**Supplementary Information**

List of information included below:

Supplementary Appendix 1. Specimens of Mammoth (*Mammuthus* sp.), American mastodon (*Mammut* *americanum*), and caribou (*Rangifer tarandus*) included in this study. Radiocarbon lab number, museum catalog number, 14C date, Literature source, and location are provided. Dates are rounded to the nearest decade.

Supplementary Figure 1. Posterior probability density plots for dates of earliest appearance for (A) caribou (*Rangifer tarandus*), (B) Mammoth (*Mammuthus* sp.), and (C) American mastodon.

Supplementary Figure 2. Posterior probability density plots for dates of earliest appearance for (A) caribou (*Rangifer tarandus*), (B) Mammoth (*Mammuthus* sp.), and (C) American mastodon.

Supplementary Table 1. Colonization and extinction dates calculated using the Gaussian-resampled inversely-weighted McInerney et al. (GRIWM) method of Bradshaw et al. (2012).

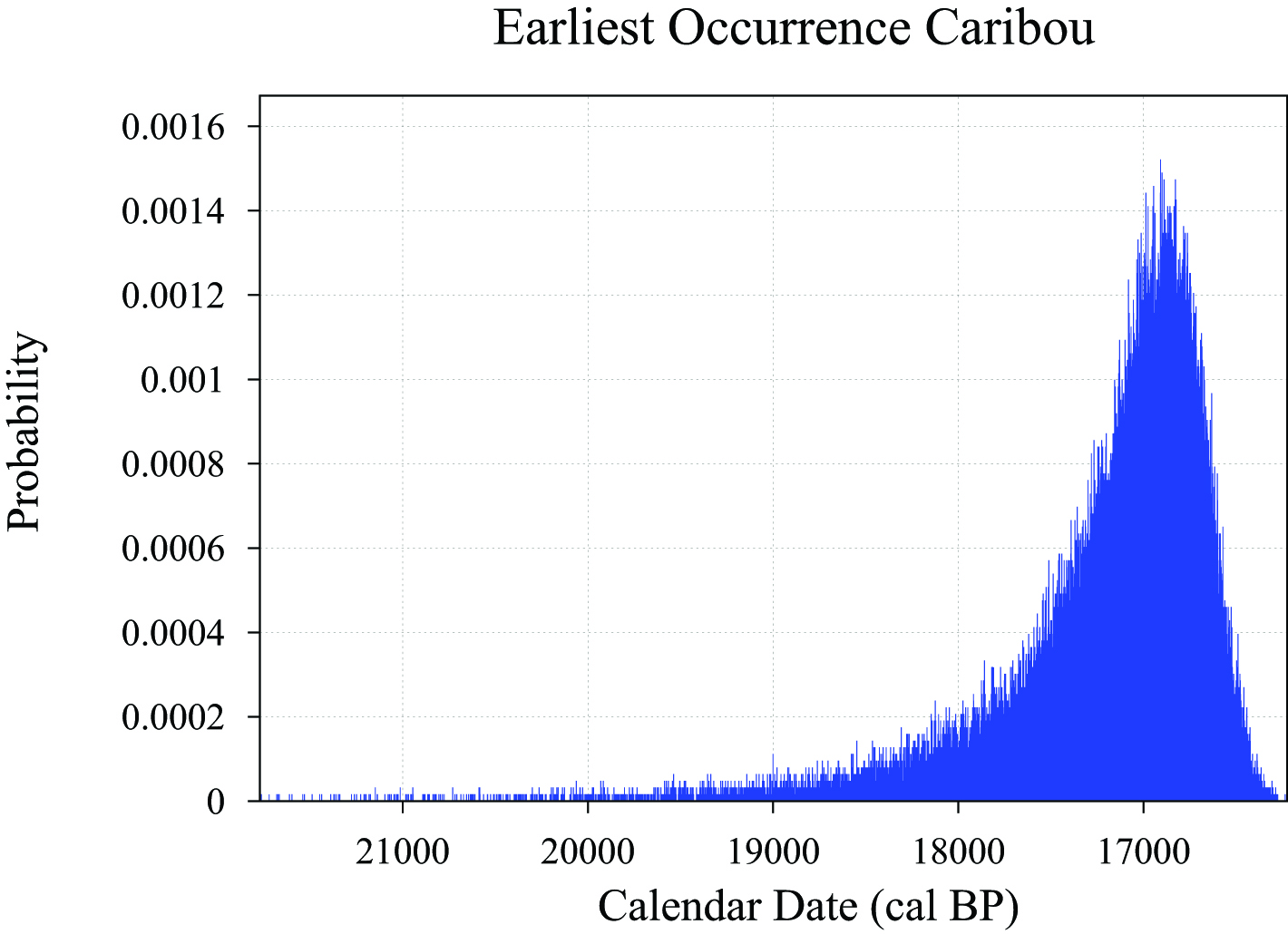
Appendix S1. Specimens of Mammoth (*Mammuthus* sp.), American mastodon (*Mammut* *americanum*), and caribou (*Rangifer tarandus*) included in this study. Radiocarbon lab number, museum catalog number, 14C date, Literature source, and location are provided. Dates are rounded to the nearest decade.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Name** | **Lab. No.** | **Mus. Cat. No.** | **14C Date** | **14C error** | **Cal BP** | **Source** | **Lat-Long** |
| **Mammoth (*Mammuthus* sp.)** | | | | | | | |
| Chemung (Watkins Glen) Mammoth | Beta-176929 | NY-CHE | 10890 | 50 | 12620-12920 | (Griggs and Kromer, 2008) | N 42.246104,W -76.8428 |
| Chittenango Mammoth | OS-93430 | NYSM VP-26 | 11250 | 65 | 12950-13300 | (Feranec and Kozlowski, 2012) | 43.05898,W -75.866261 |
| Lewiston Mammoth A | OS-97864 | NYSM VP-27 | 10300 | 65 | 11830-12400 | This Study (tooth dentine collagen) | N 43.172555, W -79.035878 |
| Lewiston Mammoth B | OS-97774 | NYSM VP-29 | 10350 | 95 | 11830-12540 | This Study (tooth dentine collagen) | N 43.172555, W -79.035878 |
| Clyde Barge Canal Mammoth | OS-85534 | NYSM VP-32 | 11750 | 65 | 13400-13750 | (Feranec and Kozlowski, 2012) | N 43.059027, W -76.8384 |
| Kitchiwan Mammoth | OS-97775 | NYSM VP-43 | 12950 | 100 | 15070-16330 | This Study (bone collagen) | N 41.209808, W -73.814929 |
| Randolph Mammoth | OS-93354 | NYSM VP-95 | 10350 | 45 | 12050-12400 | (Feranec and Kozlowski, 2012) | N 42.154846, W ‑78.938913 |
|  | | | | | | | |
| **American Mastodon (*Mammut americanum*)** | | | | | | | |
| Doerfel Mastodon | *NA* | C4NW-17 | 11460 | 60 | 13200-13450 | (Thompson et al., 2008) | N 42.561389, W -78.714167 |
