Supplemental Text 3. Description of Simulation Experiments and Results.

Simulations were run to determine the minimum number of new dates needed to more precisely identify the occupation boundaries of Averbuch (40DV60), Brentwood Library (40WM210), East Nashville Mounds (40DV4), Gordontown (40DV4), Rutherford-Kizer (40SU15), and Sellars (40WI1).

In the chronological model simulations, calendar years for the site occupation are "known" (for example, see Bayliss [2009]; Bayliss et al. [2007]; Griffiths [2014]). For this simulation experiment, the calendar years for the site occupations in the simulation models are the median value for posterior probabilities for the starting and ending boundaries, respectively, of the primary models described in Supplemental Text 1. Simulation models were created by adding simulated radiocarbon dates with OxCal's R_Simulate function. The simulated radiocarbon dates were given an error of 35 years and the true calendar dates of the simulated radiocarbon dates were evenly distributed in each model between the known calendar years for the site occupation. The minimum number of simulated radiocarbon dates needed to achieve the known calendar dates in the starting and ending boundaries' posterior probabilities within confidence intervals spanning 50 years (or less) at *68%* and *95% probability* are reported in Table 3. New simulated radiocarbon dates were added in groups of five until the desired precision was obtained.

It should be noted that no primary Bayesian chronological model had been created for Gordontown because only two radiocarbon dates are available from the site. As a result, the known calendar years for the site occupation for models created for

Gordontown in the simulation experiment are AD 1250 and AD 1450.

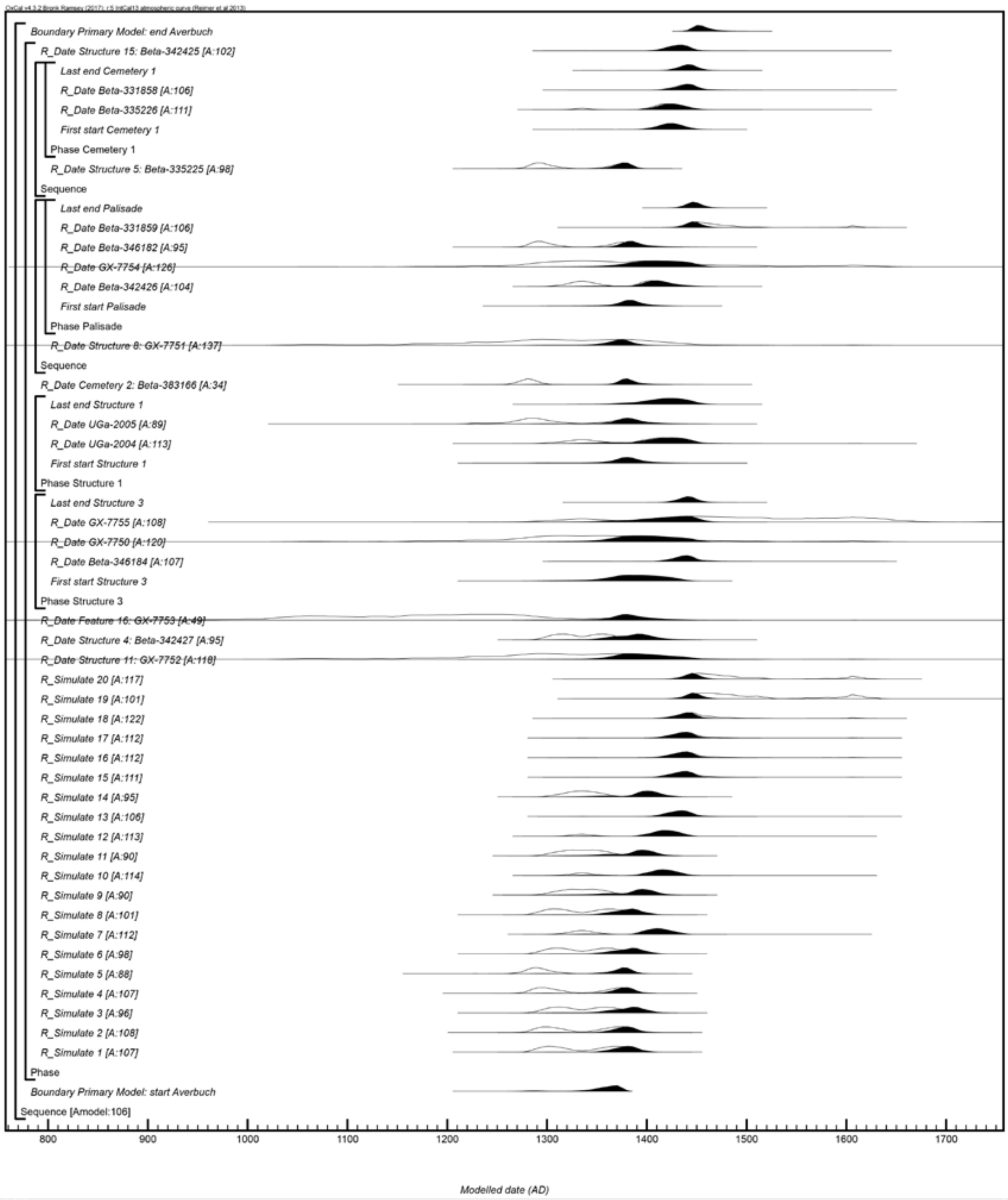

Figure S11. Results and structure of the primary chronological model for Averbuch with the minimum number of simulated radiocarbon dates needed to achieve the desired precision at *68% probability* for the posterior probabilities of the starting and ending boundaries for site activity. The brackets and keywords define the model structure. The format is as described in Figure S1.

