Volume 2021 Article 18

2021

The Middle Caddo Period in East Texas: Its Age Range and Phases

Timothy K. Perttula

The Middle Caddo Period in East Texas: Its Age Range and Phases

The Middle Caddo Period in East Texas: Its Age Range and Phases

Timothy K. Perttula

The Middle Caddo Period in East Texas

The Middle Caddo period did not come into clear focus in East Texas archaeological research until Story's (1990) overview of the archaeology of the Western Gulf Coastal Plain. The ceramic styles and types found on Middle Caddo sites set it apart from what came before (i.e., the Early Caddo period) and what came after (the Late Caddo period). It has been generally accepted that sites of the Middle Caddo period in East Texas date from ca. A.D. 1200-1400 (Perttula 2004:378), although site by site this is not a hard and fast temporal boundary (nor should it necessarily be). Nevertheless, it seems warranted now, as our radiocarbon database grows, to take a closer look at the temporal extent of the Middle Caddo period in East Texas to both refine its age as a spatial-temporal unit and clarify relationships between contemporaneous Caddo communities during this era.

Key Temporal Elements

In redefining the age of the Middle Caddo period, I rely on two data sets. The first is the corpus of conventional and calibrated radiocarbon dates that I have assembled from the East Texas Radiocarbon Database and the 2020 CARD (Canadian Archeology Radiocarbon Database) data base provided by Dr. Robert Kelly of the University of Wyoming; this data base hosts all known radiocarbon dates from North America, including the almost 9000 radiocarbon dates from Texas sites. The second is the yearly record of tree rings and standard tree ring indices (i.e., Palmer Drought Severity Index values) that track major periods of drought from A.D. 997-1697 in the East Texas region (Cook et al. 2016:Figure 4b; Kemp 2015; Perttula 2017:37-42). The multi-year drought from A.D. 1445-1460 (see below) is of particular interest in terms of deciding on an end year for the Middle Caddo period.

Calibrated Radiocarbon Dates

There are 395 radiocarbon dates in the Middle Caddo period corpus that have calibrated ages (at 2 sigma) as well as calibrated median probability ages. In delineating those of Middle Caddo age, I began with those assays that have conventional ages of 750 years B.P. or younger, equating with the presumed A.D. 1200 start date of the Middle Caddo period. When calibrated, the calibrated median probabilities of all but one sample fall after A.D. 1252. I used this data to re-set the beginning of the Middle Caddo period at cal. A.D. 1250 (Table 1).

Based again on calibrated median probability ages of the assays, the years with the highest numbers of calibrated ages occur between A.D. 1346-1351, A.D. 1393, A.D. 1407, A.D. 1427, and A.D. 1436 (see Table 1). These are years with a relatively equitable climate, with minimal temperature variance and increased rainfall, marked by rises in tree ring width (Figure 1).

Table 1. Radiocarbon dates in the Middle Caddo period, cal. A.D. 1250-1440.

Site #	Conventional age (B.P.)	Calibrated age (2 sigma) (A.D.)	Calibrated median probability, A.D.
750-490 B.P. series (Conventional ages), Middle Caddo period, cal. A.D. 1250-1440			
41LR36	740 ± 340	657-1698 (0.94)	1236
41CE19	746 ± 136	1025-1434 (1.00)	1252
41CE19	726 ± 224	824-1656 (1.00)	1255
41CE19	750 ± 90	1149-1405 (0.945)	1259
41CP313	750 ± 80	1155-1399 (0.975)	1261
41CE19	750 ± 70	1158-1328 (0.86)	1262
41NA236	750 ± 70	1158-1328 (0.86)	1262
41HP102	730 ± 214	875-1645 (0.99)	1262
41CE19	740 ± 110	1118-1414 ().93)	1264
41NA231	750 ± 50	1203-1308 (0.92)	1264
41RK214	750 ± 50	1203-1308 (0.92)	1264
41FN120	750 ± 30	1224-1291 (1.00)	1268
41TT851	750 ± 30	1224-1291 (1.00)	1268
41CP220	750 ± 30	1224-1291 (1.00)	1268
41TT550	740 ± 80	1156-1404 (0.99)	1269
41LR135	740 ± 80	1156-1404 (0.99)	1269
41TT769	740 ± 70	1164-1327 (0.84)	1270
41CE19	740 ± 70	1164-1327 (0.84)	1270
41BW226	740 ± 40	1220-1303 (0.95)	1271
41NA285	740 ± 40	1220-1303 (0.95)	1271
41CE19	740 ± 60	1199-1324 (0.84)	1271
41RK214	740 ± 60	1199-1324 (0.84)	1271
41CE330	736 ± 29	1241-1293 (0.96)	1271
41CE19	736 ± 90	1152-1411 (0.97)	1271
41LR2	738 ± 36	1223-1301 (0.97)	1273
41CE19	740 ± 16	1264-1287 (1.00)	1275
41PN175	730 ± 30	1253-1301 (0.89)	1277
41RK214	730 ± 50	1218-1321 (0.85)	1277
41SM325	730 ± 40	1222-1305 (0.91)	1277
41TT851	730 ± 30	1253-1301 (0.89)	1277
41NA231	730 ± 60	1204-1327 (0.80)	1278
41RK214	730 ± 60	1204-1327 (0.80)	1278
41SM325	730 ± 60	1204-1327 (0.80)	1278
41CE330	714 ± 25	1260-1299 (0.97)	1279
41CE19	726 ± 81	1161-1407 (1.00)	1280
41CE19	721 ± 23	1266-1300 (0.98)	1281
41RK19	721 ± 31	1257-1305 (0.87)	1281
41CE19	706 ± 155	994-1495 (1.00)	1282
41RK214	720 ± 50	1221-1322 (0.80)	1284

Table 1. Radiocarbon dates in the Middle Caddo period, cal. A.D. 1250-1440, cont.

