Beta Analytic Inc.
4985 SW 74 Court
Miami, Florida 33155 USA
Tel: 305 667 5167
Fax: 305 663 0964
Beta@radiocarbon.com
www.radiocarbon.com

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August 29, 2011

Dr. James Walter Jordan
Antioch New England Graduate School
Department of Environmental Studies
40 Avon Street
Keene, NH 03431

RE: Radiocarbon Dating Results For Samples 10-AN-2-B7, 10-AN-2-16, 10-AN-2-109, 10-AN-2-129, 10-AN-2-137

Dear Dr. Jordan:

Enclosed are the radiocarbon dating results for five samples recently sent to us. They each provided plenty of carbon for accurate measurements and all the analyses proceeded normally. As usual, the method of analysis is listed on the report with the results and calibration data is provided where applicable.

As always, no students or intern researchers who would necessarily be distracted with other obligations and priorities were used in the analyses. We analyzed them with the combined attention of our entire professional staff.

If you have specific questions about the analyses, please contact us. We are always available to answer your questions.

Our invoice has been sent separately. Thank you for your prior efforts in arranging payment. As always, if you have any questions or would like to discuss the results, don't hesitate to contact me.

Sincerely,

Darden Hood

Digital signature on file

BETA ANALYTIC INC.
DR. M.A. TAMERS and MR. D.G. HOOD
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305-667-5167 FAX:305-663-0964
beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Dr. James Walter Jordan

Report Date: 8/29/2011

Antioch New England Graduate School

Material Received: 8/15/2011

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 304169	380 +/- 30 BP	-27.3 o/oo	340 +/- 30 BP
SAMPLE : 10-AN-2-B7			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (peat): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal AD 1460 to 1640 (Cal BP 490 to 310)			
Beta - 304170	50 +/- 30 BP	-25.9 o/oo	40 +/- 30 BP
SAMPLE : 10-AN-2-16			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (peat): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal AD 1710 to 1710 (Cal BP 240 to 240) AND Cal AD 1880 to 1910 (Cal BP 60 to 40) Cal AD 1950 to beyond 1960 (Cal BP 0 to 0)			
Beta - 304171	2800 +/- 40 BP	-26.6 o/oo	2770 +/- 40 BP
SAMPLE : 10-AN-2-109			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (peat): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal BC 1010 to 820 (Cal BP 2960 to 2770)			
Beta - 304172	3170 +/- 40 BP	-24.1 o/oo	3180 +/- 40 BP
SAMPLE : 10-AN-2-129			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (peat): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal BC 1520 to 1400 (Cal BP 3470 to 3350)			

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

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

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Dr. James Walter Jordan

Report Date: 8/29/2011

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 304173	3380 +/- 40 BP	-26.5 o/oo	3360 +/- 40 BP

SAMPLE : 10-AN-2-137
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (peat): acid/alkali/acid
2 SIGMA CALIBRATION : Cal BC 1740 to 1530 (Cal BP 3690 to 3480)

