

1 Sigma calibrated results: (68% probability) Cal BC 720 to 700 (Cal BP 2670 to 2650) and Cal BC 540 to 390 (Cal BP 2490 to 2340)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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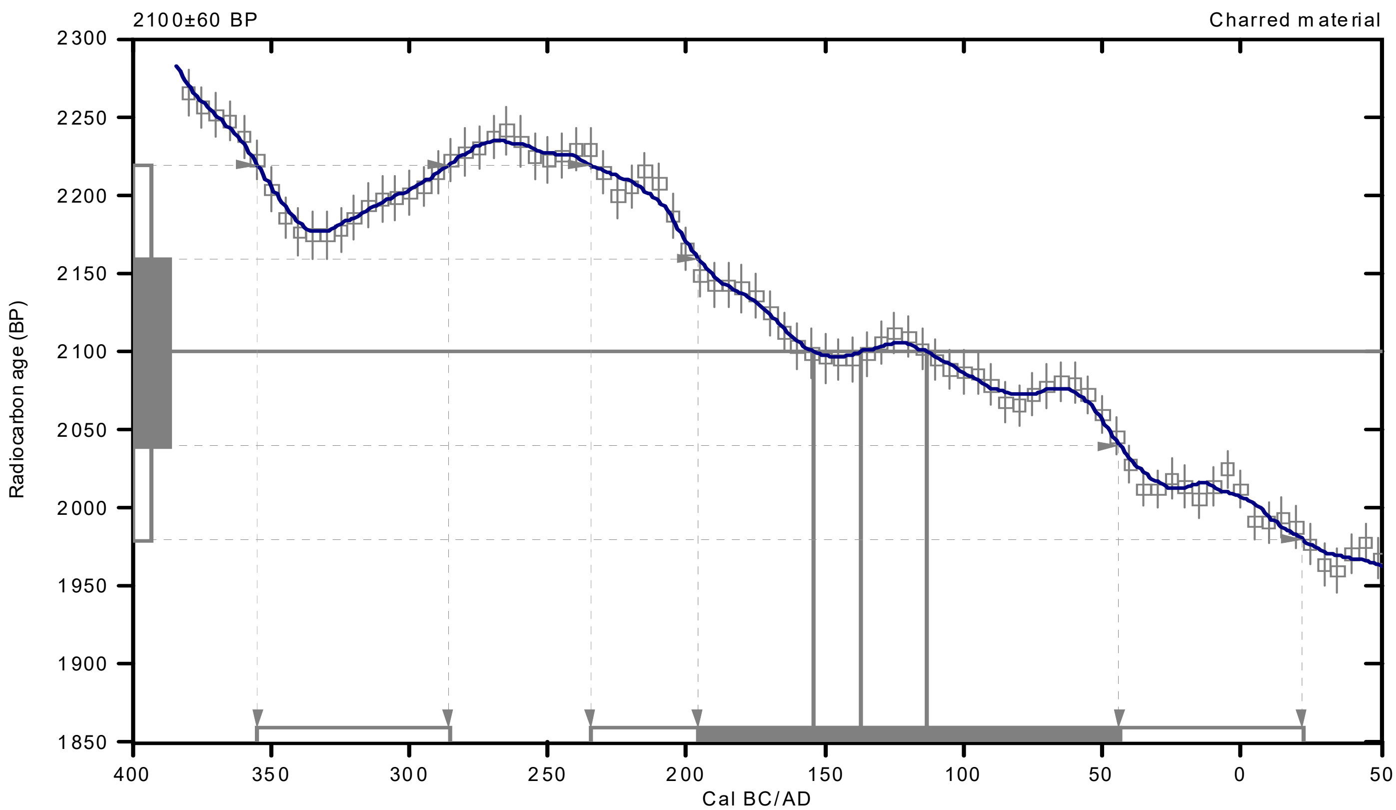
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.1:lab. mult=1)

Laboratory number:	**Beta-267630**
Conventional radiocarbon age:	**2100±60 BP**
2 Sigma calibrated results: (95% probability)	**Cal BC 360 to 290 (Cal BP 2300 to 2240) and Cal BC 240 to Cal AD 20 (Cal BP 2180 to 1930)**

Intercept data

Intercepts of radiocarbon age with calibration curve:	Cal BC 150 (Cal BP 2100) and Cal BC 140 (Cal BP 2090) and Cal BC 110 (Cal BP 2060)
1 Sigma calibrated result: (68% probability)	Cal BC 200 to 40 (Cal BP 2150 to 1990)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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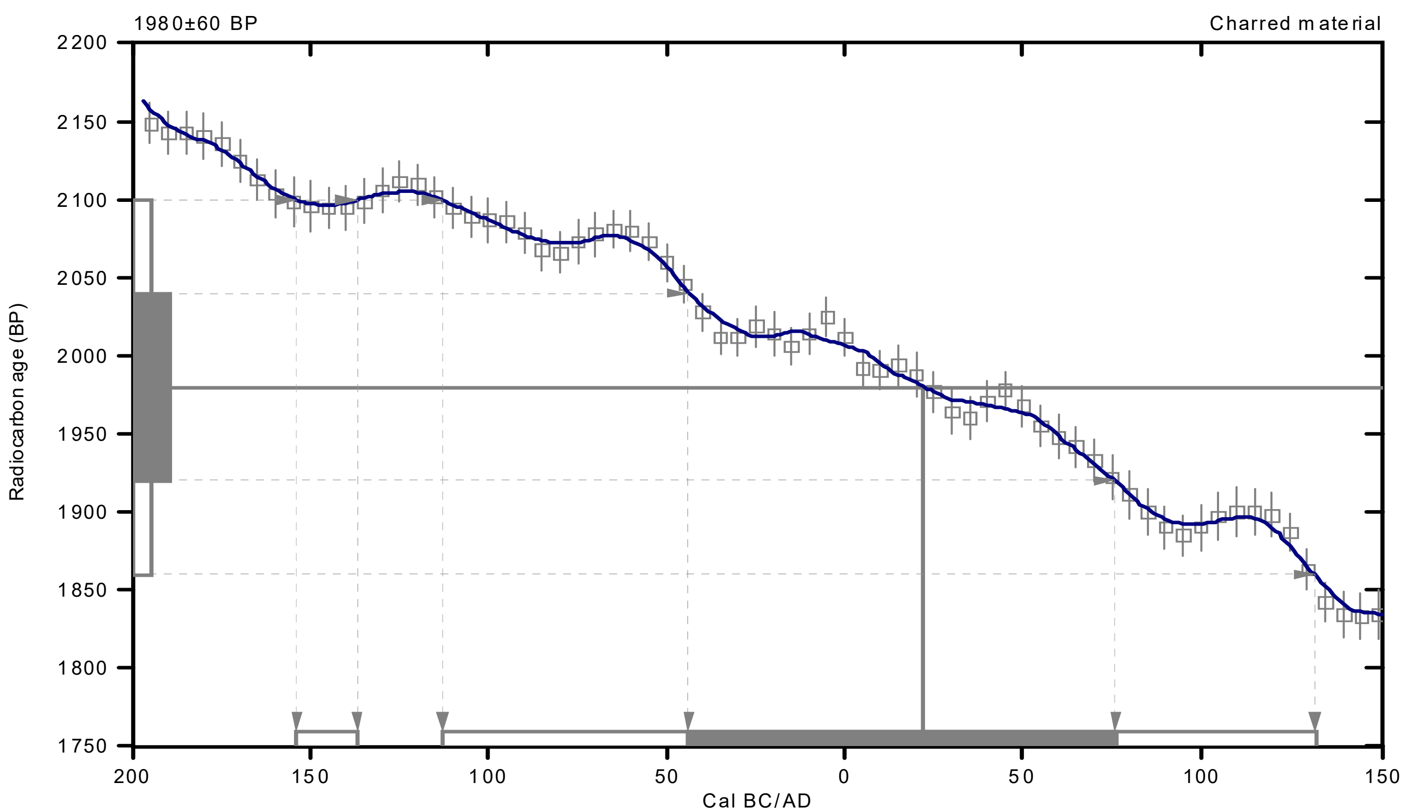
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-22.1:lab. mult=1)

Laboratory number:	**Beta-267631**
Conventional radiocarbon age:	**1980±60 BP**
2 Sigma calibrated results: (95% probability)	**Cal BC 150 to 140 (Cal BP 2100 to 2090) and Cal BC 110 to Cal AD 130 (Cal BP 2060 to 1820)**

Intercept data

Intercept of radiocarbon age with calibration curve:	Cal AD 20 (Cal BP 1930)
1 Sigma calibrated result: (68% probability)	Cal BC 40 to Cal AD 80 (Cal BP 1990 to 1870)



References:
Database used
INTCAL04
Calibration Database
INTCAL04 Radiocarbon Age Calibration
IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).
Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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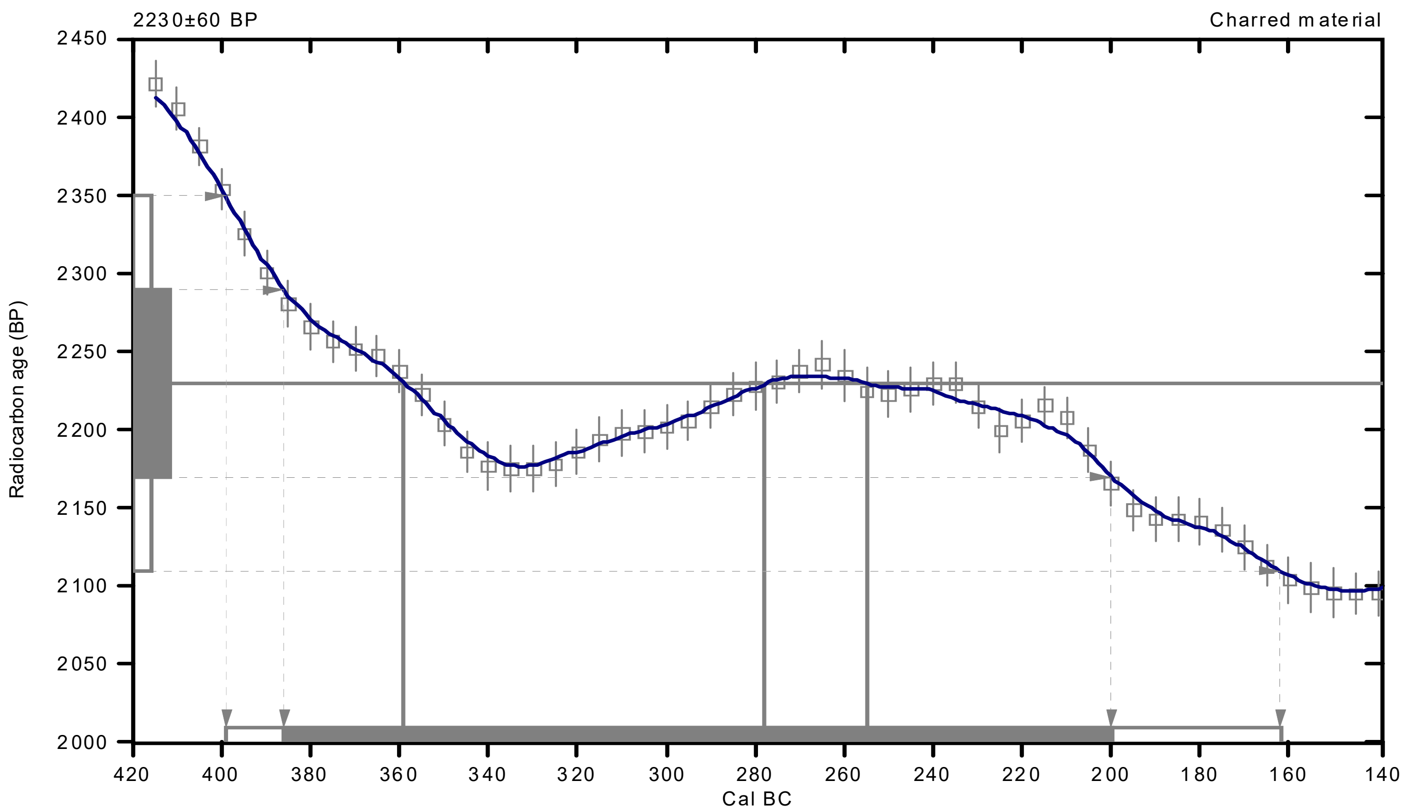
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-20.2:lab. mult=1)

Laboratory number:	**Beta-267632**
Conventional radiocarbon age:	**2230±60 BP**
2 Sigma calibrated result: (95% probability)	**Cal BC 400 to 160 (Cal BP 2350 to 2110)**

Intercept data

Intercepts of radiocarbon age with calibration curve:	Cal BC 360 (Cal BP 2310) and Cal BC 280 (Cal BP 2230) and Cal BC 260 (Cal BP 2200)
1 Sigma calibrated result: (68% probability)	Cal BC 390 to 200 (Cal BP 2340 to 2150)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.1:lab. mult=1)

Laboratory number: **Beta-267633**

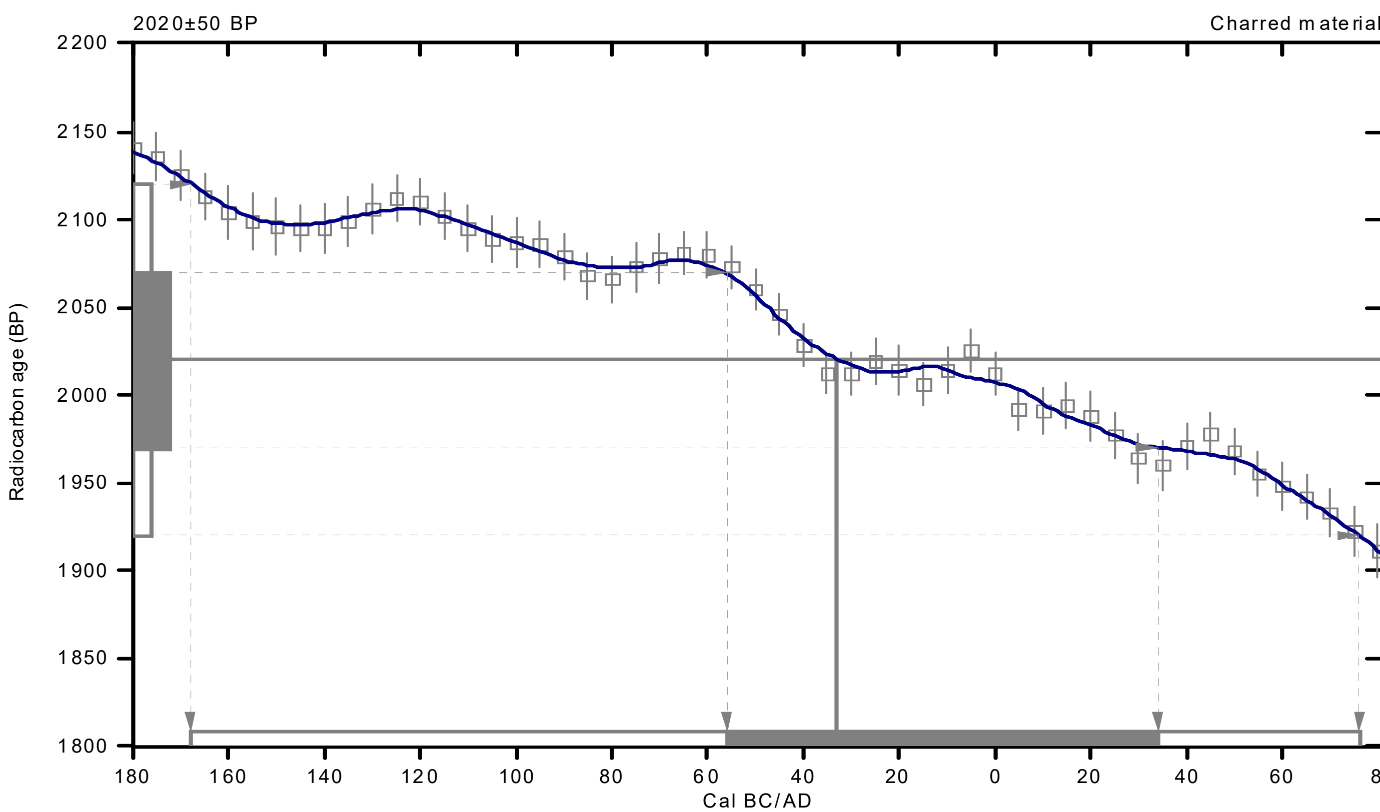
Conventional radiocarbon age: **2020±50 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 170 to Cal AD 80 (Cal BP 2120 to 1870)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 30 (Cal BP 1980)

1 Sigma calibrated result: (68% probability) Cal BC 60 to Cal AD 30 (Cal BP 2010 to 1920)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-19.6:lab. mult=1)

Laboratory number: **Beta-267634**

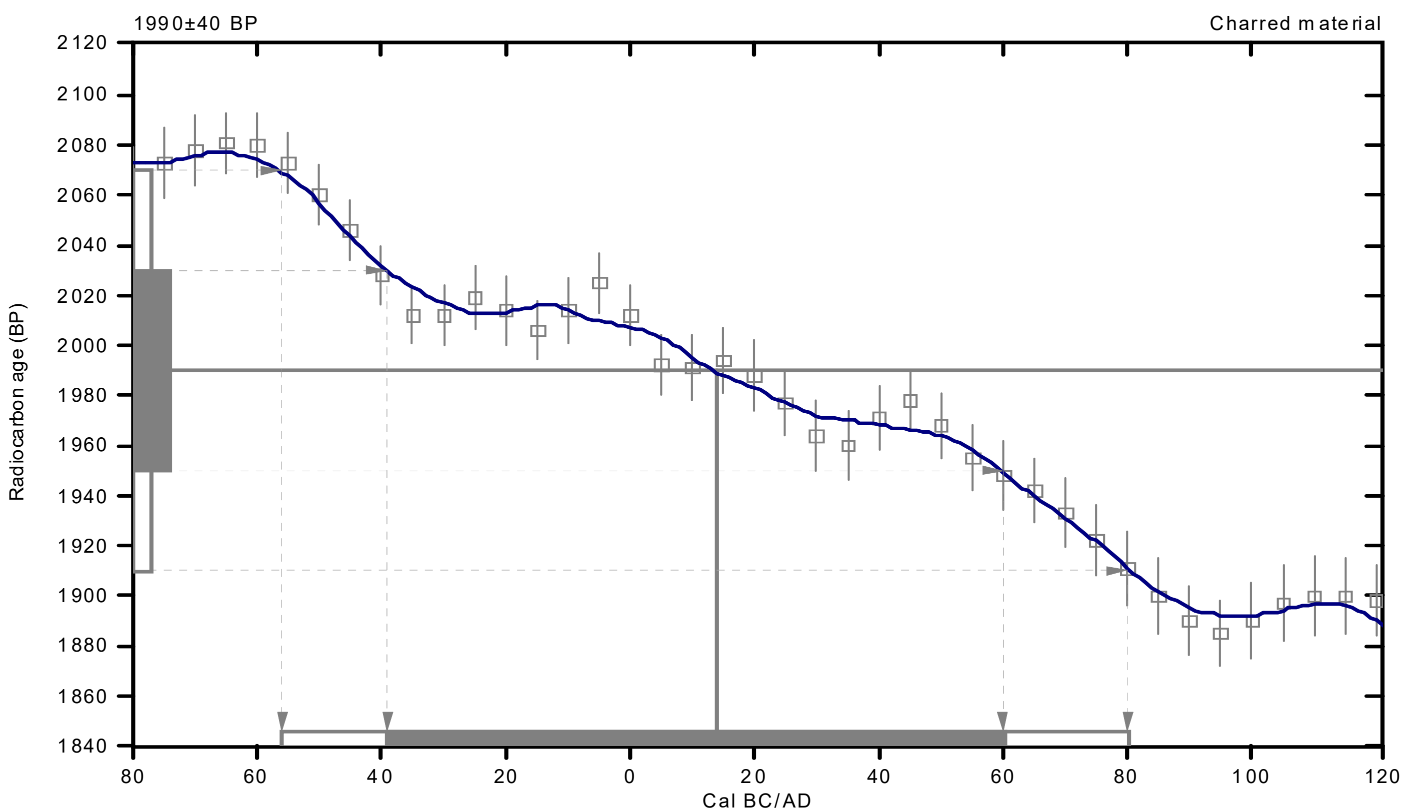
Conventional radiocarbon age: **1990±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 60 to Cal AD 80 (Cal BP 2010 to 1870)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 10 (Cal BP 1940)

1 Sigma calibrated result: (68% probability) Cal BC 40 to Cal AD 60 (Cal BP 1990 to 1890)



References:
Database used
INTCAL04
Calibration Database
INTCAL04 Radiocarbon Age Calibration
IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).
Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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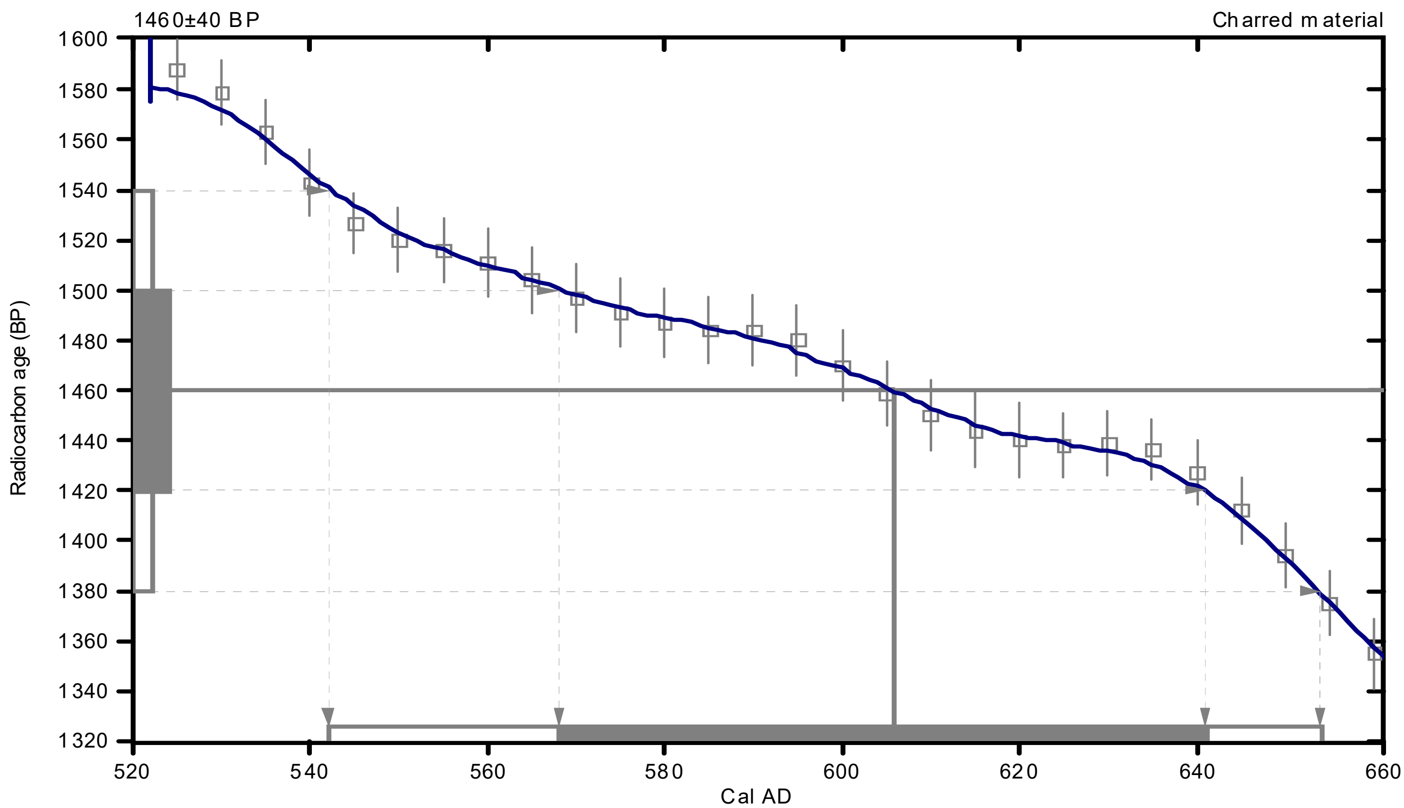
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.1:lab. mult=1)

Laboratory number:	**Beta-260143**
Conventional radiocarbon age:	**1460±40 BP**
2 Sigma calibrated result: (95% probability)	**Cal AD 540 to 650 (Cal BP 1410 to 1300)**

Intercept data

Intercept of radiocarbon age with calibration curve:	Cal AD 610 (Cal BP 1340)
1 Sigma calibrated result: (68% probability)	Cal AD 570 to 640 (Cal BP 1380 to 1310)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-22.2:lab. mult=1)

Laboratory number: **Beta-260144**

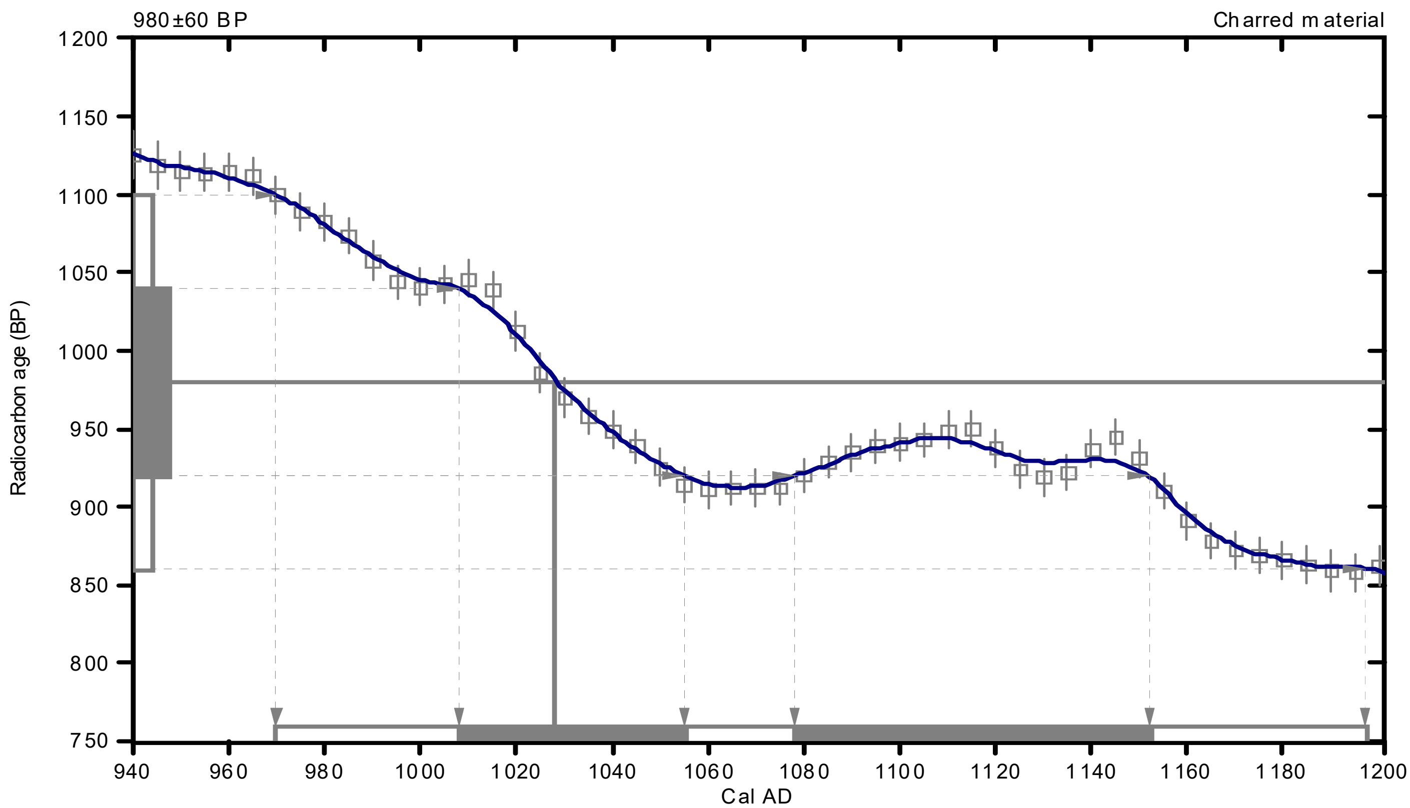
Conventional radiocarbon age: **980±60 BP**

2 Sigma calibrated result: **Cal AD 970 to 1200 (Cal BP 980 to 750)**
(95% probability)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 1030 (Cal BP 920)

1 Sigma calibrated results: Cal AD 1010 to 1060 (Cal BP 940 to 900) and
(68% probability) Cal AD 1080 to 1150 (Cal BP 870 to 800)



References:

Database used
INTCAL04
Calibration Database
INTCAL04 Radiocarbon Age Calibration
IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).
Mathematics
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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-19.3:lab. mult=1)

Laboratory number: **Beta-267655**

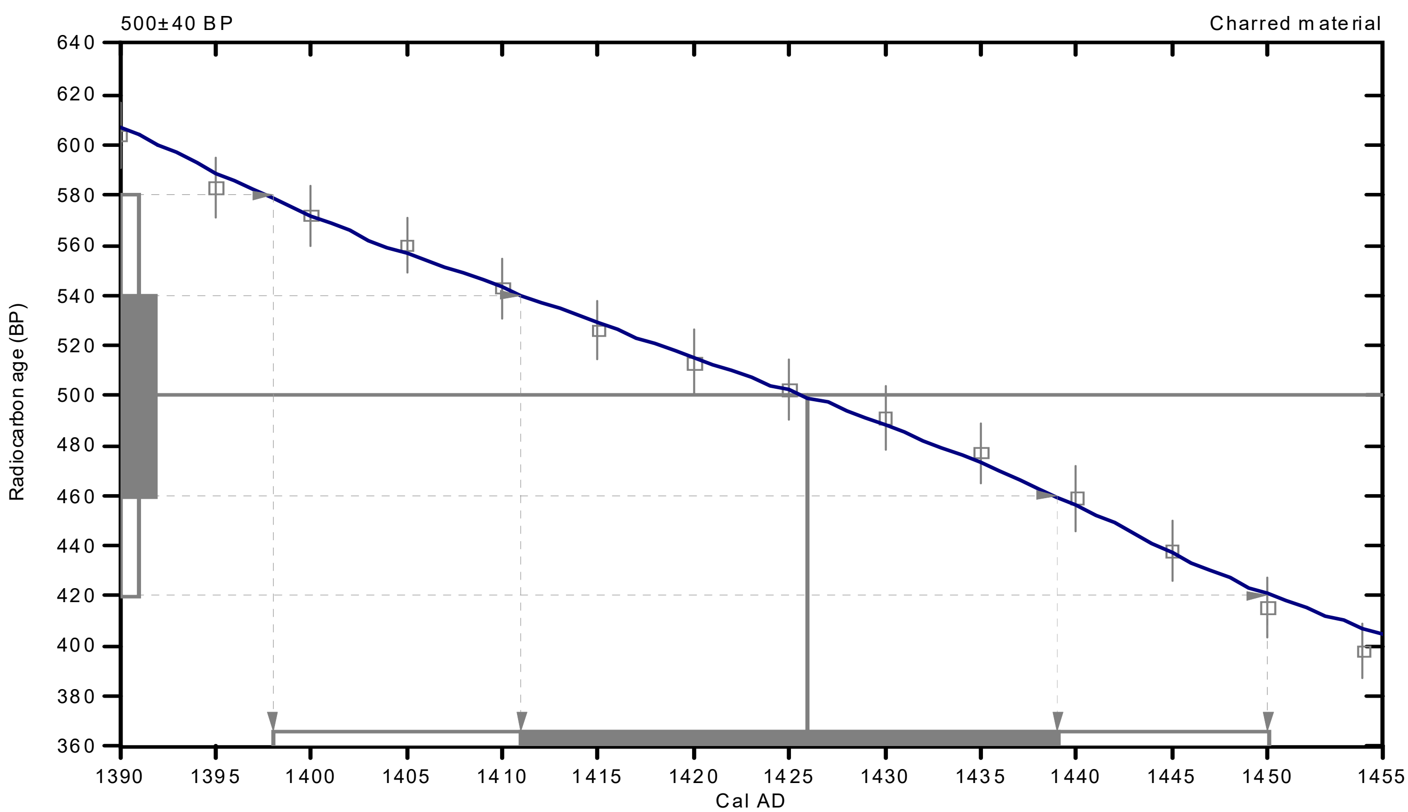
Conventional radiocarbon age: **500±40 BP**

2 Sigma calibrated result: **Cal AD 1400 to 1450 (Cal BP 550 to 500)**
(95% probability)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 1430 (Cal BP 520)

1 Sigma calibrated result: Cal AD 1410 to 1440 (Cal BP 540 to 510)
(68% probability)



References:

Database used
INTCAL04
Calibration Database
INTCAL04 Radiocarbon Age Calibration
IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).
Mathematics
A Simplified Approach to Calibrating C14 Dates
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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-20.9:lab. mult=1)

Laboratory number: **Beta-267635**

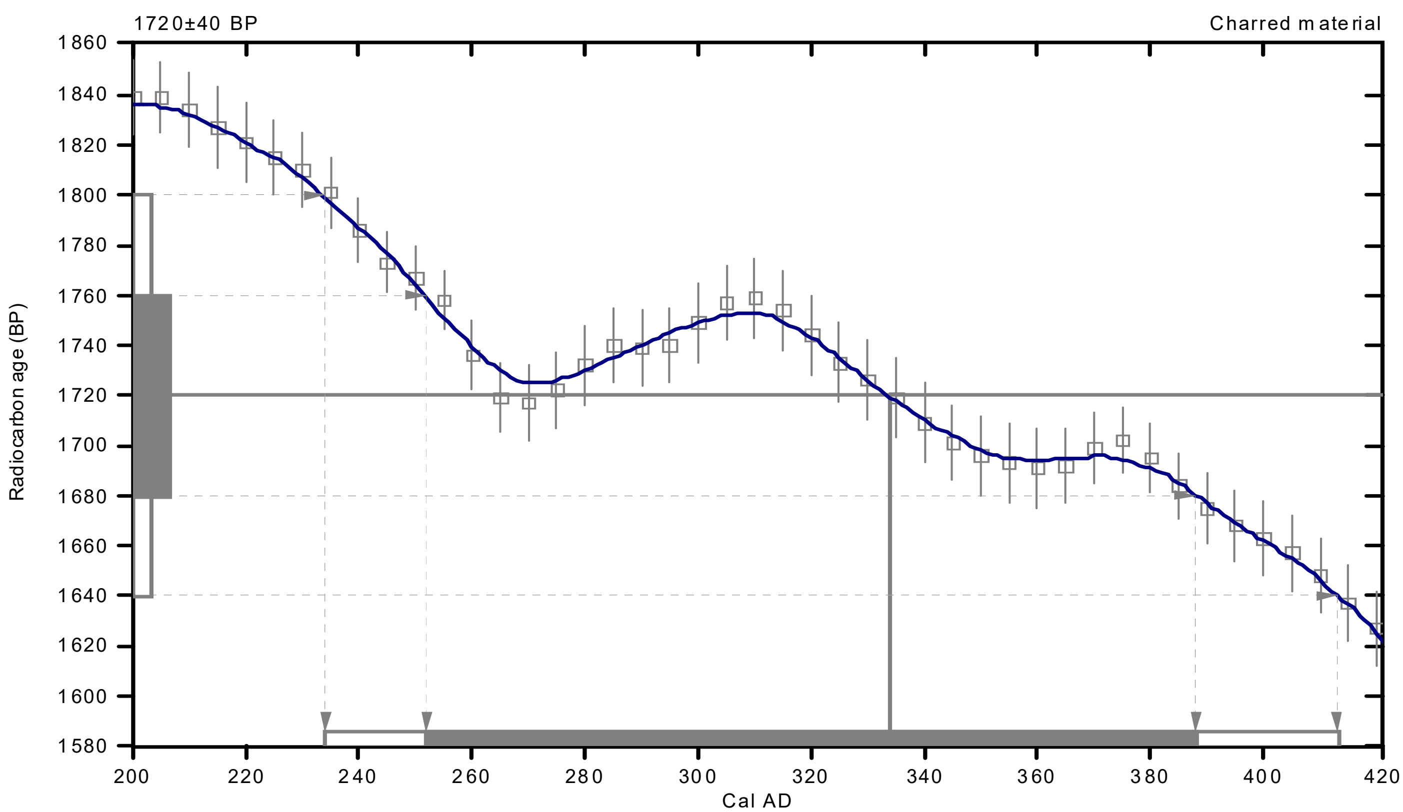
Conventional radiocarbon age: **1720±40 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 230 to 410 (Cal BP 1720 to 1540)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 330 (Cal BP 1620)

1 Sigma calibrated result: (68% probability) Cal AD 250 to 390 (Cal BP 1700 to 1560)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-20.7:lab. mult=1)

Laboratory number: **Beta-267636**

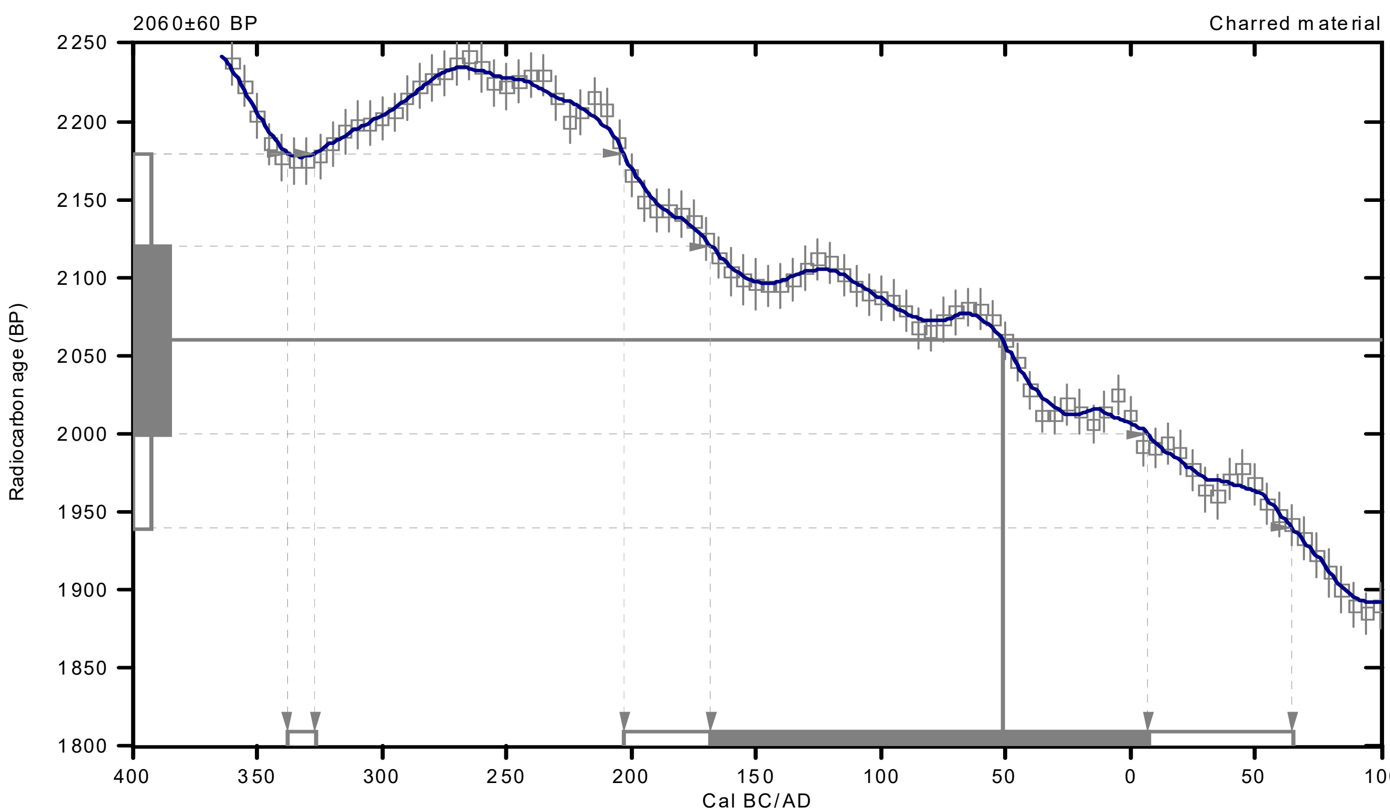
Conventional radiocarbon age: **2060±60 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 340 to 330 (Cal BP 2290 to 2280) and Cal BC 200 to Cal AD 60 (Cal BP 2150 to 1880)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 50 (Cal BP 2000)