| Hiscock Mastodon | TO-3194 | E2664 | 10990 | 100 | 12660-13100 | (Laub et al., 1996) | N 43.084937, W -78.081679 |
| Hiscock Mastodon | CAMS-62560 | E27183 F8NW-75 | 10810 | 50 | 12600-12850 | (Laub, 2003) | N 43.084937, W -78.081679 |
| Hiscock Mastodon | CAMS-27143 | E9NW-145 | 10790 | 70 | 12550-12850 | (Laub, 2003) | N 43.084937, W -78.081679 |
| Hiscock Mastodon | CAMS-17407 | F7SE-129 | 10630 | 80 | 12400-12700 | (Laub, 2003) | N 43.084937, W -78.081679 |
| Hiscock mastodon | Beta-236608 | G2NW-19 | 10430 | 60 | 12100-12540 | (Laub, 2010) | N 43.084937, W -78.081679 |
| Hiscock Mastodon | Beta-24412 | G5SE-138 | 10520 | 120 | 12050-12650 | (Laub, 2003) | N 43.084937, W -78.081679 |
| Hiscock Mastodon | AA-6977 | G7NE-104 | 11390 | 80 | 13110-13410 | (Laub et al., 1996) | N 43.084937, W -78.081679 |
| Hiscock Mastodon | CAMS-30528 | H7NW-181 | 11100 | 80 | 12700-13150 | (Laub, 2003) | N 43.084937, W -78.081679 |
| Hiscock Mastodon | CAMS-30529 | H7NW-181 | 11070 | 70 | 12700-13100 | (Laub, 2003) | N 43.084937, W -78.081679 |
| Hiscock Mastodon | GX-22038-AMS | H7NW-181 | 10930 | 70 | 12650-13050 | (Laub, 2003) | N 43.084937, W -78.081679 |
| H7NW-181 Pooled Mean |  | H7NW-181 | 11030 | 42 | 12760-13030 |  |  |
| Chemung (Watkins Glen) Mastodon | Beta-176930 | NY-CHE | 10840 | 60 | 12590-12890 | (Griggs and Kromer, 2008) | N 42.246104, W -76.8428 |
| North Java Mastodon | Beta-176928 | NY-NJV | 11630 | 60 | 13310-13670 | (Griggs and Kromer, 2008) | N 42.649444, W -78.387222 |
| Temple Hill Mastodon | NZA12584 | NYSM VP-100 | 11000 | 80 | 12680-13090 | (Robinson et al., 2005) | N 41.470708, W -74.068537 |
| Temple Hill Mastodon | OS-93337 | NYSM VP-100 | 10900 | 40 | 12650-12900 | (Feranec and Kozlowski, 2012) | N 41.470708, W -74.068537 |
| Temple Hill Pooled Mean |  | NYSM VP-100 | 10920 | 36 | 12710-12840 |  |  |
| Cohoes Mastodon | OS-97863 | NYSM VP-101 | 11150 | 85 | 12770-13250 | This Study (tooth dentine collagen) | N 42.782846, W -73.706256 |
| Cohoes Mastodon | CURL-2107 | NYSM VP-101 | 11070 | 60 | 12790‑13070 | This Study (bone collagen) |  |
| Cohoes Mastodon Pooled Mean |  | NYSM VP-101 | 11100 | 49 | 12820‑13080 | This Study |  |
| Arborio Mastodon | OS-93884 | NYSM VP-102 | 11750 | 60 | 13400-13750 | (Feranec and Kozlowski, 2012) | N 41.502246, W -74.230542 |
| Ellenville Mastodon | OS-94876 | NYSM VP-49 | 10850 | 45 | 12600-12900 | (Feranec and Kozlowski, 2012) | N 41.712224, W -74.392505 |
| Perkinsville Mastodon | OS-93357 | NYSM VP-54 | 11500 | 45 | 13250-13450 | (Feranec and Kozlowski, 2012) | N 42.546631, W -77.623558 |
