***Supplemental Material***

**Conflict, Population Movement, and Microscale Social Networks in Northern Iroquoian Archaeology**

**Jennifer Birch and John P. Hart**



**Supplemental Figure 1**. Metric multidimensional scaling (principal coordinates analysis) plot of north-shore village sites BR matrix with minimal spanning tree, eigenvalue scaling, and no transformation exponent.

# Supplemental Table 1. West Duffins Sequence Traditional Model runfile.

Plot()

 {

 Outlier\_Model("SSimple",N(0,2),0,"s");

 Outlier\_Model("General",T(5),U(0,4),"t");

 Outlier\_Model("IA",Exp(1,-10,0),U(0,3),"t");

 Sequence(West Duffins Traditional Sequence Model)

 {

 Boundary("Start West Duffins Traditional Sequence Model",U(1200,1750));

 Phase("Best and Pugh")

 {

 Sequence()

 {

 Boundary("Start Best");

 Phase("Best")

 {

 R\_Date("Best\_UGAMS-22313\_charcoal", 441, 21)

 {

 Outlier("IA", 1);

 };

 Date ("Date estimate Best");

 Interval ("Interval Best ");

 };

 Boundary("End Best");

 };

 Sequence()

 {

 Boundary("Start Pugh");

 Phase("Pugh")

 {

 R\_Date("Pugh\_UGA-22314\_Charcoal", 350, 20)

 {

 Outlier("IA", 1);

 };

 Date ("Date estimate Pugh");

 Interval ("Interval Pugh ");

 };

 Boundary("End Pugh");

 };

 };

 Boundary("Transition Best and Pugh/Draper");

 Sequence(Draper)

 {

 Boundary("Start Draper");

 Phase ("Draper")

 {

 R\_Date("S-819 Charcoal House 2",210,80)

 {

 Outlier("IA", 1);

 };

 R\_Date("S-860 Charcoal House 2",405,65)

 {

 Outlier("IA", 1);

 };

 R\_Date("S-862 Charcoal House 2",430,85)

 {

 Outlier("IA", 1);

 };

 R\_Date("S-863 Charcoal House 2",495,65)

 {

 Outlier("IA", 1);

 };

 R\_Date("S-861 Charcoal House 2",570,95)

 {

 Outlier("IA", 1);

 };

 R\_Date("S-818 Charcoal House 2",590,75)

 {

 Outlier("IA", 1);

 };

 R\_Date("UGAMS-22833 maize; Sq230-215, Midden 52, level 4",330,25)

 {

 Outlier ("General",0.05);

 };

 R\_Date("UGAMS-22834 charcoal S field; Sq940-160; H33, Pit #1",370,25)

 {

 Outlier("IA", 1);

 };

 R\_Date("UGAMS-22835 maize; exp 2; Sq290-185; H7, F11, level 1",270,25)

 {

 Outlier ("General",0.05);

 };

 R\_Date("VERA-6283\_2 maize Draper\_AlGt-2\_9",306,29)

 {

 Outlier ("General",0.05);

 };

 R\_Combine ("AlGt-2\_1 maize",8)

 {

 Outlier ("General",0.05);

 R\_Date("VERA-6284 maize Draper\_AlGt-2\_1",323,34)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6284\_2 maize Draper\_AlGt-2\_1",279,29)

 {

 Outlier("SSimple",0.05);

 };

 };

 R\_Combine ("AlGt-2\_6 maize",8)

 {

 Outlier ("General",0.05);

 R\_Date("VERA-6285 maize Draper\_AlGt-2\_6",323,28)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6285HS\_2 maize Draper\_AlGt-2\_6",292,26)

 {

 Outlier("SSimple",0.05);

 };

 };

 R\_Combine ("AlGt-2\_7 maize",8)

 {

 Outlier ("General",0.05);

 R\_Date("VERA-6286 maize Draper\_AlGt-2\_7",256,29)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6286\_2 maize Draper\_AlGt-2\_7",302,26)

 {

 Outlier("SSimple",0.05);

 };

 };

 R\_Combine ("AlGt-2\_2 maize",8)

 {

 Outlier ("General",0.05);

 R\_Date("VERA-6287 maize Draper\_AlGt-2\_2",291,39)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6287HS\_2 maize Draper\_AlGt-2\_2",298,28)

 {

 Outlier("SSimple",0.05);

 };

 };

 Date ("Date estimate Draper");