1 Sigma calibrated result: (68% probability) Cal BC 170 to Cal AD 10 (Cal BP 2120 to 1940)



References:

Database used

INTCAL04

Calibration Database

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IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.3:lab. mult=1)

Laboratory number: **Beta-267637**

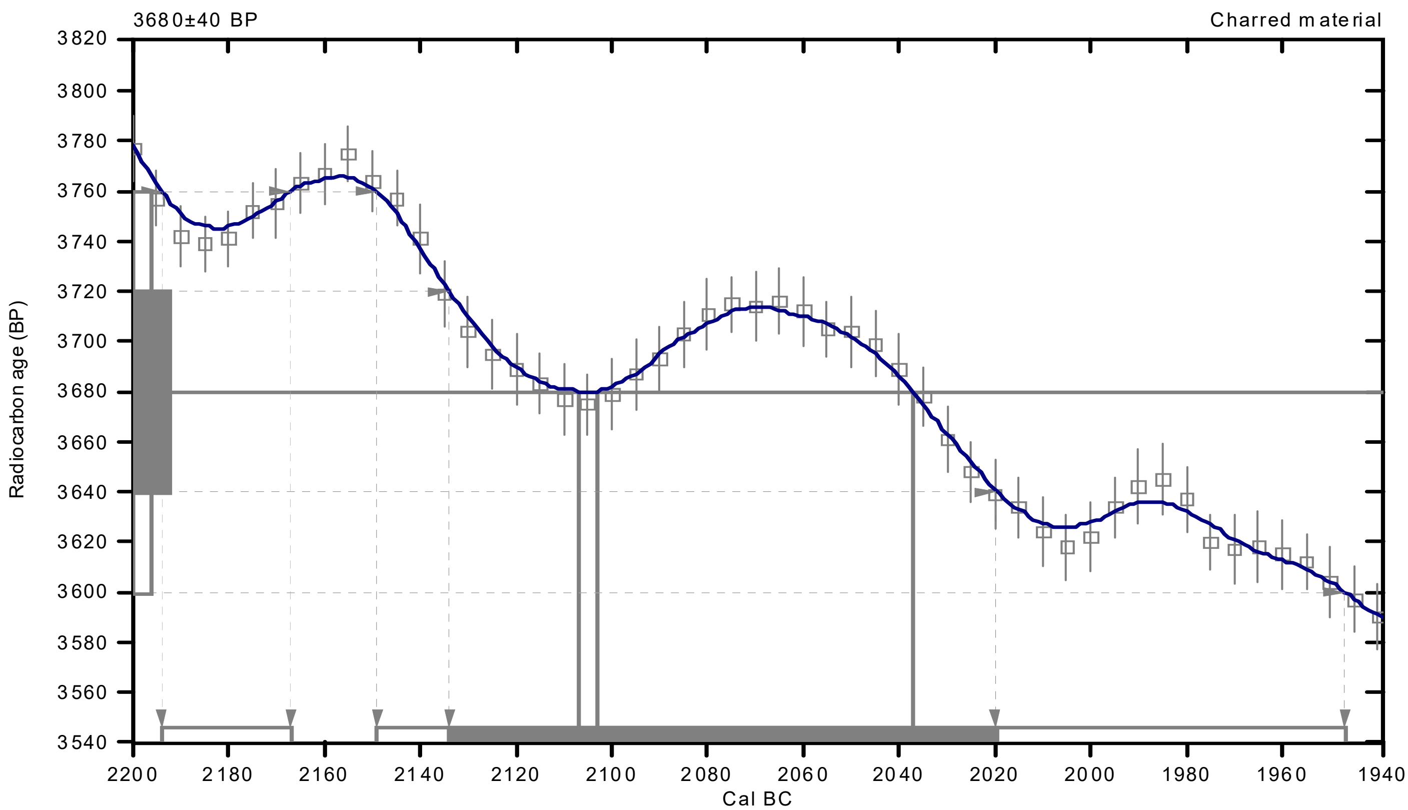
Conventional radiocarbon age: **3680±40 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 2190 to 2170 (Cal BP 4140 to 4120) and Cal BC 2150 to 1950 (Cal BP 4100 to 3900)**

Intercept data

Intercepts of radiocarbon age with calibration curve: Cal BC 2110 (Cal BP 4060) and
Cal BC 2100 (Cal BP 4050) and
Cal BC 2040 (Cal BP 3990)

1 Sigma calibrated result: (68% probability) Cal BC 2130 to 2020 (Cal BP 4080 to 3970)



References:

Database used
INTCAL04
Calibration Database
INTCAL04 Radiocarbon Age Calibration
IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).
Mathematics
A Simplified Approach to Calibrating C14 Dates
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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-20.5:lab. mult=1)

Laboratory number: **Beta-248418**

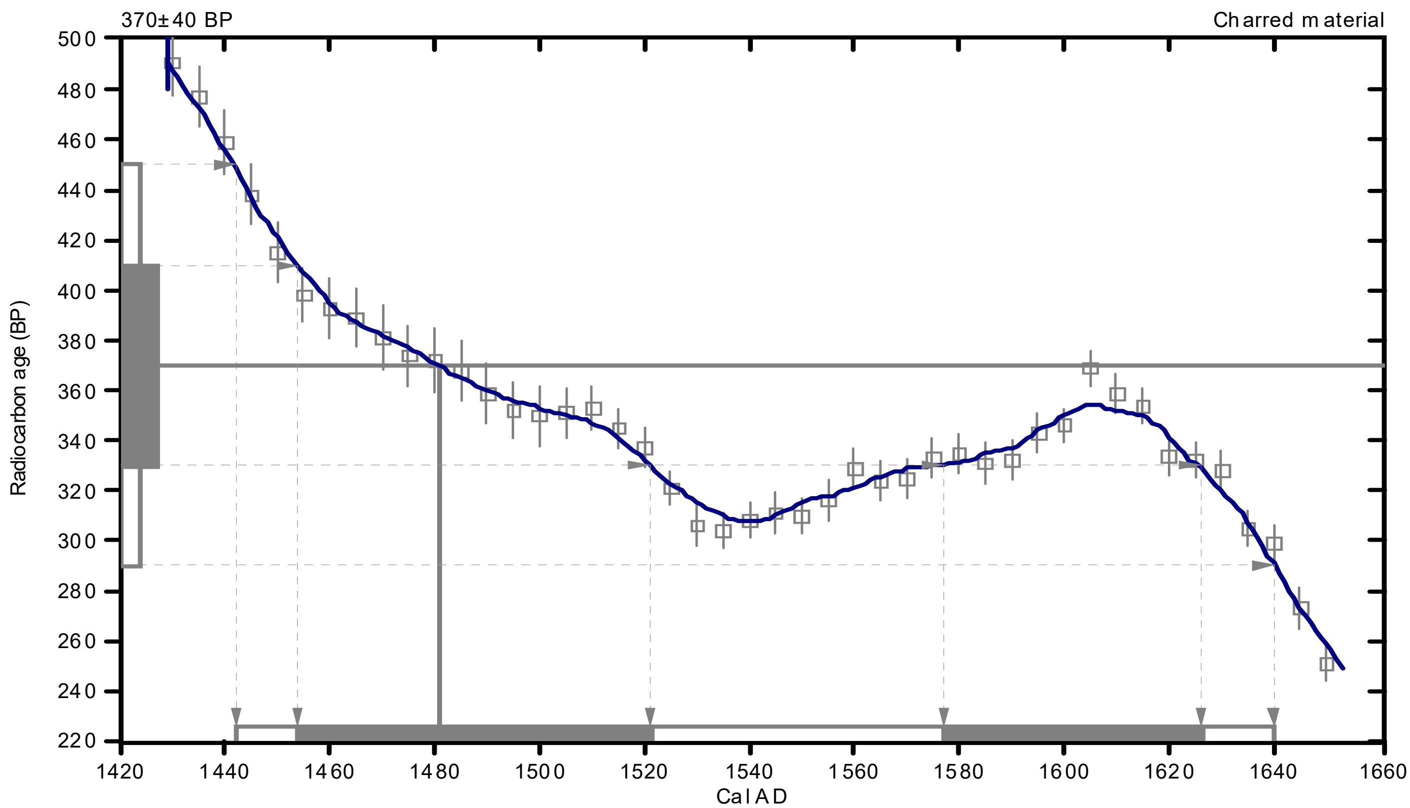
Conventional radiocarbon age: **370±40 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 1440 to 1640 (Cal BP 510 to 310)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 1480 (Cal BP 470)

1 Sigma calibrated results: (68% probability) Cal AD 1450 to 1520 (Cal BP 500 to 430) and Cal AD 1580 to 1630 (Cal BP 370 to 320)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-23.8:lab. mult=1)

Laboratory number: **Beta-267638**

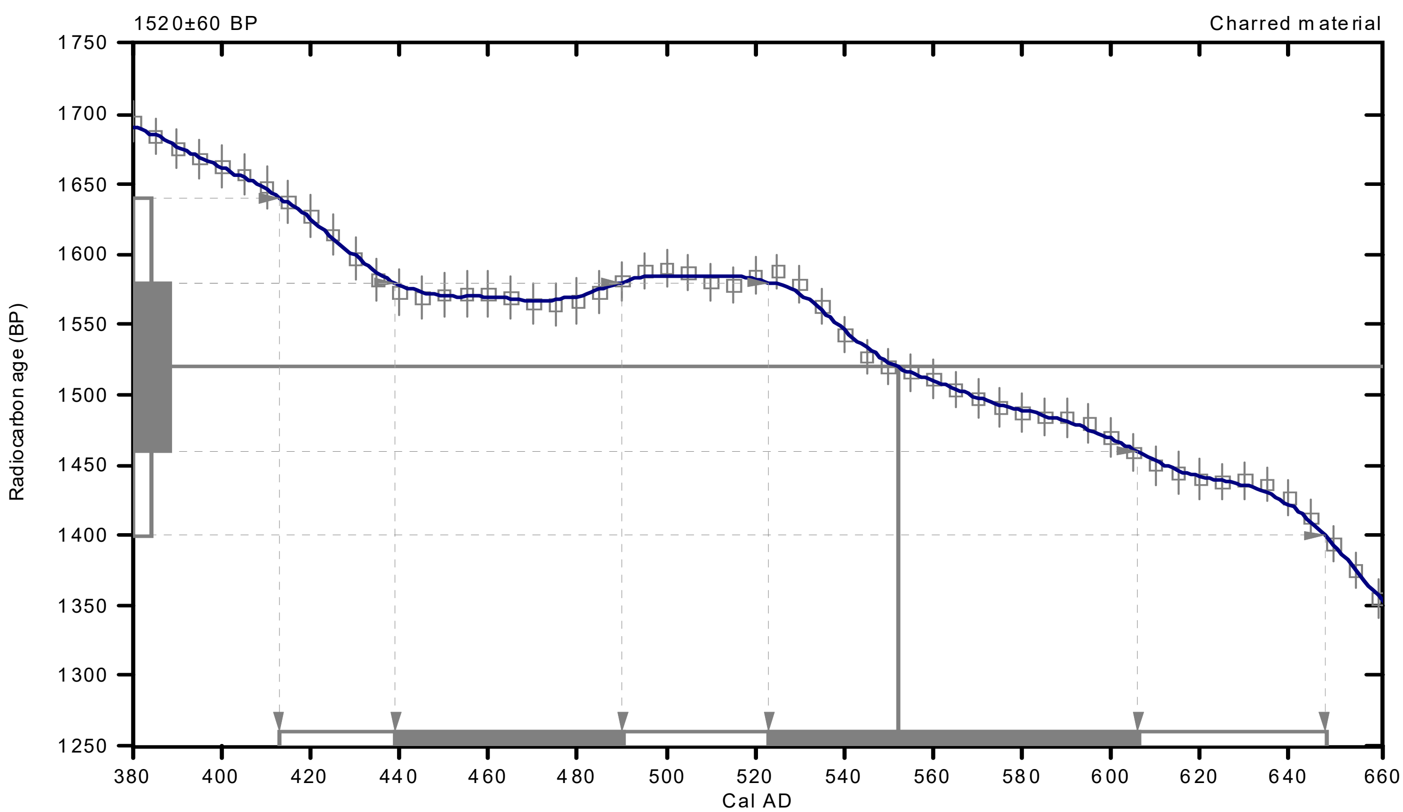
Conventional radiocarbon age: **1520±60 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 410 to 650 (Cal BP 1540 to 1300)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 550 (Cal BP 1400)

1 Sigma calibrated results: (68% probability) Cal AD 440 to 490 (Cal BP 1510 to 1460) and Cal AD 520 to 610 (Cal BP 1430 to 1340)



References:

Database used
INTCAL04
Calibration Database
INTCAL04 Radiocarbon Age Calibration
IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).
Mathematics
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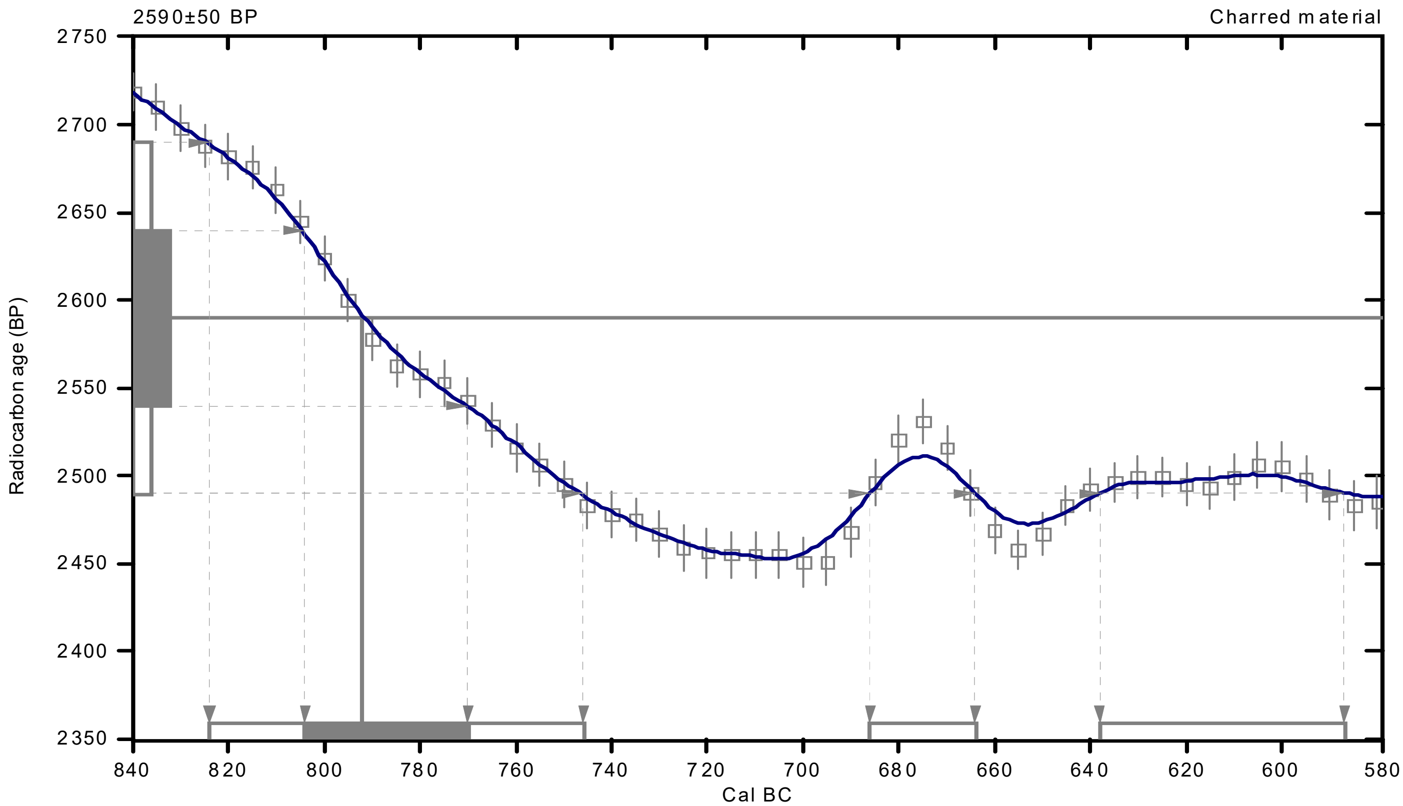
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21:lab. mult=1)

Laboratory number:	**Beta-267639**
Conventional radiocarbon age:	**2590±50 BP**
2 Sigma calibrated results: (95% probability)	**Cal BC 820 to 750 (Cal BP 2770 to 2700) and Cal BC 690 to 660 (Cal BP 2640 to 2610) and Cal BC 640 to 590 (Cal BP 2590 to 2540)**

Intercept data

Intercept of radiocarbon age with calibration curve:	Cal BC 790 (Cal BP 2740)
1 Sigma calibrated result: (68% probability)	Cal BC 800 to 770 (Cal BP 2750 to 2720)



References:

Database used
INTCAL04
Calibration Database
INTCAL04 Radiocarbon Age Calibration
IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).
Mathematics
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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.4:lab. mult=1)

Laboratory number: **Beta-267640**

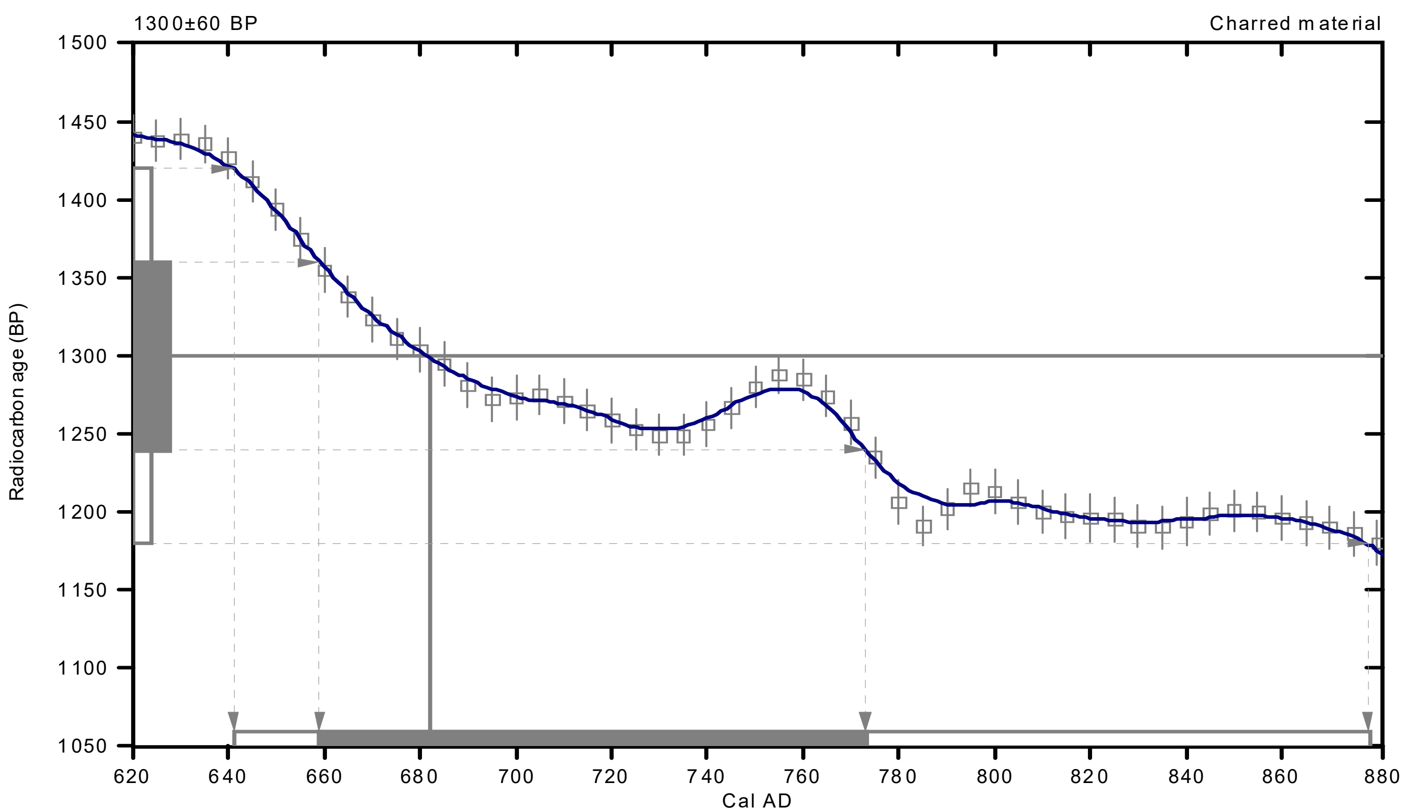
Conventional radiocarbon age: **1300±60 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 640 to 880 (Cal BP 1310 to 1070)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 680 (Cal BP 1270)

1 Sigma calibrated result: (68% probability) Cal AD 660 to 770 (Cal BP 1290 to 1180)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-23.4:lab. mult=1)

Laboratory number: **Beta-267641**

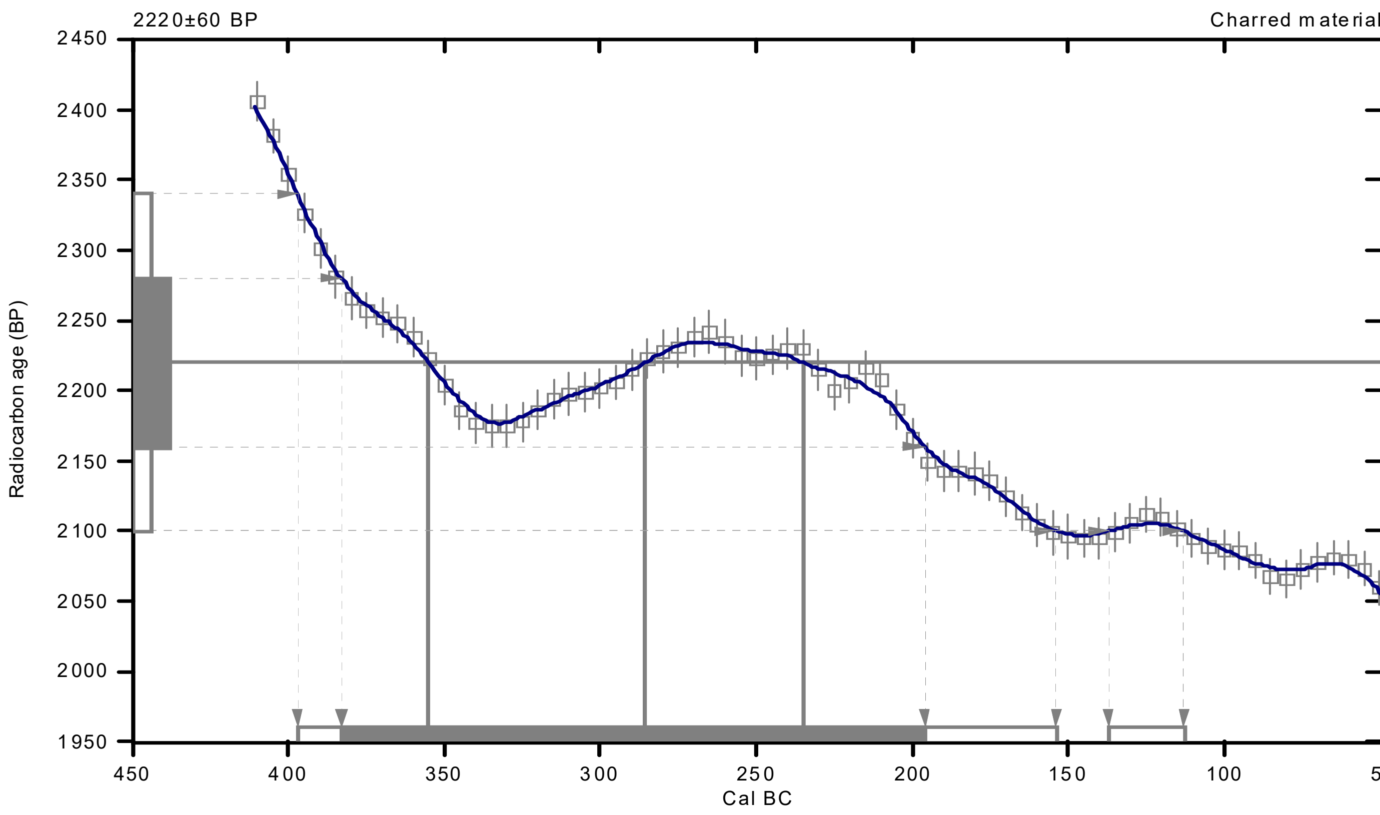
Conventional radiocarbon age: **2220±60 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 400 to 150 (Cal BP 2350 to 2100) and Cal BC 140 to 110 (Cal BP 2090 to 2060)**

Intercept data

Intercepts of radiocarbon age with calibration curve: Cal BC 360 (Cal BP 2300) and
Cal BC 290 (Cal BP 2240) and
Cal BC 240 (Cal BP 2180)

1 Sigma calibrated result: (68% probability) Cal BC 380 to 200 (Cal BP 2330 to 2150)



References:

Database used
INTCAL04
Calibration Database
INTCAL04 Radiocarbon Age Calibration
IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).
Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.2:lab. mult=1)

Laboratory number: **Beta-267642**

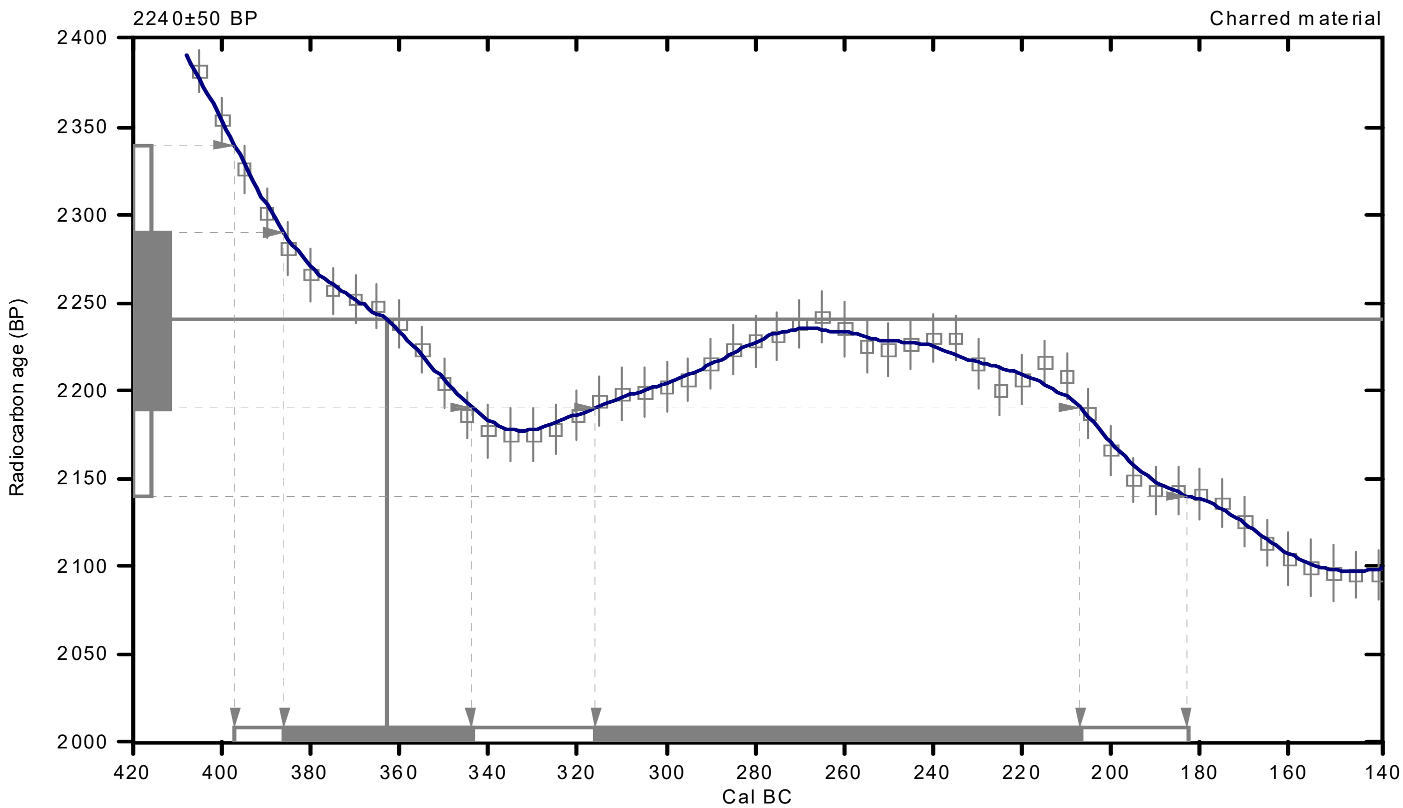
Conventional radiocarbon age: **2240±50 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 400 to 180 (Cal BP 2350 to 2130)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 360 (Cal BP 2310)

1 Sigma calibrated results: (68% probability) Cal BC 390 to 340 (Cal BP 2340 to 2290) and Cal BC 320 to 210 (Cal BP 2270 to 2160)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-20.5:lab. mult=1)

Laboratory number: **Beta-303001**

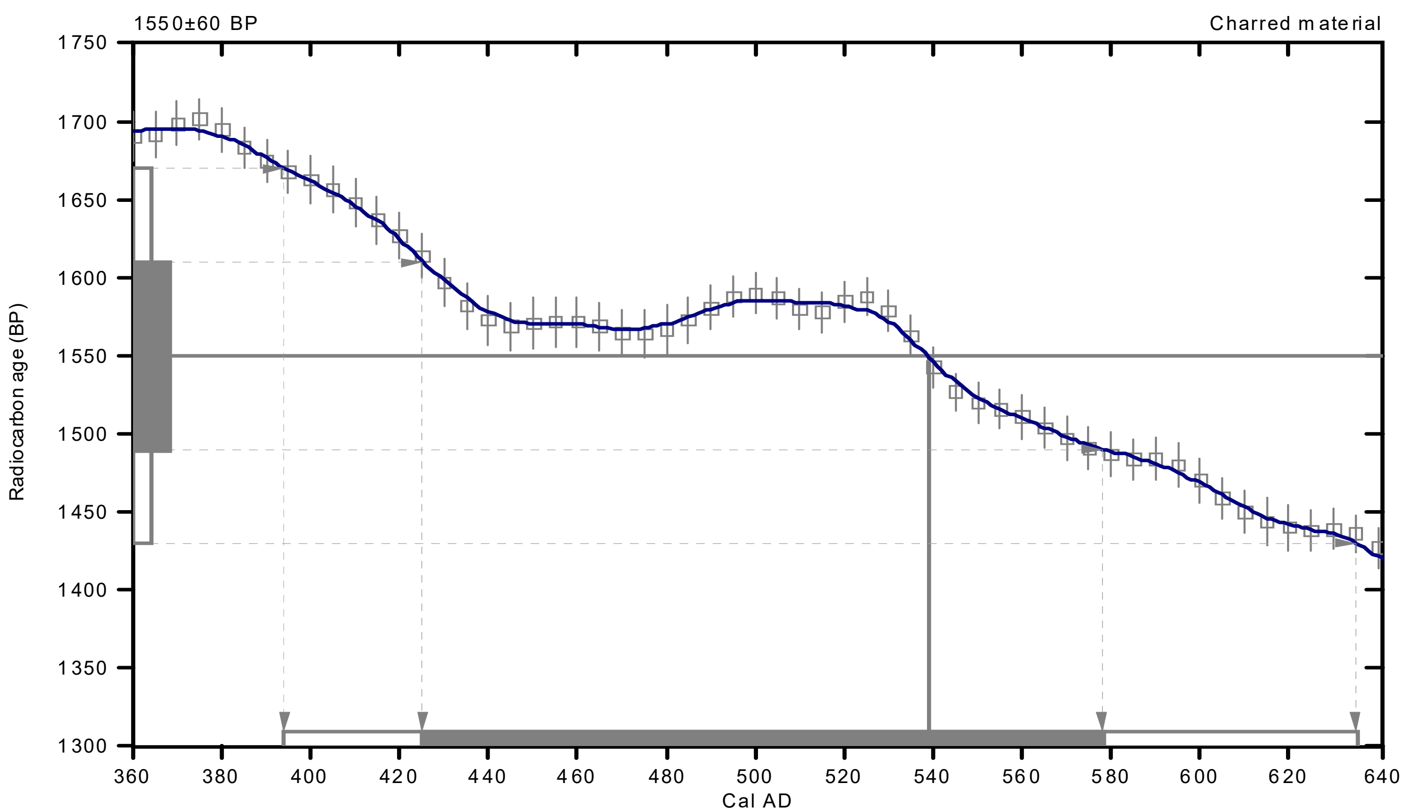
Conventional radiocarbon age: **1550±60 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 390 to 640 (Cal BP 1560 to 1320)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 540 (Cal BP 1410)

1 Sigma calibrated result: (68% probability) Cal AD 420 to 580 (Cal BP 1520 to 1370)



References:
Database used
INTCAL04
Calibration Database
INTCAL04 Radiocarbon Age Calibration
IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).
Mathematics
A Simplified Approach to Calibrating C14 Dates
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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.7:lab. mult=1)

Laboratory number: **Beta-303002**

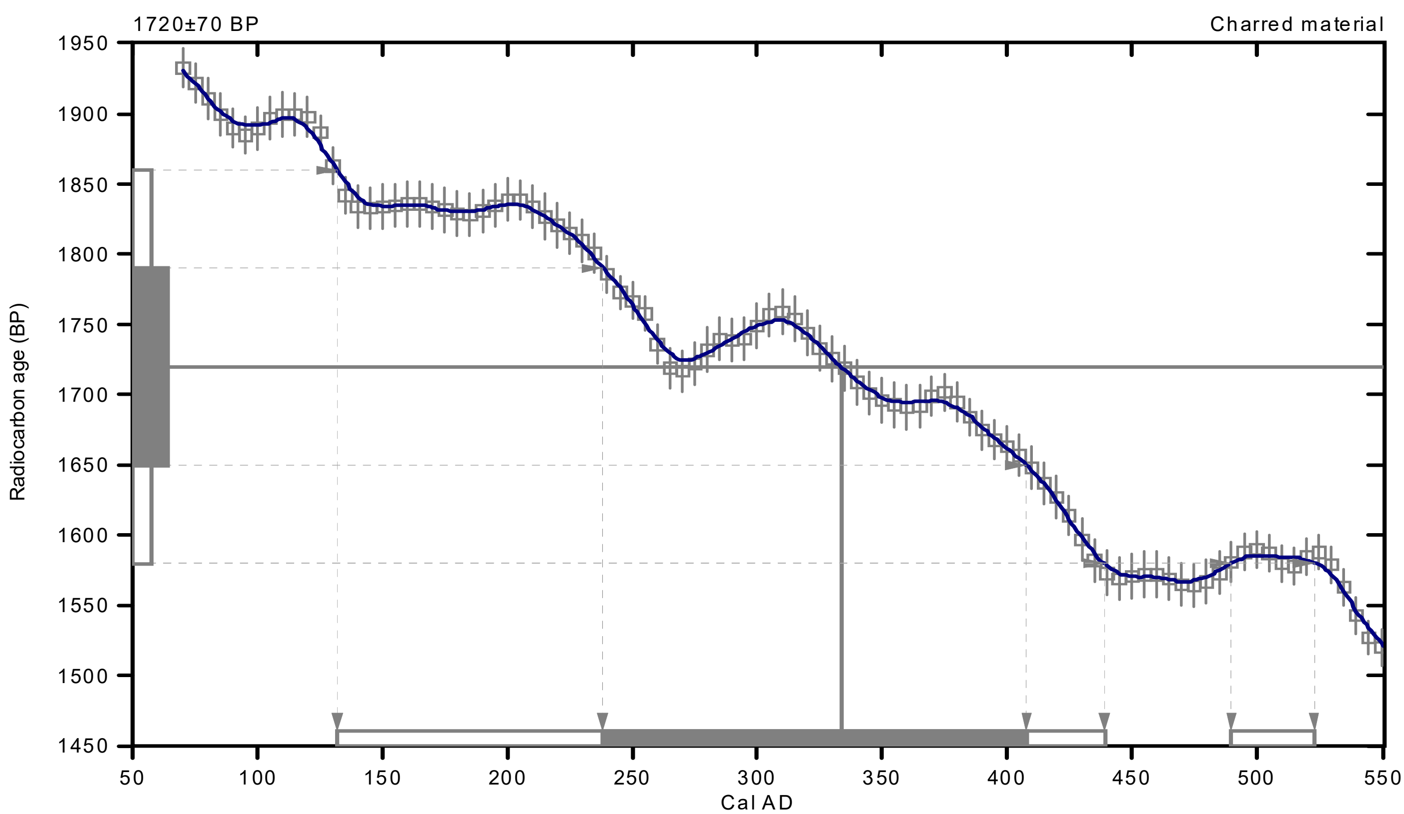
Conventional radiocarbon age: **1720±70 BP**

2 Sigma calibrated results: (95% probability) **Cal AD 130 to 440 (Cal BP 1820 to 1510) and Cal AD 490 to 520 (Cal BP 1460 to 1430)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 330 (Cal BP 1620)

1 Sigma calibrated result: (68% probability) Cal AD 240 to 410 (Cal BP 1710 to 1540)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

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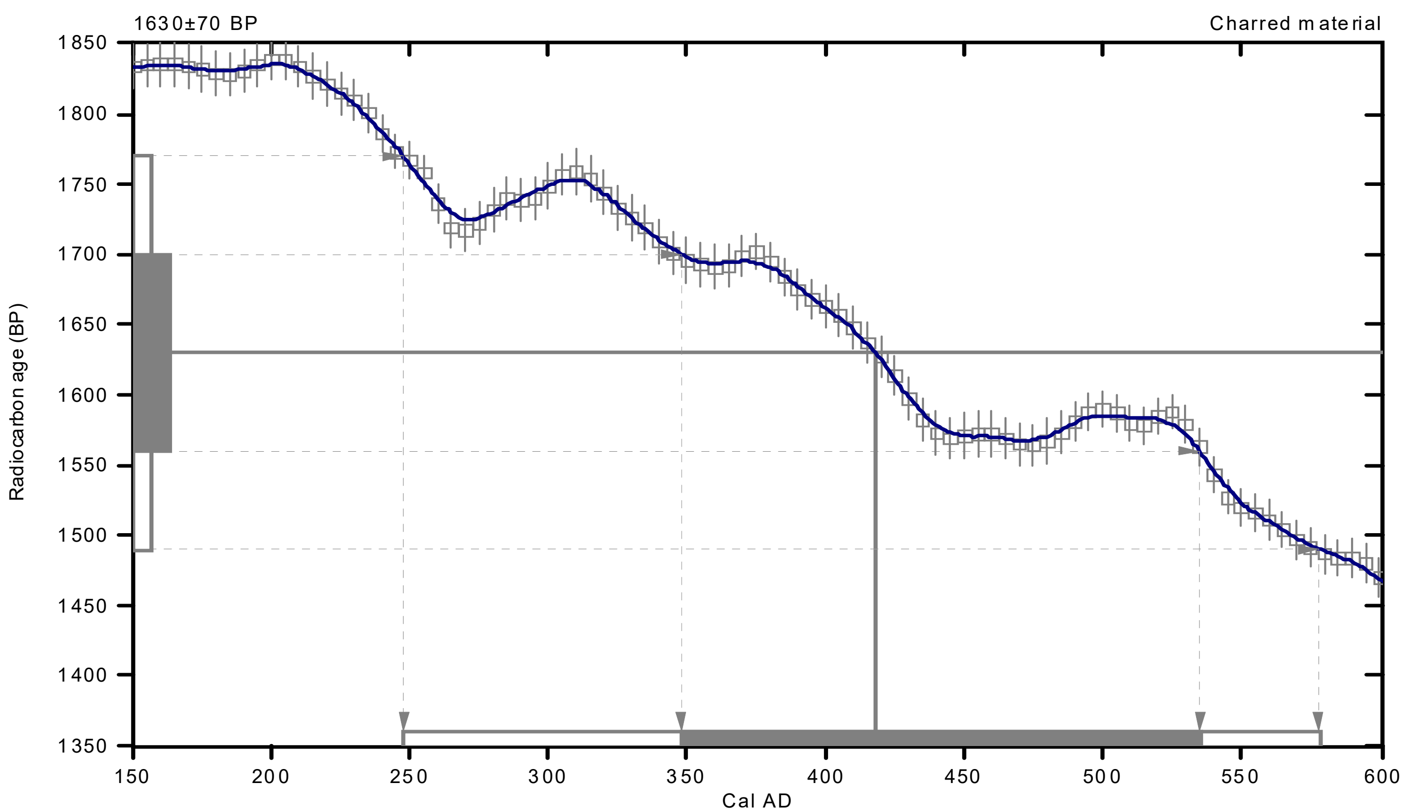
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-20.9:lab. mult=1)

