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Data Repository

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Table S1. Description of section RR-2

Landform: T-0b floodplain complex.
 GPS Location: -99.2005, 40.07048 (NAD 83)
 Slope: 0%
 Parent material: Alluvium
 Elevation above river channel: 1.5 m
 Remarks:

| Depth (cm) | Soil Horizon | Description |
|---------------|-----------------|---|
| Soil 1 | | |
| 0-5 | A | Brown (10YR 5/3) loamy fine sand, brown (10YR 4/3) moist; weak medium and fine granular structure; very soft, very friable; many very fine and fine and common medium roots; gradual smooth boundary. |
| 5-15 | AC | Brown (10YR 5/3) very fine sand, brown (10YR 4/3) moist; very weak fine granular structure; very soft, very friable; common very fine and fine and few medium roots; clear smooth boundary. |
| 15-51 | C1 | Pale brown (10YR 6/3) fine sand, brown (10YR 5/3) moist; single grain; loose; many very fine and fine and common medium roots; abrupt wavy boundary. |
| 51-92 | C2 | Stratified pale brown (10YR 6/3) and brown (10YR 5/3) coarse and very coarse sand interbedded with fine gravel; single grain; loose; many very fine and fine and common medium roots; abrupt wavy boundary. |
| 92-150 | C3 | Brown (10YR 5/3) coarse and very coarse sand; single grain; loose; few cobble-size clasts in the sandy matrix; few very fine and fine roots. |

Table S2. Description of core A-3.

| Landform: T-0b floodplain complex | | |
|--|-----------------|--|
| GPS Location: -99.421956, 40.103774 (NAD 83) | | |
| Slope: 0% | | |
| Parent material: Alluvium | | |
| Elevation above river channel: 1.0 m | | |
| Remarks: | | |
| Depth (cm) | Soil Horizon | Description |
| Soil 1 | | |
| 0-5 | A | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular; slightly hard, friable; many fine and very fine roots; common very fine pores; clear boundary. |
| 5-34 | AC | Grayish brown (10YR 5/2) silt loam, dark grayish brown (10YR 4/2) moist; weak subangular block structure parting to moderate medium and fine granular structure; soft, friable; common very fine roots; common very fine pores; abrupt boundary. |
| Soil 2 | | |
| 34-45 | Ab | Dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; slightly hard, friable; common fine and few very fine roots; common very fine pores; common worm casts; clear boundary. |
| 45-70 | C1b | Grayish brown (10YR 5/2) loam grading down to medium-very coarse sand, dark grayish brown (10YR 4/2) moist; massive; soft, friable; common fine and very fine roots; abrupt boundary. |
| 70-150 | C2b | Pale brown (10YR 6/3) coarse-very coarse sand and very fine pebble gravel, brown (10YR 5/3) moist; single grain; loose; common fine roots. |

Table S3. Description of section RR-1

Landform: T-0c floodplain complex.
 GPS Location: -99.201054, 40.070729 (NAD 83)
 Slope: 0%
 Parent material: Alluvium
 Elevation above river channel: 3.3 m
 Remarks: Soil organic matter from the upper 10 cm of Soil 2 (96-106 cm) yielded a radiocarbon ages of 430±30 yr. B.P.

| Depth (cm) | Soil Horizon | Description |
|---------------|-----------------|---|
| Soil 1 | | |
| 0-5 | A | Brown (10YR 5/3) gravelly loamy sand, brown (10YR 4/3) moist; very weak fine subangular blocky structure; very soft, very friable; many granules and fine pebbles (40-50%); many fine and very fine and common medium roots; gradual smooth boundary. |
| 5-15 | AC | Pale brown (10YR 6/3) loamy fine sand; very weak fine subangular blocky structure; very soft, very friable; many fine and very fine roots; many worm casts and open worm and insect burrows; gradual smooth boundary. |
| 15-53 | C1 | Laminated pale brown (10YR 6/3) and brown (10YR 5/3) fine and very fine sand, brown (10YR 5/3 and 4/3) moist; massive parting to single grain; very soft, loose; many very fine and common fine roots; abrupt smooth boundary. |
| 53-78 | C2 | Brown (10YR 4/3) loamy fine sand, dark brown (10YR 3/3) moist; massive parting to single grain; very soft, loose; many very fine and common fine roots; abrupt wavy boundary. |
| 78-96 | C3 | Laminated very pale brown (10YR 7/3) fine sand, pale brown (10YR 6/3) moist; massive parting to single grain; very soft, loose; common fine roots; abrupt smooth boundary. |
| Soil 2 | | |
| 96-106 | Ab | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure parting to moderate medium granular; slightly hard, friable; many very fine and common fine roots; many worm casts and open worm and insect burrows; clear smooth boundary. |
| 106-135 | Akb | Grayish brown (10YR 5/2) silt loam, dark grayish brown (10YR |

4/2) moist; moderate medium subangular blocky structure parting to weak fine subangular blocky and moderate fine granular; slightly hard, friable; few (1%) fine threads of calcium carbonate; common very fine and fine roots; many worm casts and open worm and insect burrows; gradual smooth boundary.