| Colgan-King Ferry Mastodon | OS-95596 | NYSM VP-92 | 10400 | 50 | 12080-12520 | This Study (tusk dentine collagen) | N 42.702303, W -76.595446 |
| Pirello Mastodon | OS-93338 | NYSM VP-93 | 11700 | 40 | 13400-13700 | (Feranec and Kozlowski, 2012) | N 43.160318, W -77.123061 |
| Tunkamoose Mastodon (1) | OS-78281 | NYSM VP-94 | 12350 | 65 | 14050-14900 | (Feranec and Kozlowski, 2012) | N 41.313499, W -74.512968 |
| Tunkamoose Mastodon (2) | OS-78282 | NYSM VP-94 | 12300 | 45 | 14000-14900 | (Feranec and Kozlowski, 2012) | N 41.313499, W -74.512968 |
| Tunkamoose Pooled mean | *1* | NYSM VP-94 | 12320 | 37 | 14080-14560 |  |  |
| Hyde Park Mastodon | *Beta-135234* | PRI 49820 | 11480 | 60 | 13200-13450 | (Robinson and Burney, 2008) | N 41.77564, W -73.899059 |
| Farview Mastodon | *NA* | RMSC 94.008.01-144 | 11570 | 105 | 13250-13700 | (Thompson et al., 2008) | N 42.886027, W -77.763891 |
|  | | | | | | | |
| **Caribou (*Rangifer tarandus*)** | | | | | | | |
| Hiscock Caribou (1) | CAMS-72353 | I3NE-164 | 11450 | 50 | 13190-13430 | (Laub, 1995) | N 43.084937, W -78.081679 |
| Hiscock Caribou (2) | CAMS-105852 | J4NE-49 | 11040 | 40 | 12730-13090 | (Laub, 1995) | N 43.084937, W -78.081679 |
| Hiscock Caribou (3) | CAMS-94852 | J4SE-33 | 11580 | 35 | 13290-13560 | (Laub, 1995) | N 43.084937, W -78.081679 |
| DQC Caribou (1) | CAMS-12849 | NYSM VP-10165 | 13320 | 70 | 15620-16810 | (Funk et al., 1994) | N 41.359722, W -74.363611 |
| DQC Caribou (4) | CAMS-12586 | NYSM VP-5397 | 12720 | 70 | 14650-15540 | (Funk et al., 1994) | N 41.359722, W -74.363611 |
| DQC Caribou (5) | CAMS-13305 | NYSM VP-5415 | 13150 | 90 | 15240-16560 | (Funk et al., 1994) | N 41.359722, W -74.363611 |
| DQC Caribou (7) | CAMS-12589 | NYSM VP-5569 | 12750 | 70 | 14700-15600 | (Funk et al., 1994) | N 41.359722, W -74.363611 |
| DQC Caribou (6) | CAMS-13304 | NYSM VP-5570 | 13840 | 80 | 16750-17150 | (Funk et al., 1994) | N 41.359722, W -74.363611 |
| DQC Caribou (2) | CAMS-13298 | NYSM VP-8825 | 12920 | 70 | 15040-16150 | (Funk et al., 1994) | N 41.359722, W -74.363611 |
| DQC Caribou (3) | CAMS-13296 | NYSM VP-8827 | 13180 | 80 | 15290-16610 | (Funk et al., 1994) | N 41.359722, W -74.363611 |
| DQC Caribou (8) | OS-66473 | NYSM VP-9370 | 12900 | 70 | 15000-15500 | (Feranec and Kozlowski, 2010) | N 41.359722, W -74.363611 |
| DQC Caribou (9) | OS-65556 | NYSM VP-9371 | 12900 | 50 | 15000-15500 | (Feranec and Kozlowski, 2010) | N 41.359722, W -74.363611 |
| DQC Caribou Pooled Mean*2* |  |  | 12900 | 41 | 15220‑15610 |  |  |