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

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

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

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

Laboratory number: **Beta-304169**

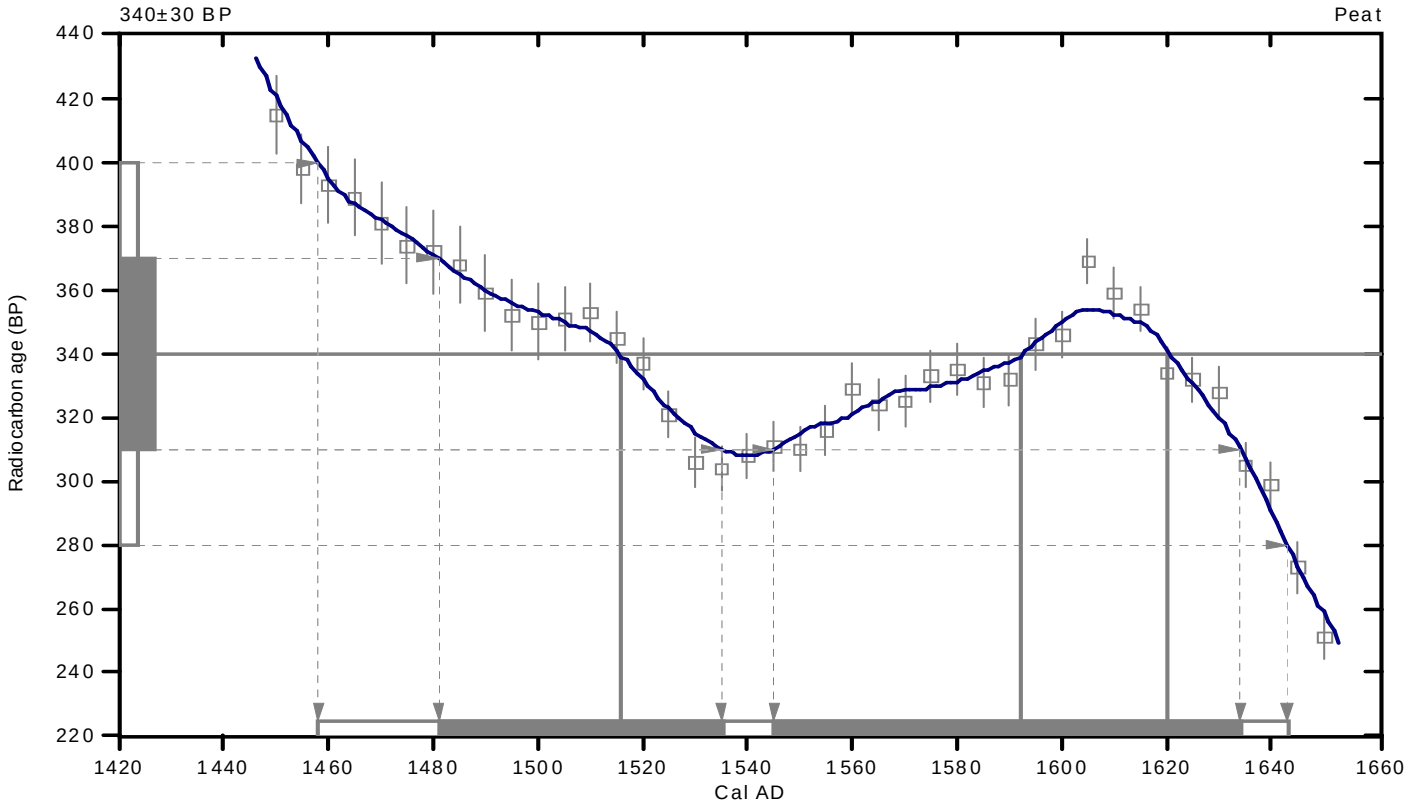
Conventional radiocarbon age: **340±30 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 1460 to 1640 (Cal BP 490 to 310)**

Intercept data

Intercepts of radiocarbon age with calibration curve: Cal AD 1520 (Cal BP 430) and
Cal AD 1590 (Cal BP 360) and
Cal AD 1620 (Cal BP 330)

1 Sigma calibrated results: (68% probability) Cal AD 1480 to 1540 (Cal BP 470 to 420) and
Cal AD 1540 to 1630 (Cal BP 400 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

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=-25.9:lab. mult=1)