 Interval ("Interval Draper");

 };

 Boundary("End Draper");

 };

 Boundary("Transition Draper/Spang");

 Sequence(Spang)

 {

 Boundary("Start Spang");

 Phase (“Spang”)

 {

 R\_Date("AlGt-66 UGA-22312 maize Sq. 335-705; Midden 2, level 4",300,20)

 {

 Outlier ("General",0.05);

 };

 R\_Date("VERA-6227 maize 335-705 SS25 Midden 2 Level 3",327, 39)

 {

 Outlier ("General",0.05);

 };

 R\_Date("VERA-6227HS maize 335-705 SS25 Midden 2 Level 3",266,39)

 {

 Outlier ("General",0.05);

 };

 R\_Date("VERA-6227\_2 maize 335-705 SS25 Midden 2 Level 3",359,34)

 {

 Outlier ("General",0.05);

 };

 R\_Date ("OxA-33077 maize 335-705 Midden 2 Level 3", 371,25)

 {

 Outlier ("General",0.05);

 };

 R\_Date("VERA-6226 maize 335-705 SS25 Midden 2 Level 3",311,33)

 {

 Outlier ("General",0.05);

 };

 R\_Date("VERA-6226\_2 maize 335-705 SS25 Midden 2 Level 3",324,33)

 {

 Outlier ("General",0.05);

 };

 R\_Date("AlGt-66 maize UGA-22311 Sq. 335-705; Midden 2, level 3",270,20)

 {

 Outlier ("General",0.05);

 };

 R\_Date("Spang\_3\_maize\_UGAMS-37833", 250, 20)

 {

 Outlier ("General",0.05);

 };

 R\_Date("Spang\_3r\_maize\_UGAMS-38397", 309, 20)

 {

 Outlier ("General",0.05);

 };

 R\_Date("Spang\_4\_\_maize\_UGAMS-37834", 271, 20)

 {

 Outlier ("General",0.05);

 };

 R\_Date("Spang\_5\_maize\_UGAMS-38398", 291, 20)

 {

 Outlier ("General",0.05);

 };

 Date ("Date estimate Spang");

 Interval ("Interval Spang");

 };

 Boundary("End Spang");

 };

 Boundary("Transition Draper/Mantle");

 Phase("Mantle")

 {

 Sequence()

 {

 Boundary("Start Mantle");

 Phase ("Mantle")

 {

 R\_Date("GrM-13842 144 415-155 F648 Charcoal",469,15)

 {

 Outlier ("IA",1);

 };

 R\_Date("GrM-13844 144 415-155 F648 Charcoal",854,15)

 {

 Outlier ("IA",1);

 };

 R\_Combine ("144 415-155 Feature 648 strawberry seeds",8)

 {

 Outlier ("General",0.05);

 R\_Date("VERA-6212 144 415-155 F648 strawberry seeds",353,37)

 {

 Outlier ("SSimple",0.05);

 };

 R\_Date("VERA-6212\_2 144 415-155 F648 strawberry seeds",368,38)

 {

 Outlier ("SSimple",0.05);

 };

 };

 R\_Date("GrM-13838 91 535-190 F718 Charcoal",348,15)

 {

 Outlier("IA",1);

 };

 R\_Date("GrM-13839 91 535-190 F718 Charcoal",388,15)

 {

 Outlier("IA",1);

 };

 R\_Date("GrM-13840 91 535-190 F718 Charcoal",338,15)

 {

 Outlier("IA",1);

 };

 R\_Combine ("91 535-190 F718 Maize",8)

 {

 Outlier("General",0.05);

 R\_Date("VERA-6213 91 535-190 F718 Maize",349,32)

 {

 Outlier ("SSimple",0.05);

 };

 R\_Date("VERA-6213\_2 91 535-190 F718 Maize",335,35)

 {

 Outlier ("SSimple",0.05);

 };

 R\_Date("OxA-33078 91 535-190 F718 Maize",376,26)

 {

 Outlier ("SSimple",0.05);

 };

 R\_Date("OxA-33079 91 535-190 F718 Maize",401,25)

 {

 Outlier ("SSimple",0.05);

 };

 };

 R\_Date("GrM-13834 159 435-180 F427 Charcoal",331,15)

 {

 Outlier("IA",1);

 };

 R\_Date("GrM-13835 159 435-180 F427 Charcoal",329,15)

 {

 Outlier("IA",1);