Site #	Conventional age (B.P.)	Calibrated age (2 sigma) (A.D.)	Calibrated median probability, A.D.
41NA49	716 ± 31	1259-1307 (0.85)	1284
41CS155	720 ± 60	1216-1329 (0.76)	1285
		1335-1396 (0.24)	
41RK214	720 ± 60	1216-1329 (0.76)	1285
		1335-1396 (0.24)	
41WD109	720 ± 80	1167-1405 (1.00)	1285
41BW171	710 ± 110	1149-1436 (0.96)	1288
41RA49	710 ± 40	1255-1321 (0.73)	1289
		1358-1390 (0.23)	
41LR36	710 ± 40	1255-1321 (0.73)	1289
		1358-1390 (0.23)	
41LR39	710 ± 40	1255-1321 (0.73)	1289
		1358-1390 (0.23)	
41SM446	700 ± 25	1272-1305 (0.82)	1289
41RA49	710 ± 40	1255-1321 (0.73)	1289
		1358-1390 (0.23)	
41CP220	700 ± 30	1268-1310 (0.76)	1291
		1361-1387 (0.24)	
41CP220	700 ± 30	1268-1310 (0.76)	1291
		1361-1387 (0.24)	
41TT851	700 ± 30	1268-1310 (0.77)	1291
		1361-1387 (0.24)	
41CE19	710 ± 60	1220-1328 (0.71)	1292
		1336-1396 (0.29)	
41HP106	710 ± 80	1199-1409 (0.98)	1293
41CE19	710 ± 70	1213-1405 (0.99)	1293
41CE19	710 ± 70	1213-1405 (0.99)	1293
41BW171	710 ± 70	1213-1405 (0.99)	1293
41NA49	710 ± 70	1213-1405 (0.99)	1293
41RR16	705 ± 45	1252-1324 (0.68)	1293
		1355-1392 (0.28)	
41RA49	700 ± 40	1260-1324 (0.69)	1295
		1354-1393 (0.30)	
41AN38	700 ± 40	1260-1324 (0.69)	1295
		1354-1393 (0.30)	
41TT851	690 ± 30	1273-1318 (0.69)	1296
		1360-1388 (0.31)	
41RK214	700 ± 50	1226-1327 (0.69)	1298
		1350-1395 (0.31)	
41CE19	700 ± 70	1219-1405 (1.00)	1301
41CE19	700 ± 80	1203-1412 (0.99)	1301

Table 1. Radiocarbon dates in the Middle Caddo period, cal. A.D. 1250-1440, cont.

Site #	Conventional age (B.P.)	Calibrated age (2 sigma) (A.D.)	Calibrated median probability, A.D.
41AN38	690 ± 40	1264-1326 (0.64) 1352-1394 (0.36)	1301
41TT851	690 ± 40	1264-1326 (0.64) 1352-1394 (0.36)	1301
41PN175	680 ± 30	1276-1320 (0.62) 1358-1389 (0.38)	1303
41PN175	680 ± 30	1276-1320 (0.62) 1358-1389 (0.38)	1303
41TT851	680 ± 30	1276-1320 (0.62) 1358-1389 (0.38)	1303
41TT851	680 ± 30	1276-1320 (0.62) 1358-1389 (0.38)	1303
41TT851	680 ± 30	1276-1320 (0.62) 1358-1389 (0.38)	1303
41CP71	690 ± 50	1260-1330 (0.59) 1332-1397 (0.39)	1306
41TT653	690 ± 50	1260-1330 (0.59) 1332-1397 (0.39)	1306
41CP304	690 ± 90	1199-1425 (0.98)	1308
41WD109	690 ± 60	1253-1398 (0.96)	1309
41WD109	690 ± 70	1223-1404 (1.00)	1310
41RK170	690 ± 70	1223-1404 (1.00)	1310
41NA242	690 ± 70	1223-1404 (1.00)	1310
41CE19	690 ± 70	1223-1404 (1.00)	1310
41HS574	680 ± 40	1269-1327 (0.59) 1348-1395 (0.41)	1311
41CP408	680 ± 40	1269-1327 (0.59) 1348-1395 (0.41)	1311
41SM404	680 ± 40	1269-1327 (0.59) 1348-1395 (0.41)	1311
41SM404	680 ± 40	1269-1327 (0.59) 1348-1395 (0.41)	1311
41UR315	666 ± 24	1278-1315 (0.51) 1355-1389 (0.44)	1311
Wade		1278-1316 (0.51) 1355-1390 (0.45)	1312
41HP102	680 ± 108	1156-1447 (0.99)	1312
41CE19	681 ± 99	1167-1435 (1.00)	1313
41NA44	670 ± 140	1033-1494 (1.00)	1313
41HP102	680 ± 100	1165-1437 (1.00)	1314
41CP183	670 ± 30	1278-1322 (0.55) 1356-1391 (0.45)	1315

Table 1. Radiocarbon dates in the Middle Caddo period, cal. A.D. 1250-1440, cont.

Site #	Conventional age (B.P.)	Calibrated age (2 sigma) (A.D.)	Calibrated median probability, A.D.
41PN175	670 ± 30	1278-1322 (0.55) 1356-1391 (0.45)	1315
41TT851	670 ± 30	1278-1322 (0.55) 1356-1391 (0.45)	1315
41CS14	680 ± 81	1218-1422 (1.00)	1317
41HP106	680 ± 80	1219-1420 (1.00)	1317
41HS41	680 ± 80	1219-1420 (1.00)	1317
41WD55	680 ± 57	1260-1403 (0.99)	1317
41RR16	679 ± 86	1212-1427 (0.99)	1317
41CS14	680 ± 70	1226-1406 (1.00)	1318
41CE19	670 ± 40	1274-1327 (0.54) 1344-1395 (0.46)	1320
41HS588	670 ± 40	1274-1327 (0.54) 1344-1395 (0.46)	1320
41TT851	670 ± 40	1274-1327 (0.54) 1344-1395 (0.46)	1320
41CE19	670 ± 90	1213-1436 (1.00)	1322
41RK214	670 ± 50	1271-1397 (1.00)	1323
41WD55	670 ± 81	1223-1421 (1.00)	1324
41HS231	670 ± 60	1261-1408 (0.99)	1325
41CP71	670 ± 60	1261-1408 (0.99)	1325
41RA49	670 ± 60	1261-1408 (1.00)	1325
41WD55	660 ± 80	1252-1422 (0.97)	1331
41DT52	660 ± 81	1226-1423 (1.00)	1331
9-SC	661 ± 31	1276-1324 (0.48) 1346-1394 (0.48)	1333
41RK170	660 ± 70	1259-1421 (0.99)	1333
41HS231	660 ± 60	1266-1409 (1.00)	1334
41BW3	660 ± 40	1278-1328 (0.49) 1337-1396 (0.51)	1334
41BW3	660 ± 57	1270-1405 (1.00)	1334
41RK214	660 ± 50	127501399 (1.00)	1334
41NA248	660 ± 40	1278-1328 (0.49) 1337-1396 (0.51)	1334
41HS846	660 ± 40	1278-1328 (0.49) 1337-1396 (0.51)	1334
41UR133	660 ± 40	1278-1328 (0.49) 1337-1396 (0.51)	1334
41PN175	660 ± 30	1279-1325 (0.51) 1353-1394 (0.49)	1335
41TT851	660 ± 30	1279-1325 (0.51) 1353-1394 (0.49)	1335