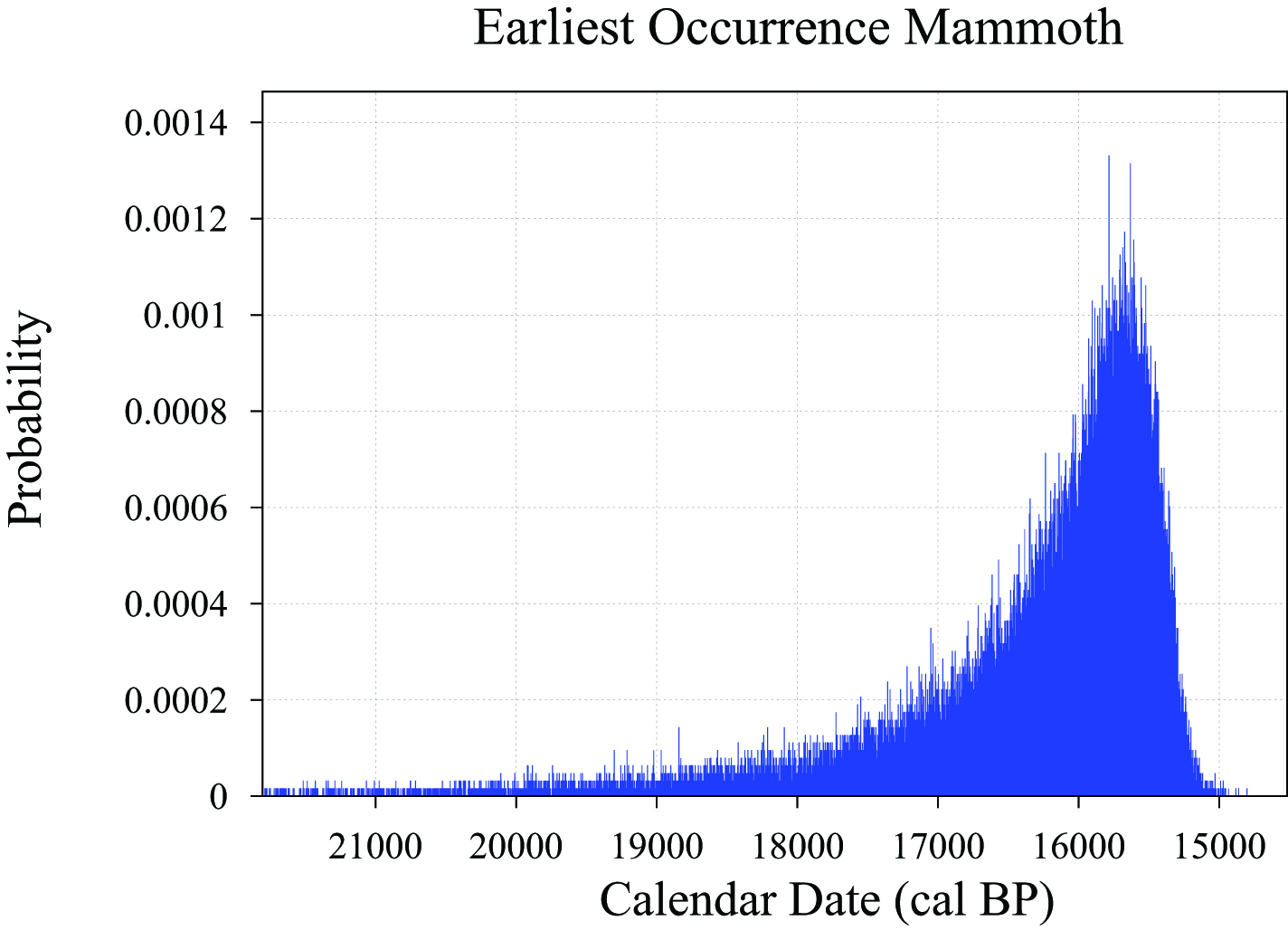
*1*, VP‑94 represented by two individual tusks from same individual