 };

 R\_Date("GrM-13837 159 435-180 F427 Charcoal",320,15)

 {

 Outlier("IA",1);

 };

 R\_Combine ("159 435-180 F427 Maize",8)

 {

 Outlier ("General",0.05);

 R\_Date("VERA-6214 159 435-180 F427 Maize",357,36)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6214\_2 159 435-180 F427 Maize",351,34)

 {

 Outlier("SSimple",0.05);

 };

 };

 R\_Date("GrM-13833 159 435-180 F427 Strawberry seeds",373,15)

 {

 Outlier("General",0.05);

 };

 R\_Date("VERA-6222 20 495-160 F927B Strawberry seeds",361,34)

 {

 Outlier ("General",0.05);

 };

 R\_Date("VERA-6225HS 20 495-160 F927B Strawberry seeds",408,33)

 {

 Outlier ("General",0.05);

 };

 R\_Combine ("166 400-200 F492 Maize",8)

 {

 Outlier ("General",0.05);

 R\_Date("VERA-6215 166 400-200 F492 Maize",370,38)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6215HS 166 400-200 F492 Maize",333,34)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6215\_2 166 400-200 F492 Maize",281,34)

 {

 Outlier("SSimple",0.05);

 };

 };

 R\_Date("VERA-6218 164 370-185 F238 Maize",342,36)

 {

 Outlier ("General",0.05);

 };

 R\_Date("VERA-6216 126 530-165 F709 Maize",316,34)

 {

 Outlier ("General",0.05);

 };

 R\_Combine ("40 450-120 F1237 Maize",8)

 {

 Outlier ("General",0.05);

 R\_Date("VERA-6219 40 450-120 F1237 Maize",312,38)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("OxA-33081 40 450-120 F1237 Maize",374,25)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("OxA-33082 40 450-120 F1237 Maize",414,25)

 {

 Outlier("SSimple",0.05);

 };

 };

 R\_Combine ("183 425-135 F468 Maize",8)

 {

 Outlier("General",0.05);

 R\_Date("VERA-6220 183 425-135 F468 Maize",389,35)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6220HS 183 425-135 F468 Maize",351,39)

 {

 Outlier("SSimple",0.05);

 };

 };

 R\_Combine ("36 465-125 F1238 Maize",8)

 {

 Outlier("General",0.05);

 R\_Date("VERA-6217 36 465-125 F1238 Maize",296,33)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6217HS 36 465-125 F1238 Maize",344,33)

 {

 Outlier("SSimple",0.05);

 };

 };

 Date ("Date Mantle");

 Interval ("Interval Mantle");

 };

 Boundary("End Mantle");

 };

 };

 Boundary("Transition Mantle/Aurora");

 Sequence()

 {

 Boundary("Start Aurora");

 Phase("Aurora")

 {

 R\_Date("Aurora\_UGAMS-25448\_maize", 370, 25)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("Aurora\_UGAMS-25449\_maize", 330, 20)

 {

 Outlier("SSimple",0.05);

 };

 Date ("Date estimate Aurora");

 Interval ("Interval Aurora");

 };

 Boundary("End Aurora");

 };

 Boundary("End West Duffins Traditional Sequence Model",U(1200,1750));

 Order("Order West Duffins Traditional Sequence Model");

 };

 };

# Supplemental Table 2. West Duffins Sequence Traditional Model with outlier samples with agreements <60 omitted.

Plot()

 {

 Outlier\_Model("SSimple",N(0,2),0,"s");

 Outlier\_Model("General",T(5),U(0,4),"t");

 Outlier\_Model("IA",Exp(1,-10,0),U(0,3),"t");

 Sequence(West Duffins Traditional Sequence Model)

 {

 Boundary("Start West Duffins Traditional Sequence Model",U(1200,1750));

 Phase("Best and Pugh")

 {

 Sequence()

 {

 Boundary("Start Best");

 Phase("Best")

 {

 R\_Date("Best\_UGAMS-22313\_charcoal", 441, 21)

 {

 Outlier("IA", 1);

 };

 Date ("Date estimate Best");

 Interval ("Interval Best ");

 };

 Boundary("End Best");

 };

 Sequence()

 {

 Boundary("Start Pugh");

 Phase("Pugh")

 {

 R\_Date("Pugh\_UGA-22314\_Charcoal", 350, 20)

 {

 Outlier("IA", 1);