Laboratory number:	**Beta-267643**
Conventional radiocarbon age:	**1630±70 BP**
2 Sigma calibrated result: (95% probability)	**Cal AD 250 to 580 (Cal BP 1700 to 1370)**

Intercept data

Intercept of radiocarbon age with calibration curve:	Cal AD 420 (Cal BP 1530)
1 Sigma calibrated result: (68% probability)	Cal AD 350 to 540 (Cal BP 1600 to 1420)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-19.6:lab. mult=1)

Laboratory number: **Beta-267644**

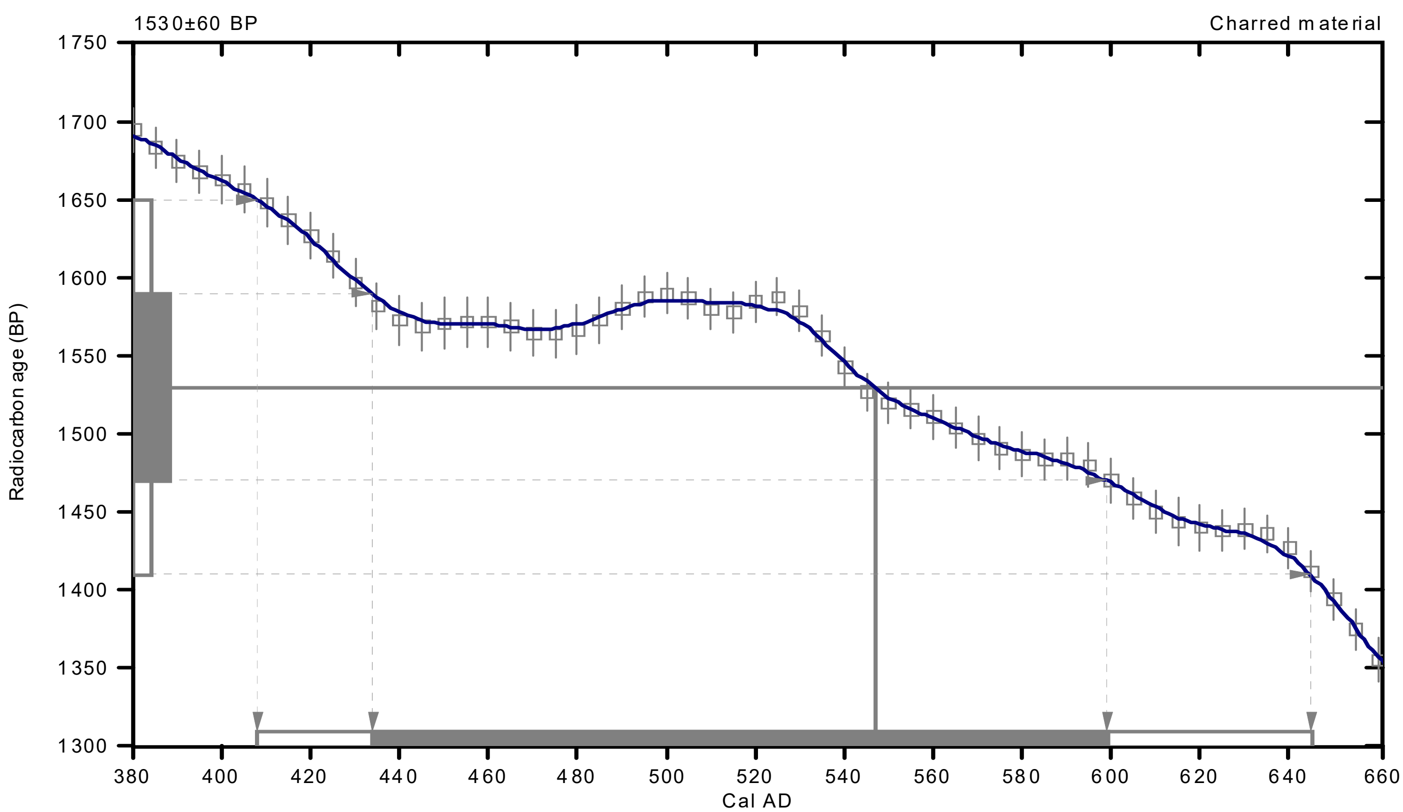
Conventional radiocarbon age: **1530±60 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 410 to 640 (Cal BP 1540 to 1300)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 550 (Cal BP 1400)

1 Sigma calibrated result: (68% probability) Cal AD 430 to 600 (Cal BP 1520 to 1350)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-19.7:lab. mult=1)

Laboratory number: **Beta-267645**

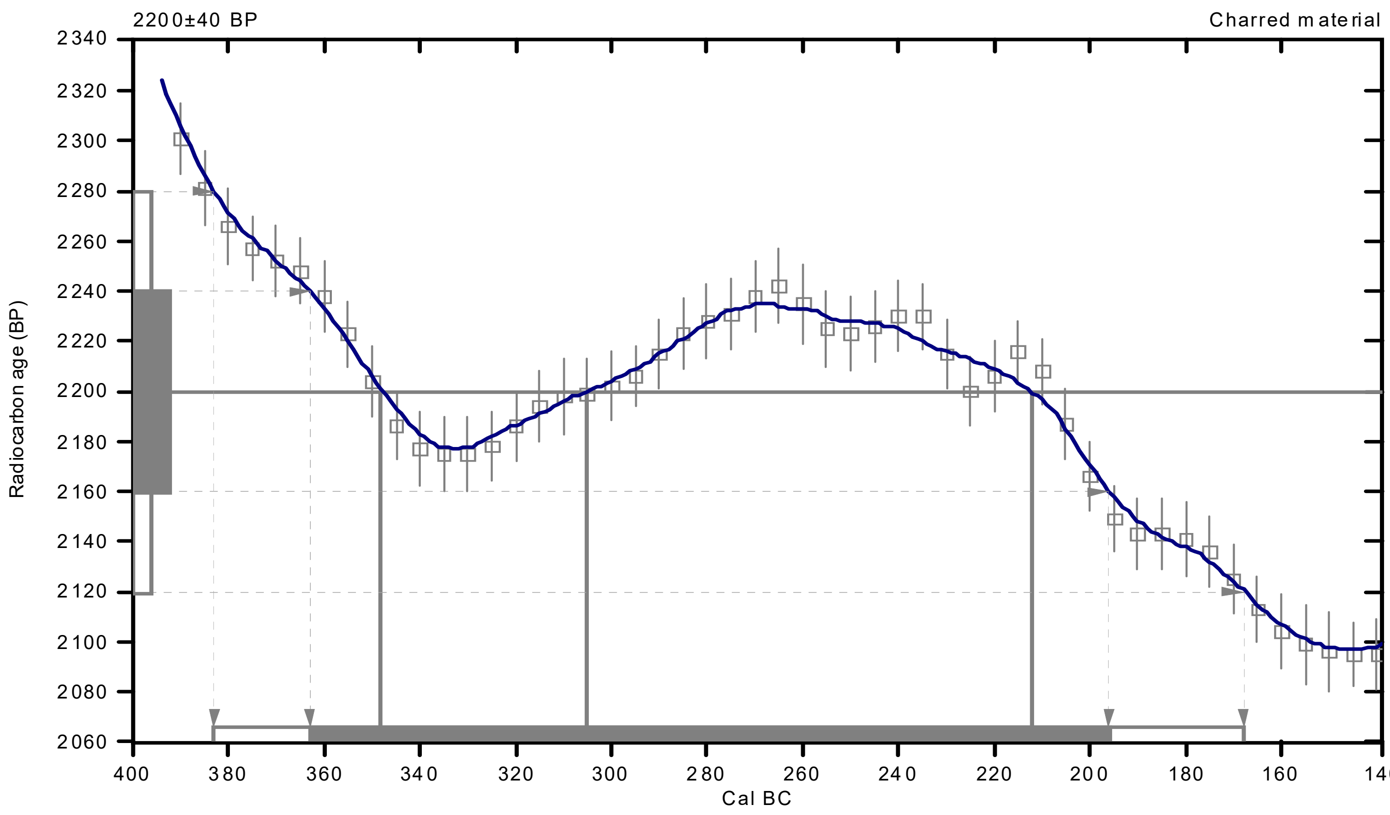
Conventional radiocarbon age: **2200±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 380 to 170 (Cal BP 2330 to 2120)**

Intercept data

Intercepts of radiocarbon age with calibration curve: Cal BC 350 (Cal BP 2300) and
Cal BC 300 (Cal BP 2260) and
Cal BC 210 (Cal BP 2160)

1 Sigma calibrated result: (68% probability) Cal BC 360 to 200 (Cal BP 2310 to 2150)



References:

Database used

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Calibration Database

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Mathematics

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.4:lab. mult=1)

Laboratory number: **Beta-267646**

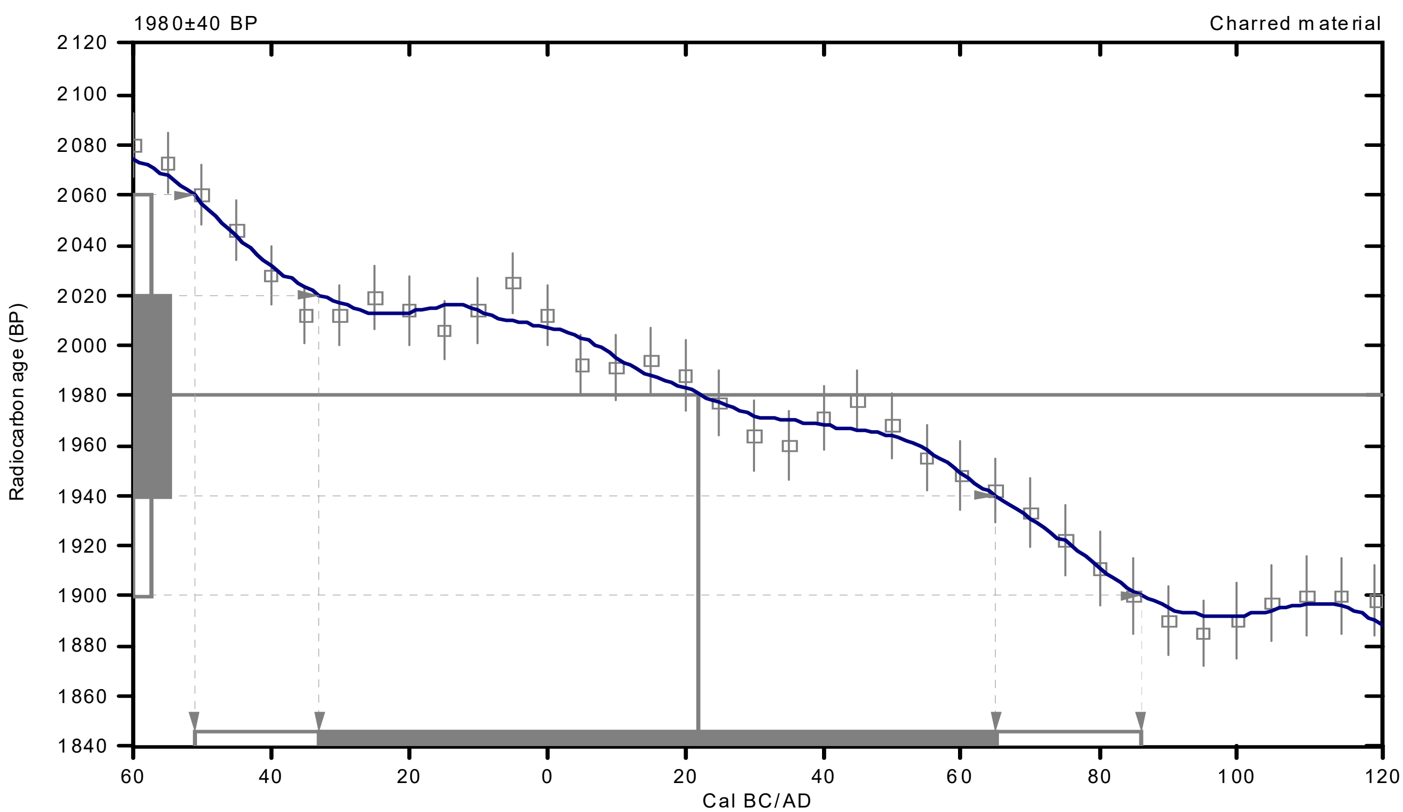
Conventional radiocarbon age: **1980±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 50 to Cal AD 90 (Cal BP 2000 to 1860)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 20 (Cal BP 1930)

1 Sigma calibrated result: (68% probability) Cal BC 30 to Cal AD 60 (Cal BP 1980 to 1880)



References:

Database used
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IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).
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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21:lab. mult=1)

Laboratory number: **Beta-267649**

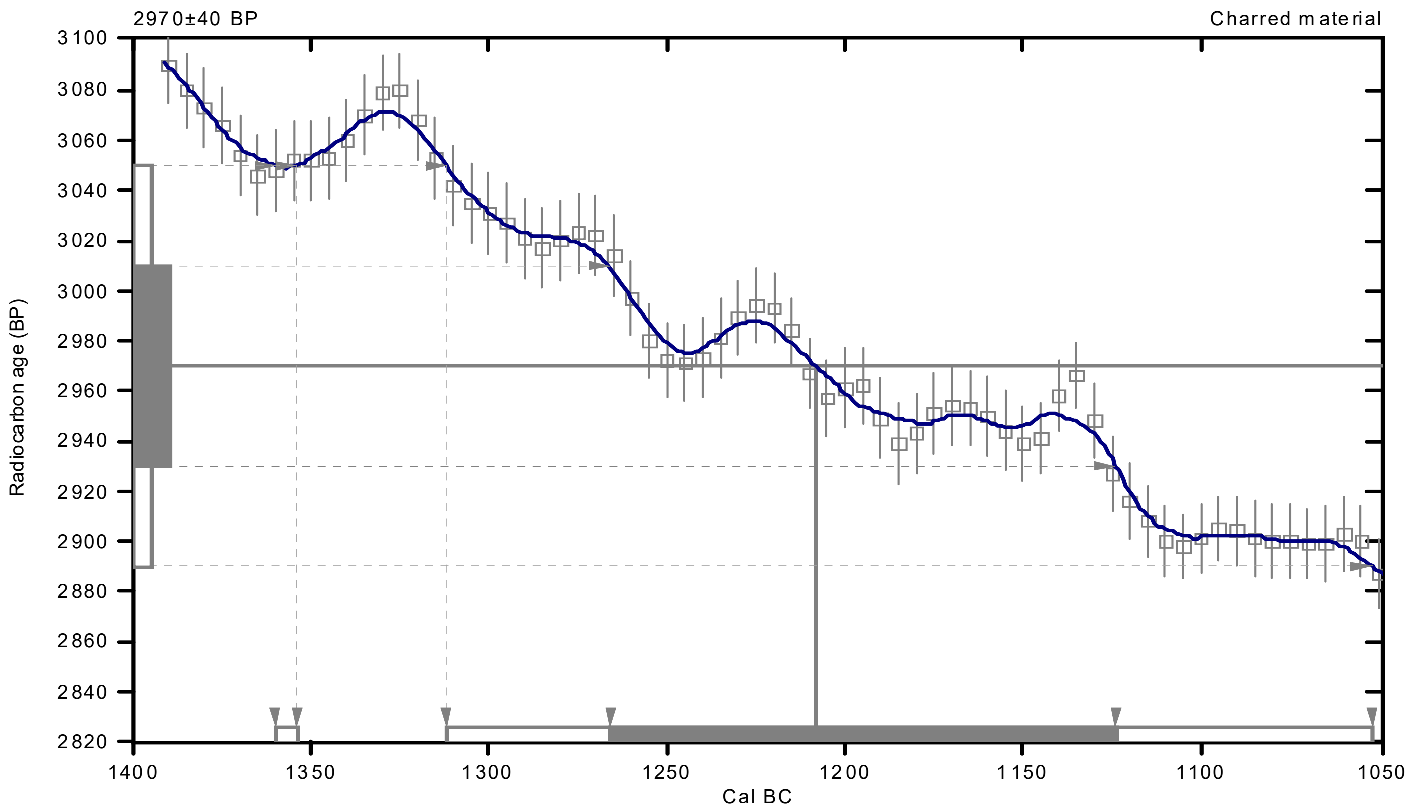
Conventional radiocarbon age: **2970±40 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 1360 to 1350 (Cal BP 3310 to 3300) and Cal BC 1310 to 1050 (Cal BP 3260 to 3000)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 1210 (Cal BP 3160)

1 Sigma calibrated result: (68% probability) Cal BC 1270 to 1120 (Cal BP 3220 to 3070)



References:

Database used
INTCAL04
Calibration Database
INTCAL04 Radiocarbon Age Calibration
IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).
Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.9:lab. mult=1)

Laboratory number: **Beta-267656**

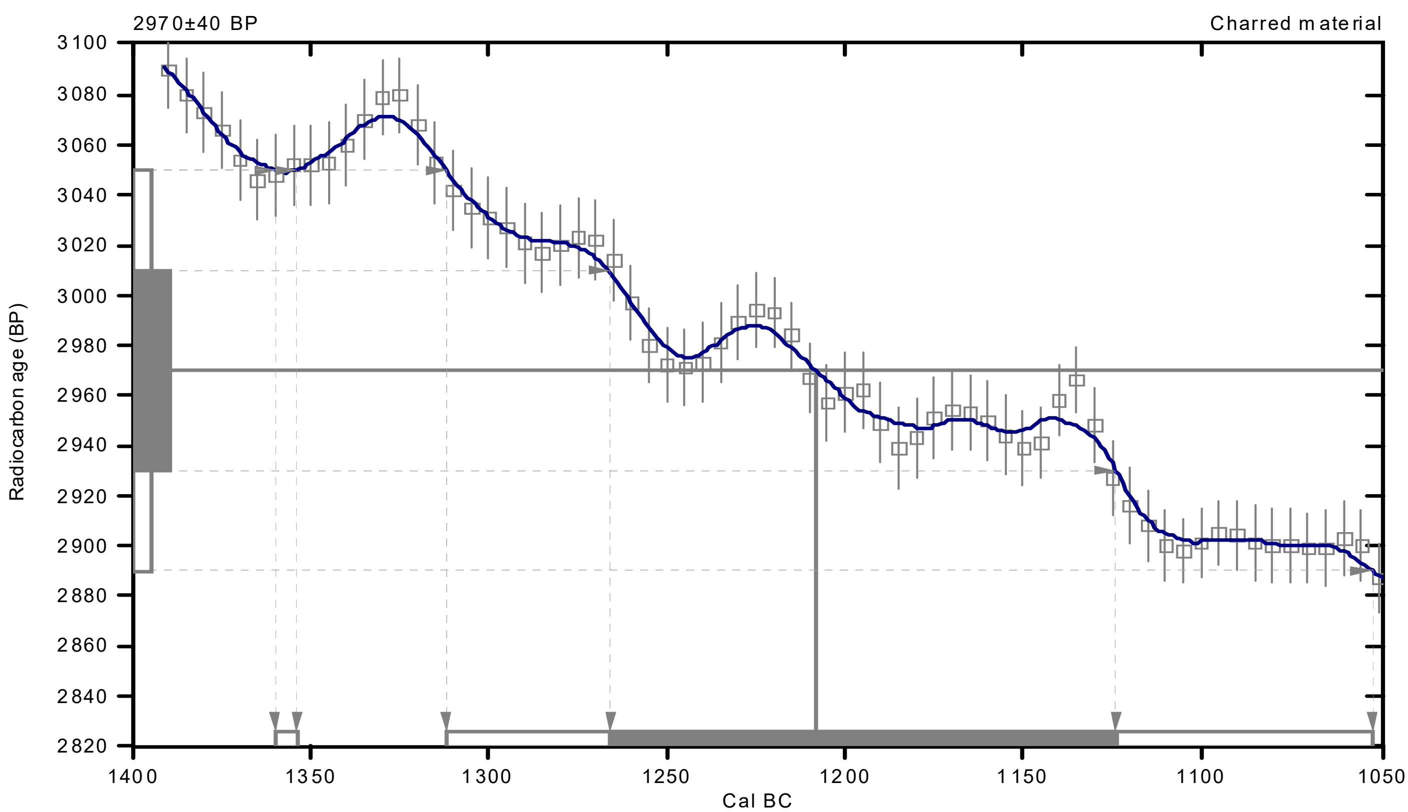
Conventional radiocarbon age: **2970±40 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 1360 to 1350 (Cal BP 3310 to 3300) and Cal BC 1310 to 1050 (Cal BP 3260 to 3000)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 1210 (Cal BP 3160)

1 Sigma calibrated result: (68% probability) Cal BC 1270 to 1120 (Cal BP 3220 to 3070)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

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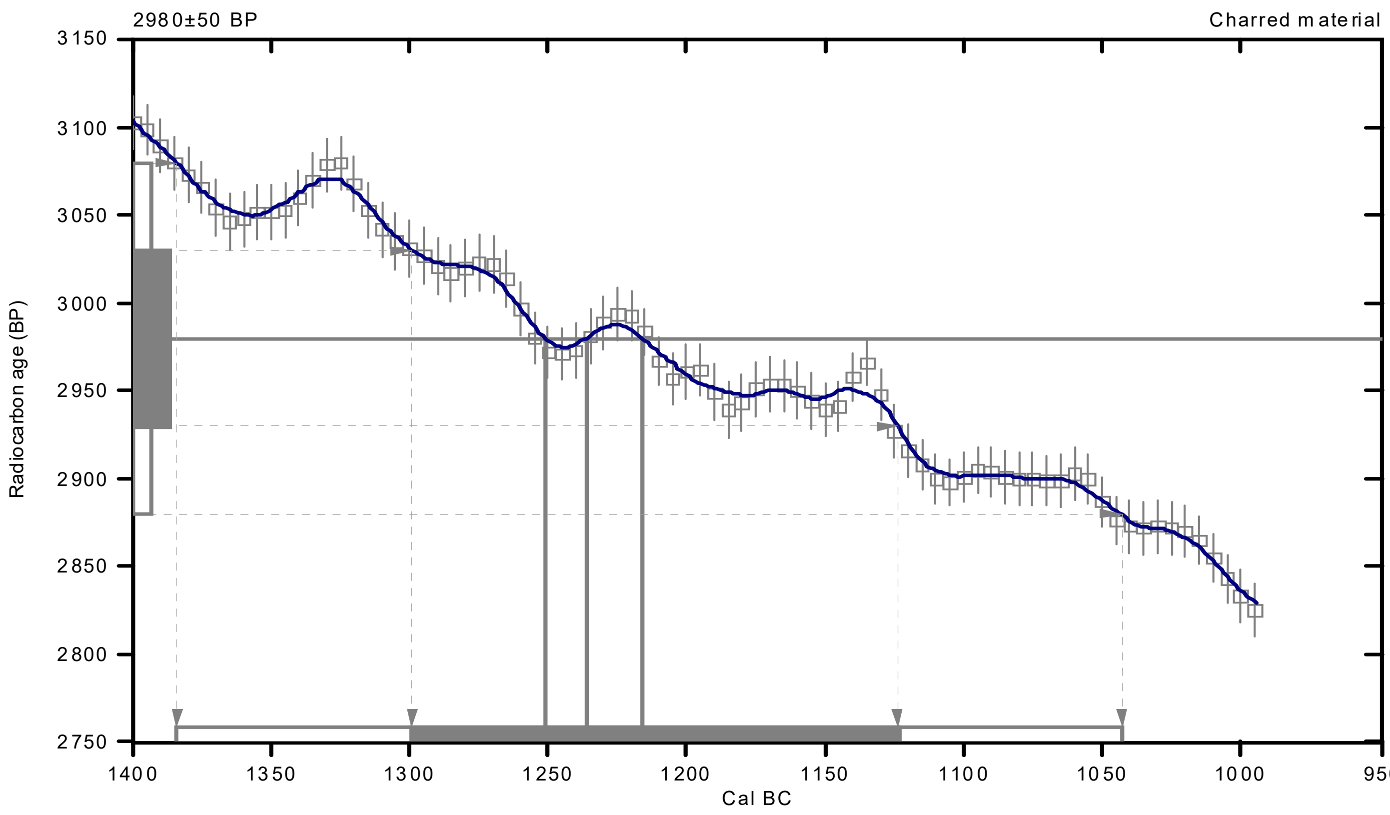
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-19.3:lab. mult=1)

Laboratory number:	**Beta-303003**
Conventional radiocarbon age:	**2980±50 BP**
2 Sigma calibrated result: (95% probability)	**Cal BC 1380 to 1040 (Cal BP 3330 to 2990)**

Intercept data

Intercepts of radiocarbon age with calibration curve:	Cal BC 1250 (Cal BP 3200) and Cal BC 1240 (Cal BP 3190) and Cal BC 1220 (Cal BP 3170)
1 Sigma calibrated result: (68% probability)	Cal BC 1300 to 1120 (Cal BP 3250 to 3070)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-20:lab. mult=1)

Laboratory number: **Beta-267650**

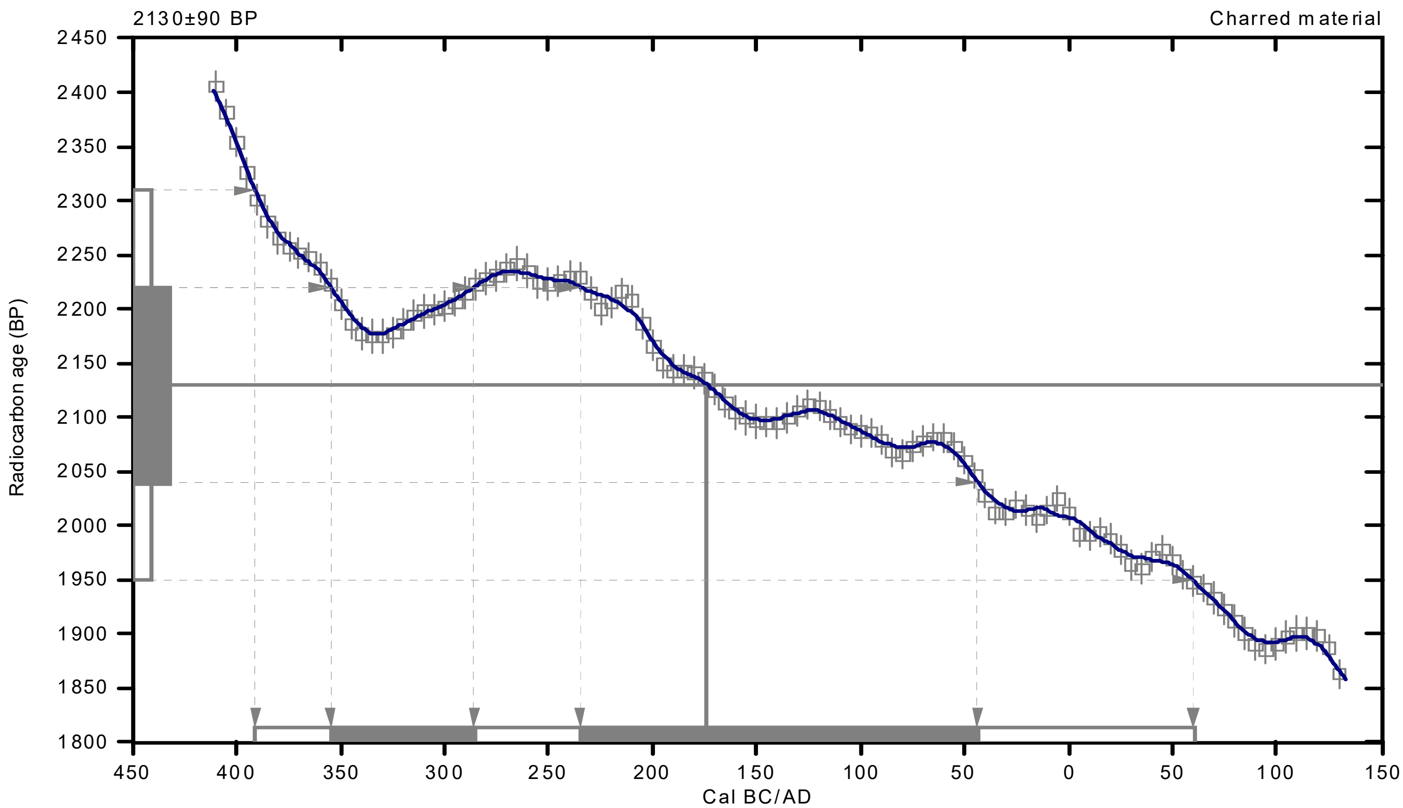
Conventional radiocarbon age: **2130±90 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 390 to Cal AD 60 (Cal BP 2340 to 1890)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 170 (Cal BP 2120)

1 Sigma calibrated results: (68% probability) Cal BC 360 to 290 (Cal BP 2300 to 2240) and Cal BC 240 to 40 (Cal BP 2180 to 1990)



References:

Database used

INTCAL04

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IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21:lab. mult=1)

Laboratory number: **Beta-263483**

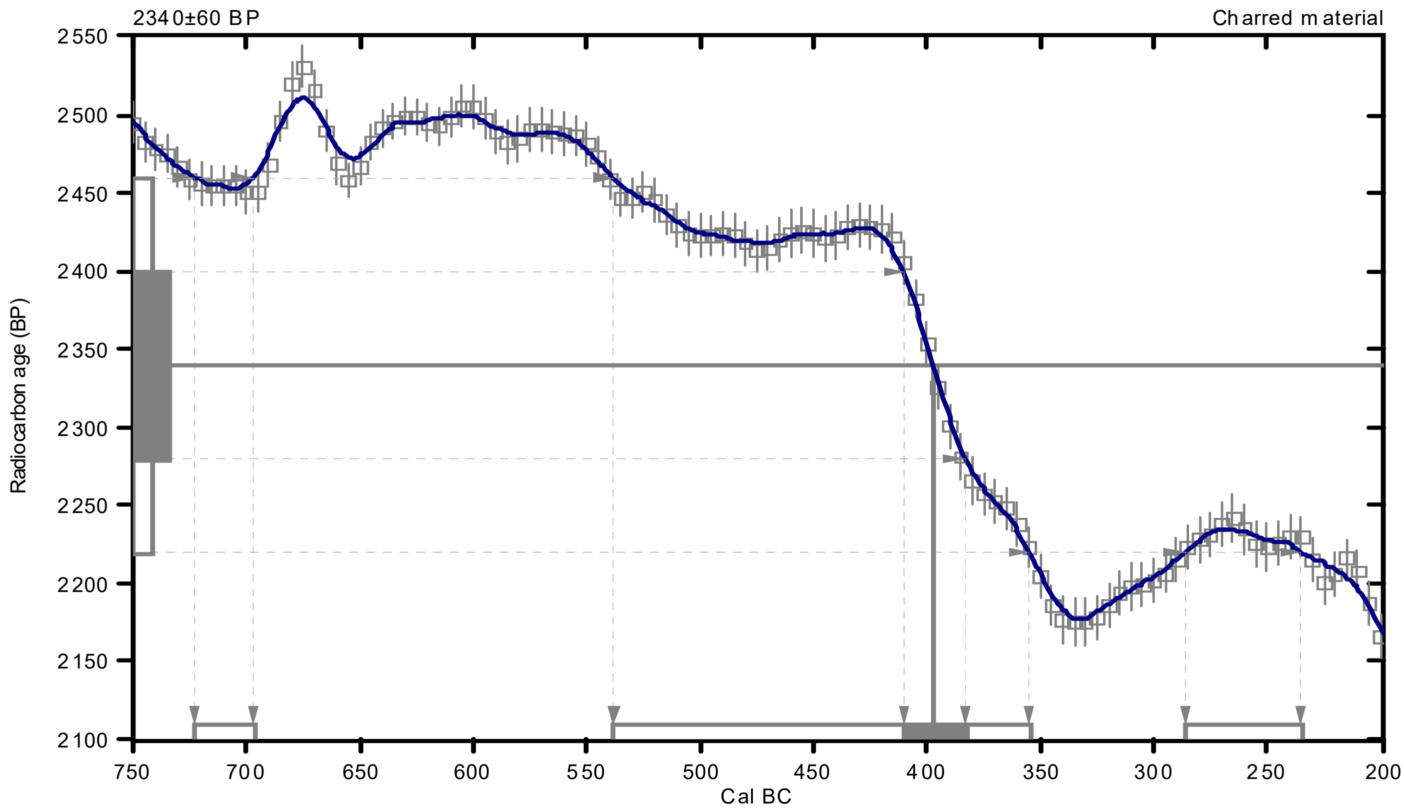
Conventional radiocarbon age: **2340±60 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 720 to 700 (Cal BP 2670 to 2650) and Cal BC 540 to 360 (Cal BP 2490 to 2300) and Cal BC 290 to 240 (Cal BP 2240 to 2180)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 400 (Cal BP 2350)

1 Sigma calibrated result: (68% probability) Cal BC 410 to 380 (Cal BP 2360 to 2330)



References:

Database used

INTCAL04

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IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.9:lab. mult=1)

Laboratory number: **Beta-303004**

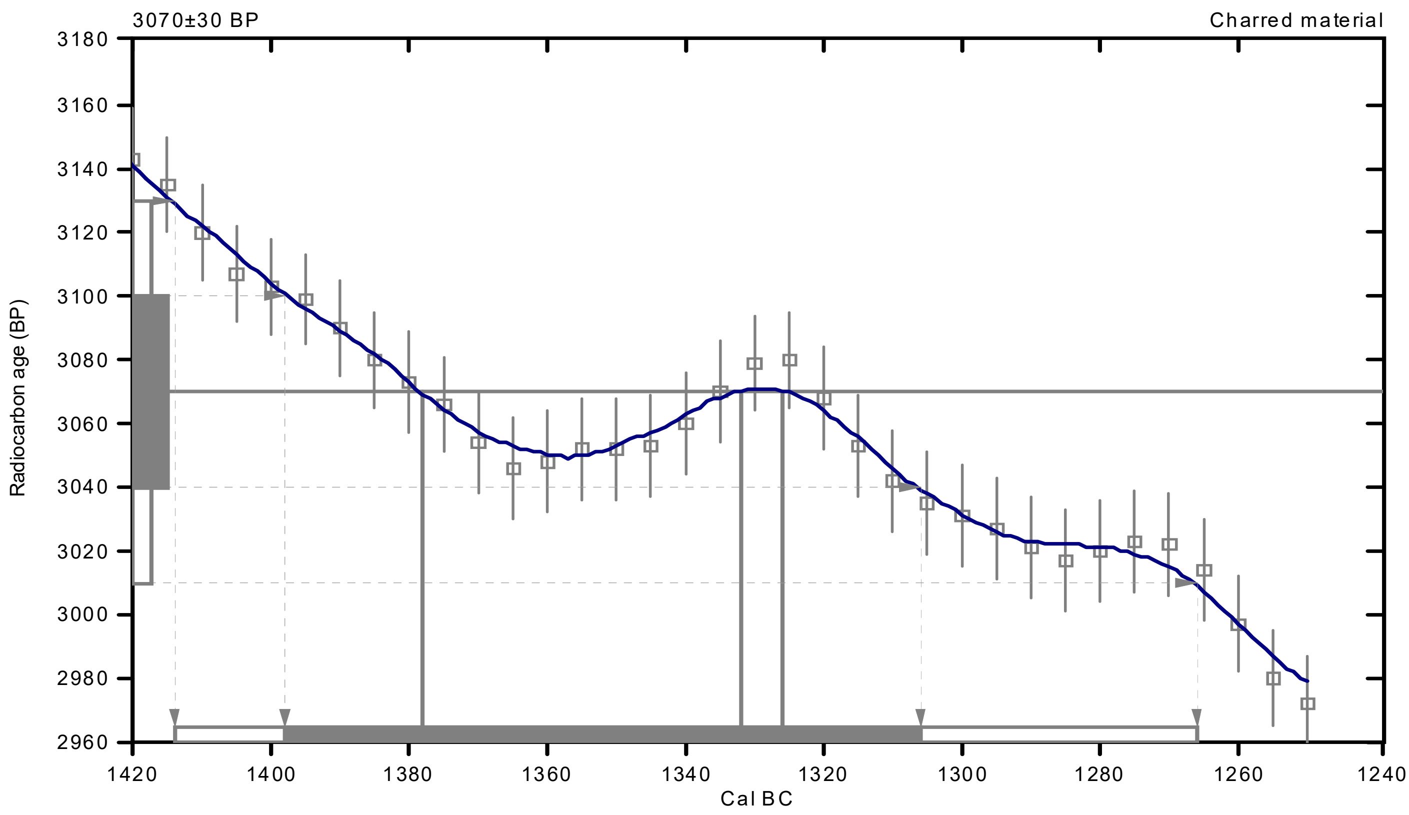
Conventional radiocarbon age: **3070±30 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 1410 to 1270 (Cal BP 3360 to 3220)**

Intercept data

Intercepts of radiocarbon age with calibration curve: Cal BC 1380 (Cal BP 3330) and Cal BC 1330 (Cal BP 3280) and Cal BC 1330 (Cal BP 3280)

1 Sigma calibrated result: (68% probability) Cal BC 1400 to 1310 (Cal BP 3350 to 3260)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.2:lab. mult=1)