*2*, VP‑9370 and VP‑9371 are specimens from same individual

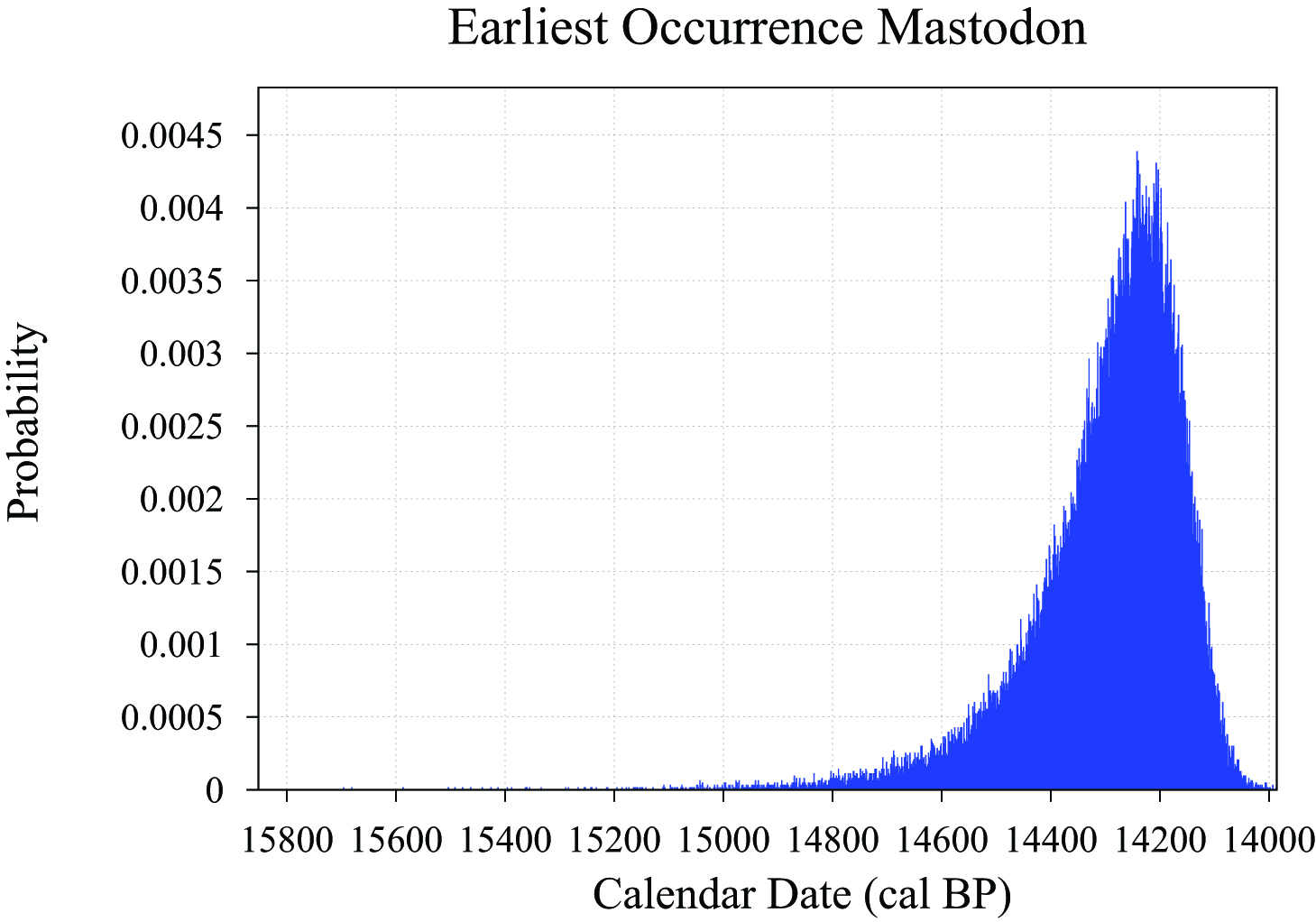
Supplementary Figure 1. Posterior probability density plots for dates of earliest appearance for (A) caribou (*Rangifer tarandus*), (B) Mammoth (*Mammuthus* sp.), and (C) American mastodon.