 };

 Date ("Date estimate Pugh");

 Interval ("Interval Pugh ");

 };

 Boundary("End Pugh");

 };

 };

 Boundary("Transition Best and Pugh/Draper");

 Sequence(Draper)

 {

 Boundary("Start Draper");

 Phase ("Draper")

 {

 //R\_Date("S-819 Charcoal House 2",210,80)

 //{

 //Outlier("IA", 1);

 //};

//outlier, A= 47.2%(A'c= 60.0%)

 R\_Date("S-860 Charcoal House 2",405,65)

 {

 Outlier("IA", 1);

 };

 R\_Date("S-862 Charcoal House 2",430,85)

 {

 Outlier("IA", 1);

 };

 R\_Date("S-863 Charcoal House 2",495,65)

 {

 Outlier("IA", 1);

 };

 R\_Date("S-861 Charcoal House 2",570,95)

 {

 Outlier("IA", 1);

 };

 R\_Date("S-818 Charcoal House 2",590,75)

 {

 Outlier("IA", 1);

 };

 R\_Date("UGAMS-22833 maize; Sq230-215, Midden 52, level 4",330,25)

 {

 Outlier ("General",0.05);

 };

 R\_Date("UGAMS-22834 charcoal S field; Sq940-160; H33, Pit #1",370,25)

 {

 Outlier("IA", 1);

 };

 R\_Date("UGAMS-22835 maize; exp 2; Sq290-185; H7, F11, level 1",270,25)

 {

 Outlier ("General",0.05);

 };

 R\_Date("VERA-6283\_2 maize Draper\_AlGt-2\_9",306,29)

 {

 Outlier ("General",0.05);

 };

 R\_Combine ("AlGt-2\_1 maize",8)

 {

 Outlier ("General",0.05);

 R\_Date("VERA-6284 maize Draper\_AlGt-2\_1",323,34)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6284\_2 maize Draper\_AlGt-2\_1",279,29)

 {

 Outlier("SSimple",0.05);

 };

 };

 R\_Combine ("AlGt-2\_6 maize",8)

 {

 Outlier ("General",0.05);

 R\_Date("VERA-6285 maize Draper\_AlGt-2\_6",323,28)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6285HS\_2 maize Draper\_AlGt-2\_6",292,26)

 {

 Outlier("SSimple",0.05);

 };

 };

 R\_Combine ("AlGt-2\_7 maize",8)

 {

 Outlier ("General",0.05);

 R\_Date("VERA-6286 maize Draper\_AlGt-2\_7",256,29)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6286\_2 maize Draper\_AlGt-2\_7",302,26)

 {

 Outlier("SSimple",0.05);

 };

 };

 R\_Combine ("AlGt-2\_2 maize",8)

 {

 Outlier ("General",0.05);

 R\_Date("VERA-6287 maize Draper\_AlGt-2\_2",291,39)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6287HS\_2 maize Draper\_AlGt-2\_2",298,28)

 {

 Outlier("SSimple",0.05);

 };

 };

 Date ("Date estimate Draper");

 Interval ("Interval Draper");

 };

 Boundary("End Draper");

 };

 Boundary("Transition Draper/Spang");

 Sequence(Spang)

 {

 Boundary("Start Spang");

 Phase (“Spang”)

 {

 R\_Date("AlGt-66 UGA-22312 maize Sq. 335-705; Midden 2, level 4",300,20)

 {

 Outlier ("General",0.05);

 };

 R\_Date("VERA-6227 maize 335-705 SS25 Midden 2 Level 3",327, 39)

 {

 Outlier ("General",0.05);

 };

 R\_Date("VERA-6227HS maize 335-705 SS25 Midden 2 Level 3",266,39)

 {

 Outlier ("General",0.05);

 };

 R\_Date("VERA-6227\_2 maize 335-705 SS25 Midden 2 Level 3",359,34)

 {

 Outlier ("General",0.05);

 };

 //R\_Date ("OxA-33077 maize 335-705 Midden 2 Level 3", 371,25)

 //{

 //Outlier ("General",0.05);

 //};

//outlier, A= 31.6%(A'c= 60.0%)

 R\_Date("VERA-6226 maize 335-705 SS25 Midden 2 Level 3",311,33)

 {

 Outlier ("General",0.05);

 };

 R\_Date("VERA-6226\_2 maize 335-705 SS25 Midden 2 Level 3",324,33)

