Supporting Online Material for

# A highly precise chronology for the process of Neolithisation in Southern Scandinavia: the ESS Project in Lund, Sweden

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**OXCAL MODEL CODES**

**MODEL 1**

Plot()

 {

 Sequence("ESS object 1")

 {

 Boundary("settlement activities");

 Phase("first phase northern sector/facade 5")

 {

 R\_Date("Beta-375266,hut 3",5190,30)+N(10, 100);

 R\_Date("Beta-371075,hut 7",5030,30);

 R\_Date("Beta-375274,hut 6",5020,30);

 R\_Date("Beta-375262,facade 5",5010,30);

 R\_Date("Beta-362993,hut 1",5000,30);

 R\_Date("Beta-340082,hut 10",4990,30);

 R\_Date("Beta-371061,hut 8",4950,30);

 R\_Date("Beta-371068,oven 20001",4950,40);

 R\_Date("Beta-371067,hut 9",4940,30);

 R\_Date("Beta-375271,hut 5",4940,40);

 R\_Date("Beta-340085,pit",4930,30);

 R\_Date("Beta-371078,oven 20001",4930,30);

 R\_Date("Beta-374038,hut 2",4920,30);

 Span(second phase);

 };

 Boundary("transition/start second settlement phase");

 Phase("second phase southern sector")

 {

 Phase(hut 11)

 {

 R\_Date("LuS-11175,hearth hut 11",4960,35);

 R\_Date("Beta-371070,hearth hut 11",4940,30);

 R\_Date("LuS-11177,layer hut 11",4855,35);

 R\_Date("Beta-374044,hut 11",4840,30);

 };

 R\_Date("Beta-362995,pit",4910,40);

 R\_Date("Beta-371073,posthole under dolmen 3",4910,40);

 Phase(house 1/2)

 {

 R\_Date("Beta-362991,hearth house 1",4910,30);

 R\_Date("Beta-362998,house 2",4820,30);

 };

 Phase(baking ovens south of house 1/2)

 {

 R\_Date("LuS-11174,oven 20001",4925,40);

 R\_Date("LuS-11176,oven 20001",4805,40);

 };

 R\_Date("Beta-371072,pit",4890,30);

 R\_Date("Beta-371074,ditch hut 4",4890,30);

 R\_Date("Beta-375269,hut 12",4890,30);

 R\_Date("Beta-371062,hut 13",4890,30);

 R\_Date("Beta-340087,pit",4880,40);

 R\_Date("Beta-374039,hut 8",4880,30);

 R\_Date("Beta-374041,facade 3",4860,30);

 R\_Date("Beta-371069,oven",4850,40);

 R\_Date("Lu-11172,ritual offering pit",4850,40);

 R\_Date("Lu-11172,facade 1",4835,40);

 R\_Date("Beta-371065,pit",4820,30);

 R\_Date("Beta-371076,hut 15",4810,30);

 R\_Date("Beta-362994,pit",4800,40);

 R\_Date("Beta-377572,hut 9",4800,30);

 R\_Date("LuS-10923,facade 4",4795,45);

 R\_Date("Beta-367671,hut 2",4780,30);

 R\_Date("LuS-10921,inhumation burial",4770,45);

 Span(third phase);

 };

 Boundary("end second phase");

 Boundary("start third phase");

 Phase("third phase dolmens/later settlement activities")

 {

 R\_Date("Beta-374042,hut 10",4750,30);

 R\_Date("Beta-362992,hearth hut 1",4690,30);

 R\_Date("Beta-362997,hearth facade 1",4660,30);

 Phase("dolmens")

 {

 R\_Date("Beta-375261,impression orthostat dolmen 3",4710,30);

 R\_Date("Beta-340086,impression orthostat dolmen 1",4570,30);

 R\_Date("Beta-375267,ditch dolmen 2",4450,30);

 R\_Date("Beta-375268,ditch dolmen 3",4380,30);

 R\_Date("LuS-10981,ditch dolmen 3",3600,45);

 };

 R\_Date("Beta-374040,posthole facade 3",4370,30);

 R\_Date("Beta-375272,ditch hut 5",4340,30);

 R\_Date("Beta-375273,ditch hut 15",4170,30);

 R\_Date("Beta-377575,layer",4010,30);

 R\_Date("LuS-10924,layer hut 6",3590,55);

 Phase(hut 14)

 {

 R\_Date("LuS-10919,posthole hut 14",3880,45);

 R\_Date("Beta-377574,posthole hut 14",3560,30);

 };