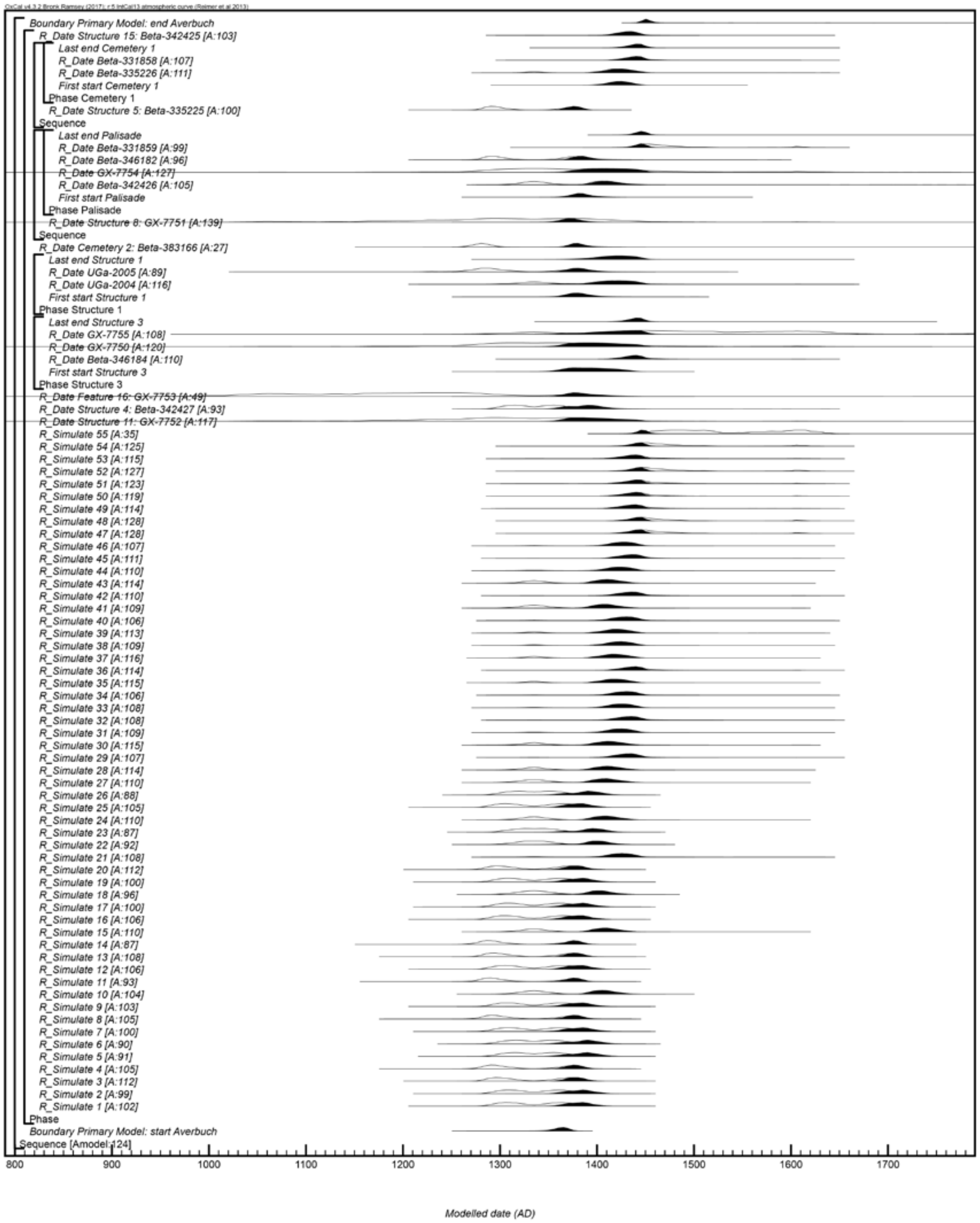

Figure S12. Results and structure of the primary chronological model for Averbuch with the minimum number of simulated radiocarbon dates needed to achieve the desired precision at *95% probability* for the posterior probabilities of the starting and ending boundaries for site activity. The brackets and keywords define the model structure. The format is as described in Figure S1.