Laboratory number: **Beta-304170**

Conventional radiocarbon age: **40±30 BP**

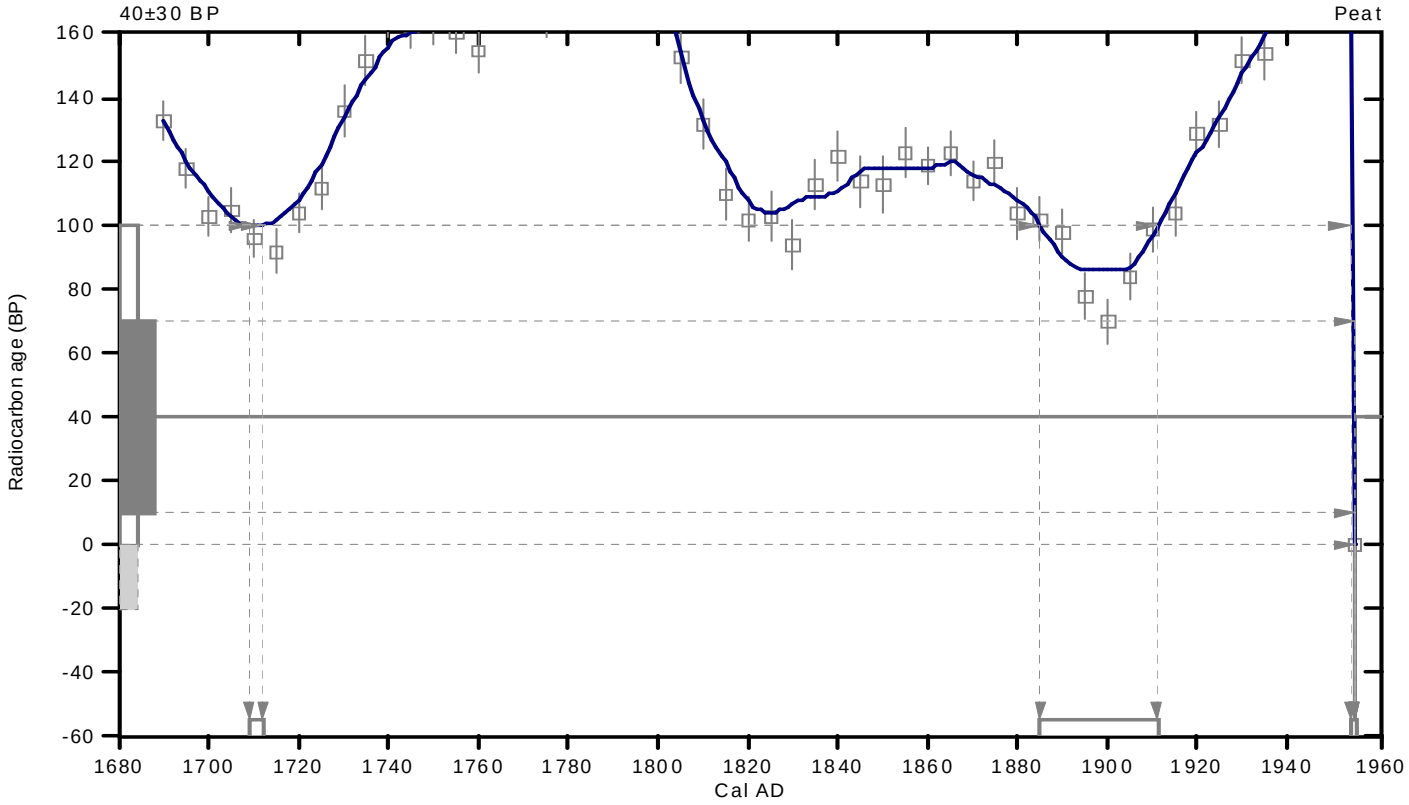
2 Sigma calibrated results[2]: (95% probability) **Cal AD 1710 to 1710 (Cal BP 240 to 240) and Cal AD 1880 to 1910 (Cal BP 60 to 40) and Cal AD 1950 to beyond 1960 (Cal BP 0 to 0)**

[2] 2 Sigma range being quoted is the maximum antiquity based on the minus 2 Sigma range

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 1960 (Cal BP 0)

1 Sigma calibrated result: (68% probability) Cal AD 1960 to 1960 (Cal BP 0 to 0)



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=-26.6:lab. mult=1)