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|----------|-----|---|
| 135-150 | ACb | Brown (10YR 5/3) loamy fine sand, brown (10YR 4/3) moist; very weak fine subangular blocky structure; very soft, very friable; many very fine and common fine roots; clear smooth boundary. |
| 150-200+ | Cb | Yellowish brown (10YR 5/4) fine sand, dark yellowish brown (10YR 4/4) moist; single grain; loose; few fine and very fine roots. |

Table S4. Description of core A-2.

Landform: T-0c floodplain complex
 GPS Location: -99.423556, 40.094288 (NAD 83)
 Slope: 0%
 Parent material: Alluvium
 Elevation above river channel: 3.0 m
 Remarks: Soil organic matter from the upper 5 cm of the Ak1b1 horizon (100-105 cm) and the lower 5 cm of the Ak2b1 horizon (137-142 cm) of Soil 2 yielded radiocarbon ages of 970 ± 25 and 1515 ± 25 yr. B.P., respectively. Soil organic matter from the upper 5 cm of the Akb2 horizon (198-208 cm) of Soil 3 yielded a radiocarbon age of 1775 ± 30 yr. B.P. Also, a plant macrofossil at a depth of 379 cm in the C3b2 horizon of Soil 3 yielded a modern radiocarbon age.

| Depth (cm) | Soil Horizon | Description |
|---------------|-----------------|---|
| Soil 1 | | |
| 0-15 | Ap | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium to fine granular structure; slightly hard, friable; common medium, fine, and many very fine roots; common medium and very fine pores; clear boundary. |
| 15-45 | A | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium to fine subangular blocky structure parting to moderate fine granular structure; slightly hard, friable; common very fine roots; many fine and very fine pores; common worm casts and cast filled burrows; clear boundary. |
| 45-70 | Bw | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; weak medium and fine subangular blocky structure; slightly hard, friable; common fine and very fine roots; common very fine pores; clear boundary. |
| 70-100 | Bk | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable; few fine threads and flecks of calcium carbonate; few fine and very fine roots; common fine and many very fine pores; abrupt boundary. |
| Soil 2 | | |
| 100-125 | Ak1b1 | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure parting to moderate fine granular; slightly hard, friable; common fine threads of calcium carbonate; common very fine |

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| | | roots; few fine and many very fine pores; gradual boundary. |
| 125-142 | Ak2b1 | Dark gray (10YR 4/1) silt loam, very dark gray (10YR 3/1) moist; moderate medium and fine subangular blocky structure parting to moderate fine granular; hard, friable; common fine threads of calcium carbonate; few very fine roots; common fine and many very fine pores; gradual boundary |
| 142-178 | C1b1 | Light brownish gray (10YR 6/2) silt loam, grayish brown (10YR 5/2) moist; massive; very soft, very friable; common fine and many very fine pores; abrupt boundary. |
| 178-198 | C2b1 | Grayish brown (10YR 5/2) silt loam, dark grayish brown (10YR 4/2) moist; massive; very soft, very friable; many very fine pores; abrupt boundary. |
| | | Soil 3 |
| 198-230 | Akb2 | Dark gray (10YR 4/1) silt loam, very dark gray (10YR 3/1) moist; weak medium and fine subangular blocky structure parting to moderate fine granular; slightly hard, friable; few fine threads of calcium carbonate and few fine (1-3 mm) hard carbonate masses; common fine and many very fine pores; common worm casts; clear boundary. |
| 230-275 | C1b2 | Pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; soft, very friable; few fine and many very fine pores; abrupt boundary. |
| 275-330 | C2b2 | Laminated light brownish gray (10YR 6/2) silt loam, grayish brown (10YR 5/2) moist; massive; slightly hard, friable; many fine and very fine pores; abrupt boundary. |
| 330-379 | C3b2 | Gray (10YR 5/1) silt loam, dark gray (10YR 4/1) moist; massive; soft, friable; common very fine pores; abrupt boundary. |
| 379-420+ | C4b2 | Pale brown (10YR 6/3) medium-coarse sand, brown (10YR 5/3) moist; massive parting to single grain; very soft, very friable. |