Laboratory number: **Beta-303005**

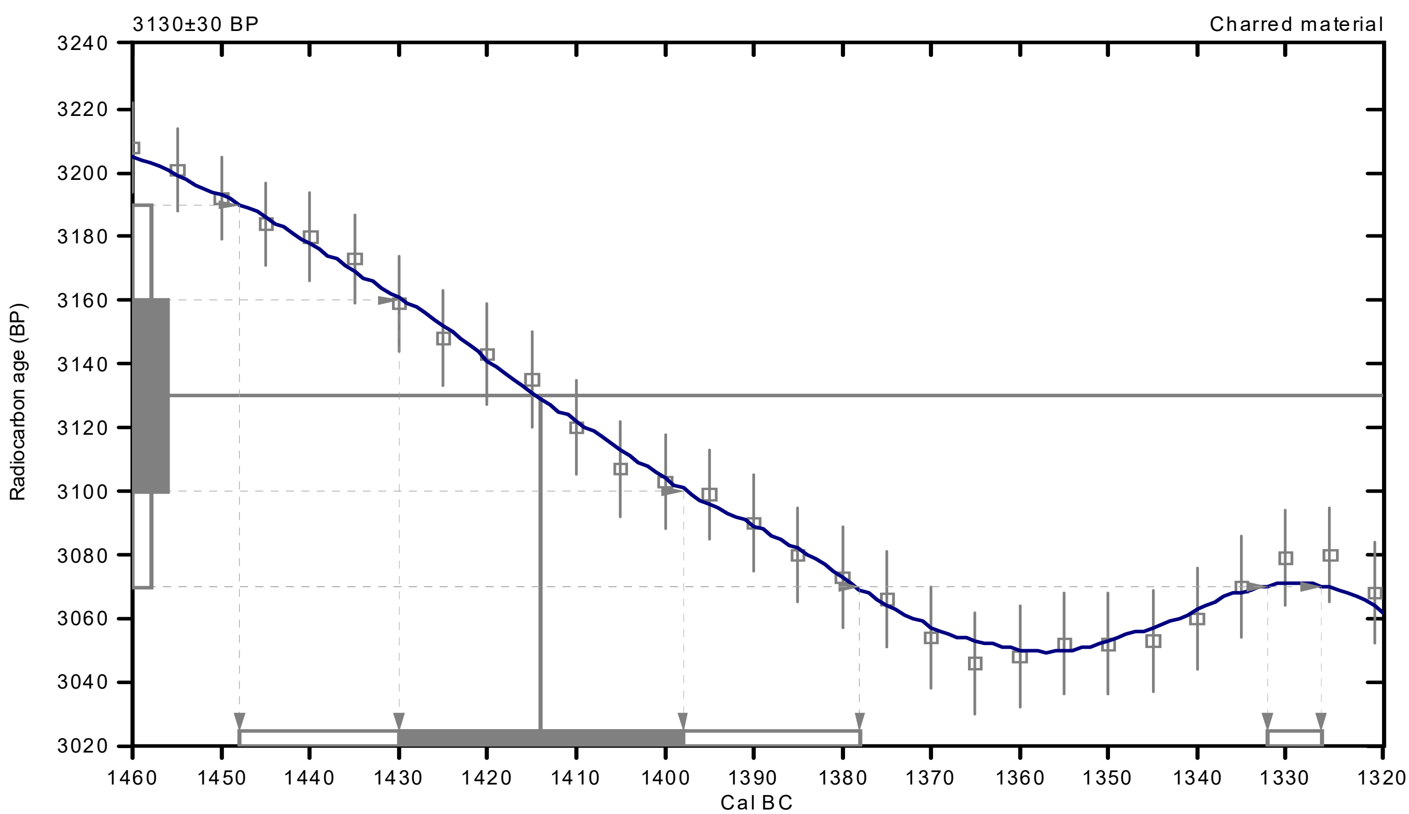
Conventional radiocarbon age: **3130±30 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 1450 to 1380 (Cal BP 3400 to 3330) and Cal BC 1330 to 1330 (Cal BP 3280 to 3280)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 1410 (Cal BP 3360)

1 Sigma calibrated result: (68% probability) Cal BC 1430 to 1400 (Cal BP 3380 to 3350)



References:

Database used

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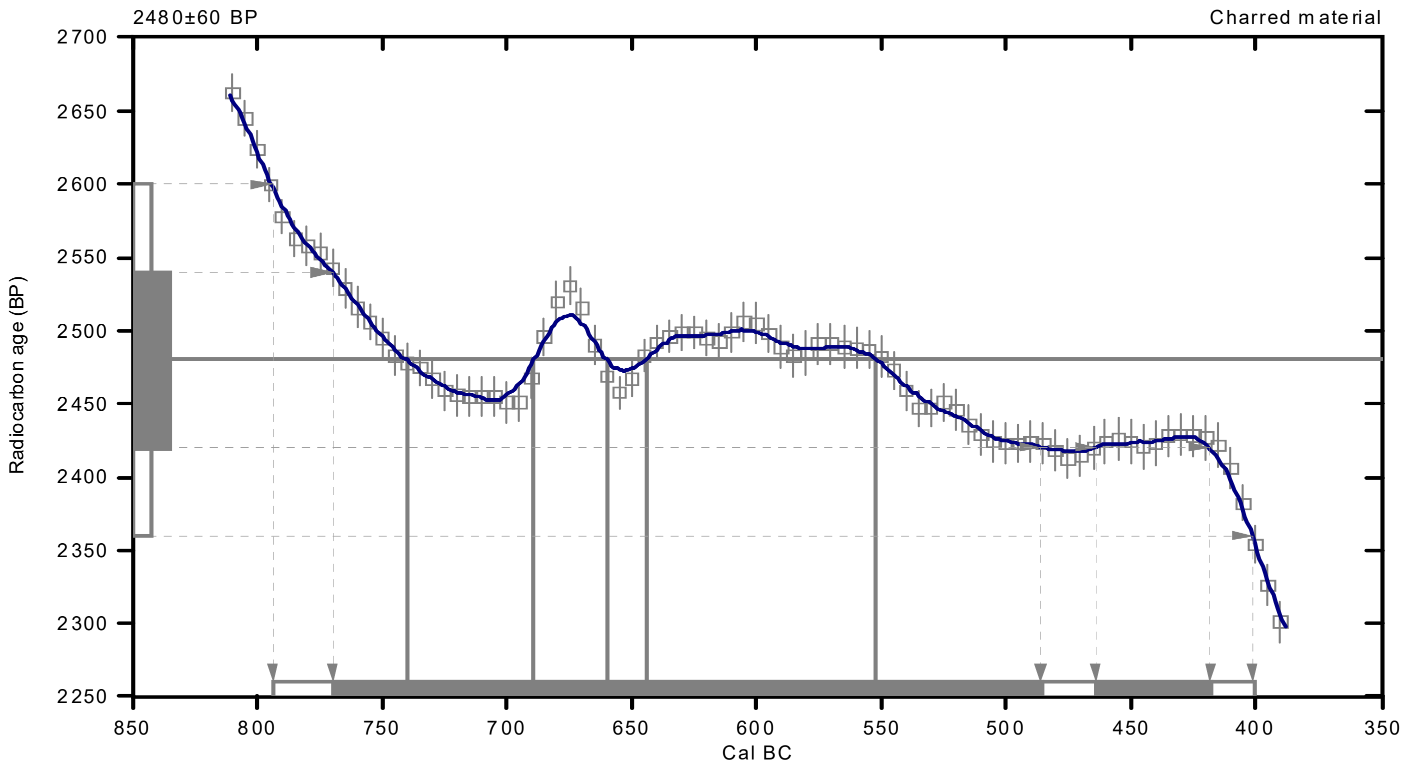
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.9:lab. mult=1)

Laboratory number:	**Beta-267647**
Conventional radiocarbon age:	**2480±60 BP**
2 Sigma calibrated result: (95% probability)	**Cal BC 790 to 400 (Cal BP 2740 to 2350)**

Intercept data

Intercepts of radiocarbon age with calibration curve:	Cal BC 740 (Cal BP 2690) and Cal BC 690 (Cal BP 2640) and Cal BC 660 (Cal BP 2610) and Cal BC 640 (Cal BP 2590) and Cal BC 550 (Cal BP 2500)
1 Sigma calibrated results: (68% probability)	Cal BC 770 to 490 (Cal BP 2720 to 2440) and Cal BC 460 to 420 (Cal BP 2410 to 2370)



References:

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-19.4:lab. mult=1)

Laboratory number: **Beta-267648**

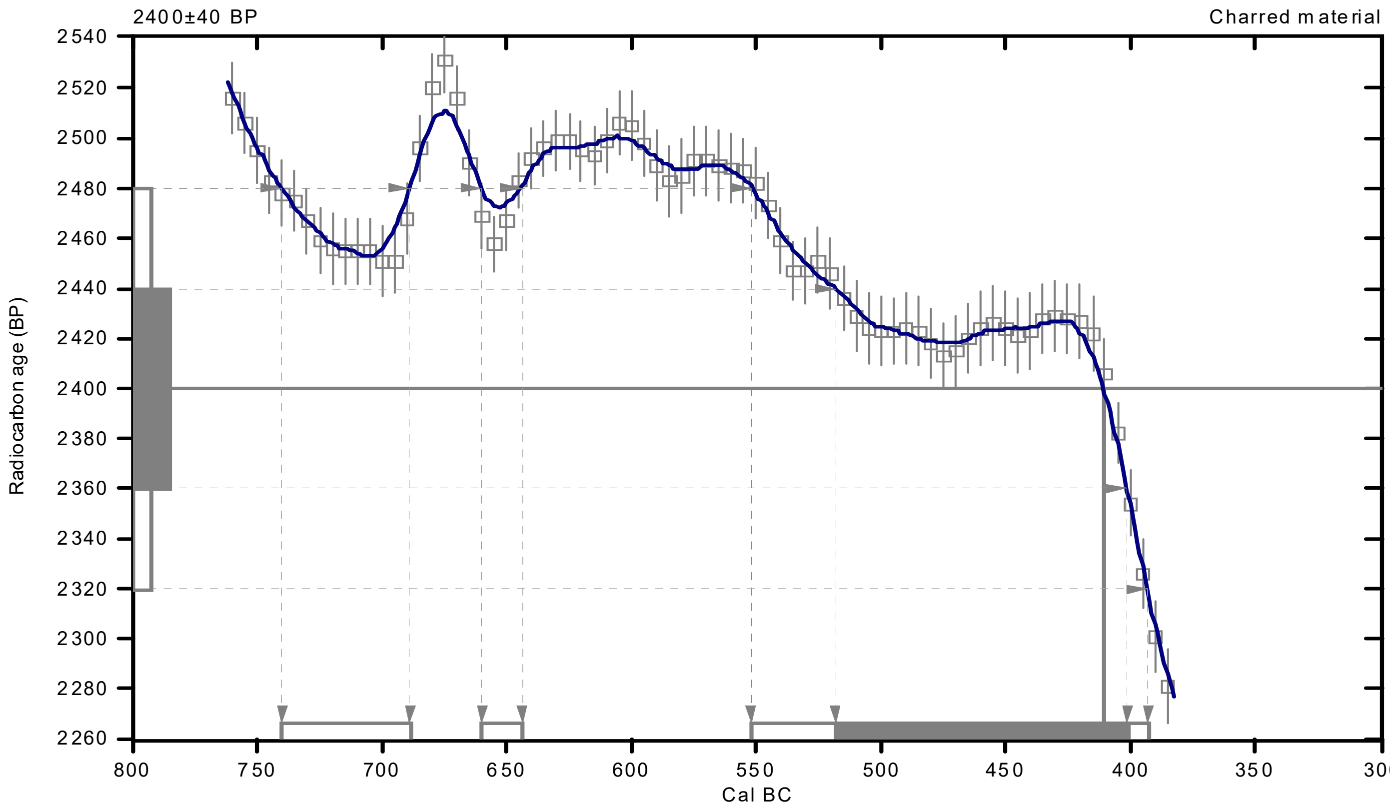
Conventional radiocarbon age: **2400±40 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 740 to 690 (Cal BP 2690 to 2640) and Cal BC 660 to 640 (Cal BP 2610 to 2590) and Cal BC 550 to 390 (Cal BP 2500 to 2340)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 410 (Cal BP 2360)

1 Sigma calibrated result: (68% probability) Cal BC 520 to 400 (Cal BP 2470 to 2350)



References:

Database used
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IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates
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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-19.5:lab. mult=1)

Laboratory number: **Beta-282180**

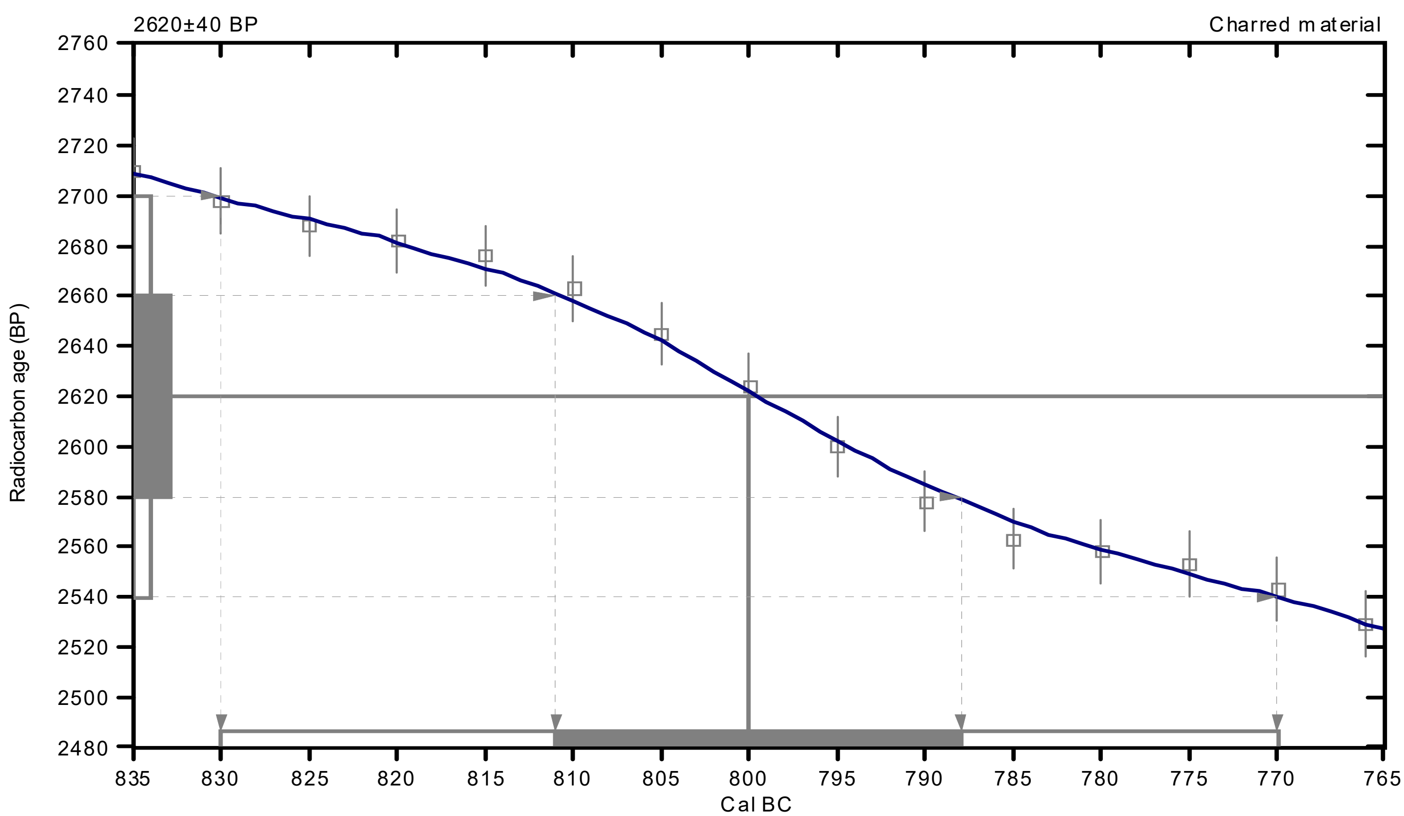
Conventional radiocarbon age: **2620±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 830 to 770 (Cal BP 2780 to 2720)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 800 (Cal BP 2750)

1 Sigma calibrated result: (68% probability) Cal BC 810 to 790 (Cal BP 2760 to 2740)



References:

Database used

INTCAL04

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IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.5:lab. mult=1)

Laboratory number: **Beta-263484**

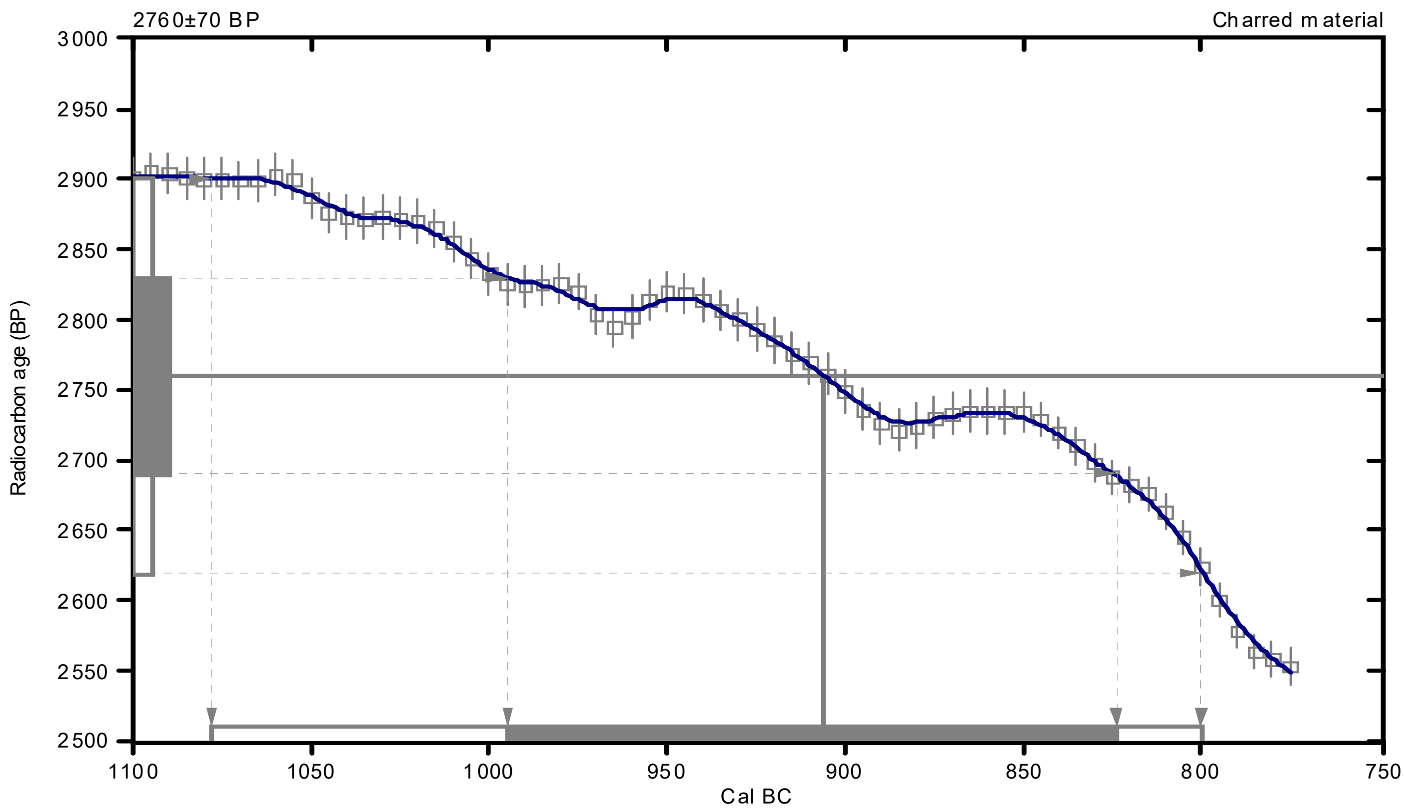
Conventional radiocarbon age: **2760±70 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 1080 to 800 (Cal BP 3030 to 2750)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 910 (Cal BP 2860)

1 Sigma calibrated result: (68% probability) Cal BC 1000 to 820 (Cal BP 2940 to 2770)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

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A Simplified Approach to Calibrating C14 Dates

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.3:lab. mult=1)

Laboratory number: **Beta-303006**

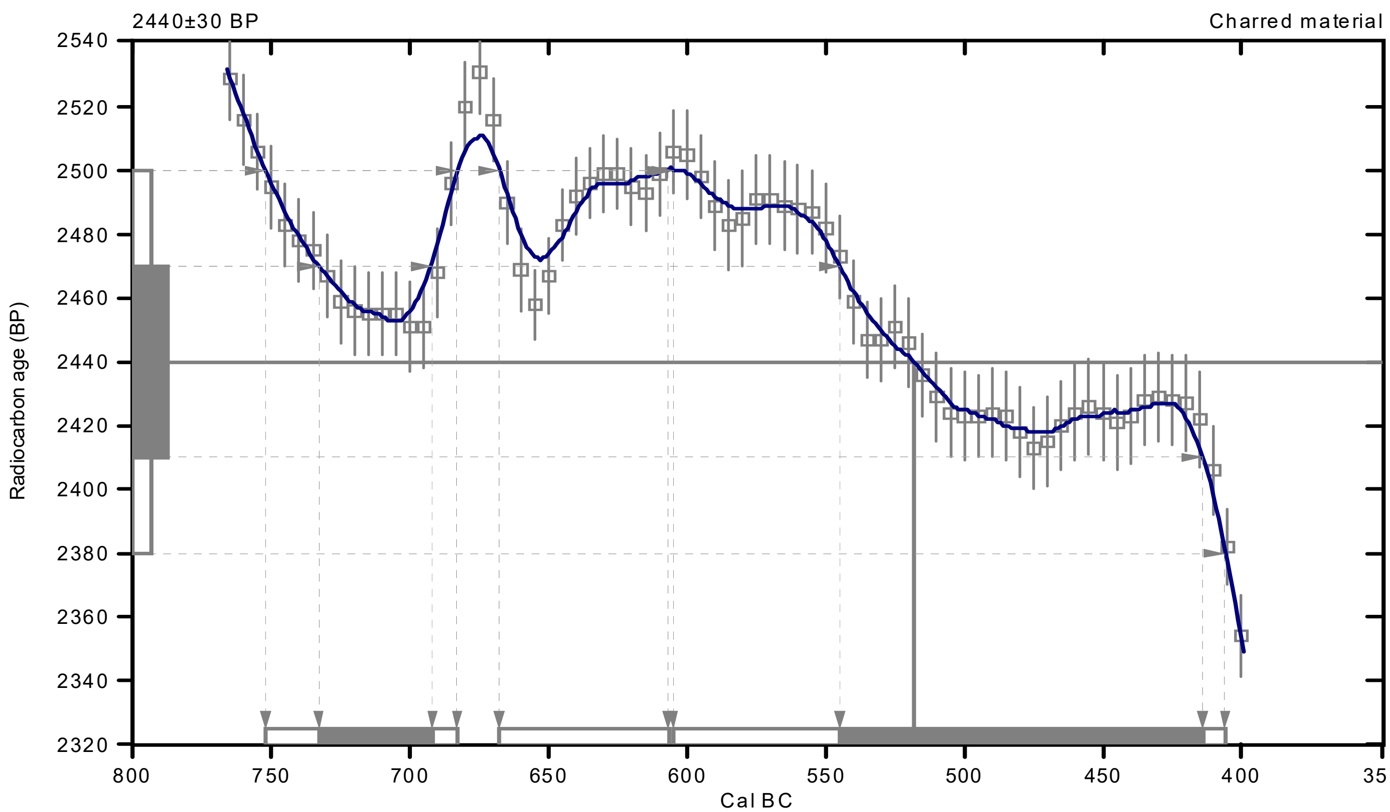
Conventional radiocarbon age: **2440±30 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 750 to 680 (Cal BP 2700 to 2630) and Cal BC 670 to 610 (Cal BP 2620 to 2560) and Cal BC 600 to 410 (Cal BP 2560 to 2360)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 520 (Cal BP 2470)

1 Sigma calibrated results: (68% probability) Cal BC 730 to 690 (Cal BP 2680 to 2640) and Cal BC 540 to 410 (Cal BP 2500 to 2360)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.3:lab. mult=1)

Laboratory number: **Beta-303007**

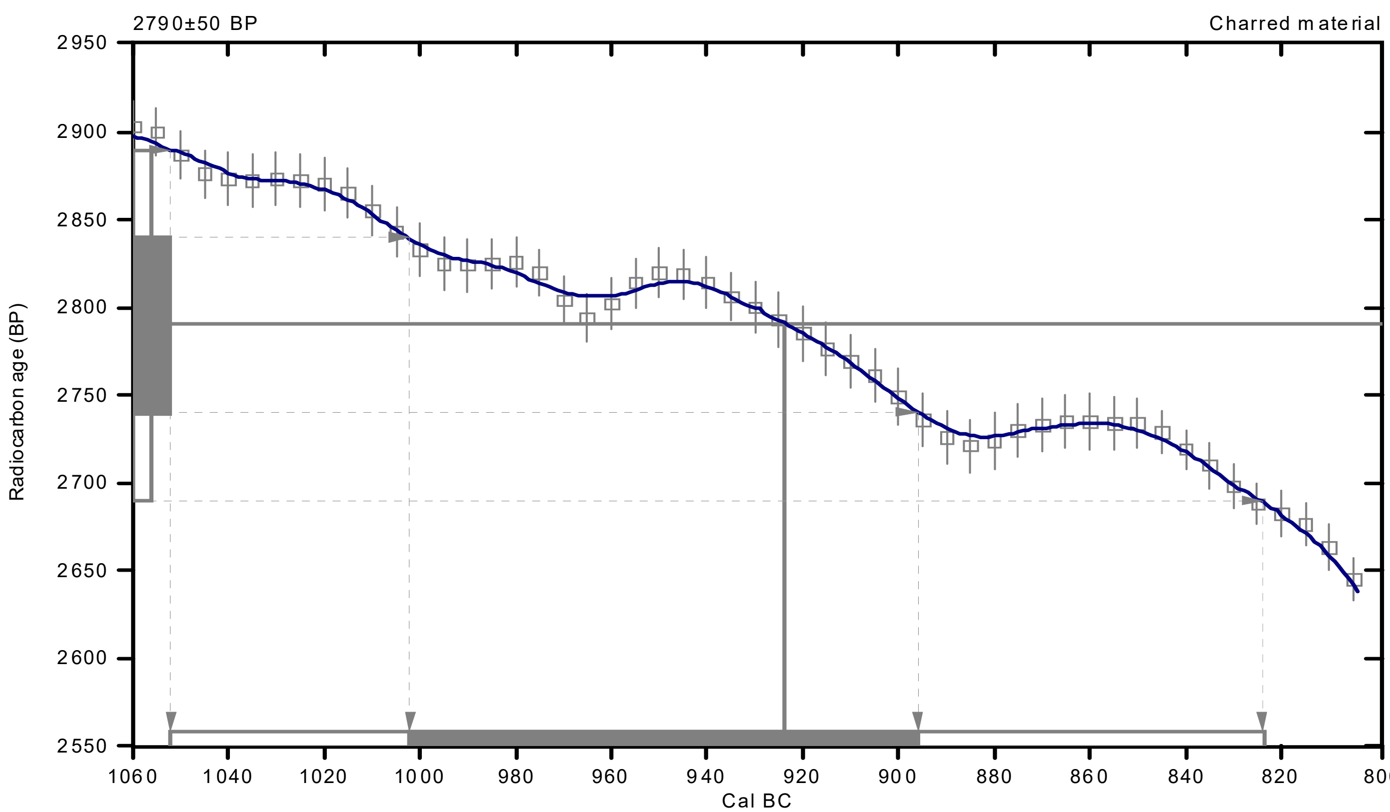
Conventional radiocarbon age: **2790±50 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 1050 to 820 (Cal BP 3000 to 2770)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 920 (Cal BP 2870)

1 Sigma calibrated result: (68% probability) Cal BC 1000 to 900 (Cal BP 2950 to 2850)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21:lab. mult=1)

Laboratory number: **Beta-303008**

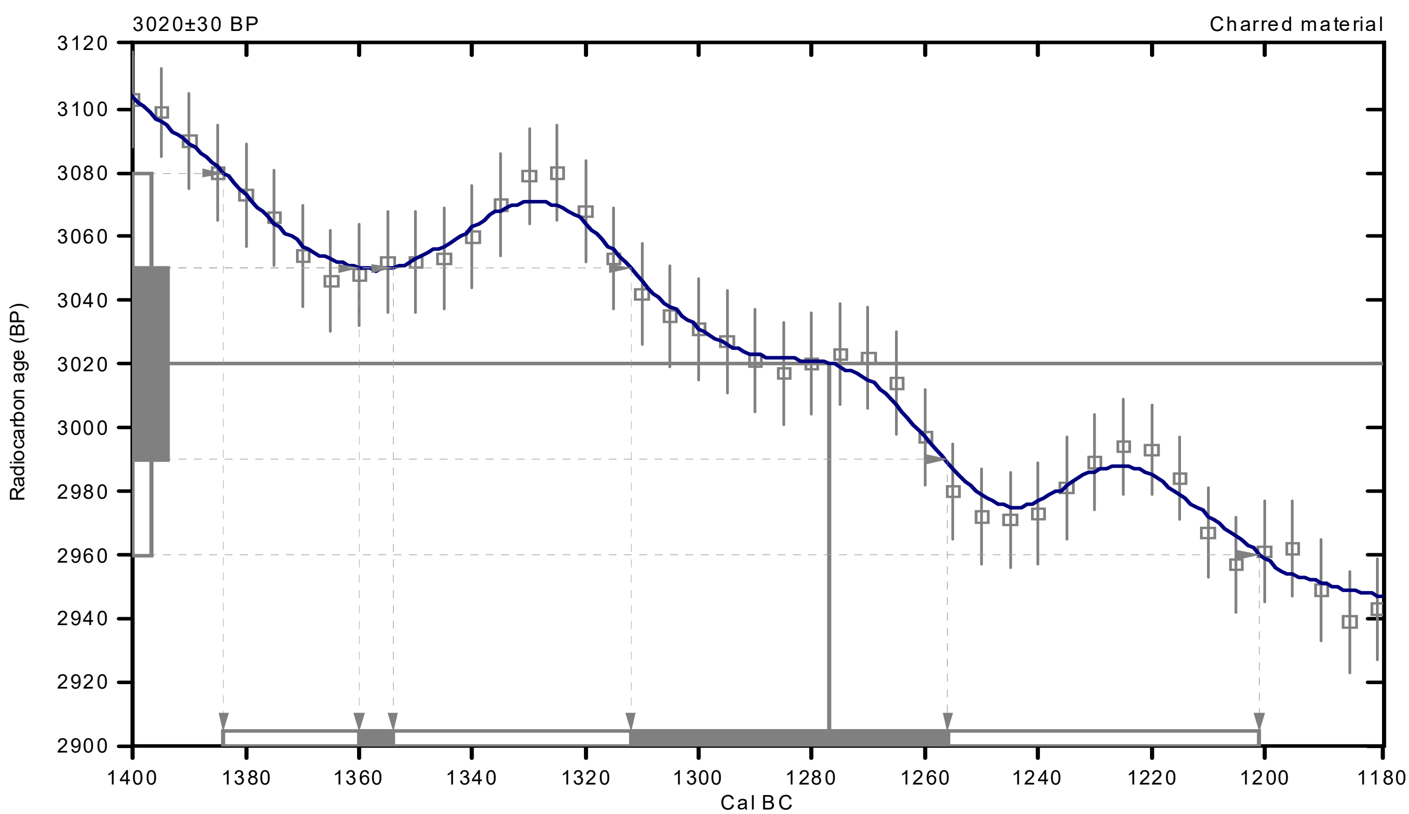
Conventional radiocarbon age: **3020±30 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 1380 to 1200 (Cal BP 3330 to 3150)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 1280 (Cal BP 3230)

1 Sigma calibrated results: (68% probability) Cal BC 1360 to 1350 (Cal BP 3310 to 3300) and Cal BC 1310 to 1260 (Cal BP 3260 to 3210)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.9:lab. mult=1)

Laboratory number: **Beta-263485**

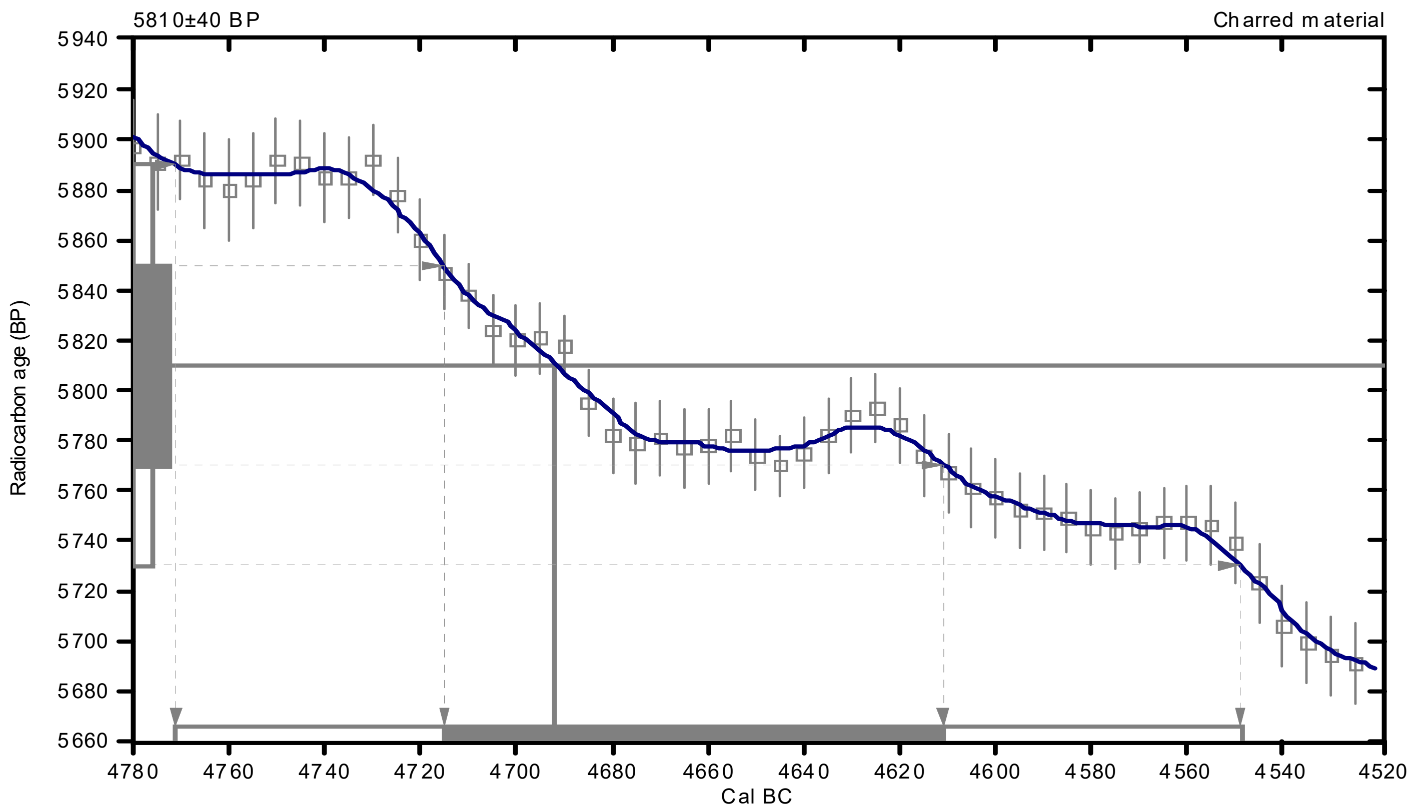
Conventional radiocarbon age: **5810±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 4770 to 4550 (Cal BP 6720 to 6500)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 4690 (Cal BP 6640)

1 Sigma calibrated result: (68% probability) Cal BC 4720 to 4610 (Cal BP 6660 to 6560)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-20.4:lab. mult=1)

Laboratory number: **Beta-263486**

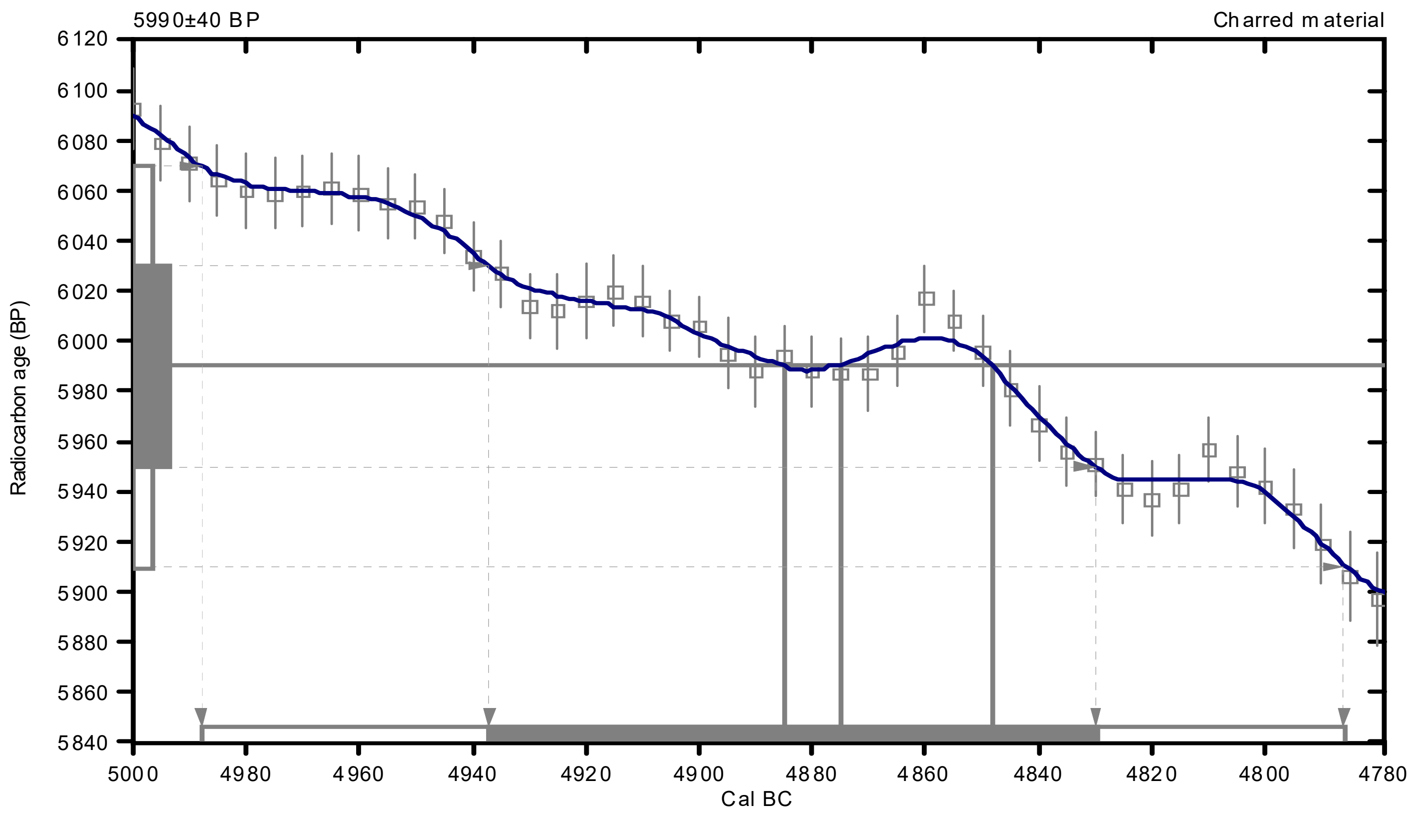
Conventional radiocarbon age: **5990±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 4990 to 4790 (Cal BP 6940 to 6740)**

Intercept data

Intercepts of radiocarbon age with calibration curve: Cal BC 4880 (Cal BP 6840) and
Cal BC 4880 (Cal BP 6820) and
Cal BC 4850 (Cal BP 6800)

1 Sigma calibrated result: (68% probability) Cal BC 4940 to 4830 (Cal BP 6890 to 6780)



References:

Database used
INTCAL04
Calibration Database
INTCAL04 Radiocarbon Age Calibration
IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).
Mathematics
A Simplified Approach to Calibrating C14 Dates
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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-22:lab. mult=1)