Table 1. Radiocarbon dates in the Middle Caddo period, cal. A.D. 1250-1440, cont.

Site #	Conventional age (B.P.)	Calibrated age (2 sigma) (A.D.)	Calibrated median probability, A.D.
41CE19	655 ± 75	1257-1424 (0.98)	1335
41NA49	650 ± 80	1254-1427 (0.98)	1337
41CP304	650 ± 70	1261-1424 (1.00)	1338
41RK214	640 ± 80	1259-1435 (0.99)	1341
41CP304	640 ± 80	1259-1435 (0.99)	1341
41DT50	640 ± 80	1259-1435 (0.99)	1341
41HE80	640 ± 81	1259-1435 (0.99)	1341
41DT50	640 ± 80	1259-1435 (0.99)	1341
41SM55	650 ± 40	1280-1329 (0.46) 1334-1396 (0.54)	1342
41NA231	650 ± 40	1280-1329 (0.46) 1334-1396 (0.54)	1342
41CP408	650 ± 40	1280-1329 (0.46) 1334-1396 (0.54)	1342
41HS15	650 ± 40	1280-1329 (0.46) 1334-1396 (0.54)	1342
41RK214	650 ± 40	1280-1329 (0.46) 1334-1396 (0.54)	1342
41RK214	650 ± 40	1280-1329 (0.46) 1334-1396 (0.54)	1342
41HP175	640 ± 70	1268-1424 (1.00)	1342
X41HE37	640 ± 70	1268-1424 (1.00)	1342
41TT372	640 ± 60	1275-1411 (1.00)	1343
41HS574	630 ± 243	942-1695 (0.93)	1344
41WD55	630 ± 80	1261-1440 (1.00)	1345
41WD55	630 ± 80	1261-1440 (1.00)	1345
41RK170	630 ± 80	1261-1440 (1.00)	1345
41HP175	630 ± 80	1261-1400 (1.00)	1345
41CP304	630 ± 70	1272-1425 (1.00)	1345
41RK214	640 ± 40	1332-1397 (0.58) 1284-1330 (0.42)	1346
41SY92	630 ± 60	1278-1413 (1.00)	1346
41SM325	630 ± 60	1278-1413 (1.00)	1346
41NA44	630 ± 50	1282-1405 (1.00)	1346
41NA242	630 ± 50	1282-1405 (1.00)	1346
41RK214	630 ± 50	1282-1405 (1.00)	1346
41CP220	600 ± 30	1301-1370 (0.75) 1378-1407 (0.25)	1346
41CP220	600 ± 30	1301-1370 (0.75) 1378-1407 (0.25)	1346
41RK693	600 ± 30	1301-1370 (0.75) 1378-1407 (0.25)	1346

Table 1. Radiocarbon dates in the Middle Caddo period, cal. A.D. 1250-1440, cont.

Site #	Conventional age (B.P.)	Calibrated age (2 sigma) (A.D.)	Calibrated median probability, A.D.
41TT852	600 ± 30	1301-1370 (0.75) 1378-1407 (0.25)	1346
41TT852	600 ± 30	1301-1370 (0.75) 1378-1407 (0.25)	1346
41PN175	590 ± 30	1302-1368 (0.73) 1379-1411 (0.27)	1346
41TT853	590 ± 30	1302-1368 (0.73) 1379-1411 (0.27)	1346
41RK693	590 ± 30	1302-1368 (0.73) 1379-1411 (0.27)	1346
41TT851	590 ± 30	1302-1368 (0.73) 1379-1411 (0.27)	1346
41CP408	630 ± 40	1287-1400 (1.00)	1347
41RK214	630 ± 40	1287-1400 (1.00)	1347
41NA248	630 ± 40	1287-1400 (1.00)	1347
41SM273	620 ± 40	1291-1405 (1.00)	1347
41TT853	620 ± 40	1291-1405 (1.00)	1347
41WD60	620 ± 40	1291-1405 (1.00)	1347
41TT851	620 ± 40	1291-1405 (1.00)	1347
41NA49	584 ± 28	1304-1366 (0.71) 1382-1413 (0.29)	1347
41AN51	610 ± 30	1299-1372 (0.76) 1376-1404 (0.24)	1347
41CP220	610 ± 30	1299-1372 (0.76) 1376-1404 (0.24)	1347
41NA242	620 ± 90	1256-1448 (0.99)	1348
41NA49	620 ± 70	1276-1426 (1.00)	1348
41NA49	620 ± 70	1276-1426 (1.00)	1348
41FK107	620 ± 60	1281-1417 (1.00)	1348
41NA231	620 ± 60	128101417 (1.00)	1348
41RK170	620 ± 60	1281-1417 (1.00)	1348
41TT372	620 ± 60	1281-1417 (1.00)	1348
41FK107	620 ± 60	1281-1417 (1.00)	1348
41NA285	620 ± 30	1298-1399 (1.00)	1348
41TT851	620 ± 30	1298-1399 (1.00)	1348
41AN38	610 ± 40	1295-1408 (1.00)	1348
41AN38	610 ± 40	1295-1408 (1.00)	1348
41HS15	610 ± 40	1295-1408 (1.00)	1348
41TT851	620 ± 30	1298-1399 (1.00)	1348
41TT852	620 ± 30	1298-1399 (1.00)	1348
41CE330	569 ± 28	1306-1363 (0.60) 1385-1422 (0.40)	1348

Table 1. Radiocarbon dates in the Middle Caddo period, cal. A.D. 1250-1440, cont.