Table S5. Description of core A-5.

| Landform: T-1 terrace | | |
|---|--------------|--|
| GPS Location: -99.401227, 40.084265 (NAD 83) | | |
| Slope: 1% | | |
| Parent material: Alluvium | | |
| Elevation above river channel: 6.6 m | | |
| Remarks: Soil organic matter from the upper 10 cm of Soil 2 (48-58 cm), Soil 3 (158-168) and Soil 4 (208-218 cm) yielded radiocarbon ages of 1015±30, 3505±35, and 4105±40 yr. B.P., respectively. Soil organic matter from the Btk3b3 horizon of Soil 4 (330-340 cm) yielded a radiocarbon age of 9115±60 yr. B.P. | | |
| Depth (cm) | Soil Horizon | Description |
| Soil 1 | | |
| 0-20 | A | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; slightly hard, friable; common medium, many fine and very fine roots; common very fine pores; common worm casts; gradual boundary. |
| 20-48 | Bw | Grayish brown (10YR 5/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure parting to weak medium and fine granular; slightly hard, friable; many fine and very fine roots; common medium and many very fine pores; common worm casts in macropores; clear boundary. |
| Soil 2 | | |
| 48-83 | Ab1 | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine granular structure; slightly hard, friable; few fine and very fine roots; few medium and many very fine pores; common worm casts; gradual boundary. |
| 83-120 | Bkb1 | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable; few fine threads of calcium carbonate and few films on ped faces; common fine and very fine roots; few medium, common fine and many very fine pores; gradual boundary. |
| 120-158 | Ckb1 | Pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; soft, friable; very few fine threads of calcium carbonate; few fine and very fine roots; common very fine pores; abrupt boundary. |
| Soil 3 | | |
| 158-180 | Akb2 | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown |

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|---------|--------|---|
| | | (10YR 3/2) moist; weak fine subangular blocky structure parting to moderate medium and fine granular; slightly hard, friable; few fine threads of calcium carbonate; many very fine pores; gradual boundary. |
| 180-208 | Ckb2 | Pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; very soft, friable; very few fine threads of calcium carbonate; few fine and very fine roots; common very fine pores; abrupt boundary. |
| 208-230 | Akb3 | Soil 4 Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, friable; common fine threads of calcium carbonate; few fine and very fine roots; many fine and very fine pores; many worm casts; clear boundary. |
| 230-280 | Btk1b3 | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable; few distinct discontinuous dark grayish brown (10YR 4/2) clay films on ped faces; common fine threads of calcium carbonate; common fine and many very fine pores; gradual boundary. |
| 280-310 | Btk2b3 | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable; common distinct discontinuous dark grayish brown (10YR 4/2) clay films on ped faces; common fine threads and films on ped faces of calcium carbonate; many very fine pores; gradual boundary. |
| 310-350 | Btk3b3 | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable; few distinct discontinuous dark grayish brown (10YR 4/2) clay films on ped faces; common fine threads of calcium carbonate; many very fine pores; gradual boundary. |
| 350-370 | BCKb3 | Pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; soft, friable; few fine threads of calcium carbonate; many very fine pores; gradual boundary. |
| 370-412 | Ckb3 | Pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; very soft, friable; very few fine threads of calcium carbonate; common very fine pores; abrupt boundary. |

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| 412-467 | C1b3 | Stratified pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; very soft, very friable; abrupt boundary. Contains 1-2 cm-thick beds of light brownish gray (10YR 6/2) fine sand, grayish brown (10YR 5/2) moist; single grain; loose. |
| 467-550+ | C2b3 | Light brownish gray (10YR 6/2) medium-coarse sand, grayish brown (10YR 5/2) moist; single grain; loose. Contains medium to coarse chalk pebble gravel at 450 cm. |

Table S6. Description of core B-1.