Laboratory number: **Beta-303009**

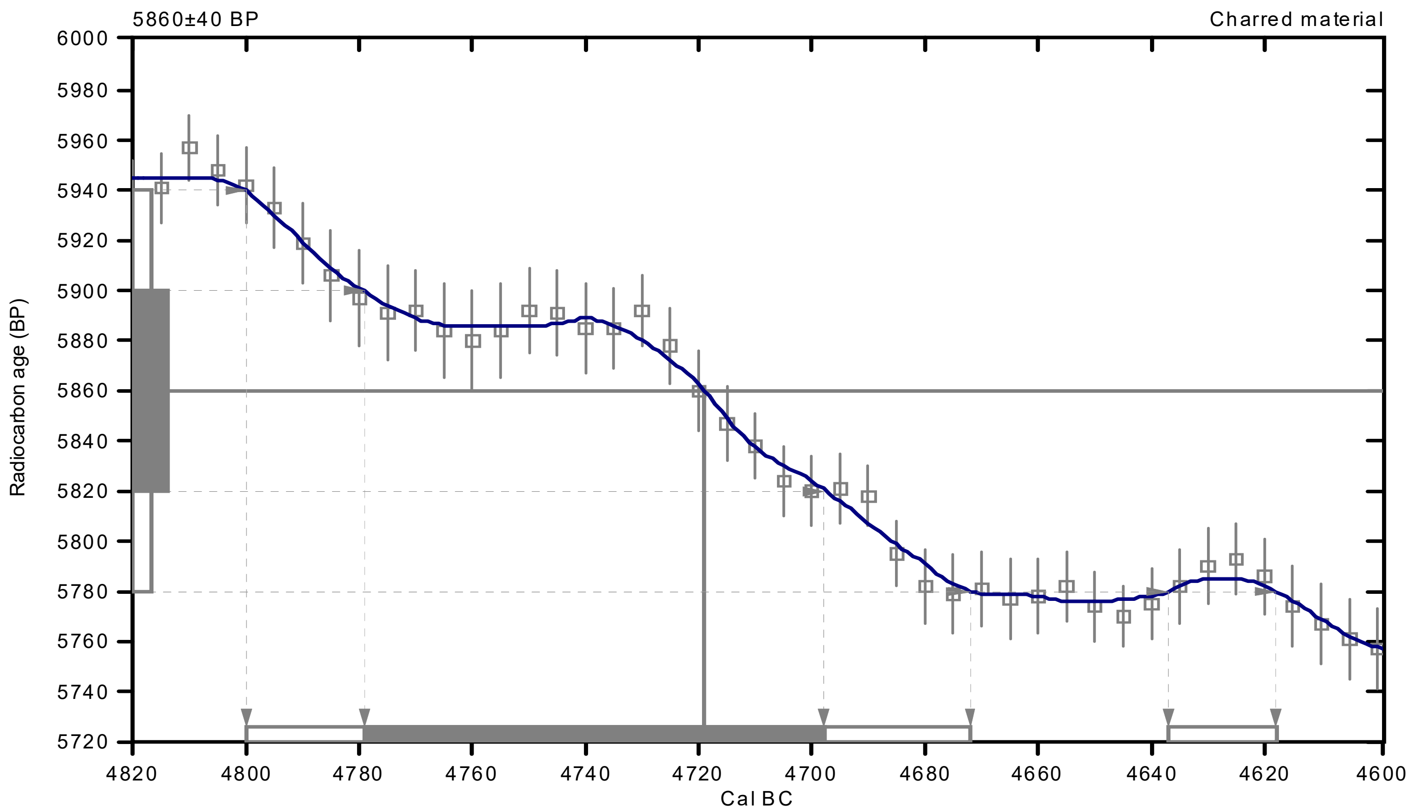
Conventional radiocarbon age: **5860±40 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 4800 to 4670 (Cal BP 6750 to 6620) and Cal BC 4640 to 4620 (Cal BP 6590 to 6570)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 4720 (Cal BP 6670)

1 Sigma calibrated result: (68% probability) Cal BC 4780 to 4700 (Cal BP 6730 to 6650)



References:

Database used
INTCAL04
Calibration Database
INTCAL04 Radiocarbon Age Calibration
IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).
Mathematics
A Simplified Approach to Calibrating C14 Dates
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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.4:lab. mult=1)

Laboratory number: **Beta-303010**

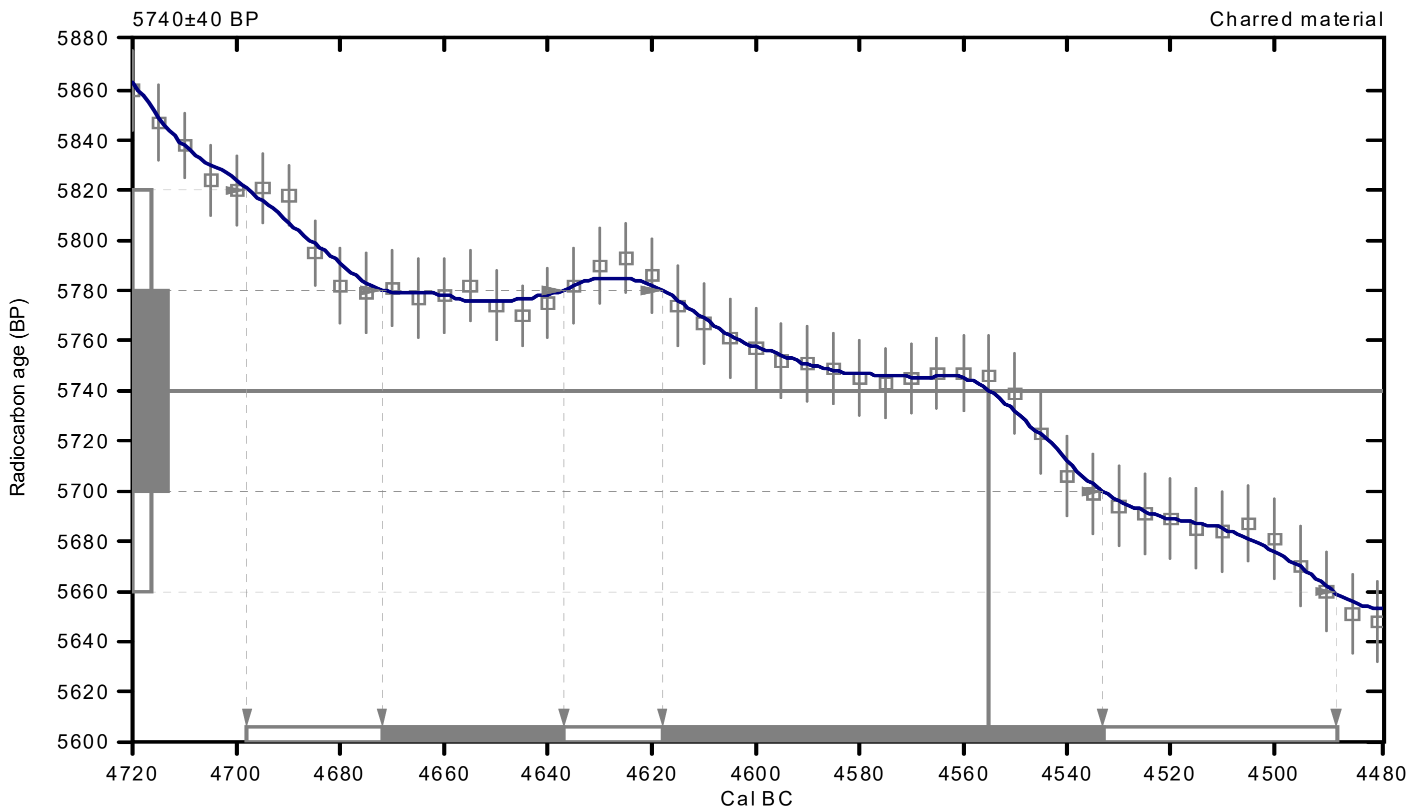
Conventional radiocarbon age: **5740±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 4700 to 4490 (Cal BP 6650 to 6440)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 4560 (Cal BP 6500)

1 Sigma calibrated results: (68% probability) Cal BC 4670 to 4640 (Cal BP 6620 to 6590) and Cal BC 4620 to 4530 (Cal BP 6570 to 6480)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21:lab. mult=1)

Laboratory number: **Beta-304089**

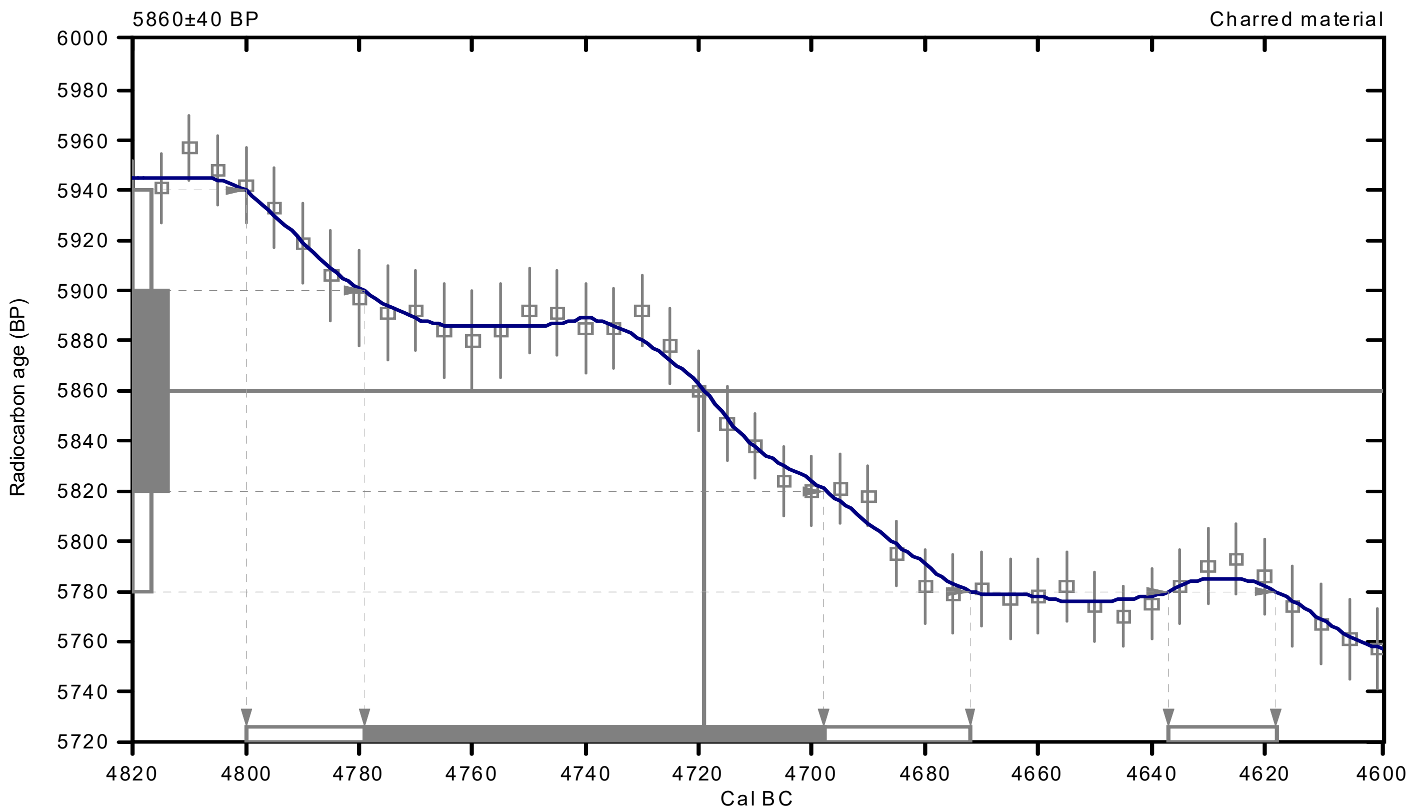
Conventional radiocarbon age: **5860±40 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 4800 to 4670 (Cal BP 6750 to 6620) and Cal BC 4640 to 4620 (Cal BP 6590 to 6570)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 4720 (Cal BP 6670)

1 Sigma calibrated result: (68% probability) Cal BC 4780 to 4700 (Cal BP 6730 to 6650)



References:

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.4:lab. mult=1)

Laboratory number: **Beta-263487**

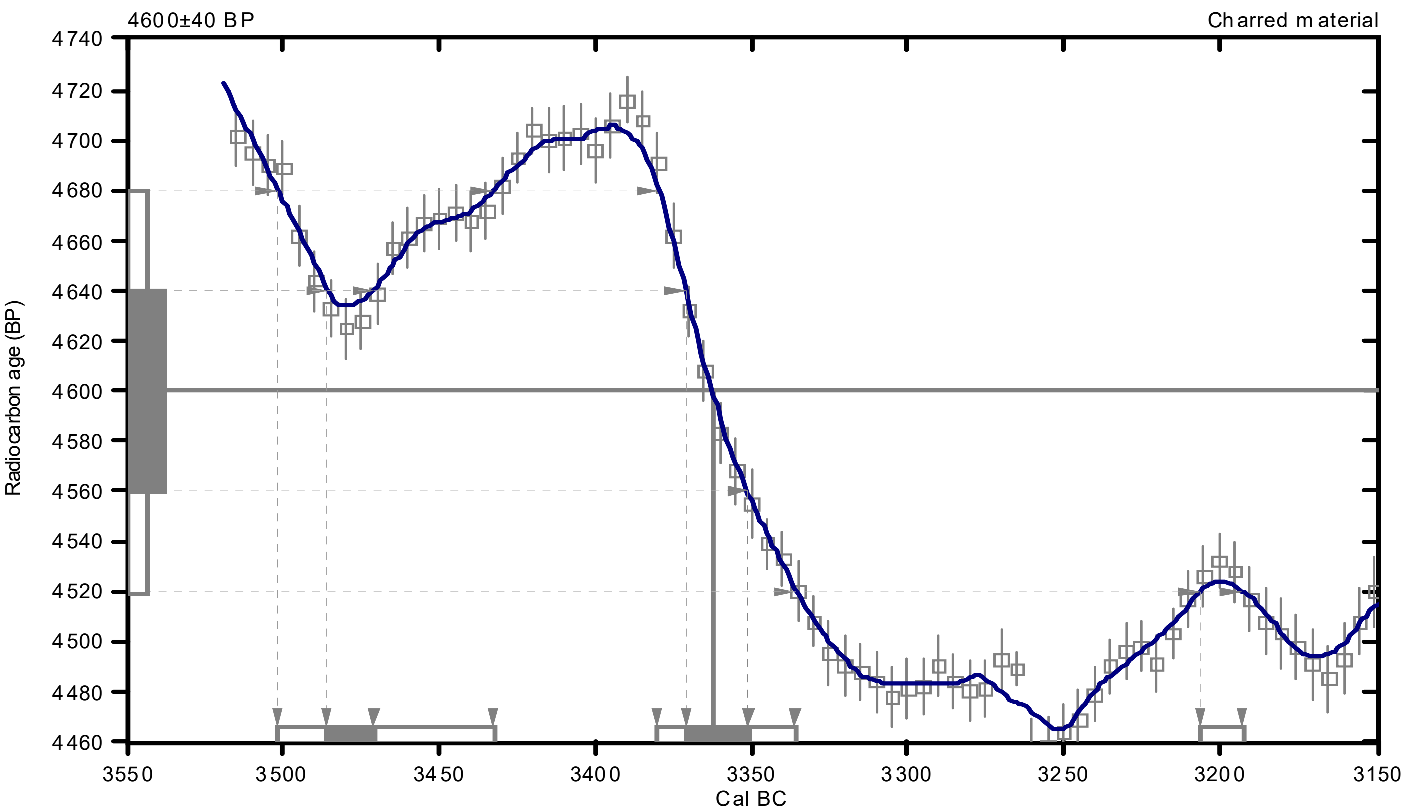
Conventional radiocarbon age: **4600±40 BP**

2 Sigma calibrated results: **Cal BC 3500 to 3430 (Cal BP 5450 to 5380) and**
(95% probability) **Cal BC 3380 to 3340 (Cal BP 5330 to 5290) and**
Cal BC 3210 to 3190 (Cal BP 5160 to 5140)

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal BC 3360 (Cal BP 5310)

1 Sigma calibrated results: Cal BC 3490 to 3470 (Cal BP 5440 to 5420) and
(68% probability) Cal BC 3370 to 3350 (Cal BP 5320 to 5300)



References:
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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.6:lab. mult=1)

Laboratory number: **Beta-303011**

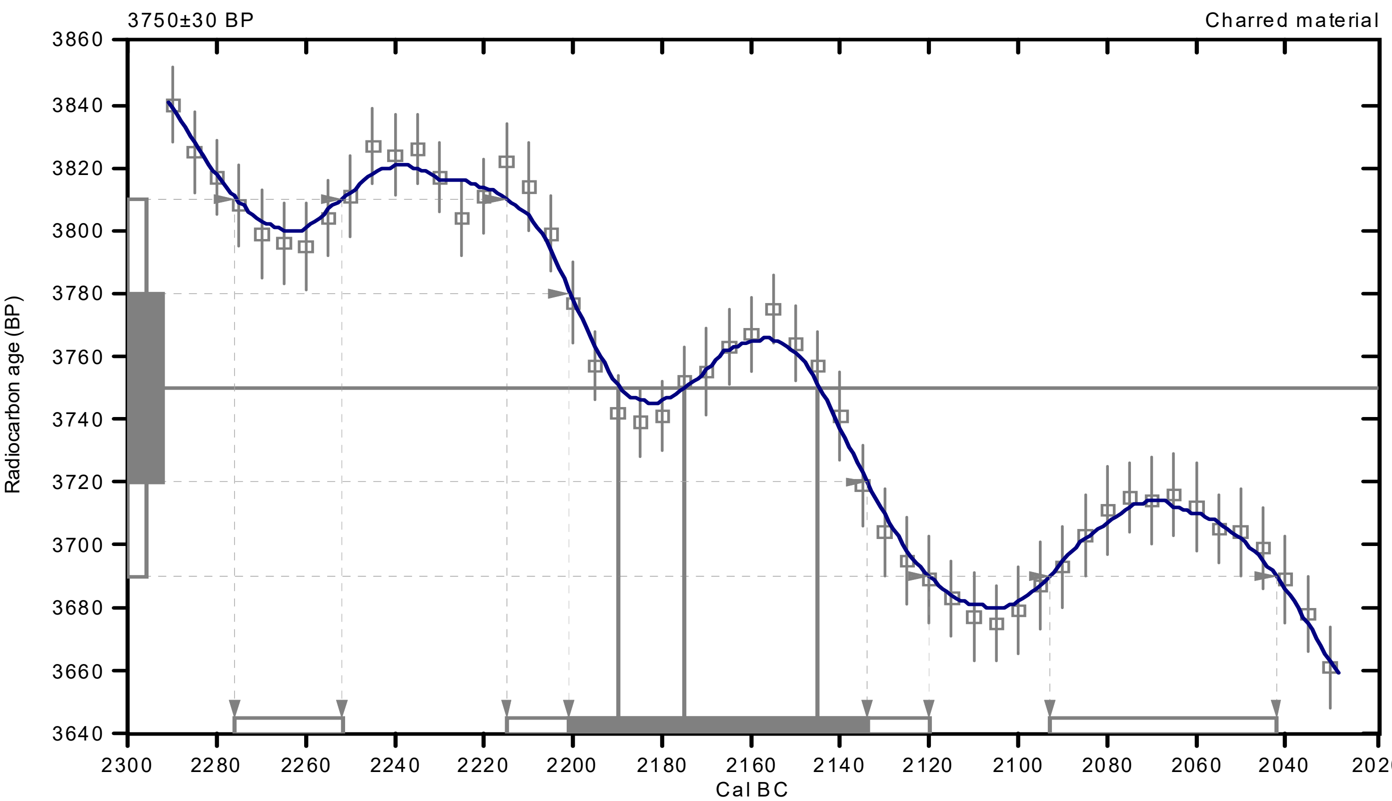
Conventional radiocarbon age: **3750±30 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 2280 to 2250 (Cal BP 4230 to 4200) and Cal BC 2220 to 2120 (Cal BP 4160 to 4070) and Cal BC 2090 to 2040 (Cal BP 4040 to 3990)**

Intercept data

Intercepts of radiocarbon age with calibration curve: Cal BC 2190 (Cal BP 4140) and
Cal BC 2180 (Cal BP 4120) and
Cal BC 2140 (Cal BP 4100)

1 Sigma calibrated result: (68% probability) Cal BC 2200 to 2130 (Cal BP 4150 to 4080)



References:

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-22:lab. mult=1)

Laboratory number: **Beta-303012**

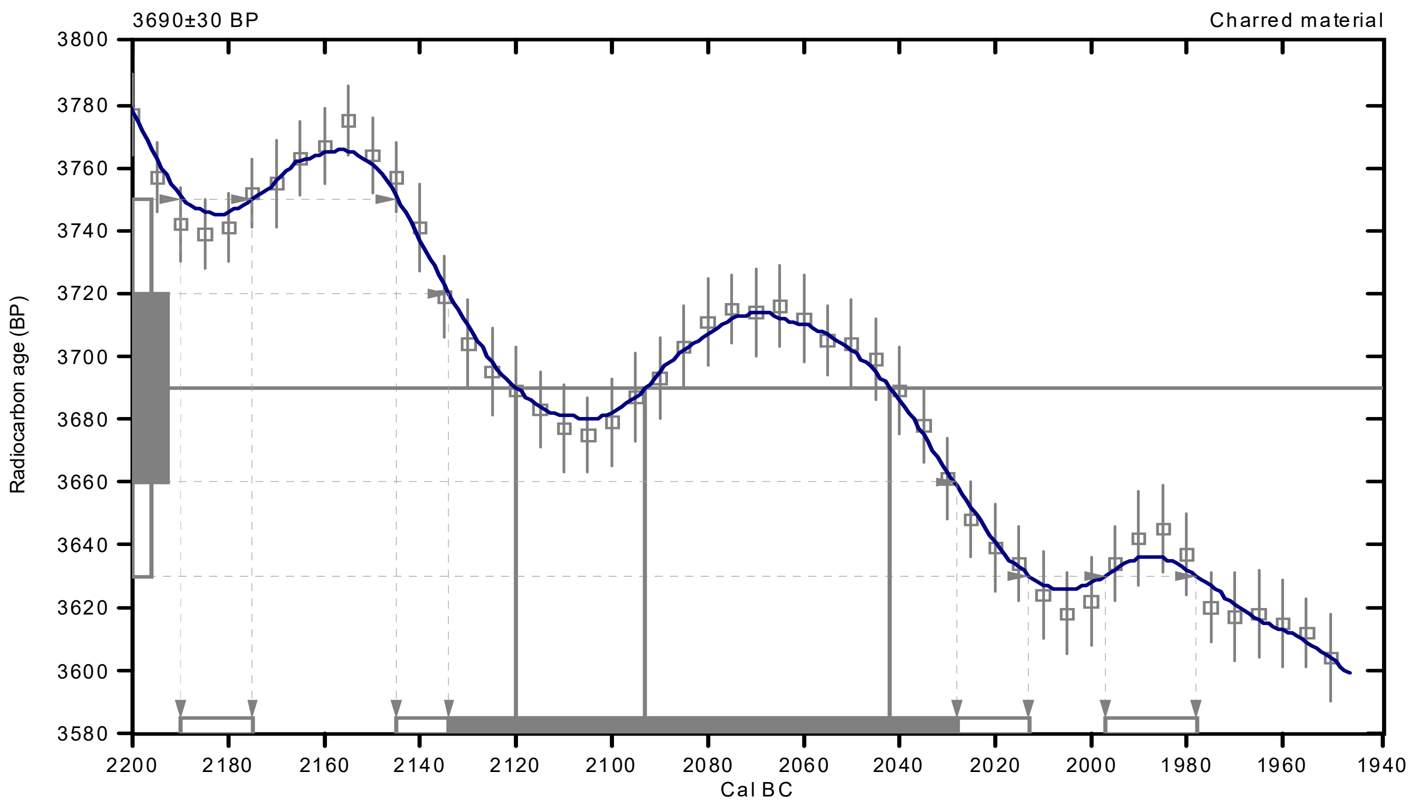
Conventional radiocarbon age: **3690±30 BP**

2 Sigma calibrated results: **Cal BC 2190 to 2180 (Cal BP 4140 to 4120) and**
(95% probability) **Cal BC 2140 to 2010 (Cal BP 4100 to 3960) and**
Cal BC 2000 to 1980 (Cal BP 3950 to 3930)

Intercept data

Intercepts of radiocarbon age with calibration curve: Cal BC 2120 (Cal BP 4070) and
Cal BC 2090 (Cal BP 4040) and
Cal BC 2040 (Cal BP 3990)

1 Sigma calibrated result: Cal BC 2130 to 2030 (Cal BP 4080 to 3980)
(68% probability)



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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-23.8:lab. mult=1)

Laboratory number: **Beta-303013**

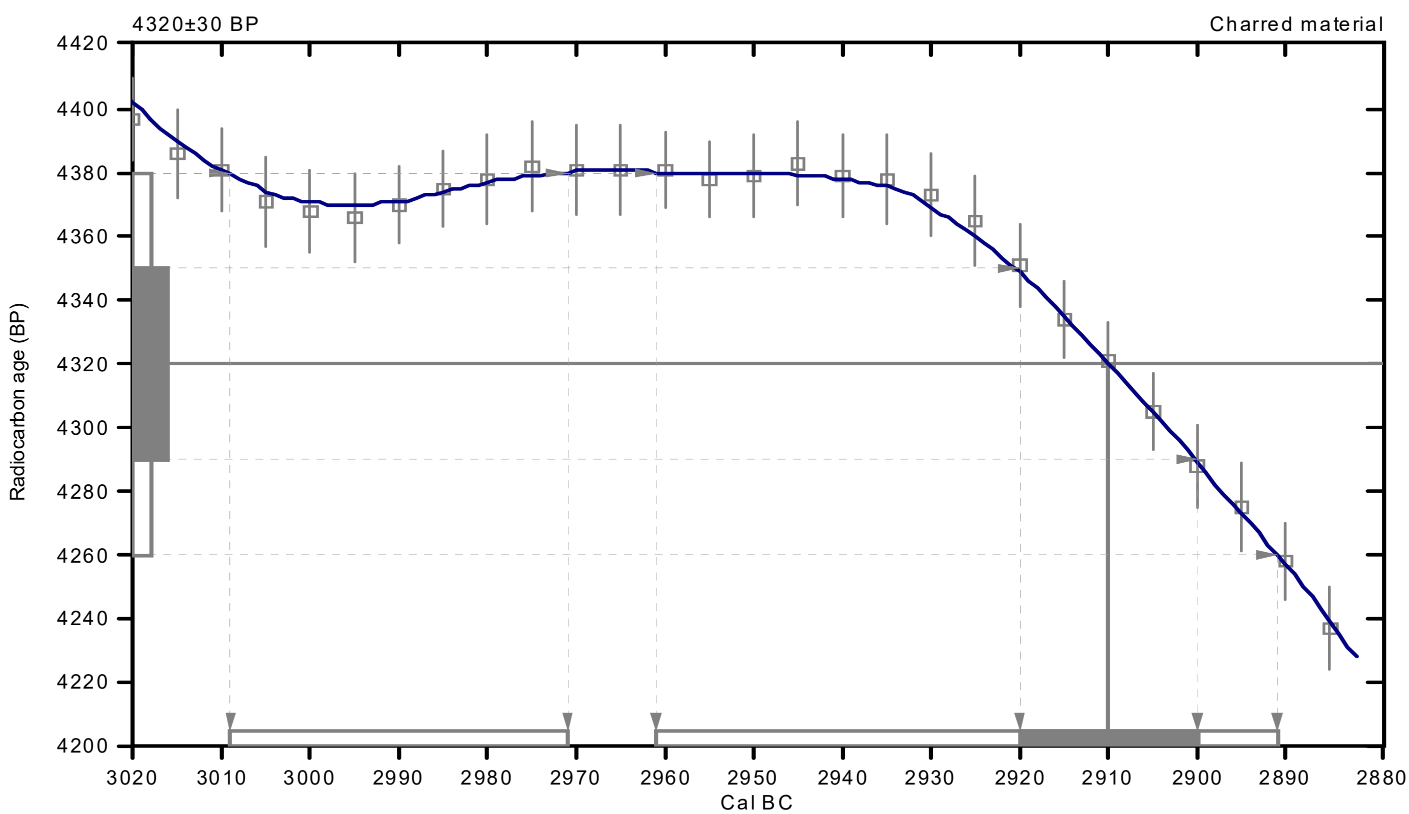
Conventional radiocarbon age: **4320±30 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 3010 to 2970 (Cal BP 4960 to 4920) and Cal BC 2960 to 2890 (Cal BP 4910 to 4840)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 2910 (Cal BP 4860)

1 Sigma calibrated result: (68% probability) Cal BC 2920 to 2900 (Cal BP 4870 to 4850)



References:

Database used

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-20.5:lab. mult=1)

Laboratory number: **Beta-303014**

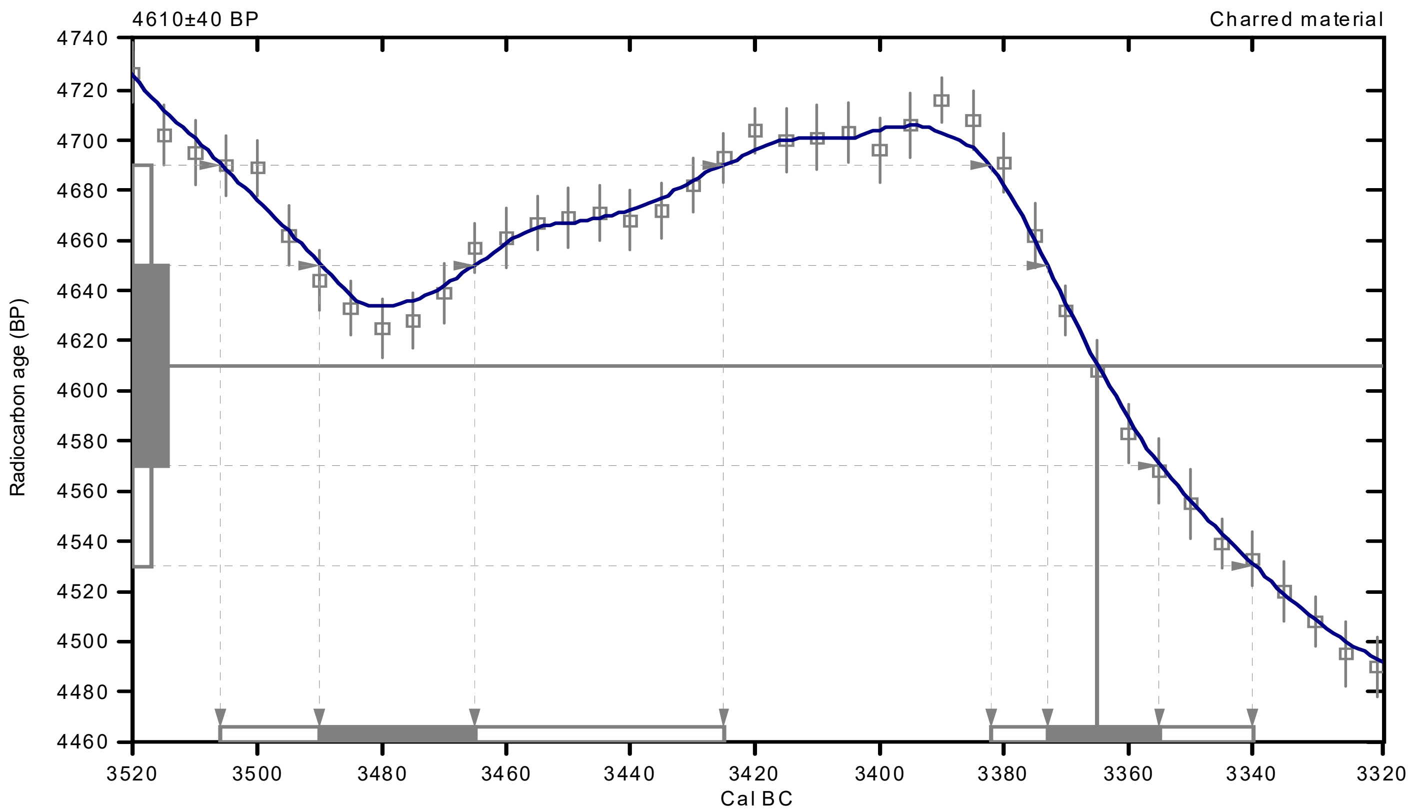
Conventional radiocarbon age: **4610±40 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 3510 to 3420 (Cal BP 5460 to 5380) and Cal BC 3380 to 3340 (Cal BP 5330 to 5290)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 3360 (Cal BP 5320)

1 Sigma calibrated results: (68% probability) Cal BC 3490 to 3460 (Cal BP 5440 to 5420) and Cal BC 3370 to 3360 (Cal BP 5320 to 5300)



References:

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-20.8:lab. mult=1)

Laboratory number: **Beta-267651**

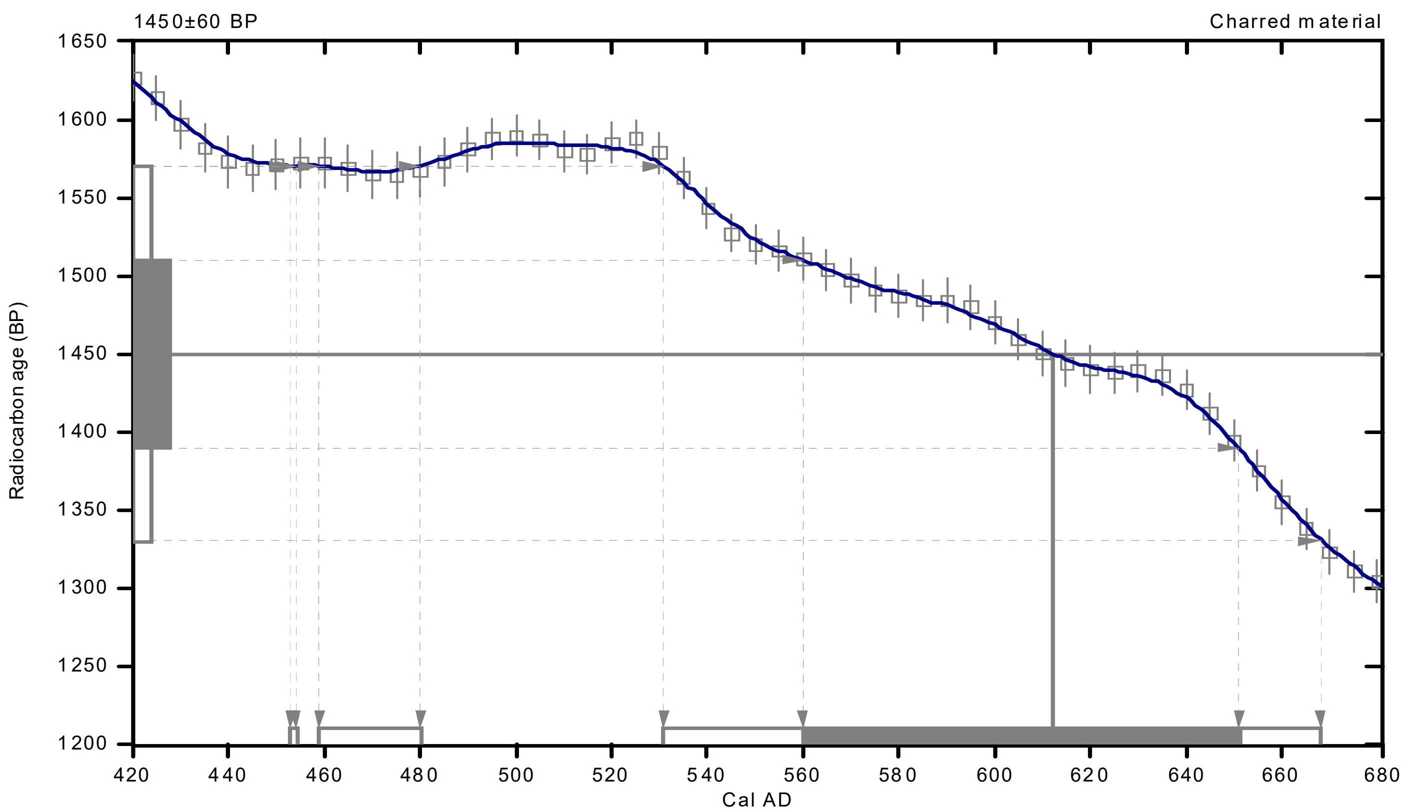
Conventional radiocarbon age: **1450±60 BP**

2 Sigma calibrated results: **Cal AD 450 to 450 (Cal BP 1500 to 1500) and**
(95% probability) **Cal AD 460 to 480 (Cal BP 1490 to 1470) and**
Cal AD 530 to 670 (Cal BP 1420 to 1280)

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 610 (Cal BP 1340)

1 Sigma calibrated result: Cal AD 560 to 650 (Cal BP 1390 to 1300)
(68% probability)



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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-21.1:lab. mult=1)

Laboratory number: **Beta-267652**

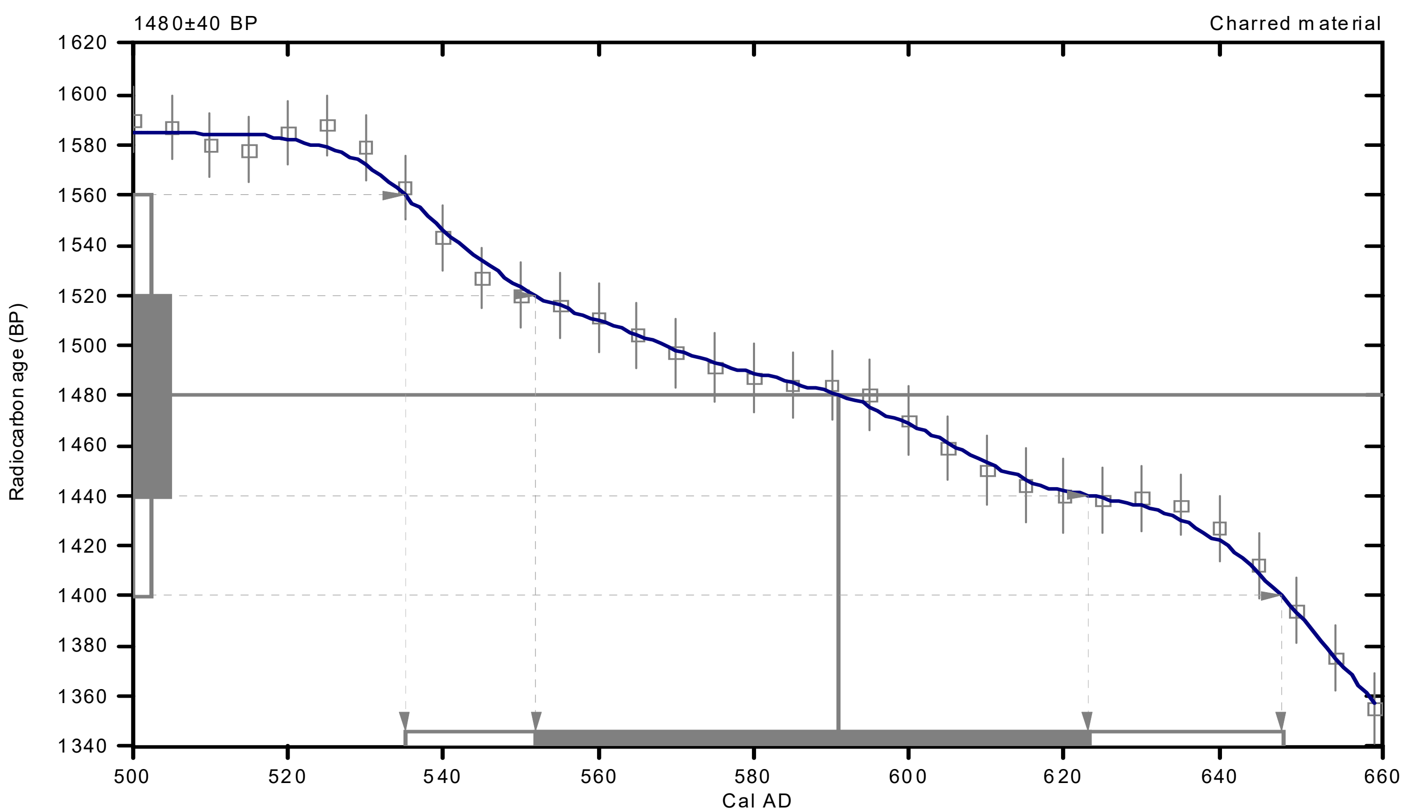
Conventional radiocarbon age: **1480±40 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 540 to 650 (Cal BP 1420 to 1300)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 590 (Cal BP 1360)