 {

 Outlier ("General",0.05);

 };

 //R\_Date("AlGt-66 maize UGA-22311 Sq. 335-705; Midden 2, level 3",270,20)

 //{

 //Outlier ("General",0.05);

 //};

//outlier, A= 18.4%(A'c= 60.0%)

 Date ("Date estimate Spang");

 Interval ("Interval Spang");

 };

 Boundary("End Spang");

 };

 Boundary("Transition Draper/Mantle");

 Phase("Mantle")

 {

 Sequence()

 {

 Boundary("Start Mantle");

 Phase ("Mantle")

 {

 R\_Date("GrM-13842 144 415-155 F648 Charcoal",469,15)

 {

 Outlier ("IA",1);

 };

 R\_Date("GrM-13844 144 415-155 F648 Charcoal",854,15)

 {

 Outlier ("IA",1);

 };

 R\_Combine ("144 415-155 Feature 648 strawberry seeds",8)

 {

 Outlier ("General",0.05);

 R\_Date("VERA-6212 144 415-155 F648 strawberry seeds",353,37)

 {

 Outlier ("SSimple",0.05);

 };

 R\_Date("VERA-6212\_2 144 415-155 F648 strawberry seeds",368,38)

 {

 Outlier ("SSimple",0.05);

 };

 };

 R\_Date("GrM-13838 91 535-190 F718 Charcoal",348,15)

 {

 Outlier("IA",1);

 };

 R\_Date("GrM-13839 91 535-190 F718 Charcoal",388,15)

 {

 Outlier("IA",1);

 };

 R\_Date("GrM-13840 91 535-190 F718 Charcoal",338,15)

 {

 Outlier("IA",1);

 };

 R\_Combine ("91 535-190 F718 Maize",8)

 {

 Outlier("General",0.05);

 R\_Date("VERA-6213 91 535-190 F718 Maize",349,32)

 {

 Outlier ("SSimple",0.05);

 };

 R\_Date("VERA-6213\_2 91 535-190 F718 Maize",335,35)

 {

 Outlier ("SSimple",0.05);

 };

 R\_Date("OxA-33078 91 535-190 F718 Maize",376,26)

 {

 Outlier ("SSimple",0.05);

 };

 R\_Date("OxA-33079 91 535-190 F718 Maize",401,25)

 {

 Outlier ("SSimple",0.05);

 };

 };

 R\_Date("GrM-13834 159 435-180 F427 Charcoal",331,15)

 {

 Outlier("IA",1);

 };

 R\_Date("GrM-13835 159 435-180 F427 Charcoal",329,15)

 {

 Outlier("IA",1);

 };

 R\_Date("GrM-13837 159 435-180 F427 Charcoal",320,15)

 {

 Outlier("IA",1);

 };

 R\_Combine ("159 435-180 F427 Maize",8)

 {

 Outlier ("General",0.05);

 R\_Date("VERA-6214 159 435-180 F427 Maize",357,36)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6214\_2 159 435-180 F427 Maize",351,34)

 {

 Outlier("SSimple",0.05);

 };

 };

 R\_Date("GrM-13833 159 435-180 F427 Strawberry seeds",373,15)

 {

 Outlier("General",0.05);

 };

 R\_Date("VERA-6222 20 495-160 F927B Strawberry seeds",361,34)

 {

 Outlier ("General",0.05);

 };

 R\_Date("VERA-6225HS 20 495-160 F927B Strawberry seeds",408,33)

 {

 Outlier ("General",0.05);

 };

 R\_Combine ("166 400-200 F492 Maize",8)

 {

 Outlier ("General",0.05);

 R\_Date("VERA-6215 166 400-200 F492 Maize",370,38)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6215HS 166 400-200 F492 Maize",333,34)

 {

 Outlier("SSimple",0.05);

 };

 //R\_Date("VERA-6215\_2 166 400-200 F492 Maize",281,34)

 //{

 //Outlier("SSimple",0.05);

 //};

//outlier, A= 54.5%(A'c= 60.0%)

 };

 R\_Date("VERA-6218 164 370-185 F238 Maize",342,36)

 {

 Outlier ("General",0.05);

 };

 R\_Date("VERA-6216 126 530-165 F709 Maize",316,34)

 {

 Outlier ("General",0.05);

 };

 R\_Combine ("40 450-120 F1237 Maize",8)

 {

 Outlier ("General",0.05);