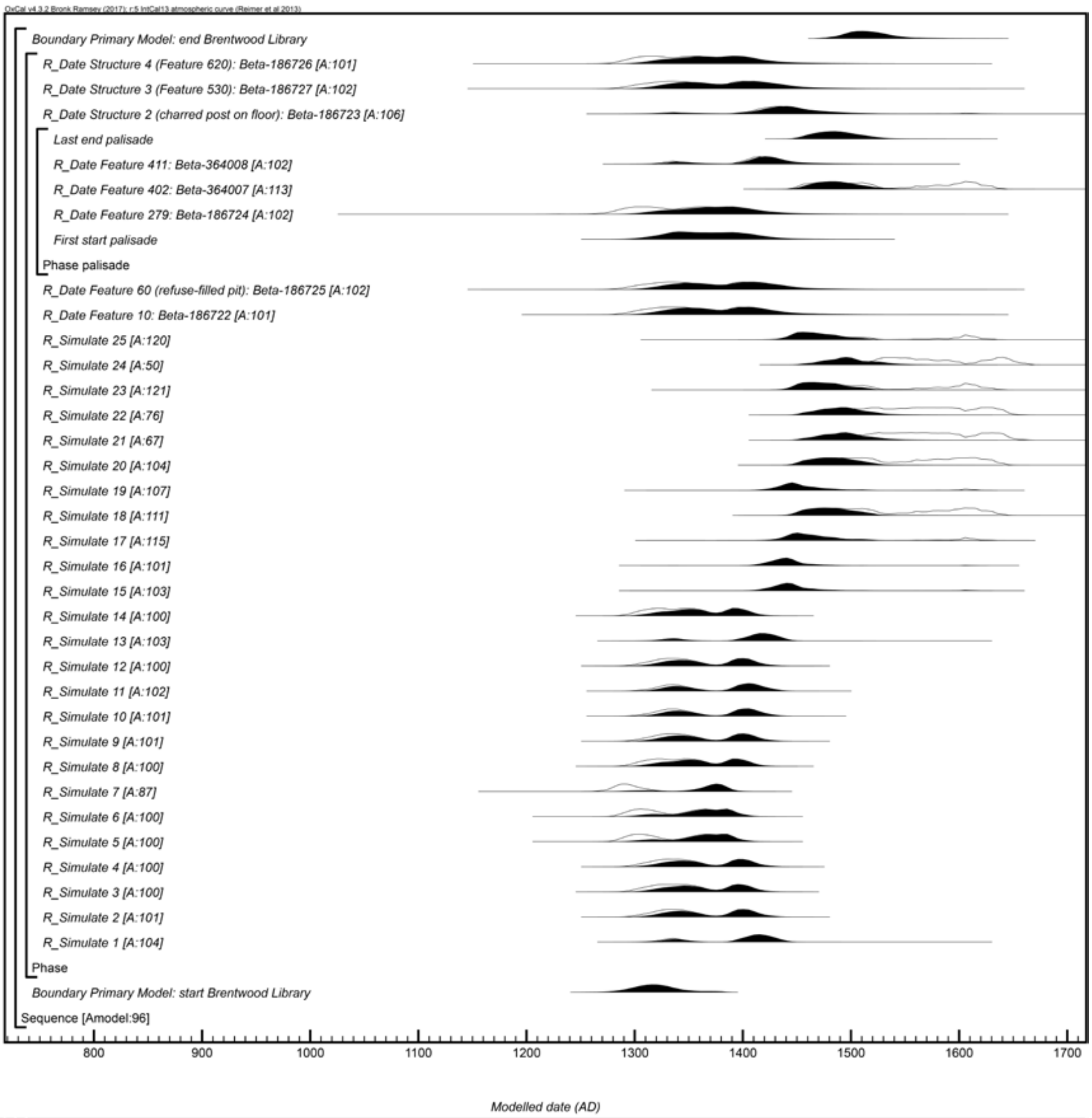

Figure S13. Results and structure of the primary chronological model for Brentwood Library with the minimum number of simulated radiocarbon dates needed to achieve the desired precision at *68% probability* for the posterior probabilities of the starting and ending boundaries for site activity. The brackets and keywords define the model structure. The format is as described in Figure S1.

Figure S14. Results and structure of the primary chronological model for Brentwood Library with the minimum number of simulated radiocarbon dates needed to achieve the desired precision at *95% probability* for the posterior probabilities of the starting and ending boundaries for site activity. The brackets and keywords define the model structure. The format is as described in Figure S1.