(A). Caribou (*Rangifer tarandus*)

(B). Mammoth (*Mammuthus* sp.)

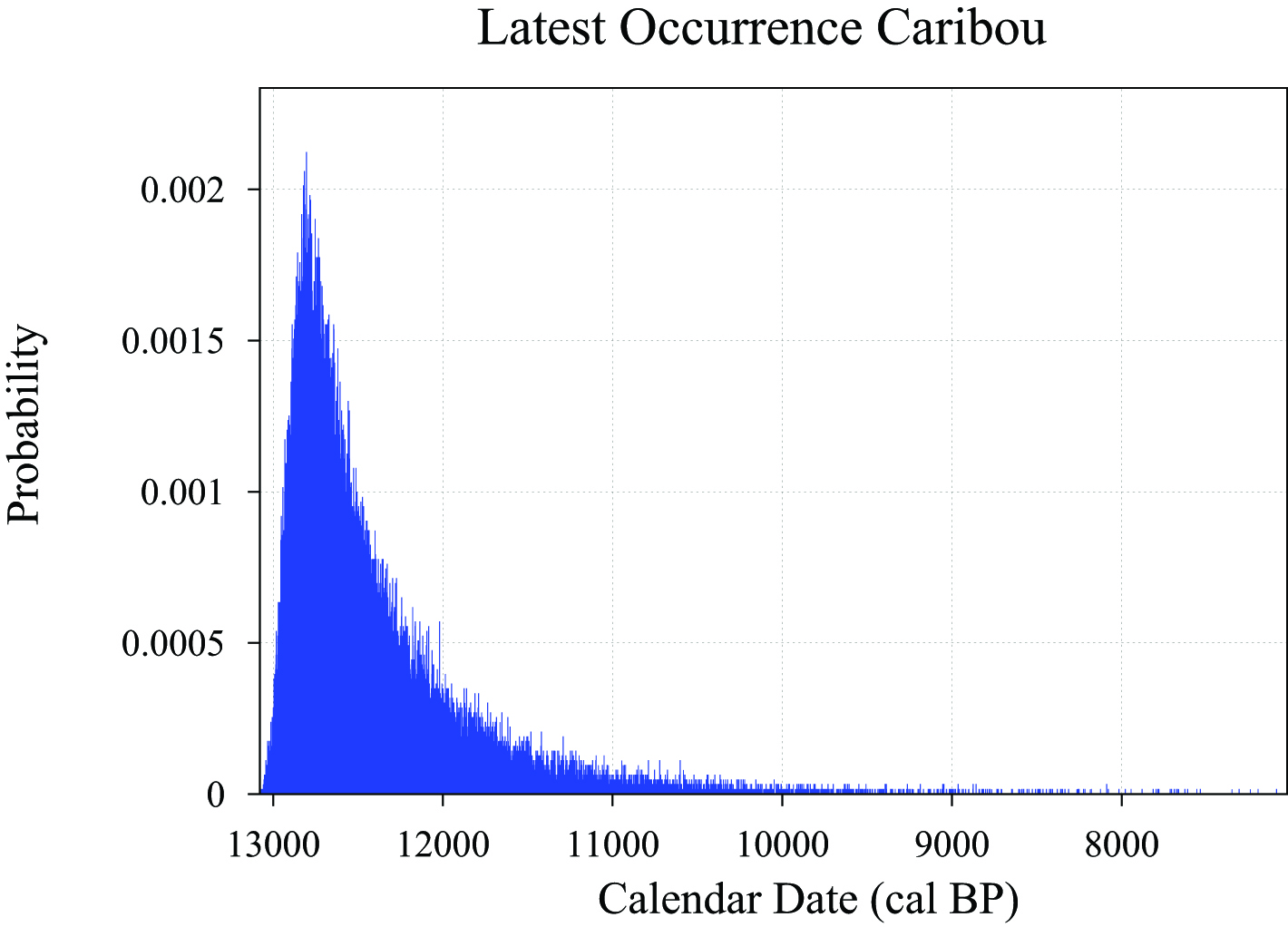


(C). American mastodon (*Mammut americanum*)