 };

 Boundary("end third phase");

 };

 };

**MODEL 2**

Plot()

 {

 Sequence("ESS object 1")

 {

 Boundary("settlement activities");

 Phase("first settlement activities/TPQ")

 {

 R\_Date("Beta-375266,hut 3",5190,30);

 };

 Boundary("transition/start second phase");

 Phase("second phase northern sector/facade 5")

 {

 R\_Date("Beta-371075,hut 7",5030,30);

 R\_Date("Beta-375274,hut 6",5020,30);

 R\_Date("Beta-375262,facade 5",5010,30);

 R\_Date("Beta-362993,hut 1",5000,30);

 R\_Date("Beta-340082,hut 10",4990,30);

 R\_Date("Beta-371061,hut 8",4950,30);

 R\_Date("Beta-371068,oven 20001",4950,40);

 R\_Date("Beta-371067,hut 9",4940,30);

 R\_Date("Beta-375271,hut 5",4940,40);

 R\_Date("Beta-340085,pit",4930,30);

 R\_Date("Beta-371078,oven 20001",4930,30);

 R\_Date("Beta-374038,hut 2",4920,30);

 Span(second phase);

 };

 Boundary("transition/start third phase");

 Phase("third phase southern sector")

 {

 Phase(hut 11)

 {

 R\_Date("LuS-11175,hearth hut 11",4960,35);

 R\_Date("Beta-371070,hearth hut 11",4940,30);

 R\_Date("LuS-11177,layer hut 11",4855,35);

 R\_Date("Beta-374044,hut 11",4840,30);

 };

 R\_Date("Beta-362995,pit",4910,40);

 R\_Date("Beta-371073,posthole under dolmen 3",4910,40);

 Phase(house 1/2)

 {

 R\_Date("Beta-362991,hearth house 1",4910,30);

 R\_Date("Beta-362998,house 2",4820,30);

 };

 Phase(baking ovens south of house 1/2)

 {

 R\_Date("LuS-11174,oven 20001",4925,40);

 R\_Date("LuS-11176,oven 20001",4805,40);

 };

 R\_Date("Beta-371072,pit",4890,30);

 R\_Date("Beta-371074,ditch hut 4",4890,30);

 R\_Date("Beta-375269,hut 12",4890,30);

 R\_Date("Beta-371062,hut 13",4890,30);

 R\_Date("Beta-340087,pit",4880,40);

 R\_Date("Beta-374039,hut 8",4880,30);

 R\_Date("Beta-374041,facade 3",4860,30);

 R\_Date("Beta-371069,oven",4850,40);

 R\_Date("Lu-11172,ritual offering pit",4850,40);

 R\_Date("Lu-11172,facade 1",4835,40);

 R\_Date("Beta-371065,pit",4820,30);

 R\_Date("Beta-371076,hut 15",4810,30);

 R\_Date("Beta-362994,pit",4800,40);

 R\_Date("Beta-377572,hut 9",4800,30);

 R\_Date("LuS-10923,facade 4",4795,45);

 R\_Date("Beta-367671,hut 2",4780,30);

 R\_Date("LuS-10921, inhumation burial",4770,45);

 Span(third phase);

 };

 Boundary("end third phase");

 Boundary("start fourth phase");

 Phase("fourth phase dolmens/later settlement activities")

 {

 R\_Date("Beta-374042,hut 10",4750,30);

 R\_Date("Beta-362992,hearth hut 1",4690,30);

 R\_Date("Beta-362997,hearth facade 1",4660,30);

 Phase("dolmens")

 {

 R\_Date("Beta-375261,impression orthostat dolmen 3",4710,30);

 R\_Date("Beta-340086,impression orthostat dolmen 1",4570,30);

 R\_Date("Beta-375267,ditch dolmen 2",4450,30);

 R\_Date("Beta-375268,ditch dolmen 3",4380,30);

 R\_Date("LuS-10981,ditch dolmen 3",3600,45);

 };

 R\_Date("Beta-374040,posthole facade 3",4370,30);

 R\_Date("Beta-375272,ditch hut 5",4340,30);

 R\_Date("Beta-375273,ditch hut 15",4170,30);

 R\_Date("Beta-377575,layer",4010,30);

 R\_Date("LuS-10924,layer hut 6",3590,55);

 Phase(hut 14)

 {

 R\_Date("LuS-10919,posthole hut 14",3880,45);

 R\_Date("Beta-377574,posthole hut 14",3560,30);

 };

 };

 Boundary("end fourth phase");

 };

 };