Supplemental Material for "Grappling with Time and Space in the Lower Illinois Valley: A Retrospective and New Directions on Woodland Chronologies"

Supplemental Code 1. Bayesian model and dates used to model regional ceramic traditions, their overlap, and the differences between their age ranges.

```
Plot()
 {
  Sequence("Habitation")
  {
   Phase("LIV Habitation")
   {
    Sequence("A")
    {
     Boundary("start MW");
     Phase("MW")
     {
      // Group 1 //
      R_Date("Archie/ISGS-966", 1900, 70);
      R_Date("Archie/ISGS-964", 1800, 70);
      R_Date("Massey/ISGS-963", 1930, 70);
      R_Date("Massey/ISGS-965", 1750, 70);
      R_Date("Napoleon Hollow/ISGS-916", 2000, 70);
      R_Date("Napoleon Hollow/ISGS-931", 1880, 70);
      R_Date("Napoleon Hollow/ISGS-834", 1840, 75);
      R_Date("Napoleon Hollow/ISGS-929", 1810, 70);
      R_Date("Napoleon Hollow/ISGS-935", 1970, 70);
      R_Date("Napoleon Hollow/ISGS-904", 1800, 70);
      R_Date("Smiling Dan/ISGS-854", 2020, 75);
      R_Date("Smiling Dan/ISGS-1094", 1910, 40);
      R_Date("Smiling Dan/Beta-4534", 1830, 50);
      R_Date("Smiling Dan/Beta-4980", 1805, 95);
      R_Date("Smiling Dan/ISGS-1027", 1790, 80);
      R_Date("Smiling Dan/ISGS-841", 1780, 75);
      R_Date("Smiling Dan/ISGS-958", 1700, 70);
      R_Date("Smiling Dan/Beta-4981", 1630, 80);
      R_Date("Naples-Abbot Smith Area/ISGS-1645", 2100, 130);
      R_Date("Naples-Abbot Smith Area/ISGS-1650", 1810, 70);
      // Group 2 //
      R_Date("Apple Creek/ISGS-1204", 1710, 70);
      R_Date("Gardens of Kampsville/ISGS-1102", 1790, 70);
      R_Date("Gardens of Kampsville/ISGS-1808", 1920, 70);
      R_Date("Gardens of Kampsville/ISGS-1813", 1960, 70);
      R_Date("Gardens of Kampsville/ISGS-1814", 1810, 70);
      R_Date("Gardens of Kampsville/ISGS-1818", 2100, 70);
      // Group 3 //
      R_Date("Crane/ISGS-898", 2050, 70);
      R_Date("Crane/ISGS-1200", 1800, 70);
      R_Date("Crane/ISGS-1081", 1710, 70);
      R_Date("Crane/ISGS-951", 1750, 70);
      R_Date("Crane/ISGS-1107", 1870, 70);
```

```
  R_Date("Loy/ISGS-181", 2010, 85);
  R_Date("Loy/ISGS-171", 1970, 75);
  R_Date("Loy/ISGS-251", 1970, 80);
  R_Date("Loy/ISGS-1078", 2040, 70);
  R_Date("Loy/ISGS-1105", 1970, 80);
  Span("Duration MW");
 };
 Boundary("end MW");
};
Sequence("B")
{
 Boundary("start WH");
 Phase("White Hall")
 {
  R_Date("AC F 451-D/ISGS-1199", 1530, 70);
  R_Date("AU F 601-II-E,F,G,H,I/ISGS-1771", 1570, 70);
  R_Date("AU F 535-G-H-I/ISGS-1682", 1420, 70);
  R_Date("AU F 416-I,C,D,E/ISGS-1683", 1220, 70);