Site #	Conventional age (B.P.)	Calibrated age (2 sigma) (A.D.)	Calibrated median probability, A.D.
41CP408	610 ± 40	1295-1408 (1.00)	1348
41HS15	610 ± 40	1295-1408 (1.00)	1348
41HS846	610 ± 40	1295-1408 (1.00)	1348
41TT851	620 ± 30	1298-1399 (1.00)	1348
41AN38	600 ± 40	1297-1412 (1.00)	1348
41SM404	600 ± 40	1297-1412 (1.00)	1348
41AN38	600 ± 40	1297-1412 (1.00)	1348
41AN38	600 ± 40	1297-1412 (1.00)	1348
41AN38	600 ± 40	1297-1412 (1.00)	1348
41HS15	600 ± 40	1297-1412 (1.00)	1348
41HS15	600 ± 40	1297-1412 (1.00)	1348
41CP220	580 ± 30	1305-1365 (0.68) 1383-1419 (0.32)	1348
41TT851	580 ± 30	1305-1365 (0.68) 1383-1419 (0.32)	1348
41TT852	580 ± 30	1305-1365 (0.68) 1383-1419 (0.32)	1348
41HE8	572 ± 22	1318-1360 (0.63) 1388-1420 (0.37)	1348
41CP304	630 ± 30	1294-1397 (1.00)	1349
41HP106	610 ± 50	1286-1413 (1.00)	1349
41RK214	610 ± 50	1286-1413 (1.00)	1349
41SM273	590 ± 40	1300-1371 (0.68) 1377-1420 (0.32)	1349
41TT851	590 ± 40	1300-1371 (0.68) 1377-1420 (0.32)	1349
41SM446	578 ± 34	1304-1366 (0.65) 1381-1422 (0.35)	1349
41TT851	650 ± 30	1281-1327 (0.47) 1345-1395 (0.53)	1350
41CP408	650 ± 30	1281-1327 (0.47) 1345-1395 (0.53)	1350
41RK693	650 ± 30	1281-1327 (0.47) 1345-1395 (0.53)	1350
41RK693	570 ± 30	1307-1363 (0.61) 1386-1423 (0.39)	1350
41RK693	570 ± 30	1307-1363 (0.61) 1386-1423 (0.39)	1350
41HP106	610 ± 70	1278-1429 (1.00)	1350
41HP106	610 ± 60	1283-1421 (1.00)	1350

Table 1. Radiocarbon dates in the Middle Caddo period, cal. A.D. 1250-1440, cont.

Site #	Conventional age (B.P.)	Calibrated age (2 sigma) (A.D.)	Calibrated median probability, A.D.
41PN175	570 ± 30	1307-1363 (0.61) 1386-1423 (0.39)	1350
41TT852	570 ± 30	1307-1363 (0.61) 1386-1423 (0.39)	1350
41RK693	570 ± 30	1307-1363 (0.61) 1386-1423 (0.39)	1350
41RK342	590 ± 50	1296-1424 (1.00)	1351
41RK214	610 ± 80	1271-1442 (1.00)	1351
41CS150	600 ± 60	1285-1424 (1.00)	1351
41RK170	580 ± 40	1301-1369 (0.65) 1378-1424 (0.35)	1351
41CP245	580 ± 40	1301-1369 (0.65) 1378-1424 (0.35)	1351
41HS15	580 ± 40	1301-1369 (0.65) 1378-1424 (0.35)	1351
41RK562	580 ± 40	1301-1369 (0.65) 1378-1424 (0.35)	1351
41CP245	580 ± 40	1301-1369 (0.65) 1378-1424 (0.35)	1351
41RK557	580 ± 40	1301-1369 (0.65) 1378-1424 (0.35)	1351
41RK170	580 ± 40	1301-1369 (0.65) 1378-1424 (0.35)	1351
41CE19	610 ± 108	1212-1501 (0.99)	1352
41CE19	610 ± 100	1220-1473 (1.00)	1352
41HE8	651 ± 28	1281-1326 (0.47) 1351-1395 (0.53)	1353
41CE330	637 ± 27	1285-1328 (0.42) 1341-1395 (0.58)	1353
41NA49	601 ± 81	1273-1445 (1.00)	1353
41HP175	590 ± 60	1288-1428 (1.00)	1353
41NA242	590 ± 60	1288-1428 (1.00)	1353
41NA231	590 ± 60	1288-1428 (1.00)	1353
41NA231	580 ± 50	1298-1427 (1.00)	1353
41TT653	580 ± 50	1298-1427 (1.00)	1353
41HS15	570 ± 40	1302-1368 (0.59) 1380-1427 (0.41)	1353
41NA242	570 ± 40	1302-1368 (0.59) 1380-1427 (0.41)	1353
41NA242	570 ± 40	1302-1368 (0.59) 1380-1427 (0.41)	1353

Table 1. Radiocarbon dates in the Middle Caddo period, cal. A.D. 1250-1440, cont.