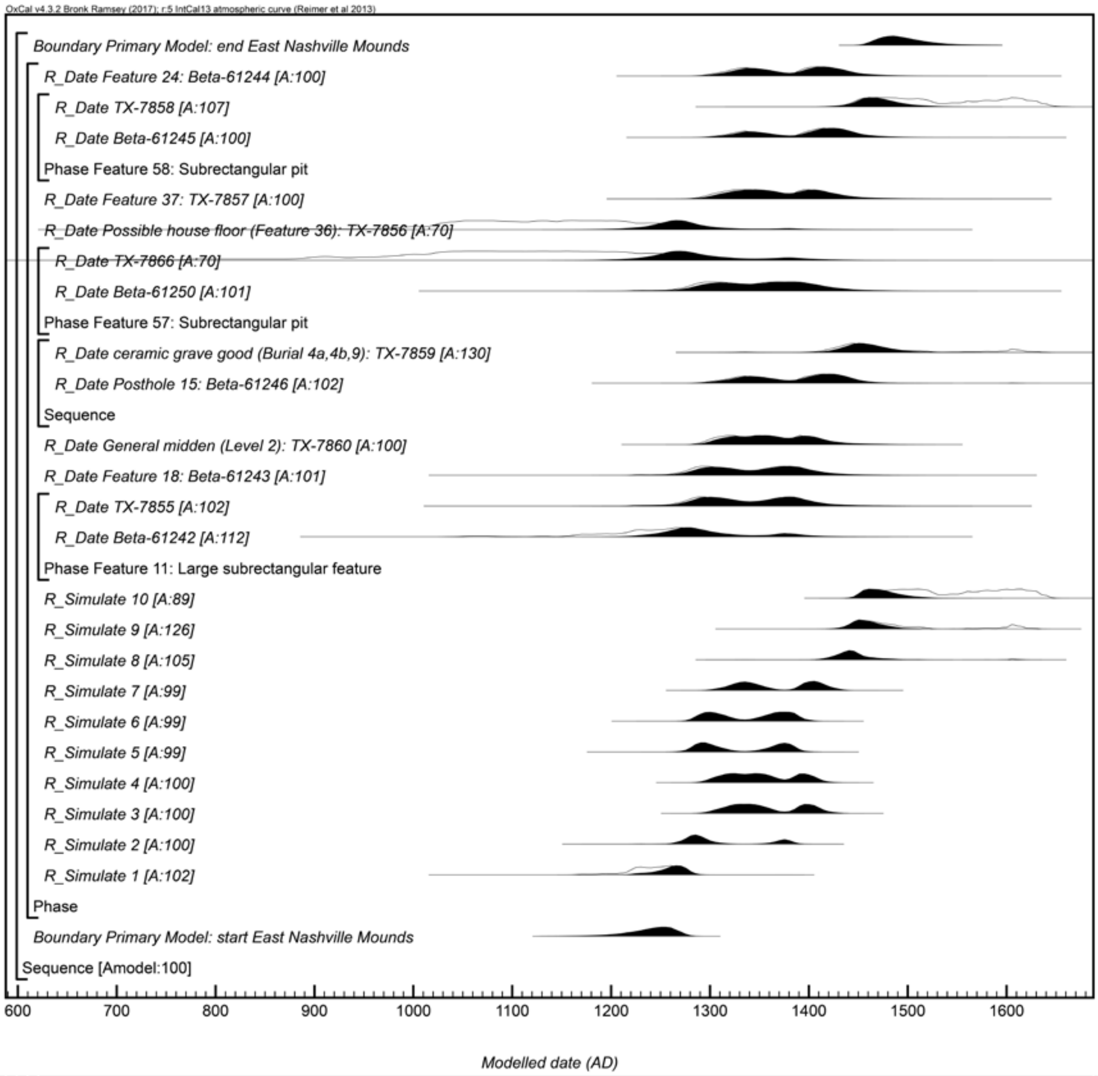

Figure S15. Results and structure of the primary chronological model for East Nashville Mounds with the minimum number of simulated radiocarbon dates needed to achieve the desired precision at *68% probability* for the posterior probabilities of the starting and ending boundaries for site activity. The brackets and keywords define the model structure. The format is as described in Figure S1.

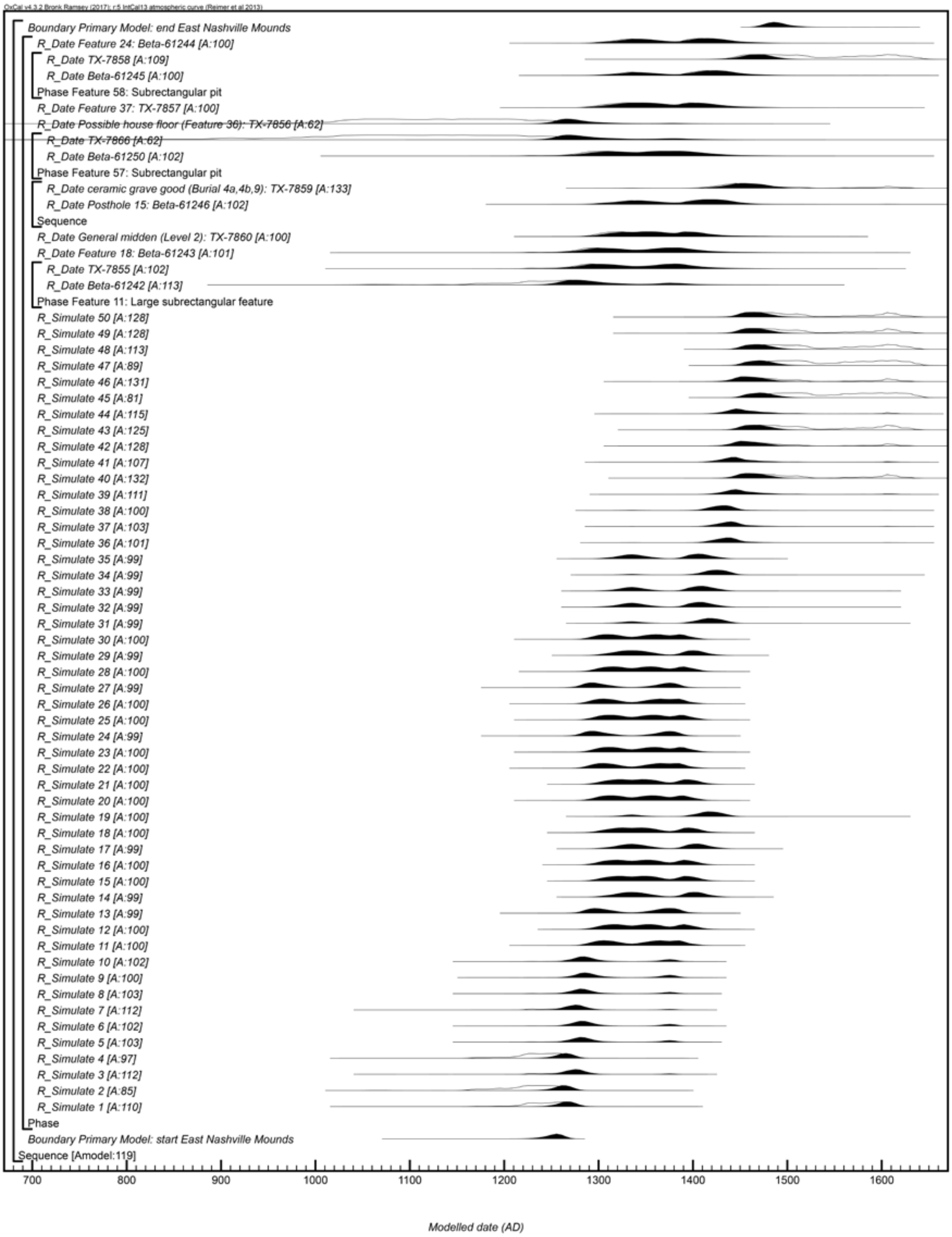

Figure S16. Results and structure of the primary chronological model for East Nashville Mounds with the minimum number of simulated radiocarbon dates needed to achieve the desired precision at *95% probability* for the posterior probabilities of the starting and ending boundaries for site activity. The brackets and keywords define the model structure. The format is as described in Figure S1.