  R_Date("AX F 11-04D,04E,-05D,-05E,-05F/ISGS-1871", 1560, 70);
  R_Date("AX F 10-02A/ISGS-1765", 1550, 70);
  R_Date("CN F 10, 76-91cm/ISGS-1126", 1390, 70);
  R_Date("CN F 20/ISGS-1436", 1370, 70);
  R_Date("CN F 19-8-11/ISGS-1428", 1290, 70);
  R_Date("EL F 17-04E/ISGS-1759", 1440, 70);
  R_Date("EL F 15-01A/ISGS-1764", 1570, 70);
  R_Date("EL F 1 lev 2/ISGS-1694", 1330, 70);
  R_Date("JR F 1/ISGS-978", 1530, 70);
  R_Date("JR F 5/ISGS-971", 1400, 70);
  R_Date("MC F 190 lev C/ISGS-1401", 1530, 70);
  R_Date("MC F 198/ISGS-1408", 1480, 70);
  R_Date("MC F 71/ISGS-1402", 1450, 70);
  R_Date("MC F 164 lev C/ISGS-1496", 1440, 80);
  R_Date("MC F 1026 lev J1/ISGS-918", 1390, 70);
  R_Date("MI F 201/ISGS-1539", 1620, 70);
  R_Date("MI F 129 suppl lev C/ISGS-1497", 1610, 80);
  R_Date("MI F 107/ISGS-1874", 1610, 70);
  R_Date("MI F 205 lev 1A/ISGS-1870", 1470, 70);
  R_Date("MI F121 lev 2,3/ISGS-1551", 1400, 70);
  R_Date("MI F 214 lev 4A/ISGS-1553", 1300, 70);
  R_Date("NB F 107 lev L/ISGS-1131", 1470, 70);
  R_Date("NB F 6/ISGS-1427", 1310, 70);
  R_Date("WZ F 1046 lev C/ISGS-1864", 1630, 70);
  R_Date("WZ F 1005 lev B,C/ISGS-1875", 1620, 70);
  R_Date("WZ F 1033 lev B/ISGS-1130", 1560, 80);
  Span("Duration WH");
 };
 Boundary("end WH");
};
Sequence("C")
{
 Boundary("start EB");
```

```
   Phase("Early Bluff")
   {
    R_Date("C357 F 1-01/ISGS-3541", 1210, 70);
    R_Date("Kos E F 1100-d-k/ISGS-1024", 1330, 70);
    R_Date("PML F 54-01/01P/ISGS-1670", 1270, 70);
    R_Date("UN F 1-01P/ISGS-2397", 1340, 70);
    R_Date("GoP F 2-01/01P/ISGS-2400", 1260, 70);
    R_Date("GoP F 4-02/02P/ISGS-2545", 1250, 70);
    R_Date("LPt F 1-01/01P/ISGS-2391", 1290, 70);
    R_Date("ST F 2-01A/ISGS-2544", 1370, 70);
    Span("Duration EB");
   };
   Boundary("end EB");
  };
  Sequence("D")
  {
   Boundary("start JB");
   Phase("Jersey Bluff")
   {
    R_Date("CN F 24, lev-12/ISGS-1434", 980, 70);
    R_Date("Kos E F 1040 lev d-g/ISGS-1020", 1120, 70);
    R_Date("PML F 17/ISGS-1540", 1070, 70);
    R_Date("PML F 72-01P/ISGS-1582", 1000, 70);
    R_Date("PML F 27/ISGS-1585", 990, 70);
    R_Date("PML F 29 l 1 z2/ISGS-1624", 980, 70);
    R_Date("PML F 642/ISGS-1541", 980, 70);
    R_Date("PML F 66/ISGS-1547", 850, 70);
    R_Date("PML F 16/ISGS-1586", 840, 70);
    R_Date("CH F 3/ISGS-2398", 1090, 70);
    R_Date("WaV F 1-02/ISGS-2303", 1160, 70);
    R_Date("ST F 1-01B/ISGS-2401", 1150, 70);
    R_Date("HY F 1/ISGS-1128", 880, 80);
    Span("Duration JB");
   };
   Boundary("end JB");
  };
  Difference("MW->WH", "start WH", "end MW");
  Difference("WH->EB", "start EB", "end WH");