Site #	Conventional age (B.P.)	Calibrated age (2 sigma) (A.D.)	Calibrated median probability, A.D.
41HS588	570 ± 40	1302-1368 (0.59) 1380-1427 (0.41)	1353
41RK214	570 ± 40	1302-1368 (0.59) 1380-1427 (0.41)	1353
41RK214	570 ± 40	1302-1368 (0.59) 1380-1427 (0.41)	1353
41RK214	570 ± 40	1302-1368 (0.59) 1380-1427 (0.41)	1353
41SM325	570 ± 40	1302-1368 (0.59) 1380-1427 (0.41)	1353
41UR318	638 ± 26	1285-1328 (0.40) 1341-1395 (0.55)	1354
41RK19	645 ± 27	1346-1395 (0.55) 1283-1327 0.45)	1355
41CP304	590 ± 70	1283-1435 (1.00)	1355
41RR204	600 ± 100	1221-1483 (1.00)	1355
41SM56	580 ± 60	1293-1435 (1.00)	1355
41RR77	580 ± 60	1293-1435 (1.00)	1355
41SM193	570 ± 50	1300-1371 (0.58) 1377-1434 (0.42)	1356
41CS1	570 ± 50	1300-1371 (0.58) 1377-1434 (0.42)	1356
41RK214	580 ± 70	1285-1440 (1.00)	1357
41DT11	580 ± 80	1278-1452 (1.00)	1359
41WD55	570 ± 64	1293-1441 (1.00)	1360
41AN38	560 ± 40	1305-1365 (0.53) 1383-1434 (0.47)	1360
41AN38	560 ± 40	1305-1365 (0.53) 1383-1434 (0.47)	1360
41CP408	560 ± 40	1305-1365 (0.53) 1383-1434 (0.47)	1360
41NA242	560 ± 40	1305-1365 (0.53) 1383-1434 (0.47)	1360
41CP183	560 ± 30	1310-1361 (0.51) 1388-1427 (0.49)	1360
41RK693	560 ± 30	1310-1361 (0.51) 1388-1427 (0.49)	1360
41GG69	570 ± 70	1287-1445 (1.00	1361
41CE19	570 ± 80	1277-1458 (1.00)	1364
41RK214	560 ± 60	1298-1443 (1.00)	1365
41CE19	560 ± 60	1298-1443 (1.00	1365
41WD55	560 ± 72	1285-1452 (1.00)	1368

Table 1. Radiocarbon dates in the Middle Caddo period, cal. A.D. 1250-1440, cont.

Site #	Conventional age (B.P.)	Calibrated age (2 sigma) (A.D.)	Calibrated median probability, A.D.
41CE19	570 ± 110	1226-1522 (0.96)	1373
41UR10	555 ± 81	1277-1481 (1.00)	1376
41AN87	550 ± 72	1283-1459 (1.00)	1380
41RK214	550 ± 60	1299-1373 (0.48)	1381
		1376-1448 (0.52)	
41CE19	550 ± 60	1299-1373 (0.48)	1381
		1376-1448 (0.52	
41RK214	570 ± 140	1201-1646 (0.99)	1382
41BW553	550 ± 90	1274-1508 (0.98)	1384
41UR133	550 ± 50	1303-1367 (0.47)	1386
		1380-1443 (0.53)	
41CS14	550 ± 99	1269-1522 (0.96)	1386
41UR133	554 ± 118	1259-1529 (0.90)	1389
41UR133	540 ± 80	1279-1496 (0.99)	1391
41TT11	540 ± 81	1279-1497 (0.99)	1391
41HP175	540 ± 70	1288-1470 (1.00)	1391
41HS15	550 ± 40	1306-1363 (0.45)	1393
		1386-1438 (0.55)	
41HS588	550 ± 40	1306-1363 (0.45)	1393
		1386-1438 (0.55)	
41NA242	550 ± 40	1306-1363 (0.45)	1393
		1386-1438 (0.55)	
41TT13	550 ± 40	1306-1363 (0.45)	1393
		1386-1438 (0.55)	
41RR77	540 ± 60	1300-1371 (0.43)	1393
		1377-1454 (0.57)	
41WD46	540 ± 60	1300-1371 (0.43)	1393
		1377-1454 (0.57)	
41TT13	550 ± 40	1306-1363 (0.45)	1393
		1386-1438 (0.55)	
41CP304	540 ± 60	1300-1371 (0.43)	1393
		1377-1454 (0.57)	
41CP71	555 ± 27	1320-1359 (0.44)	1395
		1389-1428 (0.56)	
41TT653	540 ± 50	1304-1366 (0.41)	1396
		1382-1447 (0.59)	
41CP183	550 ± 30	1320-1359 (0.39)	1398
		1389-1434 (0.61)	
41CP220	550 ± 30	1320-1359 (0.39)	1398
		1389-1434 (0.61)	
41TT852	550 ± 30	1320-1359 (0.39)	1398
		1389-1434 (0.61)	

Table 1. Radiocarbon dates in the Middle Caddo period, cal. A.D. 1250-1440, cont.

Site #	Conventional age (B.P.)	Calibrated age (2 sigma) (A.D.)	Calibrated median probability, A.D.
41AN38	530 ± 60	1299-1373 (0.39) 1376-1459 (0.61)	1400
41NA231	530 ± 60	1299-1373 (0.39) 1376-1459 (0.61)	1400
41NA235	530 ± 60	1299-1373 (0.39) 1376-1459 (0.61)	1400
41SM54	540 ± 40	1310-1361 (0.36) 1388-1443 (0.64)	1401
41AN38	540 ± 40	1310-1361 (0.36) 1388-1443 (0.64)	1401
41HS15	540 ± 40	1310-1361 (0.36) 1388-1443 (0.64)	1401
41HP159	530 ± 50	1305-1364 (0.34) 1384-1452 (0.66)	1403
41BW2	542 ± 30	1391-1436 (0.70) 1322-1356 (0.30)	1404
41RK19	540 ± 30	1323-1356 (0.27) 1392-1436 (0.73)	1405
41TT851	540 ± 30	1323-1356 (0.27) 1392-1436 (0.73)	1405
41TT853	540 ± 30	1323-1356 (0.27) 1392-1436 (0.73)	1405
41CE19	536 ± 127	1258-1644 (0.99)	1405
41WD55	520 ± 80	1284-1513 (0.97)	1406
41NA231	520 ± 70	1292-1496 (0.99)	1406
41NA49	540 ± 25	1394-1432 (0.79) 1325-1353 (0.21)	1407
41CP408	530 ± 40	1319-1360 (0.27) 1389-1447 (0.73)	1407
41SM195	530 ± 40	1319-1360 (0.27) 1389-1447 (0.73)	1407
41CP304	530 ± 40	1319-1360 (0.27) 1389-1447 (0.73)	1407
41NA235	530 ± 40	1319-1360 (0.27) 1389-1447 (0.73)	1407
41HS588	530 ± 40	1319-1360 (0.27) 1389-1447 (0.73)	1407
41HS15	530 ± 40	1319-1360 (0.27) 1389-1447 (0.73)	1407
41HP116	520 ± 81	1284-1517 (0.97)	1407
41CP71	520 ± 60	1300-1370 (0.33) 1378-1475 (0.67)	1407

Table 1. Radiocarbon dates in the Middle Caddo period, cal. A.D. 1250-1440, cont.