1 Sigma calibrated result: (68% probability) Cal AD 550 to 620 (Cal BP 1400 to 1330)



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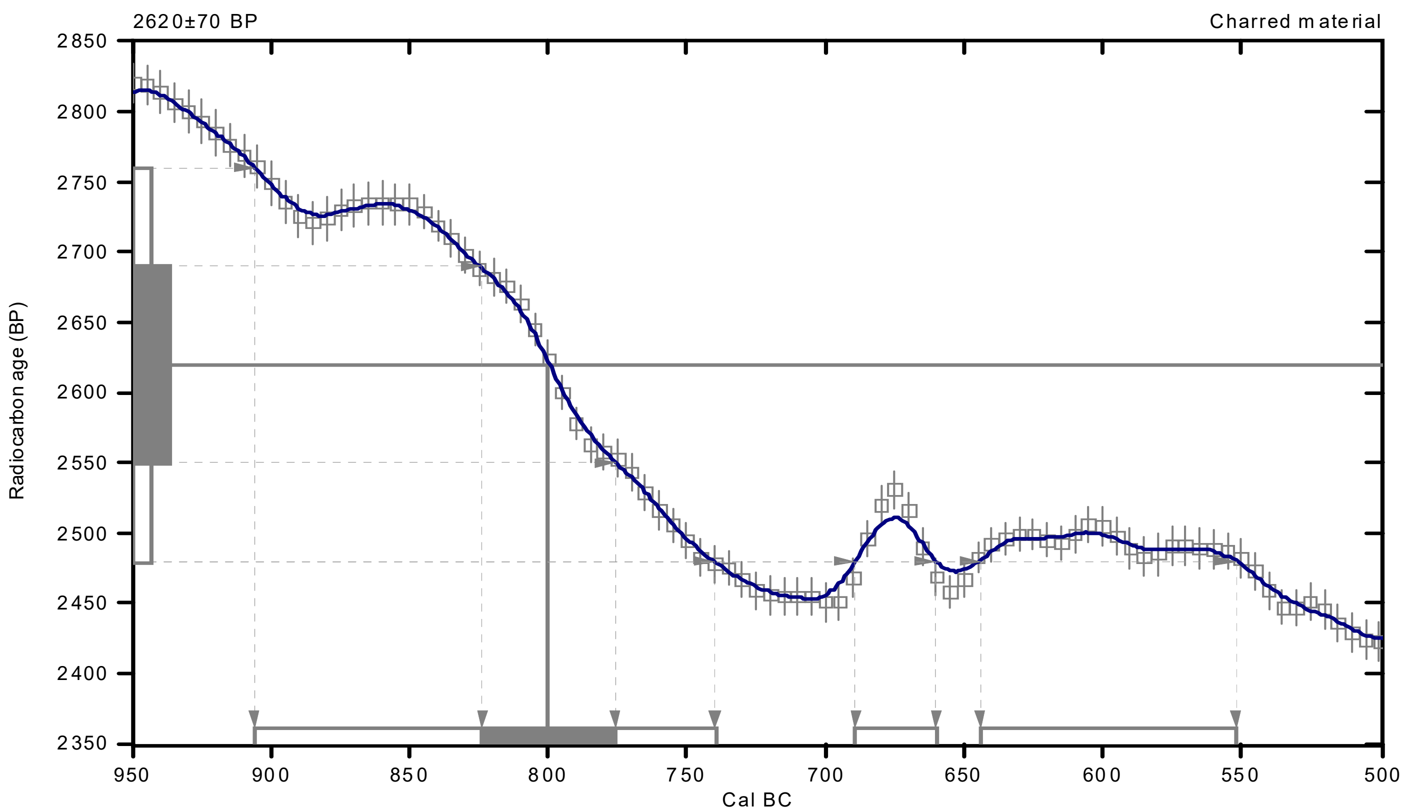
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-20.6:lab. mult=1)

Laboratory number:	**Beta-267653**
Conventional radiocarbon age:	**2620±70 BP**
2 Sigma calibrated results: (95% probability)	**Cal BC 910 to 740 (Cal BP 2860 to 2690) and Cal BC 690 to 660 (Cal BP 2640 to 2610) and Cal BC 640 to 550 (Cal BP 2590 to 2500)**

Intercept data

Intercept of radiocarbon age with calibration curve:	Cal BC 800 (Cal BP 2750)
1 Sigma calibrated result: (68% probability)	Cal BC 820 to 780 (Cal BP 2770 to 2730)



References:

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-19.5:lab. mult=1)

Laboratory number: **Beta-267654**

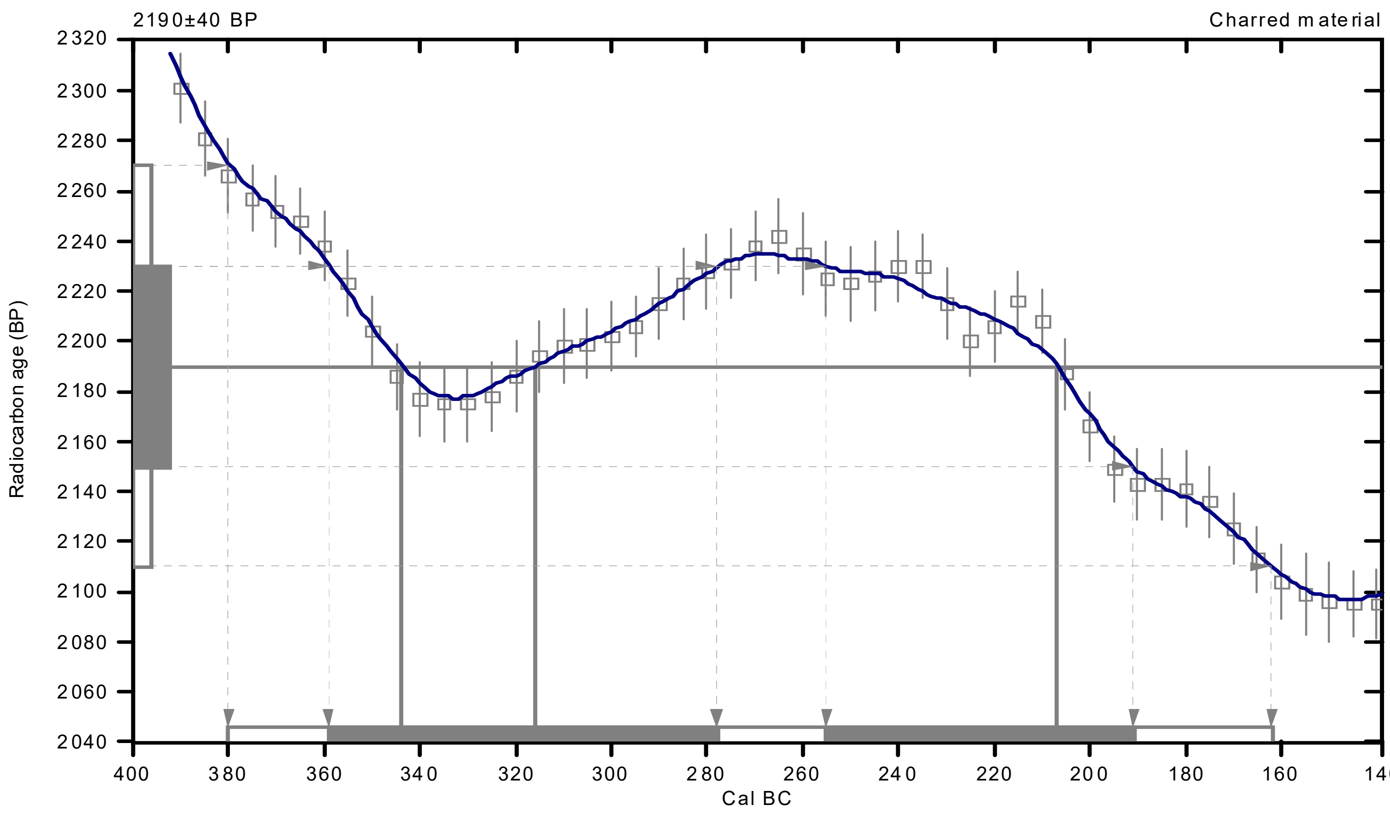
Conventional radiocarbon age: **2190±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 380 to 160 (Cal BP 2330 to 2110)**

Intercept data

Intercepts of radiocarbon age with calibration curve: Cal BC 340 (Cal BP 2290) and
Cal BC 320 (Cal BP 2270) and
Cal BC 210 (Cal BP 2160)

1 Sigma calibrated results: (68% probability) Cal BC 360 to 280 (Cal BP 2310 to 2230) and
Cal BC 260 to 190 (Cal BP 2200 to 2140)



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APPENDIX B: Pollen Analyses

Pollen analyses for sites 5ME16786 and 5ME16789 were conducted by Shawn D. Blissett, M.S., and Kenneth L. Petersen, Ph.D. of RED Lab, University of Utah. The following presents their findings.

B.1 Introduction

It is well known that Native Americans utilized many plant taxa found on the landscape (Behre, 1986; Fowler, 1986; Moerman, 1998). The Records of Environment and Disturbance (RED) Lab pollen reports will limit the general classification of Ethnobotanically Significant Taxa (EST) to plants that were most likely utilized as food resources. Because there are many other possible vegetative resources for native peoples (fuel, building, basket-making, etc.) in addition to the general EST category, reference to any taxa present in aggregate form (clumps of multiple pollen grains of the same taxa) in the pollen samples will be made in the discussion section of the report, as pollen aggregates are also indicative of human use. Pollen aggregates tend to be more common in archaeological settings because plants may have been processed by humans before the pollen was completely mature. The occurrence of a large number of aggregates or a large number of grains in an aggregate in prehistoric samples may indicate that these plants were processed by humans (Martin, 1963; Behre, 1986 and 1988; Matson, 1991; Moerman, 1998). In addition, in archaeological studies the presence of insect pollinated taxa is especially indicative of humans bringing these plants onto a site for processing and use. Whereas the pollen of wind pollinated plant species makes up the vast majority of 'pollen rain' and is therefore common in sediments, the pollen morphology of insect pollinated plant species is designed to cling onto insects foraging in flowers, making it much less common in sediments. Thus, reference to pollen from insect pollinated taxa present in the pollen samples will also be made in the discussion section of the report. Sub-samples of 1.0 cm were processed for pollen analysis following the methods of Faegri et al. (1989), with the following modifications to address issues that arose with high silica and high charcoal/organic content. Silicates were reduced by applying two hydrofluoric acid treatments to each sub-sample, and a certain fraction of the charcoal and organic content was removed by nitexing (screening) those samples that required it.

B.2 Methods

All of the pollen samples were stained with safranin stain and preserved in silicone oil. To ensure good representation of the taxa present, a minimum of 300 terrestrial pollen grains or 300 introduced Lycopodium tracers per sample was counted with a light microscope at 500X. Samples with low pollen preservation were counted using no fewer than five horizontal transects evenly spaced across the height of the cover slip to ensure complete coverage of the sample. Raw pollen count data for each of the three sites is included in the attached Excel files. Table 1 is a comprehensive list of the Latin and common names of the pollen taxa identified and counted in the samples from the three sites.

The software program Tilia® Version 1.7.16 (Grimm© 1991-2011) was used to graph pollen percentages. Pollen percentage is the percentage each pollen taxon comprises of the total number of grains counted for a specific sample. Unknown, deteriorated, and obscured pollen grains are included in the pollen total used to calculate percentages. Deteriorated grains are those that could be identified as being pollen, but preservation was too poor for further identification.

B.3 5ME16786

Site 5ME16786 is a prehistoric architectural site located on Bureau of Land Management land at an elevation of 5680 ft. in a sagebrush flat about four miles east of DeBeque in Mesa County. Predominant species are sagebrush (*Artemisia*) and rabbitbrush (Asteraceae), with prickly pear (Cactaceae) and native grasses (Poaceae). Saline bottomland is dominated by big sagebrush (*Artemisia tridentata*), greasewood (*Sarcobatus*), and shadscale (Amaranthaceae). Pinyon (*Pinus*) and juniper (Cupressaceae) woodland covers surrounding slopes.

Nineteen pollen samples, including ten ground stone pollen washes and nine sediment samples were processed and analyzed for this site. All samples except for "PS-15 sediment under FS-51," maintained an acceptable unk/det/obs percentage of below 20% of total grains counted. Still, preservation at this site is lower than that of a bog or lake because preservation tends to be poorer in soil samples where pollen is subject to conditions of wetting, drying, and oxidation. Results are presented in the following Tilia diagram (Figure B.1), and pollen aggregate data table (Table B.1).

In Figure B.1 all nineteen samples have been graphed together as a histogram in order of their depth, except for PS-1, which has a grid and level designation on the sample bags in lieu of depth BPGS. Seven of the ground stones found with their ground surfaces lying face down are paired with a sediment sample taken from beneath them. The remaining two sediment samples taken in relation to a pithouse are also grouped together. Pollen types are expressed as percentages except for total grains and Lycopodium, which are actual counts. In the taxa columns, dots represent presence in the case of a low number of grains (less than 3%), which otherwise would not show up clearly on the diagram. For taxa that have aggregates (clumps of multiple pollen grains of the same taxa), following the percentage column is a column indicating with a dot the presence of one or more aggregates (p-aggr) for that taxon and sample. The next column is a plot of the number of aggregates (#aggr) in that sample for that taxon. See Table B.1 for the complete tally of the number of aggregates and the number of grains in each aggregate, by sample, for this site.

All samples analyzed yielded pollen, although seven samples did not reach 300 pollen grains before 300 *Lycopodium* tracers were counted. Nonetheless, five of those seven samples reached at least 200 pollen grains. Unk/det/obs grains are below 20% for all samples except 'PS-15 sediment under FS-51' (Figure B.1).

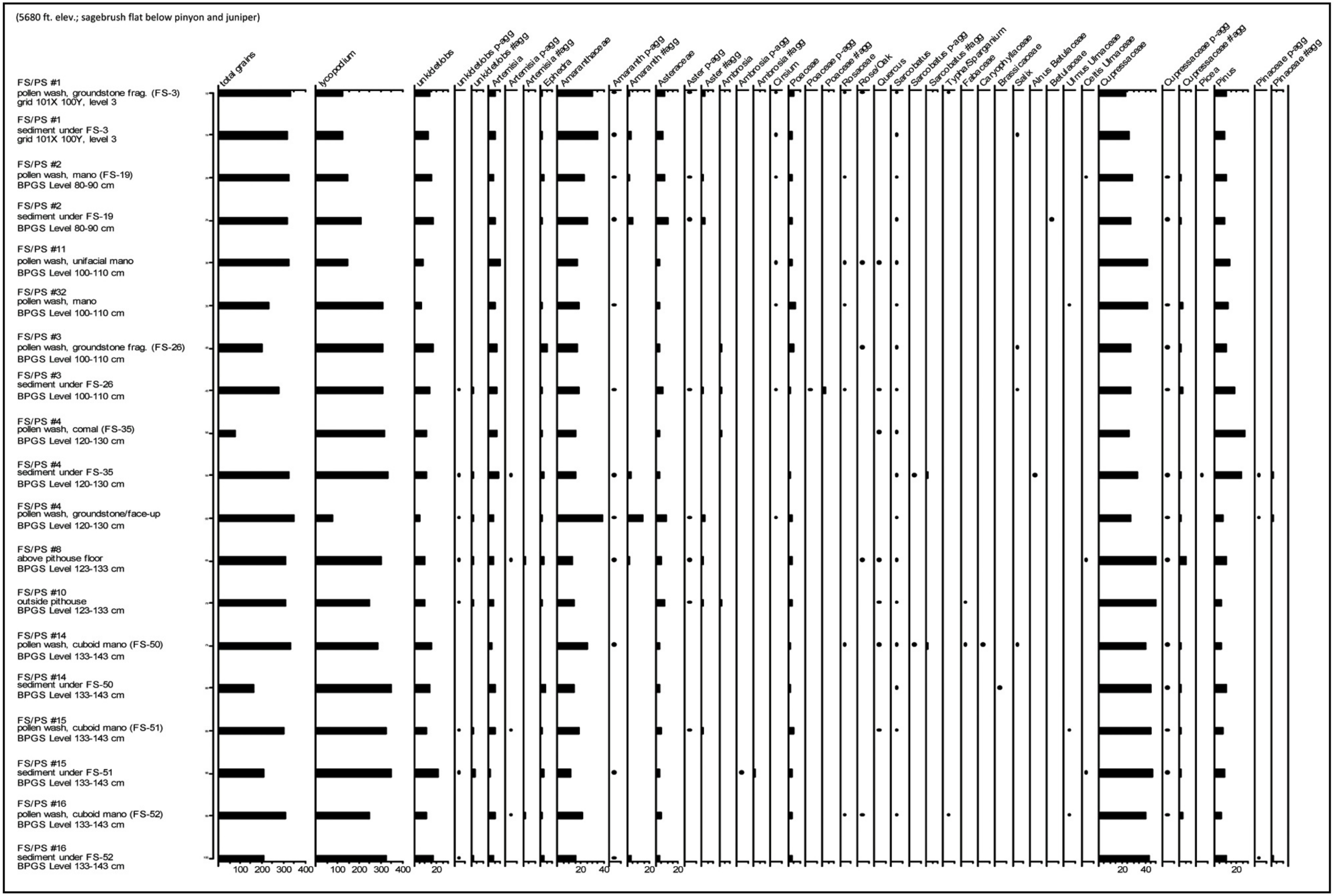

Figure B.1. Site 5ME16786. Pollen types are expressed as percentages except for total grains, Lycopodium, and #agg, which are actual counts. Dot for P-agg = presence; dot for pollen type = less than 3%.

Table B.1. Site 5ME16786 pollen aggregate data.

Sample/Depth or grid and level	Taxon	Number of aggregates	Number of grains/aggregate
PS-1, pollen wash FS-3 (groundstone) grid 101X100Y, level 3 PS-1; sediment under FS-3 grid 101X100Y, level 3	Amaranthaceae Asteraceae Amaranthaceae	2 2 3	3, 2 3, ~8 2, 3, 2
PS-2, pollen wash FS-19 (possible mano) 80-90 cm BPGS	Amaranthaceae Asteraceae Cupressaceae	2 1 1	2, ~6 2 2
PS-2, sediment under FS-19 80-90 cm BPGS	Amaranthaceae Asteraceae Cupressaceae	5 2 1	~6, 2, 2, 3, >8 2, 2 >6
FS-32, (groundstone half) pollen wash FS-32 100-110 cm BPGS	Amaranthaceae Cupressaceae	1 3	3 3,2,3
PS-3, pollen wash FS-26 (groundstone) 100-110 cm BPGS	Cupressaceae	1	3
PS-3, sediment under FS-26 100-110 cm BPGS	Amaranthaceae Asteraceae Cupressaceae Poaceae unk/det/obs	1 1 3 2 1	>10 4 ~8, 2, 2 3,3 ~6
PS-4, sediment under FS-35 (slab metate) 120-130 cm BPGS	Amaranthaceae *Artemisia* Cupressaceae *Pinus* *Sarcobatus* unk/det/obs	4 1 2 2 1 1	2, 2, 8, 3 4 2 2, ~4 2 4
FS-4, pollen wash FS-4 (groundstone/face-up) 120-130 cm BPGS	Amaranthaceae Asteraceae Cupressaceae *Pinus* unk/det/obs	14 2 2 1 2	6, 2, 2, 2, 4, 3, 4, 4, 3, 3, 6, 6, 3, 2 5, ~12 2, 2 4 2, 6

Sample/Depth or grid and level	**Taxon**	**Number of aggregates**	**Number of grains/aggregate**
PS-8, above pithouse floor123-133 cm BPGS	Amaranthaceae *Artemisia* Asteraceae Cupressaceae unk/det/obs	2 2 1 6 1	5, 2 4, 3 5 3, 2, 2, 2, 2, 2 2
PS-10, outside pithouse 123-133 cm BPGS	Asteraceae unk/det/obs	1 1	5 7
PS-14, pollen wash FS-50 133-143 cm BPGS	Amaranthaceae Cupressaceae *Sarcobatus*	1 1 1	2 2 3
PS-14, sediment under FS-50 133-143 cm BPGS	Cupressaceae	1	2
PS-15, pollen wash FS-51 135-143 cm BPGS	*Artemisia* Asteraceae Cupressaceae unk/det/obs	1 1 2 1	5 2 2, 4 2
PS-15, sediment under FS-51 (mano) 133-143 cm BPGS	Amaranthaceae *Ambrosia* Cupressaceae unk/det/obs	1 1 1 3	>20 2 >12 3, 6, 6
PS-16, pollen wash FS-52 (mano) 133-143 cm BPGS	*Artemisia* Cupressaceae	2 3	2, >10 2, 2, 3
PS-16, sediment under FS-52 133-143 cm BPGS	Amaranthaceae *Pinus* unk/det/obs	3 1 1	4, 4, 2 4 ~8

Dominant taxa for all samples are Amaranthaceae and Cupressaceae. All samples also contained *Artemisia*, Asteraceae, and *Pinus* pollen, while most samples contained *Ambrosia*, *Ephedra*, and Poaceae pollen. Table B.2 lists notes on paired sample results.

Table B.2. Notes on paired sample results for Site 5ME16786. Some samples grouped by depth.

cm BPGS	Sample	Notes
N/A	wash, ground stone frag. FS-3	*Typha/Sparganium* pollen and Asteraceae aggregate
N/A	sediment under FS-3	very similar to FS-3 wash
80-90	wash, mano FS-19	Asteraceae aggregate
80-90	sediment under FS-19	nearly identical to FS-19 wash; Asteraceae aggregates
100-110	wash, unifacial mano FS-11	no aggregates
100-110	wash, mano FS-32	Amaranthaceae aggregate
110-120	wash, ground stone frag. FS-26	Cupressaceae aggregate
110-120	sediment under FS-26	more aggregates than FS-26 wash
120-130	wash, comal FS-35	no aggregates; low pollen count
120-130	sediment under FS-35	many aggregates, including *Pinus*; also rare *Picea* grain
120-130	wash, ground stone/face-up FS-4	many aggregates, including *Pinus*
123-133	above pithouse floor, FS-8	more taxa and aggregates than outside pithouse
123-133	outside pithouse, FS-10	
133-143	wash, cuboid mano FS-50	highest number of pollen taxa
133-143	sediment under FS-50	pollen count less than 200 grains
135*-143	wash, cuboid mano FS-51	Asteraceae aggregate
133-143	sediment under FS-51	very similar to FS-51 wash; large aggregates
133-143	wash, cuboid mano FS-52	*Typha/Sparganium* pollen and large *Artemisia* aggregate
133-143	sediment under FS-52	fewer taxa than FS-52 wash

While the pollen data from this site was generated mainly from artifacts and sediments in contact with those artifacts, it still reflects through time a stable ecosystem/climate dominated by Amaranthaceae and Cupressaceae, with *Artemisia*, Asteraceae, Poaceae, and *Pinus* fairly common on the landscape. This implies that no major climate change has occurred at this site, and that conditions in the recent past were very similar to those of today. In addition, the stability of plant taxa found throughout the paired artifact and sediment samples may indicate that the hand stones were not carried to and used in different vegetation zones.

EST identified in samples from this site include Amaranthaceae, Asteraceae, *Ambrosia*, *Cirsium*, and Rosaceae. The high percentage of Amaranthaceae, one of the two dominant taxa in the pollen record and found in all of the samples, likely reflects human disturbance of the site or concentration of the plants as a food or resource. Some plants in the Amaranthaceae Family thrive in disturbed soils, and many produce small seeds that have been documented as being exploited by Native Americans (Harrington, 1967).

Asteraceae are also continuously present in the pollen record for this site, including grains of *Ambrosia* and *Cirsium*. A number of Asteraceae taxa have been used prehistorically by humans, including sunflower (*Helianthus sp*.), yarrow (*Achillea sp*.), dandelion (*Taraxacum* type), and thistle (*Cirsium sp*.) (Fowler, 1986). Rabbitbrush, a member of the Asteraceae Family which is on the site today and likely in the past as well, was used by native peoples as food, chewing gum, yellow dye, tea, and medicine (Whitson et al., 1996; Moerman 1998). Most Asteraceae are insect pollinated, especially those with showy flowers, usually making their pollen much less common in sediments than pollen of wind pollinated taxa, and indicating that they were most likely brought into a site by people for processing. The presence of Asteraceae grains in all of the samples and especially Asteraceae aggregates in eight of the samples supports various Asteraceae taxa as being processed by native peoples at this site. Rosaceae, another mostly insect pollinated taxon found in the samples, is known to be used as a food resource and pot herb by Native Americans (Harrington, 1967; Moerman, 1998).

While *Typha/Sparganium* are wind pollinated taxa and no aggregates of these taxa were found in the pollen samples for the site, cattails are a known food source for native peoples (Cowan, 1967). Because *Typha/Sparganium* grains were present in two of the samples, they could indicate that this food source was brought in by Native Americans from a local wetland or riparian area, such as the Colorado River. However, pollen from *Salix*, a wind pollinated taxon, may have come from willows located closer to the site – indicative of a nearby water source.

Pollen aggregates are generally thought to be rare in samples that reflect normal atmospheric pollen deposition onto the soil surface, and if they do occur naturally they likely indicate the close proximity of the plant because the aggregate is heavier and tends to fall closer to its point of origin. Pollen aggregates tend to be more common in archaeological settings because the plants may have been processed by humans before the pollen had a chance to fully mature. Therefore, the number and size of pollen aggregates found on and under these artifacts, as well as in the pithouse samples, are considered to be ethnobotanically significant (generally aggregates comprised of more than two grains) (Table B.1). EST aggregates found in the samples include those known to be food sources; Amaranthaceae, Asteraceae, *Ambrosia*, and Poaceae; as well as *Artemisia* and Cupressaceae aggregates, which likely provided other resources for native peoples, such as fuel. In addition, the *Pinus* aggregates would have been brought in by humans. The occurrence of individual grains of *Alnus*, Betulaceae, *Picea*, and *Ulmus* is likely evidence of long distance transport, and not the local occurrence of these trees.

B.4 5ME16789

Site 5ME16789 is a prehistoric architectural site located on private land at an elevation of about 6000 feet at the head of a dry tributary of Sand Wash, about eight miles east-southeast of DeBeque in Mesa County. Eight pollen samples, including one sample from 5ME16789-1 and seven samples from 5ME16789-2 were processed and analyzed for site 5ME16789. The sample from 5ME16789-1 was taken from a slab-lined hearth, while the seven samples from 5ME16789-2 consist of five ground stone pollen washes and two sediment samples. All samples maintained an acceptable unk/det/obs percentage of below 20% of total grains counted. Still, preservation at this site is lower than that of a bog or lake because preservation tends to be poorer in soil samples where pollen is subject to conditions of wetting, drying, and oxidation. Results are presented in the following Tilia diagrams (Figures B.2 and B.3) and pollen aggregate data table (Table B.3).

In Figure B.2, site 5ME16789-1, data from the sample is graphed as a histogram. Pollen types are expressed as percentages except for total grains and *Lycopodium*, which are actual counts. In the Nyctaginaceae column the dot represents presence due to a low number of grains (less than 1%), which otherwise would not show up clearly on the diagram. Results for the sample did not reach 300 pollen grains before 300 *Lycopodium* tracers were counted. Unk/det/obs grains are below 20%, and the dominant taxon is Cupressaceae. Amaranthaceae, *Artemisia*, Poaceae and *Pinus* are the next most common taxa found in the sample. Except for Nyctaginaceae, an insect pollinated taxon, this pollen spectrum closely resembles what would be expected from a modern surface sample.

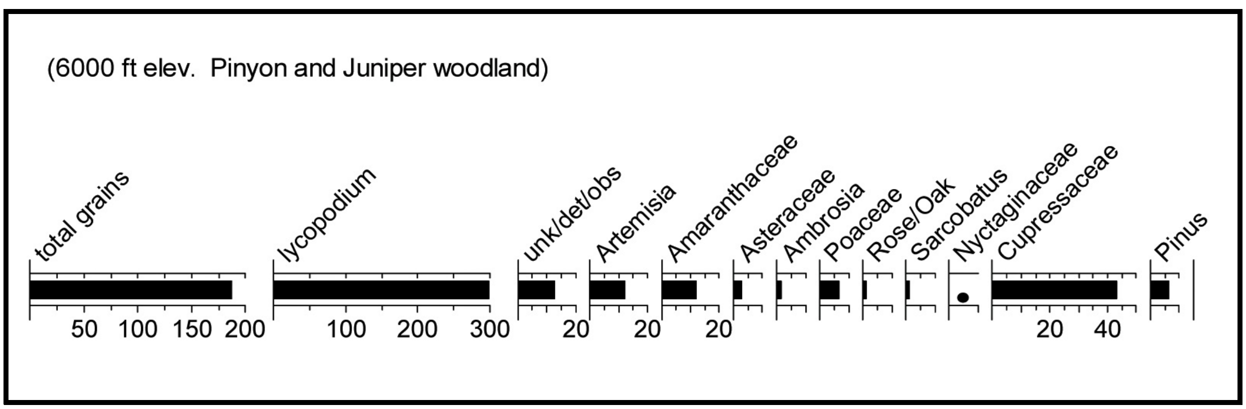

Figure B.2. Site 5ME16789-1. Slab-lined hearth at 60-70 cm BPGS. Pollen types are expressed as percentages except for total grains and *Lycopodium*, which are actual counts. Dot = less than 1 %.

In Figure B.3, site 5ME16789-2, all seven samples have been graphed together as a histogram in order of their depth. One of the ground stones, FS-75, found with its ground surface lying face down, is paired with a sediment sample taken from beneath it. Pollen types are expressed as percentages except for total grains and *Lycopodium*, which are actual counts. In the taxa columns, dots represent presence in the case of a low number of grains (less than 3%), which otherwise would not show up clearly on the diagram. For taxa that have aggregates (clumps of multiple pollen grains of the same taxa), following the percentage column is a column indicating with a dot the presence of one or more aggregates (p-aggr) for that taxon and sample. The next column is a plot of the number of aggregates (#aggr) in that sample for that taxon. Table B.3 has the complete tally of the number of aggregates and the number of grains in each aggregate, by sample, for this site. The two radiocarbon dates provided are notated at the corresponding depth on the diagram.

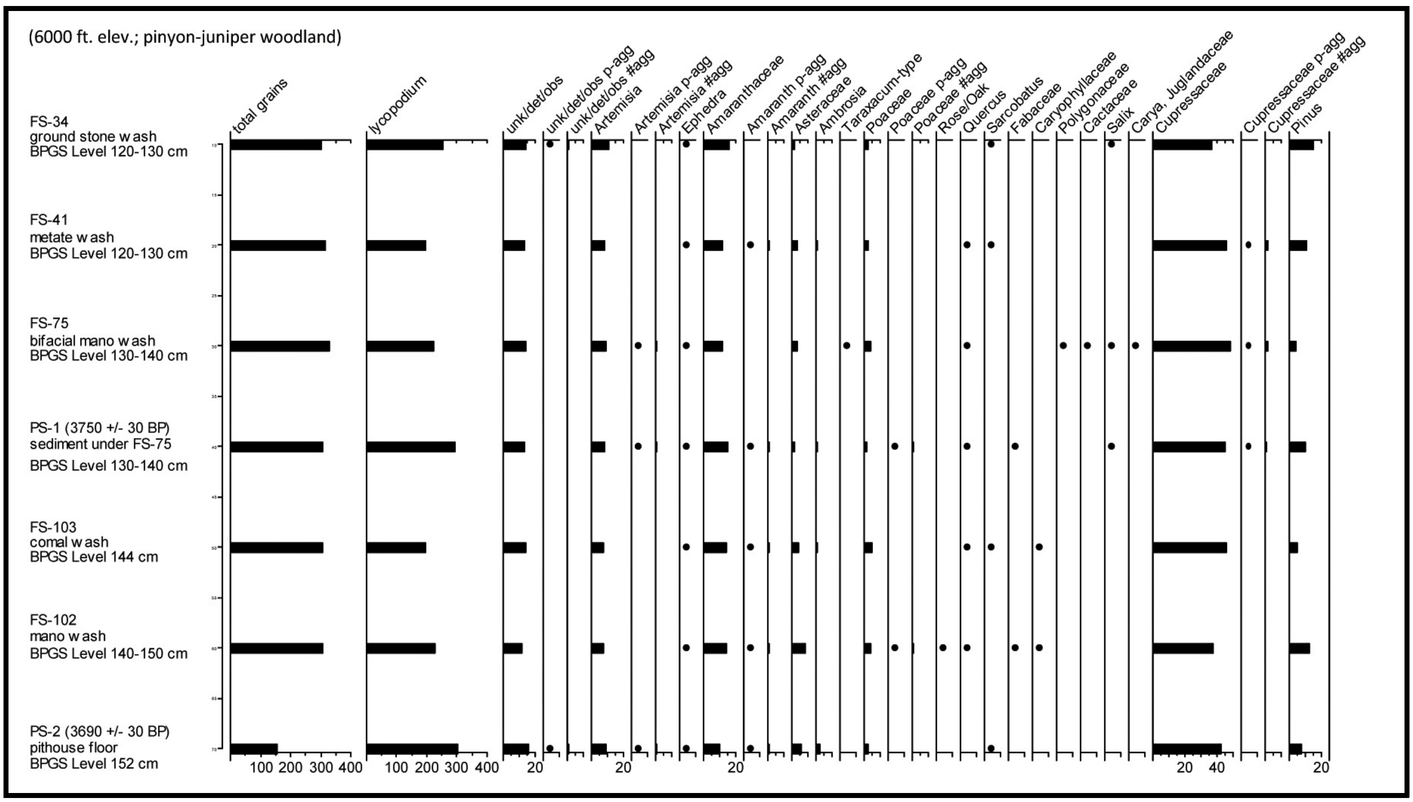

Figure B.3. Site 5ME16789-2. Pollen types are expressed as percentages except for total grains, *Lycopodium*, and #agg, which are actual counts. Dot for p-agg = presence; dot for pollen type = less than 3%.

For site 5ME16789-2 all samples analyzed yielded pollen, although one sample, ‘PS-2 (floor of pithouse)’did not reach 300 pollen grains before 300 *Lycopodium* tracers were counted (Fig. 8). Unk/det/obs grains are below 20% for all samples. The dominant taxon for all samples is Cupressaceae. All samples also contained Amaranthaceae, *Artemisia*, Asteraceae, *Ephedra*, *Pinus*, and Poaceae pollen. The bifacial mano FS-75 wash had a large variety of taxa, including a Cactaceae grain. Mano FS-102 wash also had a large variety of taxa.

Table B.3. Site 5ME16789-2 pollen aggregate data.

Sample/Depth	Taxon	Number of aggregates	Number of grains/aggregate
FS-34, pollen wash FS-34 120-130 cm BPGS	unk/det/obs	1	2
FS-41, pollen wash FS-41 120-130 cm BPGS	Amaranthaceae Cupressaceae	1 2	4 3, 2
PS-1, pollen wash FS-75 130-140 cm BPGS PS-1, sediment under FS-75 130-140 cm BPGS	Artemisia Cupressacea Amaranthaceae Artemisia Cupressaceae Poaceae	1 2 1 1 1 1	2 2, 6 4 4 3 ~8
FS-103, pollen wash FS-103 144 cm BPGS	Amaranthaceae	1	4
FS-102, pollen wash FS-102	Amaranthaceae Poaceae	1 1	2 4
PS-2, floor of pithouse 152 cm BPGS	Amaranthaceae Artemisia unk/det/obs	1 1 1	3 ~8 3

Dominant taxa are sagebrush (*Artemisia*) and rabbitbrush (Asteraceae), with prickly pear (Cactaceae) and native grasses (Poaceae) also present. Saline bottomland is dominated by big sagebrush (*Artemisia tridentata*), greasewood (*Sarcobatus*), and shadscale (Amaranthaceae). Pinyon (*Pinus*) and juniper (Cupressaceae) woodland covers surrounding slopes.

While the pollen data from site 5ME16789 was taken mainly from artifacts, it still reflects a stable ecosystem/climate dominated by Cupressaceae, with Amaranthaceae, *Artemisia*, Asteraceae, Poaceae, and *Pinus* fairly common on the landscape. This implies that no major climate change has occurred at this site, and that conditions in the recent past were very similar to those of today. In addition, the stability of plant taxa found throughout the artifact samples may indicate that the hand stones were not carried to and used in different vegetation zones.

EST identified in samples from this site includes Amaranthaceae, Asteraceae, *Ambrosia*, Cactaceae, Nyctaginaceae, Polygonaceae, Rosaceae, and *Taraxacum* type. The presence of Amaranthaceae in all of the samples likely reflects human disturbance of the site or concentration of the plants as a food or resource. Some plants in the Amaranthaceae Family thrive in disturbed soils, and many produce small seeds that have been documented as being exploited by Native Americans (Harrington, 1967).

Asteraceae are also continuously present in the pollen record for this site, including *Ambrosia* in five of the eight samples, and *Taraxacum* type. A number of Asteraceae taxa have been used prehistorically by humans, including sunflower (Helianthus sp.), yarrow (*Achillea* sp.), dandelion (*Taraxacum* type), and thistle (*Cirsium* sp.) (Fowler, 1986). Rabbitbrush, a member of the Asteraceae Family which is on the site today and likely in the past as well, was used by native peoples as chewing gum, yellow dye, tea, and medicine (Whitson et al., 1996; Moerman, 1998). Most Asteraceae are insect pollinated, especially those with showy flowers, usually making their pollen much less common in sediments than pollen of wind pollinated taxa, and indicating that they were most likely brought into a site by people for processing. Nyctaginaceae, another insect pollinated taxon found in one sample, is known to be used as a food resource and pot herb by Native Americans (Harrington, 1967; Moerman, 1998). The occurrence of an individual grain of Carya is likely evidence of long distance transport, and not the local occurrence of this tree. Pollen from Salix, a wind pollinated taxon, may have come from willows located closer to the site, and is considered evidence of a nearby water resource.

Pollen aggregates are generally thought to be rare in samples that reflect normal atmospheric pollen deposition onto the soil surface, and if they do occur naturally they likely indicate the close proximity of the plant because the aggregate is heavier and tends to fall closer to its point of origin. Pollen aggregates tend to be more common in archaeological settings because the plants may have been processed by humans before the pollen had a chance to fully mature. Therefore, the number and size of pollen aggregates found on and under these artifacts, as well as in the pithouse sample, are considered to be ethnobotanically significant (generally aggregates comprised of more than two grains). EST aggregates found in the samples include those known to be food sources; Amaranthaceae and Poaceae; as well as Artemisia and Cupressaceae aggregates, which likely provided other resources for native peoples, such as fuel. In summary, the continual presence of Amaranthaceae and Asteraceae, the presence of EST pollen aggregates, and pollen from additional plant taxa known to be used by native peoples for food or other resources, namely *Ambrosia, Artemisia, Cactaceae*, Nyctaginaceae, Poaceae, and Rosaceae are all evidence of means of subsistence used by native peoples in this region.

B.5 References

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APPENDIX C: Collected Artifacts

Table C-1. List of Collected Artifacts

Site 5GF109
All artifacts collected from site 5GF109 will be returned to the landowners, William and Nadra Colohan.