  Difference("EB-JB", "start JB", "end EB");
 };
};
Sequence("Mounds")
{
 Phase("LIV Mounds")
 {
  Sequence("E")
  {
   Boundary("start MW mounds");
   Phase("MW mounds")
   {
    R_Date("CA 5-4/AA-77009", 2145, 45);
```

R_Date("LG 2-5/AA-77001", 2092, 46);
R_Date("EZ 6 F1 - ps stump/ISGS-844", 2070, 75);
R_Date("KP 9 Pike Vessel 3/ISGS-1780", 2060, 70);
R_Date("BLM 6-1-2/QL-4902", 2058, 14);
R_Date("LG 5-3/AA-76992", 2046, 47);
R_Date("MD 1 F 260-08-1/ISGS-2974", 2040, 70);
R_Date("EZ 7 Sq 143 F1/ISGS-1316", 2030, 70);
R_Date("KP 9 Second pit beneath tomb/ISGS-1774", 2020, 70);
R_Date("JG 3-25/AA-76999", 2011, 45);
R_Date("EZ 4-2/QL-4893", 2010, 15);
R_Date("MD 1 F 259-02A/ISGS-2973", 2010, 70);
R_Date("GB 1-16/QL-4897", 2000, 15);
R_Date("KL 2-11/AA-77007", 1994, 45);
R_Date("EZ 1-3-1/QL-4891", 1990, 15);
R_Date("GB 1-16/OS-71824", 1990, 40);
R_Date("EZ 6 Sq 85 F1 - Tomb/ISGS-1140", 1980, 70);
R_Date("PSK Sub-Mound 2 Feature L/ISGS-1109", 1980, 80);
R_Date("RY 1-30/AA-77010", 1968, 45);
R_Date("MD 1 F 227-04/ISGS-2970", 1960, 70);
R_Date("PSK 3 Sub-Mound F 1038a/WIS-942", 1955, 60);
R_Date("KL 7-29/AA-77008", 1946, 45);
R_Date("KL 1-24/AA-77006", 1942, 45);
R_Date("EZ 7-9-2/QL-4895", 1940, 16);
R_Date("EZ 7 Sq 110 - tomb/ISGS-1317", 1940, 70);
R_Date("MD 1 F 230/ISGS-2548", 1940, 70);
R_Date("MD 1 F 262-03/ISGS-2969", 1940, 70);
R_Date("KP/ISGS-1652", 1940, 70);
R_Date("CA 1-12/AA-76994", 1939, 46);
R_Date("KL 5-28/AA-77012", 1922, 45);
R_Date("NRM 8-1-1/QL-4904", 1913, 16);
R_Date("MD 1 F 252-02/ISGS-2972", 1910, 70);
R_Date("EZ 6-4-5/QL-4894", 1908, 15);
R_Date("CA 4-9/AA-77011", 1904, 45);
R_Date("MD 1 F 258-05-1/ISGS-2971", 1900, 70);
R_Date("RY 1-51/AA-77005", 1891, 45);
R_Date("KP/ISGS-1778", 1890, 70);
R_Date("BD 9-R-Adult/AA-76996", 1882, 46);
R_Date("EZ 3-2-1/QL-4892", 1881, 16);
R_Date("BD 11-1/AA-77002", 1870, 45);
R_Date("BD 9 tomb log/ISGS-1848", 1860, 70);
R_Date("MD 1 F 232-1, 4-6/ISGS-2976", 1850, 80);
R_Date("KP 9-4/QL-4903", 1849, 14);
R_Date("GB C-4/OS-71825", 1840, 30);
R_Date("PSK 3 Sub-Mound F 1094a/WIS-947", 1835, 70);
R_Date("GB 5-27/OS-71823", 1830, 25);
R_Date("KL 6-20/AA-77014", 1825, 45);
R_Date("GB 1-7/AA-76995", 1824, 46);
R_Date("MZ 11-CF/AA-77004", 1821, 45);
R_Date("MD 1 SQ 78-08/09b/ISGS-2549", 1820, 70);
R_Date("RY 2-6/AA-76997", 1818, 45);
R_Date("KL 13-2/AA-76993", 1802, 46);

```
  R_Date("MD 1 F 258-05-2/ISGS-2975", 1800, 70);
  R_Date("GB 3-17/QL-4899", 1799, 16);
  R_Date("KL 11-58A/AA-77013", 1789, 44);
  R_Date("GB 5-30/QL-4901", 1756, 16);
  R_Date("PSK 3 Sub-Mound F 10302/WIS-950", 1755, 60);
  R_Date("GB 2-2/QL-4898", 1745, 16);