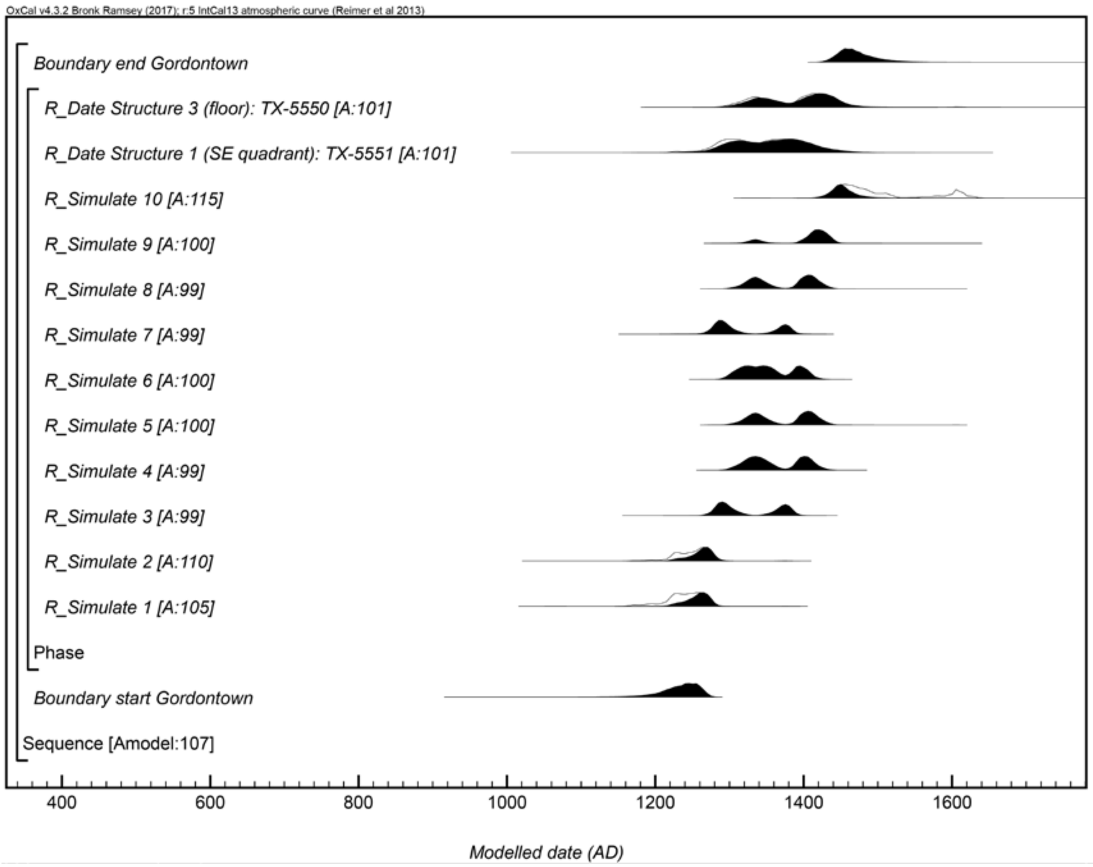

Figure S17. Results and structure of the chronological model for Gordontown with the minimum number of simulated radiocarbon dates needed to achieve the desired precision at *68% probability* for the posterior probabilities of the starting and ending boundaries for site activity. The brackets and keywords define the model structure. The format is as described in Figure S1.

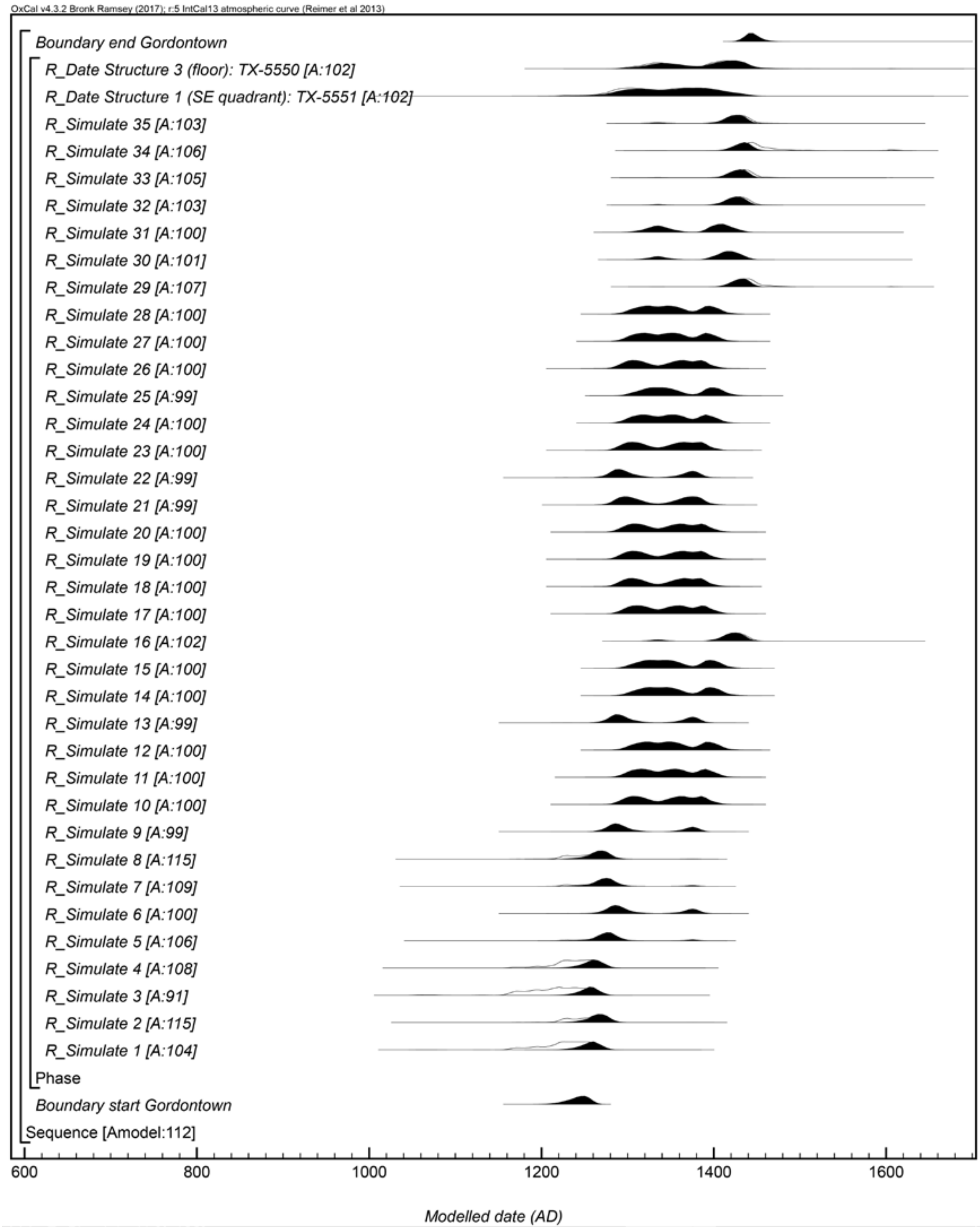

Figure S18. Results and structure of the chronological model for Gordontown with the minimum number of simulated radiocarbon dates needed to achieve the desired precision at *95% probability* for the posterior probabilities of the starting and ending boundaries for site activity. The brackets and keywords define the model structure. The format is as described in Figure S1.