Laboratory number: **Beta-304171**

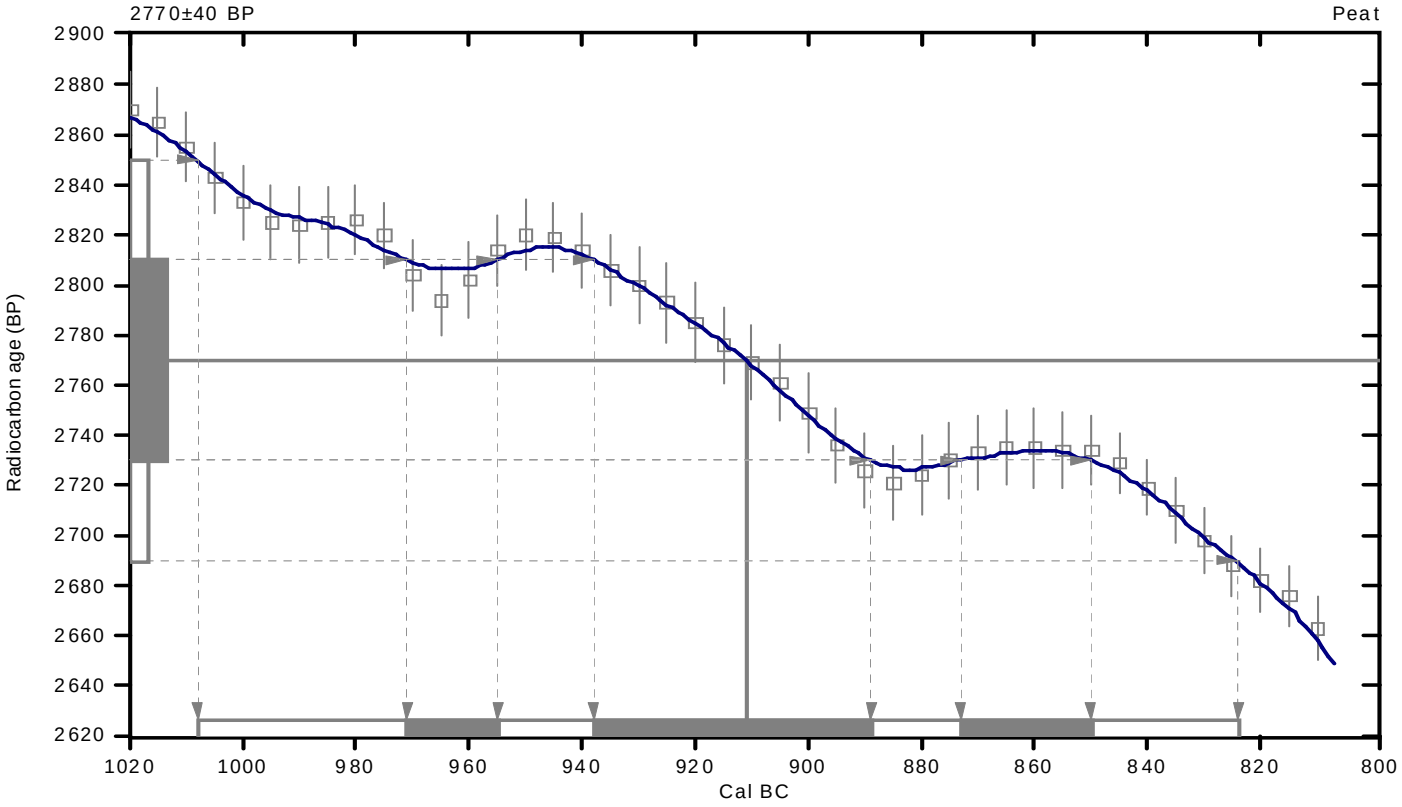
Conventional radiocarbon age: **2770±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 1010 to 820 (Cal BP 2960 to 2770)**

Intercept data

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

1 Sigma calibrated results: (68% probability) Cal BC 970 to 960 (Cal BP 2920 to 2900) and Cal BC 940 to 890 (Cal BP 2890 to 2840) and Cal BC 870 to 850 (Cal BP 2820 to 2800)



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=-24.1:lab. mult=1)