  R_Date("GB 4-2/QL-4900", 1705, 16);
  Span("Duration MW mounds");
 };
 Boundary("end MW mounds");
};
Sequence("F")
{
 Boundary("start early LW mounds");
 Phase("early LW mounds")
 {
  R_Date("RY 3-42/OS-71822", 1640, 25);
  R_Date("MDSq 613-05/NM-1", 1620, 15);
  R_Date("MD Sq 613-02/NM-2", 1570, 20);
  R_Date("SC 4-2/UCR-1402", 1560, 125);
  R_Date("JG 6-24B/AA-77003", 1503, 44);
  R_Combine("EZ 10-14")
  {
   R_Date("EZ 10-14/QL-4896", 1312, 21);
   R_Date("EZ 10-14b/ISGS-1527b", 1260, 70);
  };
  R_Date("KOS 1-9/UCR-1405", 1310, 90);
  R_Date("KOS 2-11/UCR-1395", 1300, 90);
  R_Date("KOS 5A-18/UCLA-1919E", 1340, 70);
  R_Date("KOS 5A-17/UCLA-1919D", 1310, 50);
  R_Date("SC 9-7/UCLA-1919B", 1255, 35);
  Span("Duration eLW mounds");
 };
 Boundary("end early LW mounds");
};
Sequence("G")
{
 Boundary("start late LW mounds");
 Phase("late LW mounds")
 {
  R_Date("KOS 6-4/UCR-1398", 1190, 90);
  R_Date("HRS 1-2/UCR-1388", 1190, 80);
  R_Date("HN 22-33/OS-77119", 1160, 30);
  R_Date("SC 9-5/UCLA-1919A", 1155, 50);
  R_Date("SC 3-34/UCLA-1919C", 1130, 50);
  R_Date("HN 22/ISGS-258", 1125, 75);
  R_Date("CA 2-5/AA-77000", 1122, 49);
  R_Date("KOS 1-14/UCR-1394", 1090, 100);
  R_Date("SC 2-11/UCR-1400", 1080, 90);
  R_Date("KOS 4-15/UCR-1397", 1050, 70);
  R_Date("HN 20-36-1/OS-76862", 1050, 30);
```

```
    R_Date("HN 47-25/UCR-1412", 1030, 85);
    R_Date("HN 22/ISGS-257", 1020, 75);
    R_Date("KL 8-8/AA-76998", 1015, 42);
    R_Date("HN 20-36-6/OS-77401", 995, 30);
    R_Date("LD 1-135/UCLA-1919H", 990, 50);
    R_Date("SC 1-34/UCR 1399", 980, 80);
    R_Date("HRS 3-7/ISGS-AO588", 970, 45);
    R_Date("LD 1-76/UCLA-1919F", 950, 30);
    R_Date("SC 2-31/UCR-1401", 900, 70);
    R_Date("EZ 10-14a/ISGS-1527a", 900, 100);
    R_Date("LD 1-81/UCLA-1919G", 890, 50);
    R_Date("HN 47-63/UCR-1409", 860, 85);
    R_Date("HRS 3-2/UCR-1393", 820, 80);
    R_Date("HRS 2-104/UCR-1392", 790, 85);
    R_Date("HN 47S2-15/UCR-1410", 780, 85);
    R_Date("HRS 2-19/UCR-1389", 760, 60);
    R_Date("HN 47-70/UCR-1413", 750, 80);
    R_Date("KOS 6-14/UCR-1407", 750, 120);
    R_Date("HN 47S2-3/UCR-1411", 730, 80);
    R_Date("KOS 4-8/UCR-1396", 700, 100);
    R_Date("HRS 2-51/UCR-1391", 590, 50);
    R_Date("HRS 2-46/UCR-1390", 530, 60);
    Span("Duration late LW mounds");
   };
   Boundary("end late LW mounds");
  };
  Difference("MW->eLW", "start early LW mounds", "end MW mounds");
  Difference("eLW->lLW", "start late LW mounds", "end early LW mounds");
 };
};
};
```

Supplemental Code 2. Bayesian model and dates used to model the chronology for Mound 1.