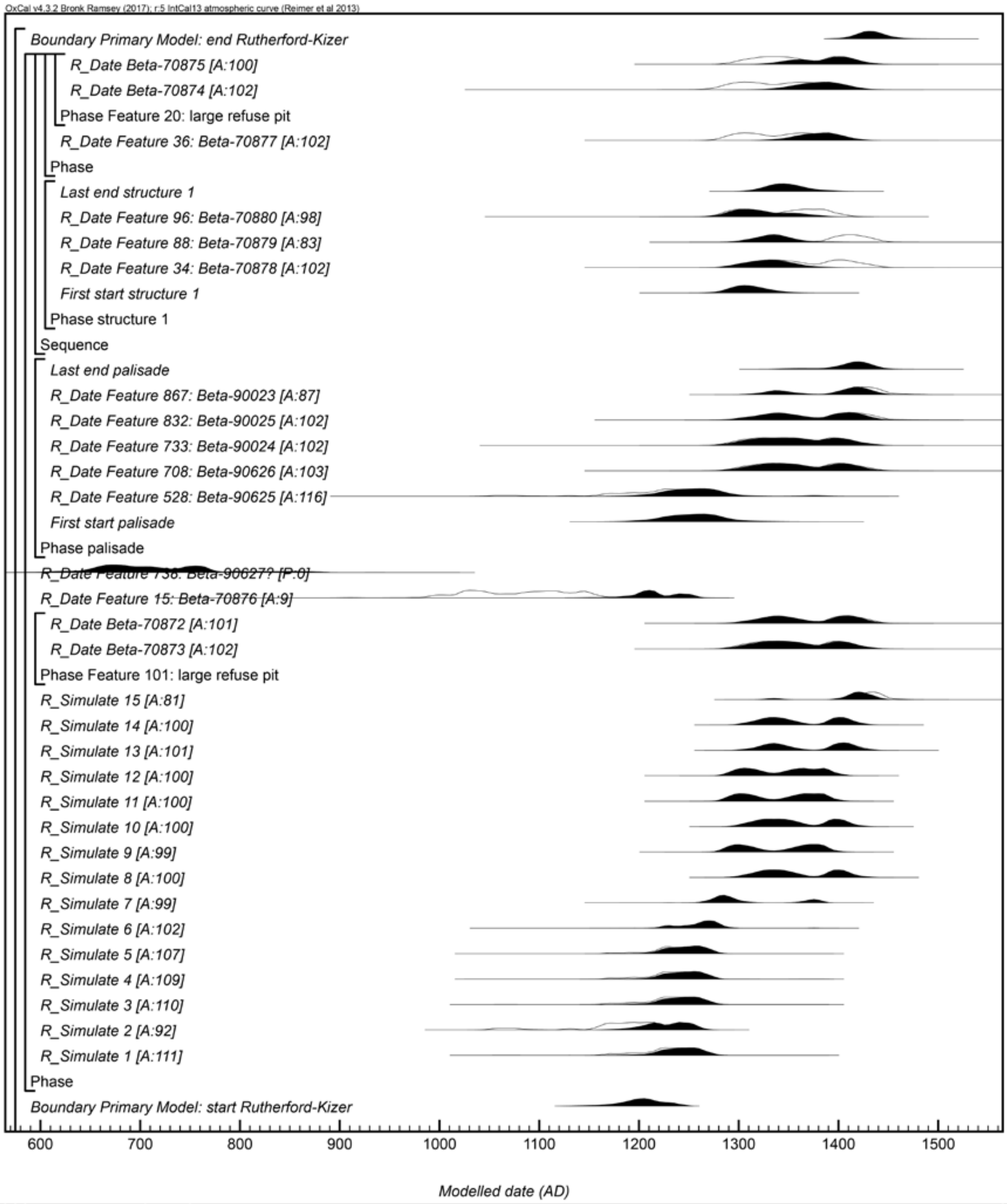

Figure S19. Results and structure of the primary chronological model for Rutherford-Kizer with the minimum number of simulated radiocarbon dates needed to achieve the desired precision at *68% probability* for the posterior probabilities of the starting and ending boundaries for site activity. The brackets and keywords define the model structure. The format is as described in Figure S1.