Site #	Conventional age (B.P.)	Calibrated age (2 sigma) (A.D.)	Calibrated median probability, A.D.
41CE19	520 ± 90	1281-1523 (0.94)	1408
41NA235	520 ± 50	1307-1363 (0.28)	1410
		1386-1456 (0.72)	
41TT851	530 ± 30	1394-1439 (0.84)	1411
41TT852	530 ± 30	1394-1439 (0.84)	1411
41HS15	520 ± 40	1391-1450 (0.81)	1413
41TT852	520 ± 40	1391-1450 (0.81)	1413
41RR11	510 ± 70	1297-1508 (0.98)	1413
41SY92	510 ± 60	1301-1370 (0.27)	1414
		1378-1490 (0.73)	
41CP408	520 ± 30	1395-1444 (0.93)	1415
41TT852	520 ± 30	1395-1444 (0.93)	1415
41TT852	520 ± 30	1395-1444 (0.93)	1415
41TT852	520 ± 30	1395-1444 (0.93)	1415
41NA49	522 ± 27	1395-1442 (0.96)	1415
41CP71	510 ± 50	1308-1362 (0.22)	1415
		1387-1461 (0.78)	
41RK19	518 ± 28	1395-1444 (0.97)	1417
41HP102	510 ± 99	1283-1526 (0.88)	1418
Hickory Cr.	510 ± 40	1393-1454 (0.88)	1418
41HS15	510 ± 40	1393-1454 (0.88)	1418
41HS15	510 ± 40	1393-1454 (0.88)	1418
41HS825		1330-1441 (1.00)	1419
41NA49	511 ± 27	1397-1446 (1.00)	1420
41HE338	510 ± 30	1396-1448 (0.98)	1420
41FN125	510 ± 30	1396-1448 (0.98)	1420
41TT852	510 ± 30	1396-1448 (0.98)	1420
41TT852	510 ± 30	1396-1448 (0.98)	1420
41TT852	510 ± 30	1396-1448 (0.98)	1420
41SY92	500 ± 60	1380-1499 (0.77)	1420
		1303-1367 (0.21)	
41CP304	500 ± 70	1376-1520 (0.715)	1421
		1299-1373 (0.244)	
41RK14	500 ± 50	1388-1478 (0.85)	1421
41AN38	500 ± 40	1394-1457 (0.93)	1423
41HE139	500 ± 40	1394-1457 (0.93)	1423
41HS15	500 ± 40	1394-1457 (0.93)	1423
41HS15	500 ± 40	1394-1457 (0.93)	1423
41RK468	500 ± 40	1394-1457 (0.93)	1423
41SM325	500 ± 40	1394-1457 (0.93)	1423
41HE338	500 ± 30	1400-1449 (1.00)	1424
41TT851	500 ± 30	1400-1449 (1.00)	1424

Table 1. Radiocarbon dates in the Middle Caddo period, cal. A.D. 1250-1440, cont.

Site #	Conventional age (B.P.)	Calibrated age (2 sigma) (A.D.)	Calibrated median probability, A.D.
41TT853	500 ± 30	1400-1449 (1.00)	1424
41WD52	502 ± 25	1405-1444 (1.00)	1424
41WD52	493 ± 26	1407-1447 (1.00)	1427
41BW171	490 ± 50	1389-1494 (0.89)	1427
41BW171	490 ± 50	1389-1494 (0.89)	1427
41AN38	490 ± 40	1395-1461 (0.96)	1427
41NA235	490 ± 40	1395-1461 (0.96)	1427
41TT852	490 ± 40	1395-1461 (0.96)	1427
41CP408	490 ± 40	1395-1461 (0.96)	1427
41HS15	490 ± 40	1395-1461 (0.96)	1427
41HS15	490 ± 40	1395-1461 (0.96)	1427
41RK558	490 ± 40	1395-1461 (0.96)	1427
41WD482	490 ± 60	1383-1511 (0.8)	1427
41AN87	490 ± 72	1379-1523 (0.72) 1301-1369 (0.20)	1428
41AN87	490 ± 72	1379-1523 (0.72) 1301-1369 (0.20)	1428
41HP175	490 ± 70	1379-1522 (0.74) 1302-1368 (0.19)	1428
41CP408	490 ± 30	1405-1452 (1.00)	1428
41TT852	490 ± 30	1405-1452 (1.00)	1428
41TT852	490 ± 30	1405-1452 (1.00)	1428
41HP175	490 ± 80	1377-1525 (0.68 1300-1371 (0.21)	1430
41CP304	480 ± 40	1396-1478 (0.99)	1431
41HS15	480 ± 40	1396-1478 (0.99)	1431
41CP408	480 ± 40	1396-1478 (0.99)	1431
41RK19	480 ± 31	1407-1455 (1.00)	1432
41TT851	480 ± 30	1408-1454 (1.00)	1432
41TT852	480 ± 30	1408-1454 (1.00)	1432
41TT853	480 ± 30	1408-1454 (1.00)	1432
Eli Fields		1410-1453 (1.00)	1433
41CP304	490 ± 90	1298-1527 (0.85)	1433
41SB50	476 ± 23	1417-1452 (1.00)	1433
41RR11	480 ± 60	1387-1521 (0.83)	1434
41CP71	472 ± 28	1411-1456 (1.00)	1435
41CP220	470 ± 30	1409-1458 (1.00)	1435
41CP220	470 ± 30	1409-1458 (1.00)	1435
41UR10	490 ± 100	1295-1530 (0.82)	1436
41LR297	470 ± 40	1397-1491 (1.00)	1436
41NA236	470 ± 40	1397-1491 (1.00)	1436
41HS588	470 ± 40	1397-1491 (1.00)	1436

Table 1. Radiocarbon dates in the Middle Caddo period, cal. A.D. 1250-1440, cont.