Landform: T-2 terrace
 GPS Location: -99.372767, 40.078407 (NAD 83)
 Slope: 1%
 Parent material: Loess mantled alluvium
 Elevation above river channel: 13.9 m
 Remarks: Soil organic matter from the Btkb1 horizon of Soil 2 (250-255 cm) yielded a radiocarbon age of 9250±60 yr. B.P.

| Depth (cm) | Soil Horizon | Description |
|---------------|-----------------|---|
| Soil 1 | | |
| 0-15 | Ap | Dark grayish brown (10YR 4/2) silt loam, dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, friable; many fine and very fine roots; many fine and very fine pores; many worm casts; clear boundary. |
| 15-40 | A | Dark grayish brown (10YR 4/2) silt loam, dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure parting to moderate medium granular; slightly hard, friable; common fine and very fine roots; common fine and very fine pores; many worm casts and cast filled burrows; clear boundary. |
| 40-58 | AB | Dark grayish brown (10YR 4/2) silt loam, dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure parting to moderate fine granular; slightly hard, friable; common fine and many very fine roots; common fine and many very fine pores; common worm casts and cast filled burrows; clear boundary. |
| 58-80 | Bk1 | Grayish brown (10YR 5/2) silt loam, dark grayish brown (10YR 4/2) moist; weak medium prismatic structure parting to weak medium and fine subangular blocky; slightly hard, friable; few fine threads of calcium carbonate and few films on ped faces; common fine and very fine roots; common fine and many very fine pores; common worm cast filled burrows; gradual boundary. |
| 80-108 | Bk2 | Grayish brown (10YR 5/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable; common fine threads of calcium carbonate, few films on ped faces, few 0.5-1 cm hard carbonate masses at 105-108 cm; common fine and very fine roots; many very fine pores; clear boundary. |

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| 108-140 | BCK | Light brownish gray (10YR 6/2) silt loam, grayish brown (10YR 5/2) moist; weak medium prismatic structure parting to weak medium and fine subangular blocky; slightly hard, friable; few fine threads of calcium carbonate; common very fine roots; many very fine pores; gradual boundary. |
| 140-190 | Ck1 | Light brownish gray (10YR 6/2) silt, grayish brown (10YR 5/2) moist; massive; slightly hard, friable; few fine threads of calcium carbonate; few very fine roots; common fine and very fine pores; gradual boundary. |
| 190-216 | Ck2 | Light brownish gray (10YR 6/2) silt loam, grayish brown (10YR 5/2) moist; massive; soft, friable; few fine threads of calcium carbonate; few very fine roots; common fine and very fine pores; abrupt boundary. |
| 216-235 | C | Pale brown (10YR 6/3) loamy sand, brown (10YR 5/3) moist; massive parting to single grain; soft, friable; few very fine roots; few very fine pores; abrupt boundary. |
| Soil 2 | | |
| 235-300 | Btkb | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable; few distinct discontinuous brown (10YR 4/3) clay films on ped faces; common fine and few very fine threads of calcium carbonate; few medium and common very fine pores; common worm cast filled burrows; gradual boundary. |
| 300-353 | Bkb | Light brownish gray (10YR 6/2) silt loam, grayish brown (10YR 5/2) moist; weak medium prismatic structure parting to weak fine subangular blocky; slightly hard, friable; common fine and few very fine threads of calcium carbonate; many very fine pores; gradual boundary. |
| 353-410 | Ck1b | Pale brown (10YR 6/3) silt, brown (10YR 5/3) moist; massive; very soft, very friable; very few very fine threads of calcium carbonate; common fine and many very fine pores; gradual boundary. |
| 410-535 | Ck2b | Stratified, pale brown (10YR 6/3) silt, brown (10YR 5/3) moist; massive; very soft, very friable; very few very fine threads of calcium carbonate; few fine and many very fine pores; abrupt boundary. Contains 5-10 cm-thick beds of pale brown (10YR 6/3) loamy sand; massive; slightly hard, friable; abrupt boundary. |

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| 535-600 | Ck3b | Pale brown (10YR 6/3) silt, brown (10YR 5/3) moist; massive; very soft, very friable; very few very fine threads of calcium carbonate; few fine and many very fine pores; gradual boundary. |
| 600-766 | C1b | Pale brown (10YR 6/3) silt, brown (10YR 5/3) moist; massive; very soft, very friable; common fine and many very fine pores; abrupt boundary. |
| 766-840+ | 2C2b | Stratified, pale brown (10YR 6/3) silt, brown (10YR 5/3) moist; massive; very soft, very friable; few fine and many very fine pores; abrupt boundary. Contains 5-15 cm-thick beds of brown (10YR 5/3) coarse-very coarse sand and very fine pebble gravel; single grain; loose. |

Table S7. Description of core C-1.