Laboratory number: **Beta-304172**

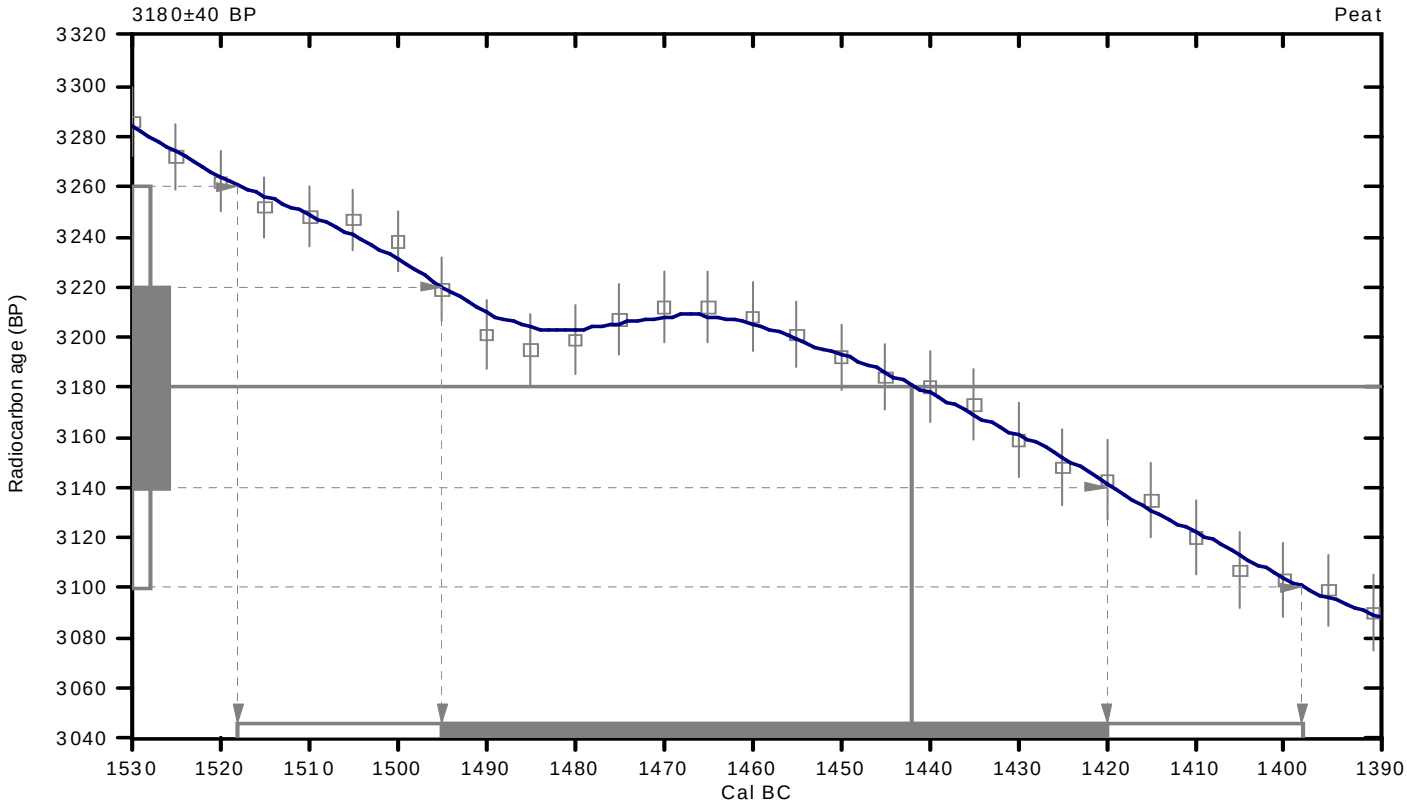
Conventional radiocarbon age: **3180±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 1520 to 1400 (Cal BP 3470 to 3350)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 1440 (Cal BP 3390)

1 Sigma calibrated result: (68% probability) Cal BC 1500 to 1420 (Cal BP 3440 to 3370)



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=-26.5:lab. mult=1)