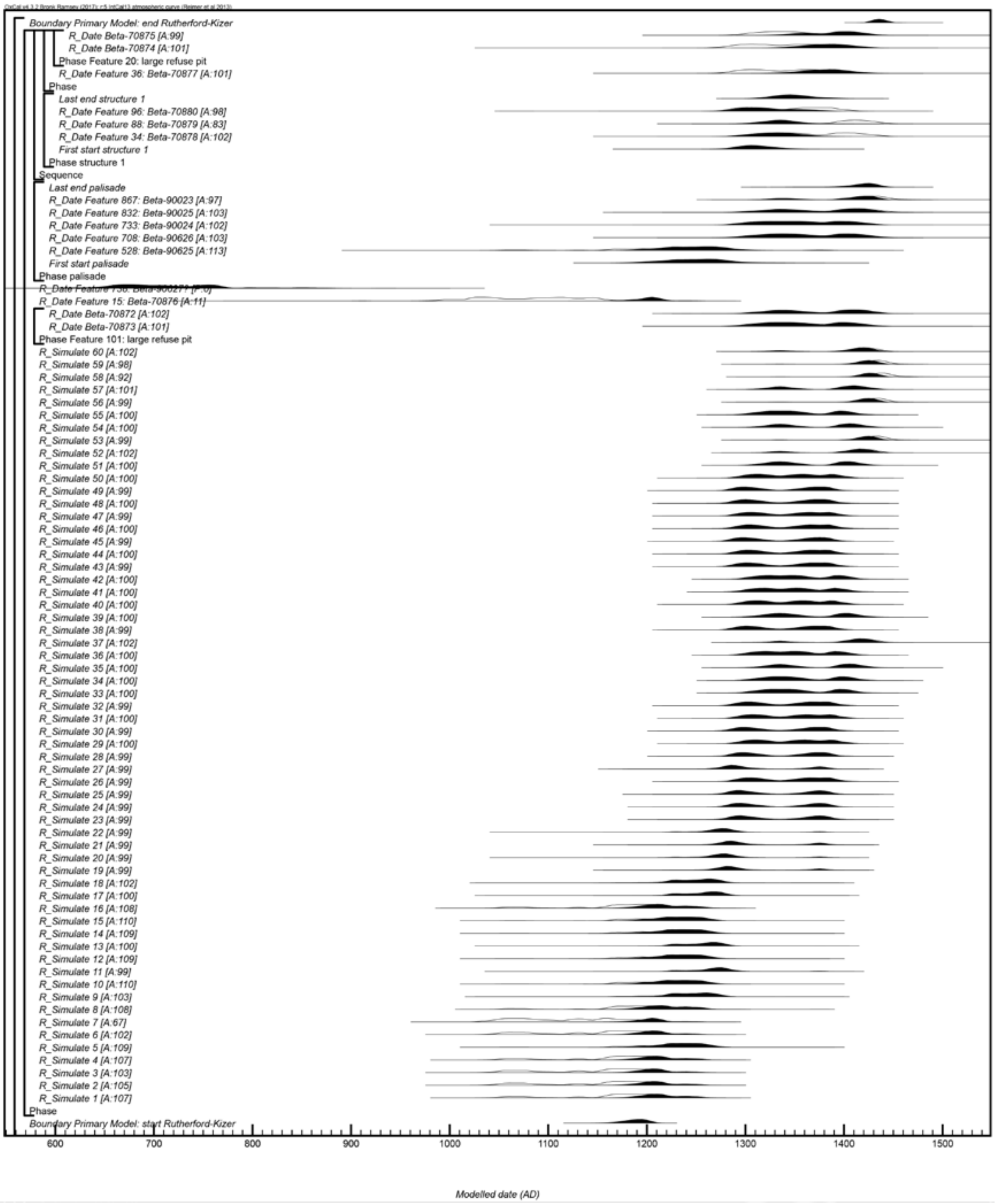

Figure S20. Results and structure of the primary chronological model for Rutherford-Kizer with the minimum number of simulated radiocarbon dates needed to achieve the desired precision at *95% probability* for the posterior probabilities of the starting and ending boundaries for site activity. The brackets and keywords define the model structure. The format is as described in Figure S1.