 R\_Date("VERA-6219 40 450-120 F1237 Maize",312,38)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("OxA-33081 40 450-120 F1237 Maize",374,25)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("OxA-33082 40 450-120 F1237 Maize",414,25)

 {

 Outlier("SSimple",0.05);

 };

 };

 R\_Combine ("183 425-135 F468 Maize",8)

 {

 Outlier("General",0.05);

 R\_Date("VERA-6220 183 425-135 F468 Maize",389,35)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6220HS 183 425-135 F468 Maize",351,39)

 {

 Outlier("SSimple",0.05);

 };

 };

 R\_Combine ("36 465-125 F1238 Maize",8)

 {

 Outlier("General",0.05);

 R\_Date("VERA-6217 36 465-125 F1238 Maize",296,33)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("VERA-6217HS 36 465-125 F1238 Maize",344,33)

 {

 Outlier("SSimple",0.05);

 };

 };

 Date ("Date Mantle");

 Interval ("Interval Mantle");

 };

 Boundary("End Mantle");

 };

 };

 Boundary("Transition Mantle/Aurora");

 Sequence()

 {

 Boundary("Start Aurora");

 Phase("Aurora")

 {

 R\_Date("Aurora\_UGAMS-25448\_maize", 370, 25)

 {

 Outlier("SSimple",0.05);

 };

 R\_Date("Aurora\_UGAMS-25449\_maize", 330, 20)

 {

 Outlier("SSimple",0.05);

 };

 Date ("Date estimate Aurora");

 Interval ("Interval Aurora");

 };

 Boundary("End Aurora");

 };

 Boundary("End West Duffins Traditional Sequence Model",U(1200,1750));

 Order("Order West Duffins Traditional Sequence Model");

 };

 };

**Supplement Table 3.** Cluster Analyses Results All Southern Ontario Sites in the SNA database.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Site | Drainage | Date Range | Louvaina | K-meansb |
| Aurora | Duffins | 1600-1650 | 1 | 1 |
| Boyle-Atkinson | Don | 1450-1500 | 1 | 1 |
| Damiani | Humber | 1500-1550 | 1 | 1 |
| Emmerson Springs | Credit | 1500-1550 | 1 | 1 |
| Keffer | Don | 1500-1550 | 1 | 1 |
| **Jean-Baptiste Lain**é | Duffins | 1600-1650 | 1 | 1 |
| McGaw | Don | 1400-1450 | 1 | 1 |
| McNair | Don | 1450-1500 | 1 | 1 |
| Parsons | Humber | 1500-1550 | 1 | 1 |
| Risebrough | Humber | 1400-1450 | 1 | 1 |
| Seed-Barker | Humber | 1550-1600 | 1 | 1 |
| Woodbridge | Humber | 1550-1600 | 1 | 1 |
| Alexandra | Duffins | 1350-1400 | 2 | 2 |
| Antrex | Credit | 1350-1400 | 2 | 2 |
| Bathurst | Don | 1350-1400 | isolate | 2 |
| New | Duffins | 1350-1400 | 2 | 2 |
| River | Credit | 1400-1450 | isolate | 2 |
| Robb | Duffins | 1350-1400 | 2 | 2 |
| Baker | Don | 1450-1500 | 3 | 3 |
| Black Creek | Humber | 1450-1500 | 3 | 3 |
| Grandview | Lynde | 1350-1400 | 3 | 3 |
| Hope | Don | 1450-1500 | 3 | 3 |
| Jackes | Don | 1400-1450 | 3 | 3 |
| Joseph Picard | Lynde | 1450-1500 | 3 | 3 |
| O-M-G | Don | 1450-1500 | 3 | 3 |
| Pengilly | Credit | 1400-1450 | 3 | 3 |
| Walkington 2 | Don | 1450-1500 | 3 | 3 |
| **Best** | Duffins | 1400-1450 | 4 | 4 |
| **Draper** | Duffins | 1550-1600 | 4 | 4 |
| Hidden Springs | Don | 1450-1500 | 4 | 4 |
| Jarrett-Lahmer | Don | 1500-1550 | 4 | 4 |
| Logan | Credit | 1400-1450 | 4 | 4 |
| **Pugh** | Duffins | 1500-1550 | 4 | 4 |
| **Spang** | Duffins | 1550-1600 | 4 | 4 |

aCalculated on the strong-ties network (BR≥153) in visone.

bCalculated with the entire BR matrix in PAST.