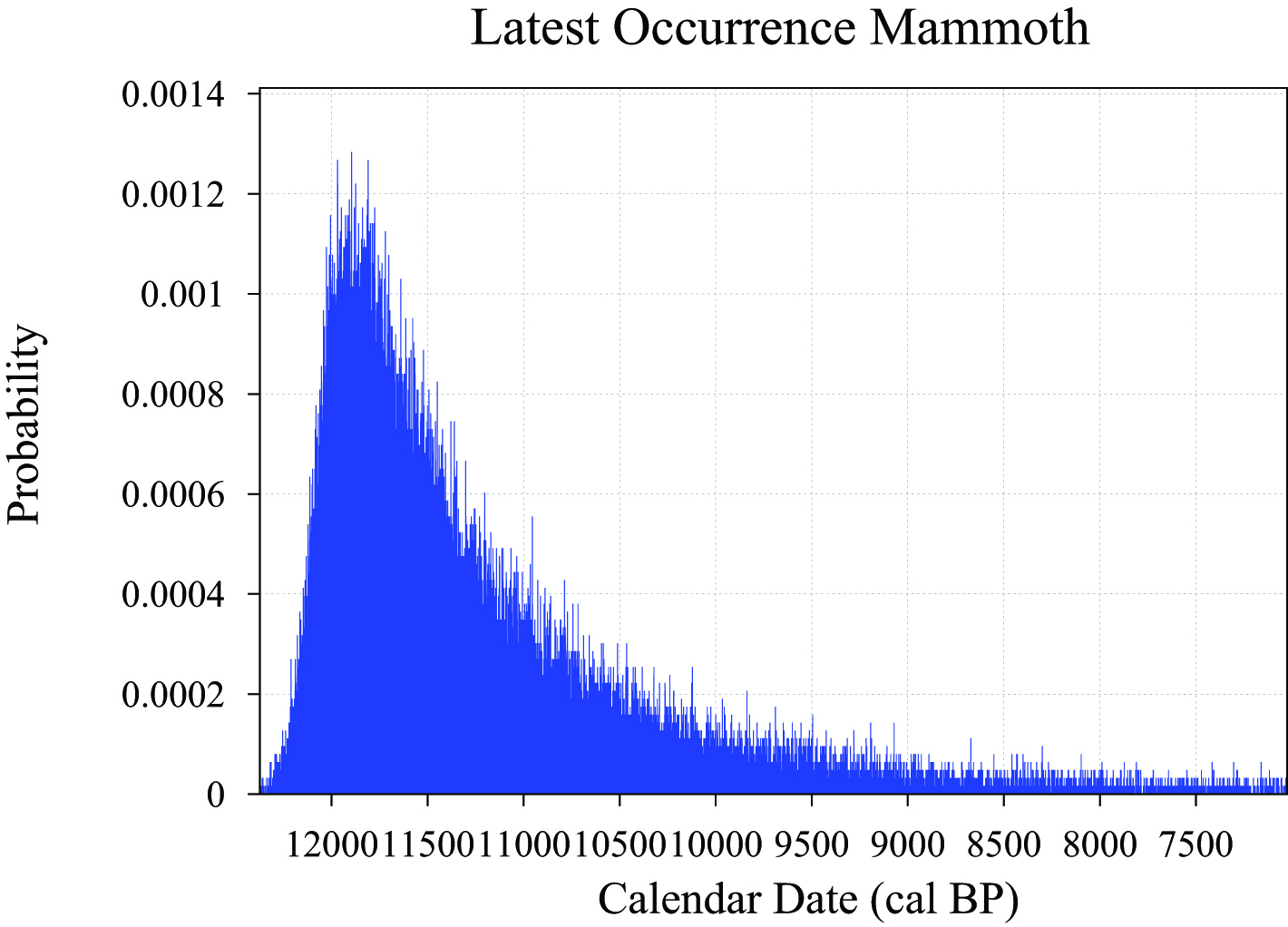


Supplementary Figure 2. Posterior probability density plots for dates of earliest appearance for (A) caribou (*Rangifer tarandus*), (B) Mammoth (*Mammuthus* sp.), and (C) American mastodon.