```
Plot()
 {
  Outlier_Model("Charcoal",Exp(1,-10,0),U(0,3),"t");
  Sequence()
  {
   Boundary("Start Mound 1 Sequence");
   Sequence("Mound 1 Sequence")
   {
    Phase("Sub-Mound")
    {
     R_Date("ISGS-2974",2040,70)
     {
      Outlier("Charcoal",1);
     };
     R_Date("ISGS-2973",2010,70)
     {
      Outlier("Charcoal",1);
     };
     R_Date("ISGS-2970",1960,70)
     {
      Outlier("Charcoal",1);
     };
     R_Date("ISGS-2969",1940,70)
     {
      Outlier("Charcoal",1);
     };
     R_Date("ISGS-2972",1910,70)
     {
      Outlier("Charcoal",1);
     };
    };
    Boundary("End Sub-Mound");
    Boundary("Begin Midden Surface");
    Phase("Midden Surface")
    {
     R_Date("ISGS-230",1940,70)
     {
      Outlier("Charcoal",1);
     };
     R_Date("ISGS-2971",1900,70)
     {
      Outlier("Charcoal",1);
     };
     R_Date("ISGS-2976",1850,80)
     {
      Outlier("Charcoal",1);
     };
     R_Date("ISGS-2975",1800,70)
     {
```

```
      Outlier("Charcoal",1);
     };
    };
    Boundary("End Midden Surface");
    R_Date("ISGS_2549",1820,70);
   };
   Boundary("End Mound 1 Sequence");
 };
};
```

Supplemental Code 3. Bayesian model and dates used to model the chronology for non-mound contexts.

```
Plot()
 {
  Outlier_Model("General",T(5),U(0,4),"t");
  Sequence()
  {
   Boundary("Start Mound House Features");
   Phase("Mound House Features")
   {
    Sequence()
    {
     Boundary("Start Sq613");
     Phase("Level 9 Baulk")
     {
      R_Date("PSUAMS-16170",1880,20)
      {
       Outlier("General",.05);
      };
      R_Date("PSUAMS-16171",1780,20)
      {
       Outlier("General",.05);
      };
     };
     Boundary("End Level 9 Baulk");
     Boundary("Start Level 3E");
     Phase("Level 3E")
     {
      R_Date("PSUAMS-16168",1760,20)
      {
       Outlier("General",.05);
      };
      R_Date("PSUAMS-16166",1700,20)
      {
       Outlier("General",.05);
      };
      R_Date("PSUAMS-16167",1615,20)
      {
       Outlier("General",.05);
      };
     };
     Boundary("End Sq613");
    };
    R_Date("PSUAMS-16165",1625,15)
    {
     Outlier("General",.05);
    };
    Sequence()
    {
     Boundary("Start F380");
```

```
    Phase("Level 3A")
    {
     R_Date("PSUAMS-16159",1745,20)
     {
      Outlier("General",.05);
     };
     R_Date("PSUAMS-16160",1720,20)
     {
      Outlier("General",.05);
     };
    };
    Phase("Level 1A")
    {
     R_Date("PSUAMS-16162",1700,20)
     {
      Outlier("General",.05);
     };
     R_Date("PSUAMS-16161",1690,20)
     {
      Outlier("General",.05);
     };
    };
    Boundary("End F380");
   };
   R_Date("PSUAMS-16163",1670,20)
   {
    Outlier("General",.05);
   };
  };
  Boundary("End Mound House Features");
 };
};
```