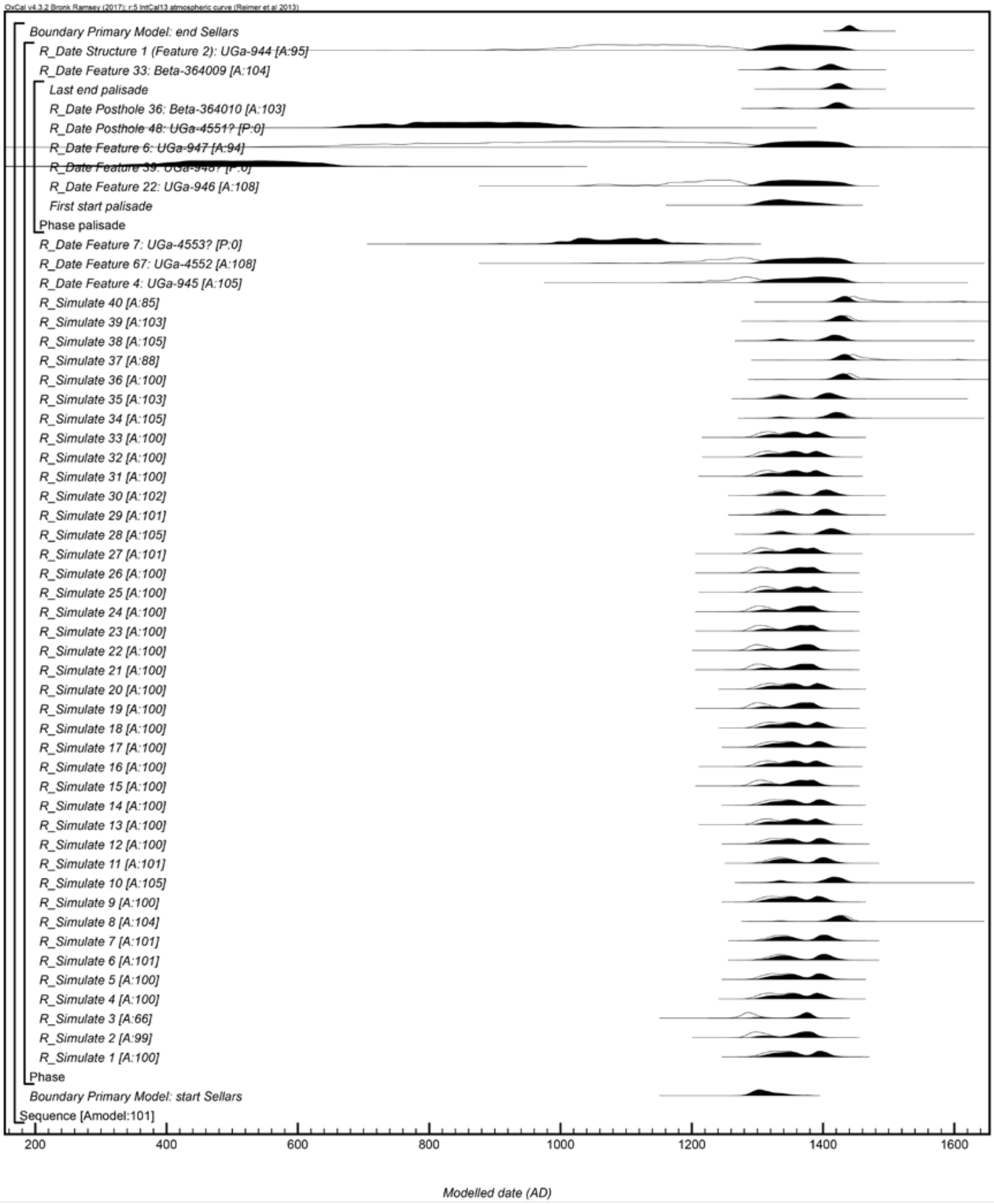

Figure S21. Results and structure of the primary chronological model for Sellars with the minimum number of simulated radiocarbon dates needed to achieve the desired precision at *68% probability* for the posterior probabilities of the starting and ending boundaries for site activity. The brackets and keywords define the model structure. The format is as described in Figure S1.

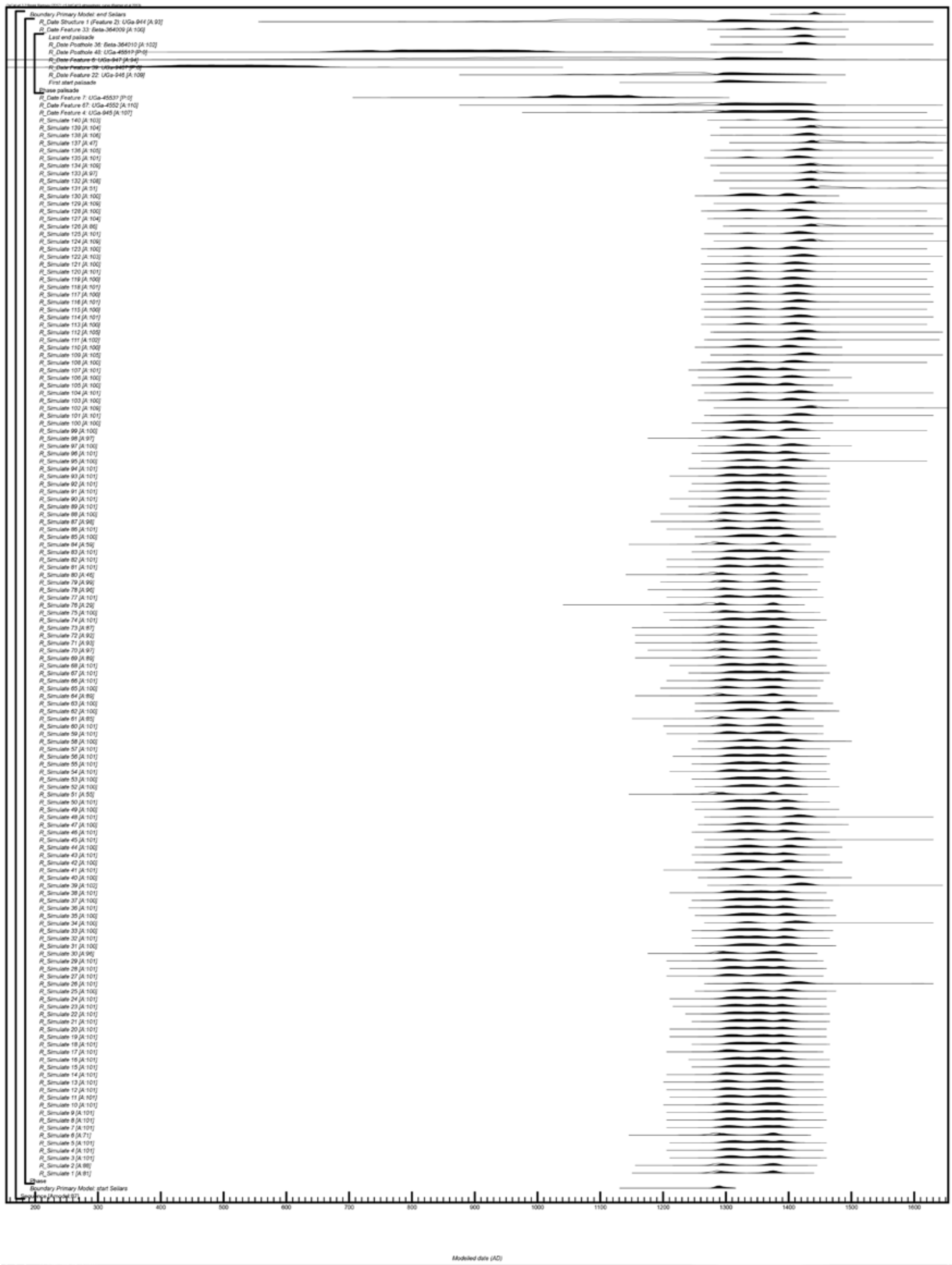

Figure S22. Results and structure of the primary chronological model for Sellars with the minimum number of simulated radiocarbon dates needed to achieve the desired precision at *95% probability* for the posterior probabilities of the starting and ending boundaries for site activity. The brackets and keywords define the model structure. The format is as described in Figure S1.