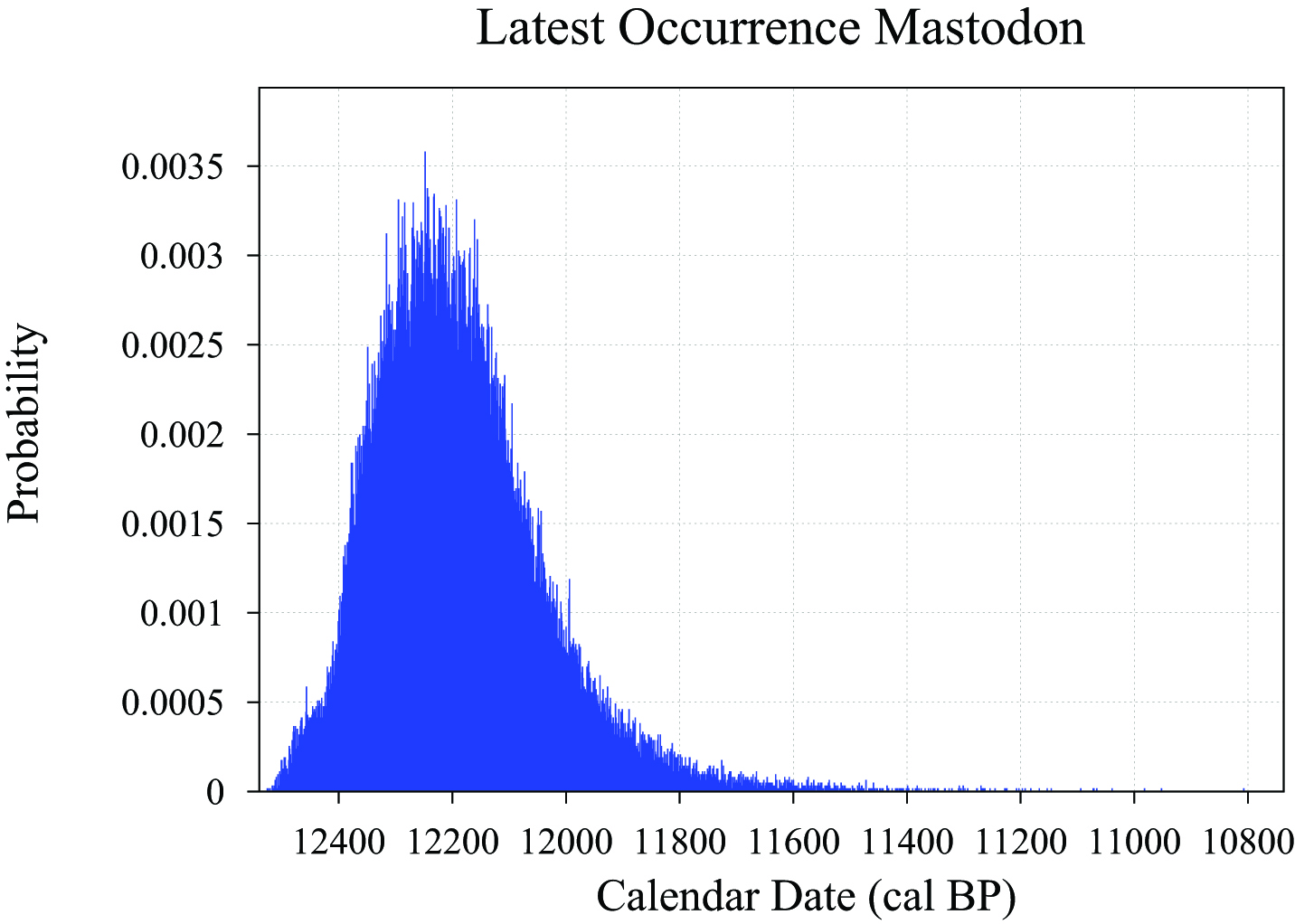
(A). Caribou (*Rangifer tarandus*)



(B). Mammoth (*Mammuthus* sp.)



(C). American mastodon (*Mammut americanum*)



Supplementary Table 1. Colonization and extinction dates calculated using the Gaussian-resampled inversely-weighted McInerney et al. (GRIWM) method (Bradshaw et al., 2012). This technique provides comparable dates to the Bayesian method used in this manuscript.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Species** | **Earliest Occurrence**  **median (cal BP)** | **Earliest Occurrence**  **95% CI (cal BP)** | **Latest Occurrence**  **median (cal BP)** | **Latest Occurrence**  **95% CI (cal BP)** |
| Caribou  (*Rangifer tarandus*) | 17594 | *18102‒17048* | ‒a | ‒a |
| Mammoth  (*Mammuthus* sp.) | 17635 | *18011‒17271* | *11792* | *12156‒11213* |
| American mastodon  (*Mammut americanum*) | 14723 | *14829‒14617* | *11994* | *12301‒11566* |

aCaribou known in NY State until late 18th century AD (Cringan, 1957; @ 200 cal BP).

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