Laboratory number: **Beta-304173**

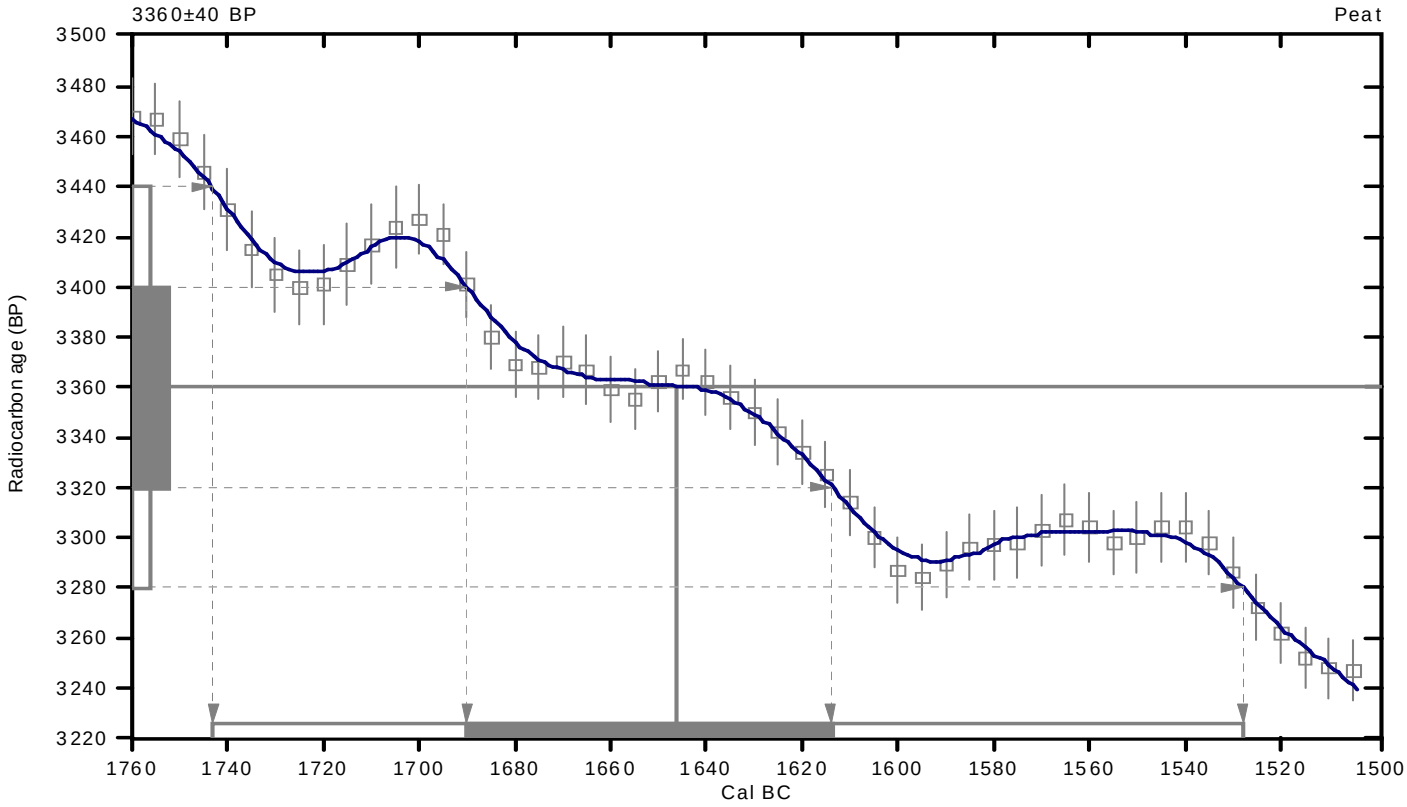
Conventional radiocarbon age: **3360±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 1740 to 1530 (Cal BP 3690 to 3480)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 1650 (Cal BP 3600)

1 Sigma calibrated result: (68% probability) Cal BC 1690 to 1610 (Cal BP 3640 to 3560)



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