Site #	Conventional age (B.P.)	Calibrated age (2 sigma) (A.D.)	Calibrated median probability, A.D.
41SM404	470 ± 40	1397-1491 (1.00)	1436
41RK557	470 ± 40	1397-1491 (1.00)	1436
41CP220	470 ± 40	1397-1491 (1.00)	1436
41HS15	470 ± 40	1397-1491 (1.00)	1436
41UR105	490 ± 108	1291-1638 (1.00)	1438

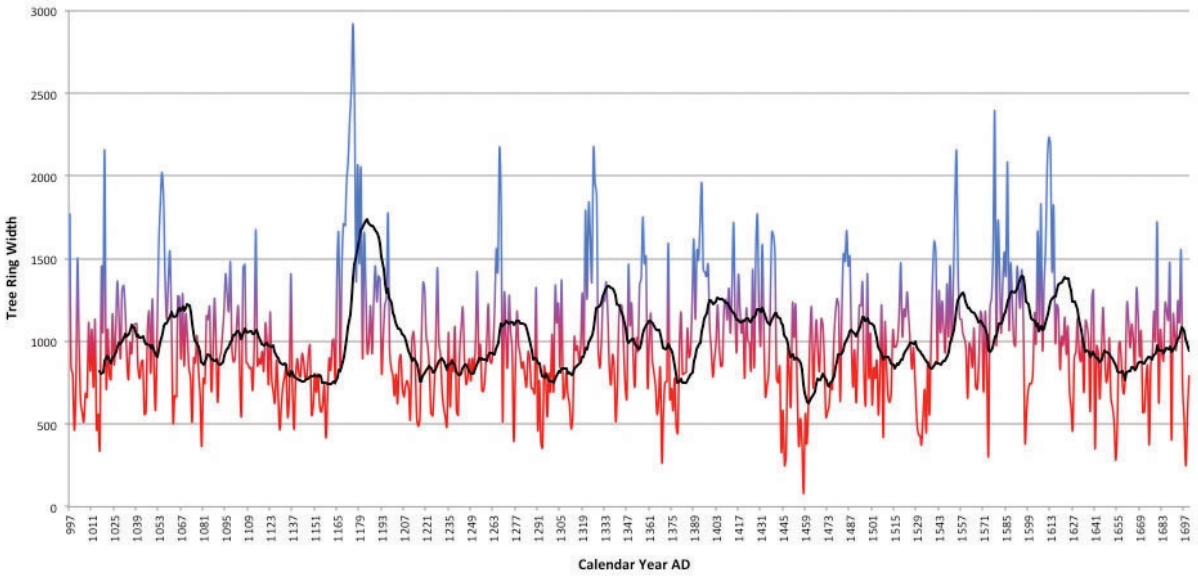

Figure 1. Northwest Louisiana tree ring data with 20 year moving averages (Perttula 2017:Figure 19).

Multi-year Drought A.D. 1444-1460

The tree ring data from Northwest Louisiana indicates that the driest conditions and the worse drought in the region from A.D. 997 (the beginning of the tree-ring record) took place between A.D. 1444-1460 (see Figure 1). This was a significant and spatially extensive droughty period (see Cook et al. 2016:Figure 4b; Perttula 2017:Figure 20). After this, there were other significant droughts between A.D. 1529-1540, A.D. 1566-1575, and A.D. 1599-1602, all in the Late Caddo period (see Figure 1). The mean tree ring width between A.D. 1444-1460 in the region was 375.5, the lowest values in post-A.D. 1400 droughty periods except for the two short years of A.D. 1573-1574 (304.0) (Perttula 2013:Table 3.2).

The mega-drought period of A.D. 1444-1460 in East Texas was not only a very important climatic episode, it surely had cultural significance for ancestral Caddo peoples living before, during, and after this drought, given the nature of the archaeological record from pre-A.D. 1440 to post-A.D. 1440 times. The before and after mega-drought period divides the Middle Caddo period (ca. A.D. 1250-1440) from the Late Caddo period (ca. A.D. 1440-1690).

Conclusions

I have argued that the revised extent and age of the Middle Caddo period in East Texas is from ca. A.D. 1250-1440 (employing calibrated median probability ages from 395 calibrated radiocarbon dates). This age range situates "material remains in space and time" through "improved chronological controls for studying change as a process" (Feinman and Neitzel 2020). This spatial-temporal unit is a broad designation for a dynamic period of time for Caddo peoples and their variable and localized social institutions (Figure 2), not a static culture history box. Calibrated median probability ages have been used to set the beginning of the period at cal. A.D. 1250 while the A.D. 1444-1460 mega-drought separates the end of the Middle Caddo period at cal. A.D. 1440 from the beginning of the Late Caddo period.