Site 5GF109 Surface Collections	
Specimen No.	**Description**
5GF109.s1	Medium-sized white-blue opalitic chert secondary flake
5GF109.s2	Medium-sized green quartzite tertiary flake Medium-sized white opalitic chert tertiary flake
5GF109.s3	Small white opalitic chert tertiary flake
5GF109.s4	Medium-sized red opalitic chert tertiary flake
5GF109.s5	Medium-sized yellow opalitic chert tertiary flake
5GF109.s6	Medium-sized red-brown porcellanite tertiary flake Medium-sized green quartzite tertiary flake
5GF109.s7	Small tan opalitic chert primary flake
5GF109.s8	Small tan opalitic chert tertiary flake
5GF109.s9	Small white opalitic chert tertiary flake
5GF109.s10	Medium-sized cream-blue porcellanite tertiary flake
5GF109.s11	Medium-sized green porcellanite utilized flake
5GF109.s12	Medium-sized white opalitic chert tertiary flake Medium-sized translucent opalitic chert tertiary flake
5GF109.s13	Medium-sized tan porcellanite spokeshave
5GF109.s14	Red quartzitic mano
5GF109.s15	Small white opalitic chert tertiary flake
5GF109.s16	Medium-sized green quartzite tertiary flake
5GF109.s17	Large green quartzite secondary flake
5GF109.s18	Medium-sized basalt tertiary flake
5GF109.s19	Medium-sized white opalitic chert tertiary flake Medium-sized basalt tertiary flake Medium-sized green quartzite tertiary flake
5GF109.s20	Medium-sized white opalitic chert tertiary flake
5GF109.s21	Medium-sized orange-white opalitic chert tertiary flake Medium-sized red-brown opalitic chert tertiary flake

Site 5GF109 Surface Collections	
Specimen No.	**Description**
5GF109.s22	Medium-sized basalt tertiary flake
5GF109.s23	Three opalitic chert tertiary microflakes
5GF109.s24	Four white opalitic chert tertiary microflakes
5GF109.s25	Large green quartzite tertiary flake
5GF109.s26	Medium-sized green quartzite tertiary flake
5GF109.s27	Small white opalitic chert tertiary flake
5GF109.s28	Two black opalitic chert tertiary flakes Two white opalitic chert tertiary flakes
5GF109.s29	Small blue opalitic chert tertiary flake Small white opalitic chert tertiary flake
5GF109.s30	Small white quartzite tertiary flake
5GF109.s31	Large brown quartzite secondary flake
5GF109.s32	Medium-sized red opalitic chert secondary flake
5GF109.s33	Small white opalitic chert tertiary flake Small blue opalitic chert tertiary flake
5GF109.s34	Small white opalitic chert tertiary flake
5GF109.s35	Small white patinated opalitic chert tertiary flake
5GF109.s36	Medium-sized white opalitic chert secondary flake
5GF109.s37	White opalitic chert biface (5.2 x 2.8 x 0.9cm)
5GF109.s38	Two medium-sized green quartzite tertiary flakes One medium-sized white opalitic chert tertiary flake
5GF109.s39	Medium-sized white opalitic chert tertiary flake
5GF109.s40	Medium-sized green quartzite primary flake
5GF109.s41	Medium-sized white opalitic chert tertiary flake
5GF109.s42	Medium-sized green quartzite tertiary flake Medium-sized tan opalitic chert tertiary flake
5GF109.s43	Small basalt secondary flake
5GF109.s44	Medium-sized tan patinated opalitic chert tertiary flake
5GF109.s45	Medium-sized green quartzite tertiary flake

Site 5GF109 Surface Collections	
Specimen No.	**Description**
5GF109.s46	Tan quartzite chopper (8.1 x 7.4 x 4.2cm)
5GF109.s47	Medium-sized translucent opalitic chert tertiary flake
5GF109.s48	Sandstone metate fragment (5.6 x 4.3 x 1.6cm)
5GF109.s49	Sandstone metate fragment (14.6 x 8.8 x 1.9cm)
5GF109.s50	Medium-sized tan translucent opalitic chert tertiary flake
5GF109.s51	Fire-reddened quartzitic sandstone mano (10.0 x 11.6 x 6.8cm)
5GF109.s52	Small white opalitic chert tertiary flake Medium-sized patinated opalitic chert tertiary flake
5GF109.s53	Quartzitic sandstone mano fragment (11.2 x 5.3 x 4.8cm)
5GF109.s54	Quartzitic sandstone mano fragment (5.1 x 8.5 x 3.8cm)
5GF109.s55	Medium-sized white opalitic chert tertiary flake
5GF109.s56	White quartzite polishing stone (6.3 x 4.9 x 3.8cm)
5GF109.s57	Small grey opalitic chert tertiary flake
5GF109.s58	Medium-sized white opalitic chert tertiary flake
5GF109.s59	Small white opalitic chert tertiary flake
5GF109.s60	Small white-translucent opalitic chert tertiary flake
5GF109.s61	Small white opalitic chert tertiary flake
5GF109.s62	Small white-tan opalitic chert secondary flake
5GF109.s63	Small grey opalitic chert tertiary flake
5GF109.s64	Small white opalitic chert tertiary flake Small brown-red opalitic chert secondary flake
5GF109.s65	Medium-sized white opalitic chert tertiary flake
5GF109.s66	Large green quartzite secondary flake
5GF109.s67	Small white opalitic chert tertiary flake
5GF109.s68	Small white opalitic chert tertiary flake
5GF109.s69	Small white-tan opalitic chert tertiary flake
5GF109.s70	Large grey quartzite tertiary flake
5GF109.s71	18 opalitic chert microflakes from anthill

Site 5GF109 Surface Collections	
Specimen No.	**Description**
5GF109.s72	Quartzitic sandstone mano fragment (6.4 x 8.2 x 4.2cm)
5GF109.s73	Quartzitic sandstone mano fragment (6.6 x 4.0 x 3.5cm)
5GF109.s74	Orange-brown quartzitic hammerstone (9.5 x 5.2 x 5.9cm)
5GF109.s75	Small white opalitic chert tertiary flake
5GF109.s76	Small green quartzite tertiary flake
5GF109.s77	Large basalt utilized flake/spokeshave
5GF109.s78	Quartzitic polishing stone (7.7 x 4.8 x 3.1cm)
5GF109.s79	Quartzitic sandstone mano fragment (10.8 x 6.9 x 3.2cm)
5GF109.s80	Small red opalitic chert tertiary flake
5GF109.s81	Basalt mano fragment (8.6 x 6.5 x 3.2cm)
5GF109.s82	Basalt mano (13.7 x 8.9 x 5.5cm)
5GF109.s83	Quartzitic sandstone mano fragment (4.6 x 7.7 x 4.3cm)
5GF109.s84	Quartzitic mano (7.1 x 8.2 x 3.7cm)
5GF109.s85	Quartzitic sandstone mano fragment (7.7 x 5.3 x 4.7cm)
5GF109.s87	Quartzitic sandstone mano fragment (2.5 x 8.0 x 3.5cm)
5GF109.s88	Large basalt tertiary flake
5GF109.s89	Medium-sized tan-grey opalitic chert tertiary flake
5GF109.s90	Sandstone metate (50.0 x 35.5 x 5.6cm)
5GF109.s91	Quartzitic mano (14.6 x 9.1 x 4.8cm)
5GF109.s92	Battered quartzitic mano (11.5 x 9.4 x 5.1cm)
5GF109.s93	Quartzitic sandstone metate fragment (5.8 x 11.0 x 5.0cm)
5GF109.s94	Non Artifactual
5GF109.s95	Quartzitic mano (11.1 x 9.9 x 4.4cm)
5GF109.s96	Basalt mano fragment (8.2 x 4.1 x 4.9cm)
5GF109.s97	Uinta Side-notched point (1.97x1.47x0.36cm) Collected during GRI #2781 Addendum

Site 5GF109 Excavation Collections			
Specimen No.	**Test Pit**	**Depth (cm)**	**Description**
5GF109.fs1	1	0-5	1 medium porcellanite flake 2 medium tertiary opalitic chert flakes 4 small tertiary opalitic chert flakes
5GF109.fs2	2	0-5	2 small opalitic chert flakes
5GF109.fs3	2	5-10	1 medium tertiary opalitic chert flake 7 small tertiary opalitic chert flakes
5GF109.fs4	2	10-15	3 medium tertiary opalitic chert flakes 1 small tertiary opalitic chert flake
5GF109.fs5	2	0-17	Black opalitic chert flake
5GF109.fs6	3	5-10	2 small tertiary opalitic chert flakes
5GF109.fs7	3	10-15	1 medium secondary basalt flake 1 medium secondary heat-treated opalitic chert flake
5GF109.fs8	4	0-5	1 medium tertiary quartzite flake 5 medium tertiary basalt flakes 2 medium secondary opalitic chert flakes 5 medium tertiary opalitic chert flakes 4 small tertiary basalt flakes 24 small tertiary opalitic chert flakes
5GF109.fs9	4	5-10	1 medium tertiary opalitic chert flake 1 small tertiary basalt flake 7 small tertiary opalitic chert flakes
5GF109.fs10	4	10-15	1 medium tertiary basalt flake 4 medium tertiary opalitic chert flakes 2 small tertiary opalitic chert flakes
5GF109.fs11	5	0-5	3 medium tertiary basalt flakes 12 medium tertiary opalitic chert flakes 32 small tertiary opalitic chert flakes
5GF109.fs12	5	5-10	1 medium secondary porcellanite flake 1 medium tertiary basalt flake 5 medium tertiary opalitic chert flakes 1 small tertiary basalt flake 2 small tertiary quartzite flakes 30 small tertiary opalitic chert flakes
5GF109.fs13	5	6	Sandstone mano fragment 4.3 x 2.1 x 5.2cm

Site 5GF109 Excavation Collections			
Specimen No.	**Test Pit**	**Depth (cm)**	**Description**
5GF109.fs14	5	8	Quartzitic sandstone mano fragment 6.0 x 3.9 x 6.2cm
5GF109.fs15	5	10-15	2 medium tertiary basalt flakes 1 medium tertiary quartzite flake 4 medium secondary opalitic chert flakes 15 small tertiary opalitic chert flakes
5GF109.fs16	6	0-5	1 medium tertiary porcellanite flake 2 medium secondary opalitic chert flakes 9 medium tertiary opalitic chert flakes 21 small tertiary opalitic chert flakes
5GF109.fs17	6	5-10	2 medium tertiary porcellanite flakes 2 medium tertiary opalitic chert flakes 1 small tertiary basalt flake 11 small tertiary opalitic chert flakes
5GF109.fs18	6	5-10	Opalitic chert cobble fragment 2.2 x 1.5 x 1.3cm
5GF109.fs19	6	10-15	Basalt mano fragment 5.8 x 3.9 x 2.8cm

5GF4337
All artifacts collected from site 5GF4337 will be curated at the Museum of Western Colorado.

Site 5GF4337 Excavation Collections			
Specimen No.	**Unit**	**Depth (cm)**	**Description (* denotes artifacts found in the screen)**
5GF4337.fs1	NA	NA	Quartzite projectile point (3.5 x 2.3 x .5cm) missing base and small portion of tip
5GF4337.fs2	38.5N 29E	0-5	Two small tertiary flakes of porcellanite, two porcellanite micro-flakes, one primary flake of porcellanite*
5GF4337.fs3	36.5N 29E	0-5	Medium-sized chunk of angular shatter composed of porcellanite*
5GF4337.fs4	50.5N 29E	0-10	Medium-sized secondary flake composed of porcellanite*

Site 5GF4337 Excavation Collections			
Specimen No.	**Unit**	**Depth (cm)**	**Description (* denotes artifacts found in the screen)**
5GF4337.fs5	50.5N 26E	0-10	One large secondary flake composed of porcellanite, one micro-flake composed of porcellanite and one micro-flake composed of pumpkin chert.*
5GF4337.fs6	44N 50E	10-20	One small tertiary flake of porcellanite*
5GF4337.fs7	50.5N 26E	10-15	One small tertiary flake of dark red chert*
5GF4337.fs8	50.5N 26E	0-10	One medium-sized chunk of angular shatter composed of porcellanite (potlids present), two micro-flakes composed of porcellanite, one micro-flake composed of pumpkin chert, and two bone fragments.*
5GF4337.fs9	52.5N 29E	0-10	Medium-sized flake composed of porcellanite*
5GF4337.fs10	54.5N 32.5E	0-10	Primary flake of opalitic chert from the Green River Formation, one micro-flake of a opalitic chert from the Green River Formation, and one micro-flake of porcellanite*.
5GF4337.fs11	50.5N 26E	10-20	Oxidized rhyolite cobble fragment (8 x 5 x 2.5cm)*
5GF4337.fs12	50.5N 26E	25	Large primary flake of green porcellanite
5GF4337.fs13	56.5N 34.5E	0-10	Two microflakes of porcellanite*
5GF4337.fs14	59.5N 38.5E	0-10	Medium-sized tertiary flake of opalitic chert*
5GF4337.fs15	48.5N 24E	0-10	Four microflakes (chert and porcellanite)*
5GF4337.fs16	44.5N 20E	0-10	Two microflakes (chert and porcellanite)*
5GF4337.fs17	48.5N 26E	Surface	Ground stone fragment of rhyolite (6 x 5.5 x 6cm)
5GF4337.fs18	40.5N 14E	0-10	Small tertiary flake of white porcellanite*
5GF4337.fs19	42.5N 16E	3	Ground stone fragment of gneiss (7.5 x 2.5 x 2cm)
5GF4337.fs20	62N 49E	0-10	Two micro-flakes of opalitic chert, one micro-flake of green porcellanite*

Site 5GF4337 Excavation Collections			
Specimen No.	**Unit**	**Depth (cm)**	**Description (* denotes artifacts found in the screen)**
5GF4337.fs21	62N 49E	0-10	Micro-flake of green chert (from waterscreen sample)
5GF4337.fs22	62N 49E	10-20	Groundstone fragment composed of andesite (6.5 x 4 x 3.5cm)*
5GF4337.fs23	62N 49E	10-20	One small tertiary flake of porcellanite, eight microflakes (porcellanite and chert), and unidentified bone fragment (from waterscreen sample)
5GF4337.fs24	62N 49E	20-30	*Succinea* shell fragments, unidentified tooth enamel fragment, and charcoal (from waterscreen sample)
5GF4337.fs25	62N 49E	30-40	*Succinea* shell fragments (from waterscreen sample)

5ME113
All artifacts collected from site 5ME113 will be curated at the Museum of Western Colorado.

Site 5ME113 Surface Collections	
Specimen No.	**Description**
5ME113.s1	Projectile point tip of white/clear opalitic chert

Site 5ME113 Excavation Collections			
Specimen No.	**Unit/ Test Block**	**Depth (cm)**	**Description**
5ME113.fs3	0N 10E TB1	0-4	Microflake of porcellanite
5ME113.fs4	0N 10E TB1	0-4	Three microflakes of porcellanite and one microflake of opalitic chert
5ME113.fs5	0N 10E TB 1	0-4	Microflake of opalitic chert found in screened fill from Feature 1
5ME113.fs6	12N 0E TB 2	Surface	Clear glass shard Beer bottle fragment
5ME113.fs8	12N 0E TB 2	1-3	Three pieces of clear glass

Site 5ME113 Excavation Collections			
Specimen No.	**Unit/ Test Block**	**Depth (cm)**	**Description**
5ME113.fs9	0N 10E TB 1	0-4	Small tertiary flake of porcellanite
5ME113.fs17	0N 11E TB 1	0-4	Small tertiary flake of opalitic chert
5ME113.fs19	30N 67E (Unit 2)	Surface	Two small tertiary flakes and five microflakes of chert
5ME113.fs20	30N 67E (Unit 2)	Surface	Glass shard
5ME113.fs21	30N 67E (Unit 2)	0-4	One small tertiary flake of opalitic chert and five microflakes of opalitic chert
5ME113.fs24	30N 67E (Unit 2)	4-20	Three small tertiary flakes of opalitic chert and three microflakes of opalitic chert
5ME113.fs25	30N 67E (Unit 2)	20-35	Five small tertiary flakes of opalitic chert
5ME113.fs27	No unit # Collected during 2010 monitor		Eight flakes collected from screened fill from Feature 4 during the monitor in 2010. Two of the flakes are medium-sized tertiary flakes of opalitic chert and six are microflakes of opalitic chert.
5ME113.fs28	No unit # Collected during 2010 monitor		Medium-sized flake found *in-situ* along the basin floor of Feature 4.

5ME974
All artifacts collected from site 5ME974 will be curated at the Museum of Western Colorado.

Site 5ME974 Surface Collections	
Specimen No.	**Description**
5ME974.s2	Purple glass
5ME974.s3	Brown glass
5ME974.s4	Brown glass
5ME974.s5	Purple glass

Site 5ME974 Surface Collections	
Specimen No.	**Description**
5ME974.s6	Clear/green glass
5ME974.s7	Brown glass flake, worked
5ME974.s8	Purple glass
5ME974.s9	Green glass, worked
5ME974.s10	Green glass
5ME974.s11	Green glass
5ME974.s12	Purple glass
5ME974.s13	Brown glass
5ME974.s14	Clear/green glass
5ME974.s15	Clear glass
5ME974.s16	Clear/green glass
5ME974.s17	Clear glass
5ME974.s18	Brown glass w/ stripes
5ME974.s19	Green glass
5ME974.s20	Purple glass
5ME974.s21	Purple glass
5ME974.s22	Purple glass
5ME974.s23	Clear glass
5ME974.s24	Green glass
5ME974.s25	Clear glass
5ME974.s26	Green glass
5ME974.s27	Green glass
5ME974.s28	Green glass
5ME974.s29	Clear glass
5ME974.s30	Brown glass
5ME974.s31	Blue glass
5ME974.s32	Clear glass

Site 5ME974 Surface Collections	
Specimen No.	**Description**
5ME974.s33	Green glass
5ME974.s34	Purple glass
5ME974.s35	Brown glass
5ME974.s36	Purple glass
5ME974.s37	Green glass
5ME974.s38	Brown glass
5ME974.s39	Brown glass
5ME974.s40	Green glass
5ME974.s41	Brown glass
5ME974.s42	Brown glass
5ME974.s43	Green glass
5ME974.s44	Purple glass
5ME974.s45	Green glass
5ME974.s46	Green glass
5ME974.s47	Green glass
5ME974.s48	Rusty can lid
5ME974.s49	Twisted wire
5ME974.s50	Lid or bottom with solder dot
5ME974.s51	Purple glass
5ME974.s52	4 pieces rusty can flattened
5ME974.s53	2 rusty tin pieces
5ME974.s54	Metal strip with punched hole
5ME974.s55	Brown glass
5ME974.s56	Tin scrap
5ME974.s57	Blue glass
5ME974.s58	Clear/green glass
5ME974.s59	Can lid or bottom

Site 5ME974 Surface Collections	
Specimen No.	**Description**
5ME974.s60	Clear/green glass
5ME974.s61	Rusty can lid
5ME974.s62	3 pieces blue glass
5ME974.s63	Metal strip with punched hole
5ME974.s64	Green glass
5ME974.s65	Brown glass
5ME974.s66	Brown glass
5ME974.s67	Purple glass
5ME974.s68	Clear glass
5ME974.s69	Green glass
5ME974.s70	Brown glass
5ME974.s71	Brown glass
5ME974.s72	Brown glass
5ME974.s73	Brown glass
5ME974.s74	Green glass
5ME974.s75	Green glass
5ME974.s76	Brown glass
5ME974.s77	Spice can 3 pieces
5ME974.s78	Brown glass
5ME974.s79	Round nail
5ME974.s80	Brown glass
5ME974.s81	Sardine can
5ME974.s82	Brown glass
5ME974.s83	Brown glass
5ME974.s84	Clear/green glass
5ME974.s85	Flattened tin piece
5ME974.s86	Clear/green glass

Site 5ME974 Surface Collections	
Specimen No.	**Description**
5ME974.s87	Sardine can and flat tin piece
5ME974.s88	Paleoindian projectile point tip and midsection
5ME974.s89	Purple glass
5ME974.s90	Brown glass
5ME974.s91	Brown glass
5ME974.s92	Brown glass
5ME974.s93	Brown glass
5ME974.s94	Brown glass
5ME974.s95	Brown glass
5ME974.s96	Rusty can lid
5ME974.s97	Brown glass
5ME974.s98	Clear/green glass
5ME974.s99	Purple glass
5ME974.s100	Purple glass
5ME974.s101	Brown glass
5ME974.s102	Purple glass
5ME974.s103	Purple glass
5ME974.s104	Brown glass
5ME974.s105	Brown glass
5ME974.s106	Brown glass
5ME974.s107	Purple glass
5ME974.s108	Purple glass
5ME974.s109	Clear/green glass
5ME974.s110	Brown glass
5ME974.s111	Purple glass
5ME974.s112	Brown glass
5ME974.s113	Brown glass

Site 5ME974 Surface Collections	
Specimen No.	**Description**
5ME974.s114	Purple glass
5ME974.s115	Clear/green glass
5ME974.s116	Purple glass
5ME974.s117	Green glass
5ME974.s118	Biface
5ME974.s119	Projectile point mid-section
5ME974.s120	Projectile point top section
5ME974.s121	Clear/green glass
5ME974.s123	Small, rusty tin piece
5ME974.s124	Large solder-dot can with hole in the cap
5ME974.s125	Small, rusty tin piece
5ME974.s126	.22 caliber cartridge casing
5ME974.s127	Spent bullet lead
5ME974.s128	Knife-opened can
5ME974.s129	Rusty crushed can
5ME974.s130	Crushed solder-dot can
5ME974.s131	Evaporated milk can. Folded in half
5ME974.s132	3 superspeed .32 Winchester special cartridge casings and a clear glass shard
5ME974.s133	Kipper snacks tin, key opened
5ME974.s134	Rusted tin can cut in half
5ME974.s135	Flattened can
5ME974.s136	Screw-on cap
5ME974.s137	Flattened rusty can
5ME974.s138	Sardine tin, rusted
5ME974.s139	Pail handle

Site 5ME974 – Test Block 1 Excavation Collections			
Specimen No.	**Quadrant**	**Depth (cm)**	**Description**
5ME974.fs1	NE ¼	disturbed soil	1 sm porcellanite flake (Burro Canyon Fm), 1 basalt microflake
5ME974.fs3	NE ¼	9	Fossiliferous chert core (possibly Debeque Fm)
5ME974.fs5	NE ¼	10-20	Very large primary chert flake (Burro Canyon Fm)
5ME974.fs6	NE ¼	10-20	1 piece burnt bone, 1small secondary basalt flake, 1 chert microflake (Green River Fm), 1 medium chert flake (Morrison Fm)
5ME974.fs7	NE ¼	9	Medium chert flake, exhibits retouch (Green River Fm)
5ME974.fs8	NW ¼	6	Chert biface fragment of material similar to that found in Brule Fm 21.5x19.8x5mm
5ME974.fs9	NW ¼	0-10	1 large secondary siltstone flake and 1 small chert flake (Green River Fm)

Site 5ME974 – Test Block 2 Excavation Collections			
Specimen No.	**Unit**	**Depth (cm)**	**Description**
5ME974.fs1	1	Surface	Metate fragment
5ME974.fs2	1	0-4	Basalt mano fragment
5ME974.fs3	1	0-4	7 chert microflakes, 2 small chert flakes, (Green River and Madison Fm), 1 large dark fossiliferous chert flake
5ME974.fs4	1	0-4	3 pieces burnt bone
5ME974.fs6	1	4-14	Small piece burnt bone
5ME974.fs7	1	4-14	Chert microflake(Green River Fm)
5ME974.fs8	1	14-19	Basalt microflake
5ME974.fs9	1	19-24	2 chert microflakes(Madison Fm)
5ME974.fs12	2	0-8	Brown and clear bottle glass shards
5ME974.fs13	2	0-8	3 micro and 2 small chert flakes (Green River Fm)
5ME974.fs16	2	0-8	Burnt bone
5ME974.fs17	2	8-15	Charred seed

Site 5ME974 – Test Block 2 Excavation Collections			
Specimen No.	**Unit**	**Depth (cm)**	**Description**
5ME974.fs19	2	8-15	2 small, 1 medium chert flake
5ME974.fs20	2	8-15	Brown bottle glass
5ME974.fs21	2	15-20	Brown bottle glass
5ME974.fs22	2	15-20	4 small chert flakes (2 heat treated, 2 Troublesome Fm)
5ME974.fs27	2	22	1 small, 1 large chert flake (Green River and Troublesome Fm)
5ME974.fs28	2	16	2 small chert flakes (Madison and Troublesome Fm)
5ME974.fs29	2	20	Small chert flake(Green River Fm)

Site 5ME974 – Test Block 3 Excavation Collections			
Specimen No.	**Quadrant**	**Depth (cm)**	**Description**
5ME974.fs1	NE ¼	0-7	2 chert microflakes (Madison Fm), 2 small chert flakes (Madison Fm, Burro Canyon Fm)
5ME974.fs2	NE ¼	0-7	3 basalt mano fragments
5ME974.fs3	NE ¼	7-8	1 large Magadi type chert flake (Brule Fm?) 1 medium secondary porcellanite flake (Burro Canyon Fm)
5ME974.fs4	NE ¼	7-8	2 basalt mano fragments
5ME974.fs5	NE ¼	Surface	Metate fragment
5ME974.fs6	SW ¼	Surface	chert microflake(Green River Fm)
5ME974.fs7	SW ¼	1-3	chert microflake(Green River Fm)
5ME974.fs8	SW ¼	6-8	1 micro and 3 small chert flakes, 1 medium secondary chert flake (Green River Fm)
5ME974.fs9	SW ¼	6-8	Mano fragment
5ME974.fs10	SW ¼	6-8	Core fragment of dark fossiliferous chert

Site 5ME974 – Test Block 3N Excavation Collections			
Specimen No.	**Unit**	**Depth (cm)**	**Description**
5ME974.fs1	2, NE ¼	surface	Mano fragment
5ME974.fs2	2, NE ¼	1-5	2 small chert flakes, 1 small chert shatter (1 Madison Fm, 2 unknown)
5ME974.fs3	2, NE ¼	11-15	3 small chert flakes, 1 exhibits retouch (Madison Fm)

Site 5ME974 – Test Trench 4 Excavation Collections		
Specimen No.	**Depth (cm)**	**Description**
5ME974.fs1	Surface	Basalt mano fragment
5ME974.fs2	Surface	1 medium chert flake (dark fossiliferous chert) 1 large secondary biface thinning chert flake (Bridger Fm)
5ME974.fs3	11	1 med quartzite flake(Dakota Fm) 1 sm chert shatter (Madison Fm) 1 med utilized blade (Bridger Fm) 1 med chert flake (unknown mat'l)
5ME974.fs4	17	Purple glass shard

Site 5ME974 – Mesa Top Block Excavation Collections			
Specimen No.	**Unit**	**Depth (cm)**	**Description**
5ME974.fs1	4E, 5N	0-4	10 micro-sm chert flakes (5 White River Group, 4 Madison Fm, 1 Bridger Fm)
5ME974.fs2	4E, 6N	0-4	32 micro-small chert flakes (17 Madison Fm, 7 Bridger Fm, 8 White River Group) 1 medium chert flake (Troublesome Fm), 1 quartzite microflake (unk provenace)
5ME974.fs3	5E, 6N	0-4	chert microflake (Madison Fm)
5ME974.fs4	5E, 5N	0-4	5 chert microflakes (3 Madison Fm, 2 White River Group) 1 secondary chert microflake (Madison Fm), 1 med porcellanite flake (unk provenance)

Site 5ME974 – Mesa Top Block Excavation Collections			
Specimen No.	**Unit**	**Depth (cm)**	**Description**
5ME974.fs5	4E, 5N	4-15	15 micro-med chert flakes (2 Troublesome Fm, 6 Bridger Fm, 3 Morgan Fm, 4 White River Group), 2 small quartzite flakes (Dakota Fm)
5ME974.fs7	4E, 5N	15-25	Basalt microflake
5ME974.fs9	5E, 5N	4-15	3 micro-sm chert flakes(Madison Fm)
5ME974.fs10	5E, 5N	4-15	Biface fragment basalt 16x8.5x3mm
5ME974.fs11	5E, 5N	4-15	3 micro-sm chert flakes (1Madison Fm, 2 White River Group), 1 lg secondary chert flake (unk provenance)
5ME974.fs12	5E, 5N	15-20	chert microflake (White River Group)

Site 5ME974 – Mesa Top Test Trenches Excavation Collections			
Specimen No.	**Test Trench**	**Depth (cm)**	**Description**
5ME974.fs1	1	0-4	39 micro-sm chert flakes(15 Madison Fm, 12 Bridger Fm, 8 White River Group, 1 Troublesome Fm, 2 unk fossiliferous), 12 micro-sm quartzite flakes(10 Dakota Fm, 1 Uinta Fm, 1 unk.), 1 porcellanite microflake(Burro Canyon Fm)
5ME974.fs2	1	0-4	4 pieces burnt bone
5ME974.fs3	2	0-4	6 micro-sm chert flakes (2 White River Group, 1 Bridger Fm, 3 Madison Fm)
5ME974.fs4	3	0-3	2 sm-med secondary chert flakes (Madison Fm), 10 micro-sm chert flakes (9 Madison Fm, 1 Bridger Fm), 1 porcellanite microflake (Burro Canyon Fm)
5ME974.fs5	3	Surface	Biface tip (Morrison Fm) 17x21x5mm
5ME974.fs6	1	4-9	1 very large secondary porcellanite flake (Burro Canyon Fm), 1 medium secondary basalt, 1 basalt microflake, 10 micro-med chert flakes (6 Madison Fm, 4 Bridger Fm), 1 lg secondary quartz crystal shatter, 2 quartzite microflakes (Green River Fm)
5ME974.fs7	3	4-9	3 chert microflakes (1 Madison Fm, 2 Bridger Fm), 1 quartzite microflake (Green River Fm)
5ME974.fs8	1	4-9	2 pieces burnt bone

Site 5ME974 – Mesa Top Test Trenches Excavation Collections			
Specimen No.	**Test Trench**	**Depth (cm)**	**Description**
5ME974.fs10	2	4-9	1 large secondary quartzite flake (Dakota Fm), 1 small quartzite flake (Dakota Fm), 1 medium porcellanite flake (Burro Canyon Fm)
5ME974.fs11	3	4-9	5 micro-med chert flakes (3 Bridger Fm, 2 Madison Fm)

Site 5ME974 – Test Pit 1 Excavation Collections		
Specimen No.	**Depth (cm)**	**Description**
5ME974.fs1	0-1	1 medium tertiary quartzite flake (Dakota Fm), 1 basalt microflake
5ME974.fs2	1-5	Chert microflake (Madison Fm)
5ME974.fs3	10-15	Basalt cobble spall

Site 5ME974 – Test Pit 2 Excavation Collections		
Specimen No.	**Depth (cm)**	**Description**
5ME974.fs1	Surface	Worked blue glass shard
5ME974.fs2	0-1	3 clear glass shards
5ME974.fs3	1-5	Small tertiary basalt flake
5ME974.fs4	1-5	Clear glass shard
5ME974.fs5	5-10	1 very large tertiary basalt flake, 1 small tertiary chert flake (Green River Fm), 1 small tertiary quartzite flake (Dakota Fm)

Site 5ME974 – Test Pit 3 Excavation Collections		
Specimen No.	**Depth (cm)**	**Description**
5ME974.fs1	1-5	Brown glass shard

5ME16097

All artifacts collected from site 5ME16097 will be curated at the Museum of Western Colorado.

Site 5ME16097 Excavation Collections			
Specimen No.	**Trench/ Unit**	**Depth (cm)**	**Description**
5ME16097.fs1	N/A	Surface	1 small tertiary chert flake, 1 clear glass shard
5ME16097.fs2	N/A	Surface	Purple glass shard
5ME16097.fs3	N/A	Surface	Purple glass shard
5ME16097.fs4	N/A	Surface	Cottonwood Triangular projectile point fragment (1.33x1.65x0.3cm)
5ME16097.fs5	N/A	Surface	Purple glass shard
5ME16097.fs6	N/A	Surface	Uniface -broken fragment of an end scraper (2.2x1.3x0.4cm)
5ME16097.fs7	N/A	Surface	4 burnt bone fragments
5ME16097.fs8	N/A	Surface	Medium tertiary chert flake
5ME16097.fs9	N/A	Surface	Very large tertiary chert flake
5ME16097.fs10	N/A	Surface	Ceramic handle, related to .fs12
5ME16097.fs11	N/A	Surface	Ceramic plate fragment
5ME16097.fs12	N/A	Surface	2 ceramic fragments, related to .fs10
5ME16097.fs13	N/A	Surface	Large tertiary mudstone flake
5ME16097.fs14	N/A	Surface	Large tertiary chert lake
5ME16097.fs15	N/A	Surface	3 chert microflakes from an anthill
5ME16097.fs16	N/A	Surface	Large tertiary porcellanite flake
5ME16097.fs17	N/A	Surface	1 micro, 1 small, tertiary chert flakes
5ME16097.fs18	N/A	Surface	Uncompahgre Brown Ware sherd
5ME16097.fs19	N/A	Surface	2 chert microflakes
5ME16097.fs20	N/A	Surface	Chert microflake
5ME16097.fs21	N/A	Surface	Small tertiary quartzite flake
5ME16097.fs22	N/A	Surface	Polishing stone
5ME16097.fs23	N/A	Surface	Small tertiary chert flake
5ME16097.fs24	N/A	Surface	Chopper

Site 5ME16097 Excavation Collections			
Specimen No.	**Trench/ Unit**	**Depth (cm)**	**Description**
5ME16097.fs25	N/A	Surface	11 flakes from a collector's pile: small-v large in size, chert, quartzite and porcellanite
5ME16097.fs26	8E 14S	Surface	Hammerstone fragment (one of the Feature 2 cobbles)
5ME16097.fs29	7E 13S E½	1-5	Burnt bone fragments
5ME16097.fs32	7E 13S E½	1-5	Chert microflake
5ME16097.fs34	7E 13S E½	5-12	Chert microflake
5ME16097.fs37	7E 12S E½	1-4	Burnt bone fragments
5ME16097.fs43	7E 12S E½	4-6	Burnt bone fragments
5ME16097.fs45	7E 15S E½	1-4	3 chert microflakes
5ME16097.fs47	7E 15S E½	Surface	Hammerstone fragment
5ME16097.fs48	7E 15S E½	4-8	Unburnt bone
5ME16097.fs49	7E 15S E½	4-8	2 chert microflakes
5ME16097.fs53	Trench 2 14S 6E S½ & 7E 14S SW¼	0-4	3 chert microflakes
5ME16097.fs56	Trench 2 14S 6E S½ & 7E 14S SW¼	4-8	1 chert microflake, 1 very large, secondary chert flake
5ME16097.fs57	Trench 3 4E 14S S½ & 5E 14S S½)	0-4	2 chert microflakes
5ME16097.fs59	Trench 3 4E 14S S½ & 5E 14S S½)	0-4	Burnt bone fragments
5ME16097.fs60	5E 14S N½	0-4	Small tertiary chert flake
5ME16097.fs62	5E 14S N½	0-4	Chert microflake

Site 5ME16097 Excavation Collections			
Specimen No.	**Trench/ Unit**	**Depth (cm)**	**Description**
5ME16097.fs64	6E, 15S	0-4	2 small, 1 micro- chert flakes
5ME16097.fs69	6E 15S	4-9	Biface tip (2.4x1.7x0.4cm)
5ME16097.fs70	6E 15S	4-9	Chert microflake
5ME16097.fs73	6E 13S	0-4	Chert microflake
5ME16097.fs78	8E 13S	0-5	Burnt bone fragments
5ME16097.fs80	5E 13S	0-5	2 chert microflakes, 1 medium secondary chert shatter
5ME16097.fs81	5E 13S	0-5	Very large secondary basalt shatter
5ME16097.fs82	6E 13S	0-5	Small tertiary chert flake
5ME16097.fs83	6E 13S	0-5	Burnt bone fragments
5ME16097.fs85	5E 13S	0-5	Burnt bone fragment
5ME16097.fs89	8E 13S	5-11	Burnt bone fragments
5ME16097.fs92	6E 12S	3-11	Chert microflake
5ME16097.fs94	9E 13S	0-4	Burnt bone fragment
5ME16097.fs96	10E 13S	0-4	Burnt bone fragments
5ME16097.fs99	10E 13S	0-4	4 chert microflakes, 1 small secondary chert flake
5ME16097.fs100	10E 13S	4-10	Chert microflake
5ME16097.fs103	7E 11S E½	0-4	Burnt bone fragments
5ME16097.fs104	7E 11S E½	0-4	Small tertiary chert flake
5ME16097.fs108	5E 15S	Surface	Medium tertiary chert flake
5ME16097.fs109	11E, 13S	0-5	4 chert microflakes
5ME16097.fs110	11E 13S	0-5	Burnt bone fragments
5ME16097.fs114	5E 15S	0-4	Chert microflake
5ME16097.fs116	5E 15S	4-10	Medium tertiary chert flake
5ME16097.fs117	Trench 3 4E 14S S½ & 5E 14S S½)	5-11	Medium tertiary chert flake

Site 5ME16097 Excavation Collections			
Specimen No.	**Trench/ Unit**	**Depth (cm)**	**Description**
5ME16097.fs118	Trench 3 4E 14S S½ & 5E 14S S½)	5-11	Burnt bone fragments
5ME16097.fs120	11E 13S	5-11	Burnt bone fragments
5ME16097.fs121	11E 13S	5-11	Chert microflake
5ME16097.fs122	Trench 3 4E 14S S½ & 5E 14S S½)	5-11	Burnt bone
5ME16097.fs125	8E 12S	0-4	Burnt bone fragments
5ME16097.fs126	12E 13S	0-5	Burnt bone fragments
5ME16097.fs127	12E 13S	0-5	2 chert microflakes
5ME16097.fs128	8E 12S	4-10	Burnt bone fragments
5ME16097.fs135	8E 11S	0-3	Burnt bone fragments
5ME16097.fs138	7E 16S	0-3	2 chert microflakes
5ME16097.fs140	7E 16S	3-9	2 small chert flakes
5ME16097.fs142	8E 13S	Surface	Hammerstone (one of Feature 2 oxidized cobbles)
5ME16097.fs144	7E 17S	4-10	1 mudstone microflake, 1 small tertiary chert flake
5ME16097.fs145	7E 18S	0-5	Chert microflake
5ME16097.fs151	7E 18S	5-9	Basal fragment of a stemmed knife or corner-notched projectile point (1.5x2.3x0.5cm)
5ME16097.fs154	17W 11N	0-4	4 small tertiary chert flakes
5ME16097.fs154a	17W 11N	0-4	Unifacial spokeshave fragment (1.3x2.4x0.3cm)
5ME16097.fs155	16W 11N	0-4	2 chert microflakes, 2 small tertiary chert flakes
5ME16097.fs159	N/A	Surface	Chert microflake
5ME16097.fs160	N/A	Surface	Small tertiary chert flake
5ME16097.fs161	N/A	Surface	Burnt bone fragment
5ME16097.fs162	N/A	Surface	Very large tertiary quartzite flake
5ME16097.fs163	N/A	Surface	Small tertiary chert flake
5ME16097.fs164	N/A	Surface	1 small tertiary chert flake, 1 small tertiary porcellanite flake

Site 5ME16097 Excavation Collections			
Specimen No.	**Trench/ Unit**	**Depth (cm)**	**Description**
5ME16097.fs165	N/A	Surface	Small tertiary chert flake
5ME16097.fs166	14W 13N	0-10	Uncompahgre Brown Ware sherd
5ME16097.fs167	14W 13N	0-10	2 chert microflakes
5ME16097.fs168	15W 13N	0-10	chert microflake
5ME16097.fs168a	15W 13N	0-10	Basal edge of a Desert Side-notched projectile point (0.5x1.0x0.1cm)
5ME16097.fs169	15W 13N	0-10	Uncompahgre Brown Ware sherd
5ME16097.fs170	6E 15S	Surface	Medium tertiary chert flake
5ME16097.fs173	8E 14S N½	6-10	Chert microflake
5ME16097.fs174	7E 15S W½	0-5	2 chert microflakes, 1 small tertiary chert flake
5ME16097.fs175	Trench 7 W½	0-5	15 chert microflakes
5ME16097.fs175a	Trench 7 W½	0-5	Burnt bone fragments
5ME16097.fs175b	Trench 7 W½	0-5	Burnt bone fragment
5ME16097.fs176	Trench 7 W½	0-5	Glass shard
5ME16097.fs177	7E 15S W½	5-9	3 chert microflakes
5ME16097.fs178	7E 18S	0-9	Chert chopper (4x5x2cm)
5ME16097.fs179	Trench 7 E½	0-5	Burnt bone fragment
5ME16097.fs180	Trench 7 W½	5-10	Chert microflake
5ME16097.fs181	Trench 7 W½	5-10	Burnt bone fragments
5ME16097.fs182	Trench 7 E½	5-10	Burnt bone fragments
5ME16097.fs183	7E 13S W½	0-4	Burnt bone fragment

Site 5ME16097 Excavation Collections			
Specimen No.	**Trench/ Unit**	**Depth (cm)**	**Description**
5ME16097.fs184	9E 14S	0-6	Burnt bone fragment
5ME16097.fs185	5E 16S	0-4	4 chert microflakes
5ME16097.fs186	5E 16S	0-4	Chert microflake
5ME16097.fs187	9E 15S	0-6	Chert microflake
5ME16097.fs188	9E 15S	0-6	Burnt bone fragments
5ME16097.fs189	6E 18S	0-9	chert microflake
5ME16097.fs190	9E 15S	6-10	Burnt bone fragment
5ME16097.fs191	9E 15S	6-10	2 chert microflakes

5ME16102
All artifacts collected from site 5ME16102 will be curated at the Museum of Western Colorado.