**Supplemental Table 4.** Tests for Normal Distribution of BR Vector Differences between West Duffins Creek Sites and Sites to the West Dating from 1450 to 1650.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Aurora- Jean-Baptiste Lainé | Jean-Baptiste Lainé -Spang | Spang-Draper | Draper-Pugh |
| N | 15 | 15 | 15 | 15 |
| Shapiro-Wilk W | 0.9549 | 0.9094 | 0.9278 | 0.9617 |
|  p(normal) | 0.6051 | 0.1324 | 0.2527 | 0.7216 |
| Anderson-Darling A | 0.2775 | 0.5675 | 0.3756 | 0.2163 |
|  p(normal) | 0.5996 | 0.1184 | 0.3661 | 0.8091 |
|  p(Monte Carlo) | 0.6402 | 0.1214 | 0.3804 | 0.819 |
| Lilliefors L | 0.166 | 0.199 | 0.1443 | 0.1293 |
|  p(normal) | 0.3153 | 0.1075 | 0.5383 | 0.7098 |
|  p(Monte Carlo) | 0.3155 | 0.1045 | 0.5275 | 0.7098 |
| Jarque-Bera JB | 0.7566 | 1.371 | 0.9986 | 0.6589 |
|  p(normal) | 0.685 | 0.5039 | 0.6069 | 0.7193 |
|  p(Monte Carlo) | 0.5311 | 0.2018 | 0.3635 | 0.5837 |

**Supplemental Table 5.** Test for Normal Distribution for BR Vectors between West Duffins Creek Sites and Sites to the West Dating from 1450 to 1650.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Aurora | Jean-Baptiste Lainé | Spang | Draper | Pugh | Best |
| N | 15 | 15 | 15 | 15 | 15 | 15 |
| Shapiro-Wilk W | 0.9616 | 0.9261 | 0.9486 | 0.9769 | 0.9707 | 0.9828 |
|  p(normal) | 0.7205 | 0.2386 | 0.5033 | 0.9444 | 0.8680 | 0.9851 |
| Anderson-Darling A | 0.2167 | 0.5350 | 0.3196 | 0.2007 | 0.2258 | 0.1559 |
|  p(normal) | 0.8081 | 0.1419 | 0.5028 | 0.8542 | 0.7789 | 0.9411 |
|  p(Monte Carlo) | 0.8260 | 0.1501 | 0.5135 | 0.8642 | 0.7936 | 0.9615 |
| Lilliefors L | 0.1183 | 0.2030 | 0.1471 | 0.1438 | 0.1289 | 0.1053 |
|  p(normal) | 0.8253 | 0.0928 | 0.5065 | 0.5433 | 0.7145 | 0.9352 |
|  p(Monte Carlo) | 0.8258 | 0.0878 | 0.5066 | 0.5412 | 0.7117 | 0.9232 |
| Jarque-Bera JB | 0.7976 | 1.4450 | 0.9221 | 0.3978 | 0.2979 | 0.2578 |
|  p(normal) | 0.6711 | 0.4856 | 0.6306 | 0.8196 | 0.8616 | 0.8791 |
|  p(Monte Carlo) | 0.5041 | 0.1761 | 0.4134 | 0.7730 | 0.8458 | 0.8719 |

**Supplemental Table 6.** *F*-test results for BR Vectors Pairs between West Duffins Creek Sites and Sites to the West Dating from 1400 to 1650.

|  |  |  |  |
| --- | --- | --- | --- |
| Sites | n | *F* | Monte Carlo permutation *p*-value |
| Aurora- Jean-Baptiste Lainé | 15 | 1.8855 | 0.2835 |
| Jean-Baptiste Lainé-Spang | 15 | 1.5473 | 0.2024 |
| Spang-Draper | 15 | 1.0562 | 0.9218 |
| Draper-Pugh | 15 | 1.0378 | 0.9355 |
| Pugh-Best | 15 | 1.6861 | 0.3025 |