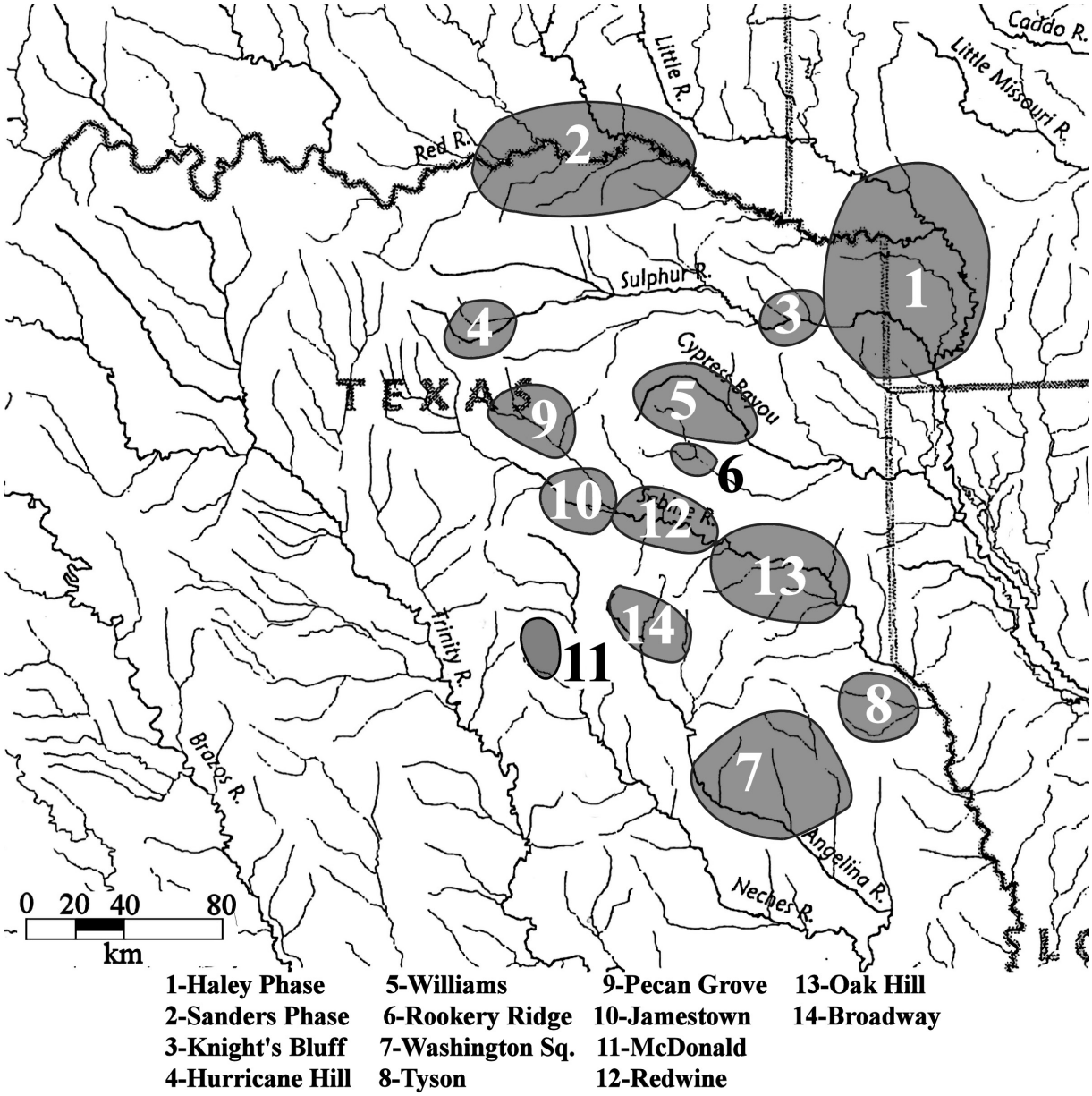

Figure 2. Hypothetical Middle Caddo period social-cultural communities, groups, and phases in Southwest Arkansas, Southeast Oklahoma, and East Texas.

References Cited

Cook, B. I., E. R. Cook, J. E. Smerdon, R. Seager, A. P. Williams, S. Coats, D. W. Stahle, and J. Villanueva Diaz

2016 North American megadroughts in the Common Era; reconstructions and simulations. *Climate Change*, doi:10.1002/wcc.394.

Feinman, G. M. and J. E. Neitzel

2020 Excising culture history from contemporary archaeology. *Journal of Anthropological Archaeology* 60:101230.

Kemp, L.

2015 Regional considerations and drought history. In *Data Recovery Investigations: Murvaul Creek Site (41PN175), Panola County, Texas*, by A. McKee, C. D. Frederick, T. K. Perttula, R. Z. Selden Jr., L. Bush, L. Kemp, B. Gregory, C. Yost, L. Scott Cummings, J. R. Ferguson, M. D. Glascock, S. Tomka, L. Cecil, C. Masiello, X. Gao, C. Goodmaster, amd V. Beasley III, pp. 115-131. Archeological Studies Program Report 165. Texas Department of Transportation, Environmental Affairs Division, Austin.

Perttula, T. K.

2004 The Prehistoric and Caddoan Archeology of the Northeastern Texas Pineywoods. In *The Prehistory of Texas*, edited by T. K. Perttula, pp. 370-407. Texas A&M University Press, College Station.

2013 Risky Business: Caddo Farmers Living at the Edge of the Eastern Woodlands. In *Comparative Archaeology and Paleoclimatology: Socio-cultural responses to a changing world*, edited by M. O. Baldia, T. K. Perttula, and D. S. Frink, pp. 21-34. BAR International Series 2456. Archaeopress, Oxford, England.

2017 *Caddo Landscapes in the East Texas Forests*. Oxbow Books, Oxford, England

Reimer, P., W. E. N. Austin, E. Bard, A. Bayliss, P. Blackwell, C. Bronk Ramsey, M. Butzin, H. Cheng, R. Edwards, M. Friedrich, P. M. Grootes, T. P. Guilderson, I. Hajdas, T. J. Heaton, A. G. Hogg, K. A. Hughen, B. Kromer, S. W. Manning, R. Muscheler, J. G. Palmer, C. Pearson, J. van der Plicht, R. W. Reimer, D. A. Richards, E. M. Scott, J. R. Southon, C. S. M. Turney, L. Wacker, F. Adolphi, U. Büntgen, M. Capano, S. M. Fahrni, A. Fogtmann-Schulz, R. Friedrich, P. Köhler, S. Kudsk, F. Miyake, J. Olsen, F. Reinig, M. Sakamoto, A. Sookdeo, and S. Talamo.

2020 The IntCal20 Northern Hemisphere radiocarbon age calibration curve (0–55 cal kBP). *Radiocarbon* 62:1-33.

Story, D. A.

1990 Cultural History of the Native Americans. In *The Archeology and Bioarcheology of the Gulf Coastal Plain*, by D. A. Story, J. A. Guy, B. A. Burnett, M. D. Freeman, J. C. Rose, D. G. Steele, B. W. Olive, and K. J. Reinhard, pp. 163-366. 2 Vols. Research Series No. 38. Arkansas Archeological Survey, Fayetteville.

Stuiver, M., P. J. Reimer, and R. W. Reimer

2020 CALIB 8.2 at http://calib.org, accessed November 29, 2020.