Site 5ME16102 Excavation Collections		
Specimen No.	**Depth (cm)**	**Description**
5ME16102.fs1	0-10	Small tertiary chert flake from Feature 5

Site 5ME16105
All artifacts collected from site 5ME16105 will be returned to the landowner, Nichols-Hayward Ranch.

Site 5ME16105 Salvage Excavations	
Specimen No.	**Description**
5ME16105.fs1	Small chert flake

Site 5ME16117
All artifacts collected from site 5ME16117 will be curated at the Museum of Western Colorado.

Site 5ME16117 Excavation Collections			
Specimen No.	**Test Pit**	**Depth (cm)**	**Description**
5ME16117.fs1	1	Surface	Biface fragment (2.1x3.3x0.6cm)
5ME16117.fs2	1	Surface	Projectile point blade fragment exhibiting retouch (2x1.5x4cm)
5ME16117.fs3	1	Surface	Small secondary chert flake
5ME16117.fs4	1	Surface	Very large primary quartzite flake from heat-treated cobble
5ME16117.fs5	1	Surface	Small chert biface thinning flake
5ME16117.fs6	1	0-4	Calcined bone fragment (phlange)
5ME16117.fs7	1	4-10	17 burnt bone fragments
5ME16117.fs8	1	4-10	14 flakes: small to large in size, chert and quartzite, many exhibit heat treatment in the form of crazing
5ME16117.fs9	2	0-5	Burnt bone fragment
5ME16117.fs10	2	5-15	7 flakes: chert, quartzite and porcellanite
5ME16117.fs11	2, NW ¼	15-25	Sinbad side notched projectile point (2.4x1.4x1.0cm)
5ME16117.fs12	2, S½	15-25	9 flakes: chert, quartzite and porcellanite
5ME16117.fs13	2, NE¼	15-25	4 chert flakes
5ME16117.fs14	2, NW¼	15-25	7 flakes: chert and quartzite

5ME16132
All artifacts collected from site 5ME16132 will be returned to the landowner, Richard Stewart.

Site 5ME16132 Salvage Excavation Collections	
Specimen No.	**Description**
5ME16132.fs1	Small porcellanite flake

5ME16134

All artifacts collected from site 5ME16134 will be returned to the landowner, Nichols-Hayward Ranch.

Site 5ME16134 Surface Collections	
Specimen No.	**Description**
5ME16134.s1	Large primary porcellanite flake
5ME16134.s2	Large secondary porcellanite flake
5ME16134.s3	Small tertiary chert flake

5ME16716

All artifacts collected from site 5ME16716 will be returned to the landowner, KR Holdings.

Site 5ME16716 Excavation Collections From Salvage Feature 5	
Specimen No.	**Description**
5ME16716.fs2	Large secondary utilized chert flake (3.9x3x0.7cm)
5ME16716.fs3	Unifacial scraper of agrillite (6.2x6x1.3cm)
5ME16716.fs4	Chert microflake
5ME16716.fs7	Chert microflake
5ME16716.fs8	2 small quartzite flakes
5ME16716.fs9	Small tertiary chert flake
5ME16716.fs10	Small quantity of jacal (<5.75oz)

5ME16782

The artifacts collected from site 5ME16782 will be curated at the Museum of Western Colorado.

Site 5ME16782 Surface Collections	
Specimen No.	**Description**
5ME16782.s1	Archaic corner-notched projectile point (3.3x2.3x0.3cm)

Site 5ME16782 Excavation Collections			
Specimen No.	**Test Pit**	**Depth (cm)**	**Description**
5ME16782.fs5	1, NW¼	25	Coprolite

5ME16783
All artifacts collected from site 5ME16783 will be curated at the Museum of Western Colorado.

Site 5ME16783 Excavation Collections			
Specimen No.	**Unit**	**Depth (cm)**	**Description**
5ME16783.fs1	1x2m grid	Surface	2 chert flakes (chunks)
5ME16783.fs2	1x2m grid	28cm	13 flakes: micro-large, chert and porcellanite

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5ME16784
All artifacts collected from site 5ME16784 will be returned to the landowner, Encana Oil & Gas (USA) Inc.

Site 5ME16784 Excavation Collections			
Specimen No.	**Unit**	**Depth (cm)**	**Description**
5ME16784.fs2	1W, 1S	4-7	Partially shaped sandstone slab; metate fragment
5ME16784.fs3	N/A	Surface	Core of a mudstone cobble. Found along the top of trench during 2009 monitor.

5ME16786
All artifacts collected from site 5ME16786 will be returned to the landowner, Encana Oil & Gas (USA) Inc.

Site 5ME16786 Excavation Collections			
Specimen No.	**Unit (X/Y)**	**Depth (cm)**	**Description (* indicates artifacts collected from screen)**
5ME16786.fs1	N/A	34.9	Very large secondary basalt flake
5ME16786.fs2	N/A	44	Unifacial ground stone fragment

Site 5ME16786 Excavation Collections			
Specimen No.	**Unit (X/Y)**	**Depth (cm)**	**Description (* indicates artifacts collected from screen)**
5ME16786.fs3	N/A	110	Very large utilized chert flake (4.3x5.2x1cm)
5ME16786.fs5	101/100	90-100	Abrader of local sandstone (6.3x4.8x1.5cm)
5ME16786.fs6	101/100	102.1	Large secondary basalt flake
5ME16786.fs7	101/101	80-90	Medium basalt flake*
5ME16786.fs8	101/101	80-90	Small Green River Fm chert flake
5ME16786.fs9	101/99	83-93	Large Burro Canyon Fm porcellanite flake*
5ME16786.fs10	101/99	93-103	*Succinea* shell*
5ME16786.fs11	101/100	100-110	Unifacial sandstone metate fragment
5ME16786.fs12	100/99	93-103	Small biface thinning Madison Fm chert flake*
5ME16786.fs13	100/99	93-103	Medium utilized flake of Madison Fm chert* (2.3x0.9x0.5cm)
5ME16786.fs14	101/98	73-83	Large secondary mudstone flake*
5ME16786.fs15	101/98	89	Corner-notched projectile point fragment of Madison Fm chert (1.8x2.6x0.5cm)
5ME16786.fs16	101/102	70-80	Very large secondary utilized flake of Burro Canyon Fm porcellanite (broken)*
5ME16786.fs17	101/98	103-113	Medium Madison Fm chert flake
5ME16786.fs18	101/98	103-113	Large quartzite flake*
5ME16786.fs22	101/102	93	Medium mudstone flake
5ME16786.fs23	101/102	94	Small Green River Fm chert flake
5ME16786.fs24	101/102	90-100	Medium Uinta Fm chert flake*
5ME16786.fs25	101/100	115	Medium Madison Fm chert flake/chunk with evidence of heat treatment (crazing, potlids)
5ME16786.fs26	101/100	120	Unifacial sandstone metate fragment (pollen sample .ps3 obtained)
5ME16786.fs27	101/100	110-120	2 unifacial sandstone comal fragments (fire-cracked)
5ME16786.fs28	101/102	90-100	Medium Madison Fm chert flake with evidence of heat treatment (crazing)*
5ME16786.fs29	101/101	100-110	Large Green River Fm chert flake*

Site 5ME16786 Excavation Collections			
Specimen No.	**Unit (X/Y)**	**Depth (cm)**	**Description (* indicates artifacts collected from screen)**
5ME16786.fs30	97.5/101	118	Spokeshave 3.8x2.8x1.0cm
5ME16786.fs31	101/101	110-120	Small secondary basalt flake
5ME16786.fs32	101/102	100-110	Mano fragment
5ME16786.fs33	101/101	120	Corner notched projectile point of Troublesome Fm chert (3.6x2.1x0.5cm)
5ME16786.fs34	100/101	110	Very large secondary utilized basalt flake (4.2x2.3x1.2cm)
5ME16786.fs35	101/100	120-130	Sandstone metate
5ME16786.fs36	100/101	110-120	Medium secondary basalt flake
5ME16786.fs37	101/101	128	Very large fractured polished basalt cobble
5ME16786.fs38	100/101	122	Medium secondary Madison Fm chert flake with evidence of heat treatment (crazing, potlids)
5ME16786.fs39	100/100	130	Very large primary jasper flake
5ME16786.fs40	100/100	123.5	Very large secondary basalt flake
5ME16786.fs41	100/99	113-123	Medium secondary basalt flake*
5ME16786.fs43	101/103	70-80	Medium biface thinning Troublesome Fm chert flake (broken)
5ME16786.fs46	100/99	123-133	Very large, secondary, utilized Burro Canyon Fm porcellanite flake* (4.6x3.1x0.7cm)
5ME16786.fs50	100/99	148	"Biscuit" shaped mano-ground on all six surfaces
5ME16786.fs51	100/99	146	Loaf shaped mano-ground on all six surfaces
5ME16786.fs52	100/99	148	"Biscuit" shaped mano-ground on all six surfaces
5ME16786.fs53	101/98	123-133	Very large, secondary Madison Fm chert flake*
5ME16786.fs54	100/100	180-190	Small-medium mammal bone fragment*
ME16786.fs55	100/104	60	Large secondary basalt flake
5ME16786.fs56	100/100	190-200	Large basalt flake (broken)*
5ME16786.fs57	97.5/100	40-50	*Succinea* shell fragments
5ME16786.fs58	97.5/100	60-70	*Succinea* shells and other shell fragments
5ME16786.fs59	97.5/100	80-90	Snail shell fragments

Site 5ME16786 Excavation Collections			
Specimen No.	**Unit (X/Y)**	**Depth (cm)**	**Description (* indicates artifacts collected from screen)**
5ME16786.fs60	97.5/100	90-100	*Succinea* shells and other shell fragments Chert microflake
5ME16786.fs61	97.5/100	100-110	Tiny *Oreohelix*-like snail
5ME16786.fs62	97.5/100	110-120	*Succinea* shell and other shell fragments Chert microflake
5ME16786.fs63	97.5/100	120-130	Snail shell fragments

Site 5ME16786 Water Screen Analysis		
Unit (X/Y)	**Depth (cm)**	**Description**
97.5/100	40-50	*Succinea* shell fragments (.fs57) Anthracite Charcoal
97.5/100	50-60	Small FCR Charcoal
97.5/100	60-70	*Succinea* shells and other unidentified snail shell fragments (.fs58) Charcoal
97.5/100	70-80	Charcoal
97.5/100	80-90	Unidentified snail shell fragments (.fs59) Charcoal (accounted for approximately 5% of 80-90 level sample)
97.5/100	90-100	*Succinea* shells and other unidentified snail shell fragments (.fs60) Chert microflake (.fs60) Unidentified bone fragment Charcoal
97.5/100	100-110	Tiny *Oreohelix*-like snail and other unidentified snail shell (.fs61) fragments Anthracite Charcoal
97.5/100	110-120	*Succinea* shell and other unidentified snail shell fragments (.fs62) Chert microflake (.fs62) Unidentified bone fragment Small FCR Charcoal

Site 5ME16786 Water Screen Analysis		
Unit (X/Y)	**Depth (cm)**	**Description**
97.5/100	120-130	Unidentified snail shell fragments (.fs63) Unidentified bone fragments (likely small mammal or rodent) Charcoal

*Only specimens assigned an ".fs" number were collected from water screen analysis.

5ME16789
All artifacts collected from site 5ME16789 will be returned to the landowners, R N Industries Inc., and Richard & S Loudin Revoc Inter Vivos Trust.

Site 5ME16789 Surface Collections	
Specimen No.	**Description**
5ME16789.s1	Medium-sized, low corner-notched (nearly stemmed) projectile point fragment of Mississippian chert. (2.1x1.96x0.38cm)
5ME16789.s2	Deeply corner-notched projectile point fragment of Green River Fm chert. (1.52x2.23x0.42cm)
5ME16789.s3	Utilized core chunk of Green River Fm chert

Site 5ME16789 – Test Block 1 Excavation Collections			
Specimen No.	**Unit (X/Y)**	**Depth (cm)**	**Description**
5ME16789-1.fs1	97/102	33-40	Medium Madison Fm chert flake
5ME16789-1.fs2	95/102	60-70	Small Green River Fm chert flake
5ME16789-1.fs3	95/102	74	Small Troublesome Fm chert flake
5ME16789-1.fs4	98/103	40-50	2 pieces of porcellanite shatter (lg and vlg)
5ME16789-1.fs5	97/102	80-90	*Succinea* shell and fragments
5ME16789-1.fs6	97/102	90-95	Green River Fm chert microflake (distal fragment) snail shell fragment
5ME16789-1.fs7	97/102	95-100	1 *Succinea* shell and misc shell fragments
5ME16789-1.fs8	97/102	105-110	Green River Fm chert microflake
5ME16789-1.fs9	98/102	106-110	Tiny *Oreohelix*-like shell

Site 5ME16789 – Test Block 1 Excavation Collections			
Specimen No.	**Unit (X/Y)**	**Depth (cm)**	**Description**
5ME16789-1.fs10	98/102	110-115	Snail shell fragment
5ME16789-1.fs11	98/103	26-40	Green River Fm quartzite microflake *Succinea* shell fragments
5ME16789-1.fs12	98/103	50-60	1 *Succinea* shell fragment and other misc shell fragments
5ME16789-1.fs13	99/102	88-90	Green River Fm chert microflake (potlidded) Snail shell fragment
5ME16789-1.fs14	99/102	100-105	Green River Fm chert microflake *Succinea* shell
5ME16789-1.fs15	99/102	115-120	*Succinea* and tiny *Oreohelix*-like shell
5ME16789-1.fs16	99/102	130-135	4 *Succinea*, 4 *Oreohelix* shells other misc shell fragments
5ME16789-1.fs17	99/102	135-140	Snail shell fragments
5ME16789-1.fs18	N/A	100	Very large primary basalt flake modified to end scraper (collected during 2009 monitor from SW trench wall)
5ME16789-1.fs19	N/A	unknown	Small Burro Canyon Fm porcellanite flake (collected during 2009 monitor from bottom of trench)

5ME16789 – Test Block 1 Water Screen Analysis		
Unit (X/Y)	**Depth (cm)**	**Description**
97/102	80-90	*Succinea* snail shell and fragments (.fs5) Charcoal
97/102	90-95	Green River chert microflake (distal fragment) (.fs6) Snail shell fragment (.fs6) Insect burrow casts
97/102	95-100	*Succinea* snail shell fragments (.fs7) Charcoal
97/102	105-110	Green River chert microflake (.fs8)
98/102	106-110	Tiny *Oreohelix*-like shell (.fs9)
98/102	110-115	Ostracods Snail shell fragment (.fs10)

5ME16789 – Test Block 1 Water Screen Analysis		
Unit (X/Y)	**Depth (cm)**	**Description**
98/102	115-120	Ostracods
98/103	26-40	Green River quartzite microflake (.fs11) *Succinea* shell fragments (.fs11)
98/103	40-50	Charcoal Root tubule
98/103	50-60	Charcoal Ostracods *Succinea* fragment and other misc shell fragments (.fs12)
98/103	60-70	No artifacts
98/103	70-75	No artifacts
98/103	75-80	No artifacts
99/102	88-90	Green River chert microflake-potlidded (.fs13) Snail shell fragment (.fs13)
99/102	90-100	Ostracods
99/102	100-105	Green River chert microflake (.fs14) *Succine*a snail shell (.fs14) Charcoal
99/102	105-110	Fossilized reptile tooth
99/102	110-115	No artifacts
99/102	115-120	Charcoal Seed hulls Snail shell fragments (.fs15) S*uccinia* shell and tiny *Oreohelix*-like shell (.fs15)
99/102	120-125	Charcoal
99/102	125-130	Charcoal Fossilized insect burrows
99/102	130-135	Charcoal 4 *Succinea* and 4 tiny *Oreohelix*-like shell fragments, other misc Shell fragments (.fs16)
99/102	135-140	Charcoal Snail shell fragments (.fs17)

*Only artifacts designated an ".fs" number were collected from the water screen analysis.

Site 5ME16789 – Test Block 2 Excavation Collections			
Specimen No.	**Unit (X/Y)**	**Depth (cm)**	**Description**
5ME16789-2.fs1	6/11	33	Obsidian microflake
5ME16789-2.fs3	7/15	30-35	Medium Madison Fm chert flake
5ME16789-2.fs4	7/15	40-45	Small Green River Fm chert flake*
5ME16789-2.fs5	7/13	48	Corner-notched projectile point of Green River Fm chert (2.7x1.7x0.3cm)
5ME16789-2.fs6	6/11	60-70	2 burnt bone fragments
5ME16789-2.fs7	6/11	60-70	Small fossiliferous chert flake*
5ME16789-2.fs8	8/14	30-40	2 small, 1 medium Madison Fm chert flakes*
5ME16789-2.fs9	5/11	80-90	Small Green River Fm chert flake
5ME16789-2.fs11	5/14	60-70	Small Madison Fm chert flake
5ME16789-2.fs12	4/14	30-50	Small Madison Fm chert flake
5ME16789-2.fs13	8/12	110-120	Medium secondary siltstone flake*
5ME16789-2.fs14	9/11	110-120	Small Green River Fm chert flake
5ME16789-2.fs15	9/11	115-120	1 large, 1 medium Madison Fm chert flake*
5ME16789-2.fs16	7/13	115-120	Large Green River Fm chert flake
5ME16789-2.fs17	9/11	115-120	Large Wasatch Fm chert uniface* (2.5x2.5x0.4cm)
5ME16789-2.fs18	7/13	115-120	Bone fragments*
5ME16789-2.fs19	9/12	110-120	Large Madison Fm chert flake
5ME16789-2.fs20	9/12	120-130	3 small, 1 large chert; 1 medium porcellanite; 1 medium, 1 large secondary basalt flakes*
5ME16789-2.fs21	8/12	120-130	1 small, 1 large secondary basalt; 1micro, 4 small chert; 1 small quartzite; 1 medium basalt flake*
5ME16789-2.fs22	9/11	120-130	Medium Green River Fm chert flake *
5ME16789-2.fs23	9/11	60-70	San Rafael Stemmed Projectile Point (1.8x1.1x0.4cm) (collected in water screen)
5ME16789-2.fs24	9/11	129	Graver of Bridger Fm chert (3.1x2.3x0.7cm)
5ME16789-2.fs26	8/11	120-130	Medium Green River Fm chert flake/chunk

Site 5ME16789 – Test Block 2 Excavation Collections			
Specimen No.	**Unit (X/Y)**	**Depth (cm)**	**Description**
5ME16789-2.fs27	9/11	120-130	1 medium secondary jasper; 1 large quartzite; 1 medium, 1 v large basalt; 1 small, 1 medium, 1 large chert flakes (one is biface thinning)*
5ME16789-2.fs28	8/11	120-130	1 small chert, 1 medium quartzite flake*
5ME16789-2.fs29	9/11	60-70	Small cobble utilized as hammerstone (collected in water screen)
5ME16789-2.fs30	7/13	120-130	Small Madison Fm chert flake
5ME16789-2.fs31	7/13	120-130	Small Madison Fm chert flake*
5ME16789-2.fs32	7/13	120-130	Medium mammal bone fragment*
5ME16789-2.fs33	8/13	120-130	Large Madison Fm chert flake
5ME16789-2.fs34	8/13	120-130	3 ground stone fragments-likely metate
5ME16789-2.fs35	8/13	120-130	2 small chert, 1 small porcellanite flake*
5ME16789-2.fs36	9/13	120-130	Projectile point fragment chert* (3.1x1.1x0.3cm)
5ME16789-2.fs37	8/13	120-130	Peculiar polished stone resembles ceramics w/o temper*
5ME16789-2.fs38	9/11	130-140	1 v large secondary basalt; 1 v large quartzite; 1small, 1 medium chert flake*
5ME16789-2.fs41	8/13	120-130	Metate fragment
5ME16789-2.fs42	7/13	120-130	Burnt and unburnt bone fragments*
5ME16789-2.fs43	8/11	130-140	Biface of Wasatch Fm chert (3.9x2.3x1cm)
5ME16789-2.fs44	8/11	130-140	1 very large, utilized porcellanite flake (35.2x29x10mm) 4micro, 11 small, 3medium, 4 large chert (4 are biface thinning); 1 medium basalt; 1 large secondary basalt; 2micro, 2 small quartzite flakes*
5ME16789-2.fs45	8/11	130-140	Small fossiliferous chert flake
5ME16789-2.fs46	8/11	130-140	Small Madison Fm chert flake
5ME16789-2.fs47	8/11	130-140	18 small, 3 medium chert (four are biface thinning) flakes*
5ME16789-2.fs48	6/12	110-120	Small Green River Fm chert flake *
5ME16789-2.fs49	8/11	130-140	Chert biface fragment* (3.3x2.6x0.7cm)

Site 5ME16789 – Test Block 2 Excavation Collections			
Specimen No.	**Unit (X/Y)**	**Depth (cm)**	**Description**
5ME16789-2.fs50	8/11	130-140	Large secondary basalt flake
5ME16789-2.fs51	7/11	130-140	19 small chert (5 are biface thinning flakes); 6 small quartzite; 1 primary medium basalt; 1 medium, 1 large basalt; 2 small porcellanite; 1 medium jasper flake*
5ME16789-2.fs52	8/11	130-140	V large utilized basalt flake (3.8x2.8x0.6cm)
5ME16789-2.fs53	5/11	120-130	Bivalve shell fragments
5ME16789-2.fs55	7/12	130-140	1 large basalt, 14 small chert (three biface thinning), 1 small basalt flake 1 utilized, secondary basalt flake (48.8x23.3x11.2mm)*
5ME16789-2.fs56	7/12	130-140	Large chert flake
5ME16789-2.fs57	6/13	120-130	Medium basalt flake*
5ME16789-2.fs58	7/11	130-140	2 micro, 4 small chert; 1 small basalt; 1 small quartzite*
5ME16789-2.fs59	6/12	120-130	Small fossiliferous chert flake*
5ME16789-2.fs60	6/12	130-140	Small Green River Fm chert flake
5ME16789-2.fs61	6/11	130-140	Large Madison Fm chert flake
5ME16789-2.fs62	5/11	140-150	1 v large quartzite, 1 small chert flake , 1 chert uniface (1.6x2.4x0.5cm)*
5ME16789-2.fs63	7/13	130-135	1 small chert shatter, 1 medium basalt, 1 small quartzite flake*
5ME16789-2.fs64	6/11	130-140	Large Madison Fm chert flake
5ME16789-2.fs65	7/11	140-150	1 medium basalt, 1 v large secondary basalt, 1 small chert flake
5ME16789-2.fs66	6/11	130-140	2 small, 2 large basalt; 2 small chert flakes*
5ME16789-2.fs67	6/11	130-140	Small Green River Fm chert flake
5ME16789-2.fs68	6/11	130-140	Projectile point midsection of Cerro Del Medio obsidian* (1.2x1.8x0.3cm)
5ME16789-2.fs69	6/11	140-150	3 small chert flakes*
5ME16789-2.fs70	7/11	140-150	1 small, 1 v large basalt; 1 v large secondary basalt; 2 small, 1 medium chert; 1 small quartzite flake*
5ME16789-2.fs71	6/12	130-140	1 small chert, 1 small basalt flake*
5ME16789-2.fs72	7/12	140-150	2 micro 4 small chert flakes

Site 5ME16789 – Test Block 2 Excavation Collections			
Specimen No.	**Unit (X/Y)**	**Depth (cm)**	**Description**
5ME16789-2.fs73	7/11	140-150	Medium Green River Fm chert flake
5ME16789-2.fs75	7/11	130-140	Mano-oxidized w slight end wear indicating use as a hammerstone
5ME16789-2.fs76	5/11	140-150	V large quartzite flake
5ME16789-2.fs77	7/11	140-150	Small basalt flake
5ME16789-2.fs78	6/12	125-135	Oxidized wood
5ME16789-2.fs79	5/12	130-140	Medium biface thinning Madison Fm chert flake
5ME16789-2.fs80	5/12	140-150	2 small, 2 medium chert flakes (one is biface thinning)*
5ME16789-2.fs82	7/11	154	V large utilized Burro Canyon porcellanite flake* (4.1x1.6x0.6cm)
5ME16789-2.fs83	7/11	140-150	1 small chert flake, 1 small porcellanite flake, 1 utilized chert flake (2.6x1.4x0.8cm)*
5ME16789-2.fs87	6/11	140-150	Small Green River Fm chert flake
5ME16789-2.fs88	6/11	130-140	Utilized Madison Fm chert flake 2.8x2.8x0.4cm
5ME16789-2.fs89	6/11	130-140	Large basalt flake
5ME16789-2.fs90	6/12	140-150	V large secondary basalt flake
5ME16789-2.fs91	5/12	140-150	2 small chert flakes
5ME16789-2.fs92	6/11	140-150	Large fossiliferous chert flake
5ME16789-2.fs93	7/13	140-150	Small quartzite flake*
5ME16789-2.fs94	7/13	140-150	Medium Green River Fm chert flake
5ME16789-2.fs95	6/11	140-150	1 small, 1 medium basalt; 1 small chert; 1 small quartzite flake 1 chert uniface/woodworking tool (2.2x3.2x1.0cm)*
5ME16789-2.fs96	6/11	140-150	Polvadera Peak obsidian woodworking tool (2.7x2.1x0.4cm), small chert flake*
5ME16789-2.fs97	7/11		2 small, 1 large secondary basalt; 2 micro, 3 small quartzite; 5 micro, 10 small, 1 large chert (2 are biface thinning) flakes*
5ME16789-2.fs98	7/13	140-150	Small Green River Fm chert flake
5ME16789-2.fs100	6/12	140	2 small, 1 medium chert flakes

Site 5ME16789 – Test Block 2 Excavation Collections			
Specimen No.	**Unit (X/Y)**	**Depth (cm)**	**Description**
5ME16789-2.fs102	8/11	144	Mano fragment-heavily burnt
5ME16789-2.fs103	8/11	142	Oxidized comal fragment
5ME16789-2.fs104	7/12	130-140	1 small chert flake 1 small chert chunk/shatter
5ME16789-2.fs107	8/13	120-130	Small Madison Fm chert flake
5ME16789-2.fs109	7/13	134	Large utilized secondary Green River Fm chert flake (3.2x3.0x0.7cm)
5ME16789-2.fs110	7/13	140-150	Small basalt flake
5ME16789-2.fs111	6/11	130-140	General Bridger Fm chert tool w graver tip and shaping edges* (2.7x2.3x1.4cm)
5ME16789-2.fs112	6/11	140-150	Small Madison Fm chert flake
5ME16789-2.fs113	6/12	140-150	Small flake and v large core fragment of Green River Fm chert
5ME16789-2.fs114	4/11	140-150	Small quartzite flake, Burro Canyon Fm chert graver (2.8x2.3x0.7cm)*
5ME16789-2.fs115	7/12	120-130	Utilized Debeque Fm chert flake (1.8x1.5x0.4cm)*
5ME16789-2.fs116	8/12	130-140	Small Green River Fm chert flake
5ME16789-2.fs117	9/12	115	Medium secondary basalt flake
5ME16789-2.fs118	8/13	115-120	Wood fragments
5ME16789-2.fs119	4/11	55-60	Unknown gastropod shell-resembles genus *Vertigo*
5ME16789-2.fs120	4/11	60-65	Basalt microflake, 2 chert microflakes
5ME16789-2.fs121	4/11	65-70	9 chert and quartzite microflakes and shatter Steatite fragment
5ME16789-2.fs122	4/11	80-85	Snail shell fragments
5ME16789-2.fs123	4/11	85-90	Snail shell fragments Juniper berry seed hull
5ME16789-2.fs124	4/11	99-100	Burnt bone fragment
5ME16789-2.fs125	4/11	90-95	Chert microflake
5ME16789-2.fs126	4/11	100	Snail shell fragments Juniper needles, *Erodium cicutarium* awn

Site 5ME16789 – Test Block 2 Excavation Collections			
Specimen No.	**Unit (X/Y)**	**Depth (cm)**	**Description**
5ME16789-2.fs127	4/11	110	Snail shell fragment
5ME16789-2.fs128	6/12	35-40	Snail shell fragments
5ME16789-2.fs129	6/12	50-55	Small chert flake
5ME16789-2.fs130	6/12	90-95	Snail shell fragments
5ME16789-2.fs131	7/12	90-95	Small mammal calcine bone fragment Snail shell fragments
5ME16789-2.fs132	7/12	110-115	Chert microflake
5ME16789-2.fs133	7/15	0-5	Chert microflake
5ME16789-2.fs134	7/15	20-25	Snail shell fragments
5ME16789-2.fs135	7/15	25-30	Chert microflake
5ME16789-2.fs136	7/15	35-40	Snail shell fragments
5ME16789-2.fs137	7/15	40-45	Burnt bone fragment Medium basalt flake
5ME16789-2.fs138	7/15	45-50	Snail shell fragments
5ME16789-2.fs139	7/15	60-65	2 chert microflakes Snail shell fragment
5ME16789-2.fs140	7/15	65-70	*Succinea* shell
5ME16789-2.fs141	7/15	75-80	1 micro, 1 small chert flake Snail shell fragment
5ME16789-2.fs142	7/15	80-85	Chert microflake Snail shell fragments
5ME16789-2.fs143	7/15	90-95	Chert microflake
5ME16789-2.fs144	8/11	28-36	Snail shell fragment
5ME16789-2.fs145	8/11	36-45	Chert microflake
5ME16789-2.fs146	8/11	55-60	Snail shell fragment
5ME16789-2.fs147	8/11	80-85	Burnt bone fragment
5ME16789-2.fs148	8/11	95-100	Chert microflake
5ME16789-2.fs149	8/11	100-105	Chert microflake and shatter
5ME16789-2.fs150	8/11	105-110	2 pieces chert shatter (one is possible projectile point tip)

Site 5ME16789 – Test Block 2 Excavation Collections			
Specimen No.	**Unit (X/Y)**	**Depth (cm)**	**Description**
5ME16789-2.fs151	8/12	110-115	Snail shell fragments
5ME16789-2.fs152	8/12	115-120	2 chert , 1 basalt microflake 2 *Succinea* shells and other shell fragments
5ME16789-2.fs153	8/12	120-125	Beetle exoskeleton fragments Grass seed
5ME16789-2.fs154	9/11	26-40	Chert microflake Burnt bone fragment
5ME16789-2.fs155	9/11	40-50	2 chert microflakes
5ME16789-2.fs156	9/11	60-70	Chert microflake/shatter
5ME16789-2.fs157	9/11	70-80	Very small burnt bone fragments Snail shell fragments
5ME16789-2.fs158	9/11	80-90	Snail shell fragment
5ME16789-2.fs159	9/11	90-100	2 chert and 2 quartzite microflakes/shatter Snail shell fragment
5ME16789-2.fs160	9/11	100-110	3 chert microflakes 1 small porcellanite flake Snail shell fragments
5ME16789-2.fs161	4/11	95-100	*Succinea* shell
5ME16789-2.fs162	N/A	N/A	Medium chert flake (collected during 2009 monitor from Feature 10 fill in SW trench wall)
5ME16789-2.fs163	N/A	N/A	Very large chert flake (collected during 2009 monitor from Feature 10 fill in SW trench wall)
5ME16789-2.fs164	N/A	N/A	Large secondary chert flake (collected during 2009 monitor from Feature 10 fill in SW trench wall)

Site 5ME16789 – Test Block 2 Water Screen Analysis		
Unit (X/Y)	**Depth (cm)**	**Description**
4/11	40-55	Charcoal Snail shell fragments
4/11	45-50	Charcoal

Site 5ME16789 – Test Block 2 Water Screen Analysis		
Unit (X/Y)	**Depth (cm)**	**Description**
4/11	50-55	Charcoal
4/11	55-60	Charcoal Unknown tiny gastropod shell-resembles genus *Vertigo* (.fs119)
4/11	60-65	Basalt microflake (.fs120) 2 Green River Fm chert microflakes (.fs120) Charcoal
4/11	65-70	Charcoal Small FCR 9 chert and quartzite shatter and microflakes (Green River Fm and jasper) (.fs121) Steatite (.fs121)
4/11	70-75	Charcoal Medium mammal tooth fragment
4/11	75-80	Charcoal Ignimbrite shatter
4/11	80-85	Charcoal Snail shell fragments (.fs122)
4/11	85-90	Charcoal Snail shell fragments (.fs123) Juniper berry seed hull (.fs123)
4/11	99-100	Burnt bone fragment (.fs124)
4/11	90-95	Madison Fm chert microflake (.fs125) Charcoal
4/11	95-100	Small mammal bone fragments (possibly lagomorpha) *Succinea* shell (.fs161)
4/11	100	Organic debris-juniper needles, *Erodium cicutarium* awn (.fs126) Snail shell fragments (.fs126)
4/11	100-105	Small mammal bone fragments (possibly lagomorpha)
4/11	110	Snail shell fragment (.fs127) Charcoal
6/12	35-40	Charcoal Snail shell fragments (.fs128)
6/12	40-45	Charcoal
6/12	45-50	Charcoal

Site 5ME16789 – Test Block 2 Water Screen Analysis		
Unit (X/Y)	**Depth (cm)**	**Description**
6/12	50-55	Small Green River Fm flake (.fs129) Charcoal
6/12	55-60	Charcoal
6/12	60-65	Charcoal
6/12	65-70	Charcoal
6/12	70-75	Charcoal
6/12	85-90	Charcoal
6/12	90-95	Charcoal Snail shell fragments (.fs130)
7/12	90-95	Small mammal calcine bone fragment (.fs131) Charcoal Snail shell fragments (.fs131)
7/12	95-100	Charcoal
7/12	105-110	Charcoal
7/12	110-115	Madison Fm chert microflake and shatter (.fs132) Charcoal
7/15	-8-0	Charcoal
7/15	0-5	Charcoal Madison Fm chert microflake (.fs133)
7/15	5-10	Charcoal
7/15	10-15	Charcoal
7/15	15-20	Charcoal
7/15	20-25	Charcoal Snail shell fragments (.fs134)
7/15	25-30	Green River Fm chert microflake (.fs135)
7/15	35-40	Snail shell fragments (.fs136)
7/15	40-45	Charcoal Burnt bone fragment (.fs137) Medium basalt flake (.fs137)
7/15	45-50	Charcoal Snail shell fragments (.fs138)

Site 5ME16789 – Test Block 2 Water Screen Analysis		
Unit (X/Y)	**Depth (cm)**	**Description**
7/15	50-55	Permineralized tooth enamel Permineralized bone (possibly reptile)
7/15	55-60	Charcoal
7/15	60-65	2 chert microflakes (Green River and Madison Fm) (.fs139) Charcoal Snail shell fragment (.fs139)
7/15	65-70	*Succinea* snail shell (.fs140) Charcoal
7/15	75-80	Snail shell fragment (.fs141) Green River Fm chert microflake (.fs141)
7/15	80-85	Green River Fm chert microflake (.fs142) Snail shell fragments (.fs142)
7/15	90-95	Green River Fm microflake (.fs143) Charcoal
7/15	95-100	Small piece FCR
7/15	105-110	Calcified root tubules
8/11	28-36	Fossilized bone fragment-possibly small reptile Snail shell fragment (.fs143) Organic debris Ostracods Charcoal
8/11	36-45	Green River chert microflake (.fs144) Organic debris Charcoal
8/11	45-50	Snail shell (.fs145) Charcoal
8/11	50-55	No artifacts
8/11	55-60	Snail shell fragment (.fs146) Charcoal
8/11	60-65	Small FCR Charcoal
8/11	65-70	Charcoal Ostracods Misc. organic debris
8/11	70-75	No artifacts

Site 5ME16789 – Test Block 2 Water Screen Analysis		
Unit (X/Y)	**Depth (cm)**	**Description**
8/11	75-80	No artifacts
8/11	80-85	Burnt bone fragment (.fs147) Charcoal Ostracods
8/11	85-90	Charcoal Ostracods Organic debris
8/11	90-95	Ostracods Organic debris
8/11	95-100	Green River Fm chert microflake (.fs148) Ostracods Charcoal Organic debris
8/11	100-105	Green River chert microflake and shatter (.fs149)
8/11	105-110	2 pieces Green River chert shatter (one possible projectile point tip) (.fs150)
8/12	110-115	Snail shell fragments (.fs151) Charcoal
8/12	115-120	2 Madison chert and 1 basalt microflakes (.fs152) 2 *Succinea* shells and fragments (.fs152) Ostracods
8/12	120-125	Beetle exoskeleton fragments (.fs153) Grass seed (possibly cheatgrass) (.fs153)
9/11	26-40	Green River Fm chert microflake (.fs154) Burnt bone fragment (.fs154) Organic debris Charcoal
9/11	40-50	2 chert microflakes (Madison and Wasatch Fm) (.fs155) Charcoal Organic debris
9/11	50-60	Charcoal Organic debris
9/11	60-70	San Rafael Stemmed projectile point (.fs23) Small quartzitic cobble utilized as hammerstone (.fs29) Green River Fm chert microflake/shatter (.fs156) Organic debris

Site 5ME16789 – Test Block 2 Water Screen Analysis		
Unit (X/Y)	**Depth (cm)**	**Description**
9/11	70-80	Small FCR Very small burnt bone fragments (.fs157) Organic debris Snail shell fragments (.fs157)
9/11	80-90	Charcoal Snail shell fragment (.fs158)
9/11	90-100	2 chert and 2 quartzite microflakes/shatter (Green River Fm) (.fs159) Charcoal Snail shell fragment (.fs159)
9/11	100-110	3 Green River Fm chert microflakes (.fs160) Small Burro Canyon Fm porcellanite flake (.fs160) Snail shell fragment (.fs160)

*Only artifacts designated an ".fs" number were collected from the water screen analysis.

5ME16791

All artifacts collected from site 5ME16791 will be returned to the landowner, Nichols-Hayward Ranch.

Site 5ME16791 Excavation Collections			
Specimen No.	**Unit (X/Y)**	**Depth (cm below bladed surface)**	**Description**
5ME16791.fs1	6W, 1S	Surface	4 small-large basalt flakes
5ME16791.fs2	6W, 1S	9.5	Small, tertiary chert flake
5ME16791.fs3	6W, 1S	1-15	7 micro-medium tertiary chert flakes, 2 small tertiary basalt flakes
5ME16791.fs4	5W, 2S	12-16	Basally notched, triangular projectile point (1.75x1.53x0.21cm)
5ME16791.fs8	5W, 2S	1-10	Small tertiary chert flake
5ME16791.fs11	5W, 2S	1-10	2 chert microflakes
5ME16791.fs14	5W, 2S	1-15	1 utilized chert flake, 4 micro-medium tertiary chert flakes
5ME16791.fs15	6W, 3S E½		Small tertiary basalt flake

Site 5ME16791 Excavation Collections			
Specimen No.	Unit (X/Y)	Depth (cm below bladed surface)	Description
5ME16791.fs16	5W, 2S NW¼	1-15	Biface thinning chert flake
5ME16791.fs19	6W, 3S E½	13	Utilized blade flake

5ME16795
The artifact collected from isolate 5ME16795 will be curated at the Museum of Western Colorado.

Isolate 5ME16795 Surface Collection	
Specimen No.	Description
5ME16795.IF	Worked purple glass shard

5ME16860
All artifacts collected from site 5ME16860 will be returned to the landowner, Ben E Nichols.

Site 5ME16860 Surface Collections	
Specimen No.	Description
5ME16860.s1	Biface base (4.2x3.3x0.7cm)

*.s numbers denote specimens collected from the surface of a site.
**.fs numbers were collected in the context of an excavation, or within the subsurface.

Appendix D: Cultural Resources Location Data for Resources and OAHP Site Forms (BLM and OAHP copies)