**Supplemental Table 7.** E-I index results for north-shore sites.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Site | Region | E | I | E-I Index |
| Aurora | 1 | 0.780 | 0.622 | 0.113 |
| Baker  | 2 | 0.615 | 0.978 | -0.228 |
| Best | 1 | 0.742 | 0.685 | 0.040 |
| Black Creek | 4 | 0.709 | 0.614 | 0.072 |
| Damiani  | 4 | 0.774 | 0.662 | 0.078 |
| Draper  | 1 | 0.742 | 0.686 | 0.039 |
| Emmerson Springs | 4 | 0.765 | 0.688 | 0.053 |
| Hidden Springs | 2 | 0.658 | 0.978 | -0.195 |
| Hope | 2 | 0.611 | 0.977 | -0.231 |
| Jarrett-Lahmer | 2 | 0.648 | 1.000 | -0.213 |
| Joseph Picard | 3 | 1.000 | 0.136 | 0.760 |
| Keffer | 2 | 0.644 | 0.967 | -0.201 |
| Jean-Baptiste Lainé | 1 | 0.802 | 0.647 | 0.107 |
| McGaw | 2 | 0.603 | 0.881 | -0.187 |
| McNair | 2 | 0.664 | 0.994 | -0.199 |
| O-M-G  | 2 | 0.546 | 0.899 | -0.244 |
| Parsons | 4 | 0.799 | 0.692 | 0.071 |
| Pugh | 1 | 0.786 | 0.675 | 0.076 |
| Seed-Barker  | 4 | 0.753 | 0.682 | 0.050 |
| Spang | 1 | 0.695 | 0.664 | 0.023 |
| Walkington 2 | 2 | 0.622 | 0.968 | -0.217 |
| Woodbridge | 4 | 0.757 | 0.680 | 0.054 |

**Supplemental Table 8**. Percentages of Simple and Crossed Motifs by Site within SNA Clusters.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Site | Drainage | Date | Simple (%) | Crossed (%) |
| **Aurora** | Duffins | 1600-1650 | 80 | 1 |
| **Jean-Baptiste Lainé** | Duffins | 1600-1650 | 72 | 4 |
| Seed-Barker | Humber | 1550-1600 | 75 | 2 |
| Woodbridge | Humber | 1550-1600 | 66 | 1 |
| Parsons | Humber | 1500-1550 | 70 | 7 |
| Keffer | Don | 1500-1550 | 72 | 8 |
| Damiani | Humber | 1500-1550 | 80 | 8 |
| Emmerson Spring | Credit | 1500-1550 | 83 | 2 |
| McNair | Don | 1450-1500 | 78 | 6 |
| Boyle-Atkinson | Don | 1450-1500 | 78 | 4 |
| Riseborough | Humber | 1400-1450 | 79 | 7 |
| McGaw | Don | 1400-1450 | 86 | 0 |
| **Spang** | Duffins | 1550-1600 | 60 | 36 |
| **Draper** | Duffins | 1550-1600 | 62 | 27 |
| Jarret-Lahmer | Don | 1500-1550 | 63 | 13 |
| Hidden Spring | Don | 1500-1550 | 67 | 16 |
| Pugh | Duffins | 1500-1550 | 60 | 20 |
| Best | Duffins | 1450-1500 | 65 | 22 |
| Logan | Credit | 1400-1450 | 73 | 21 |

**Supplemental Table 9.** Normality tests for West Duffins Creek 1450-1650 Wendake-Tionontaté site BR value vectors.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Pugh-Draper | Draper-Spang | Spang-Jean-Baptiste Lainé | Jean-Baptiste Lainé -Aurora |
| N | 33 | 33 | 33 | 33 |
| Shapiro-Wilk W | 0.9226 | 0.8462 | 0.8043 | 0.8464 |
|  p(normal) | 0.0217 | 0.0002813 | 3.894E-05 | 0.0002834 |
| Anderson-Darling A | 1.11 | 1.906 | 2.23 | 1.606 |
|  p(normal) | 0.005643 | 5.623E-05 | 8.669E-06 | 0.0003178 |
|  p(Monte Carlo) | 0.0052 | 0.0002 | 0.0001 | 0.0006 |
| Lilliefors L | 0.1528 | 0.1822 | 0.203 | 0.1887 |
|  p(normal) | 0.047 | 0.006823 | 0.0001 | 0.00352 |
|  p(Monte Carlo) | 0.0432 | 0.0069 | 0.0016 | 0.004 |
| Jarque-Bera JB | 3.28 | 16.79 | 34.79 | 12.42 |
|  p(normal) | 0.194 | 0.0002264 | 2.787E-08 | 0.002012 |
|  p(Monte Carlo) | 0.0835 | 0.004 | 0.0008 | 0.0096 |