Landform: T-2 terrace
 GPS Location: -99.206358, 40.071988 (NAD 83)
 Slope: 1%
 Parent material: Loess mantled alluvium
 Elevation above river channel: 13.3 m
 Remarks: Soil organic matter from the upper 5 cm of the Ak1b2 horizon (130-155 cm) and lower 5 cm of the Ak2b2 horizon (178-183 cm) of Soil 3 yielded radiocarbon ages of 5625±30 and 8205±30 yr. B.P., respectively.

| Depth (cm) | Soil Horizon | Description |
|---------------|--------------|---|
| Soil 1 | | |
| 0-20 | A | Dark grayish brown (10YR 4/2) loam, dark grayish brown (10YR 3/2) moist; moderate medium and fine granular structure; slightly hard, friable; many fine and very fine roots; many fine and very fine pores; gradual boundary. |
| 20-46 | C | Light brownish gray (10YR 6/2) silt loam, grayish brown (10YR 5/2) moist; moderate medium platy structure parting to moderate fine angular blocky; slightly hard, friable; common fine and very fine roots; common very fine pores; abrupt boundary. |
| Soil 2 | | |
| 46-80 | Akb1 | Dark grayish brown (10YR 4/2) silt loam, dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure parting to moderate fine granular; slightly hard, friable; very few flecks of calcium carbonate; few very fine roots; common very fine pores; gradual boundary. |
| 80-98 | Bkb1 | Grayish brown (10YR 5/2) silt loam, dark grayish brown (10YR 4/2) moist; weak medium prismatic structure parting to weak medium and fine subangular blocky; slightly hard, friable; few fine threads of calcium carbonate; common fine and many very fine pores; gradual boundary. |
| 98-130 | Ckb1 | Light brownish gray (10YR 6/2) silt loam, grayish brown (10YR 5/2) moist; massive; slightly hard, friable; few fine threads of calcium carbonate; few very fine roots; common fine and many very fine pores; gradual boundary. |
| Soil 3 | | |
| 130-155 | Ak1b2 | Dark grayish brown (10YR 5/2) silt loam, dark grayish brown |

| | | |
|----------|-------|--|
| | | (10YR 4/2) moist; moderate medium subangular blocky structure parting to moderate medium granular; slightly hard, friable; few fine and very fine threads of calcium carbonate; many very fine pores; clear boundary. |
| 155-183 | Ak2b2 | Dark grayish brown (10YR 4/2) silt loam, dark grayish brown (10YR 3/2) moist; moderate medium angular blocky structure; hard, friable; many fine threads of calcium carbonate and common films on ped faces; common fine and many very fine pores; clear boundary. |
| 183-235 | Bkb2 | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable; common fine and few very fine threads of calcium carbonate; many very fine pores; gradual boundary. |
| 235-260 | CBkb2 | Pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; weak medium prismatic structure parting to weak medium and fine subangular blocky; soft, friable; common fine and very fine threads of calcium carbonate; many very fine pores; gradual boundary. |
| 260-480+ | Ckb2 | Pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; soft, friable; common fine and very fine threads of calcium carbonate; common fine and many very fine pores. |

Table S8. Description of core A-6.

Landform: Alluvial fan (AF-0b).
 GPS Location: -99.400571, 40.085781 (NAD 83)
 Slope: 1%
 Parent material: Alluvium
 Elevation above river channel: 3.2 m
 Remarks: Fan grades to the T-0b floodplain complex. Core taken at the apex of the fan.
 Shell fragments at 110-115 cm.

| Depth (cm) | Soil Horizon | Description |
|---------------|-----------------|---|
| Soil 1 | | |
| 0-20 | A | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium and fine subangular blocky structure parting to moderate medium granular; slightly hard, friable; few medium, common fine and very fine roots; few fine and common very fine pores; clear boundary. |
| 20-30 | AC | Grayish brown (10YR 5/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate medium and fine granular structure; soft, friable; common very fine pores; clear boundary. |
| 30-62 | C1 | Pale brown (10YR 6/3) loamy sand, brown (10YR 5/3) moist; massive parting to single grain; very soft, very friable; abrupt boundary. |
| 62-120 | C2 | Stratified, laminated brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; massive; soft, friable; many very fine pores; abrupt boundary. Contains 10-15 cm-thick beds of pale brown (10YR 6/3) loamy sand, brown (10YR 5/3) moist; massive parting to single grain; very soft, very friable; abrupt boundary. |
| 120-170 | C3 | Stratified, laminated brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; massive; soft, friable; many very fine pores; abrupt boundary. Contains 1-5 cm-thick beds of light brownish gray (10YR 6/2) coarse-very coarse sand, grayish brown (10YR 5/2) moist; single grain; loose; abrupt boundary. |
| 170-215 | C4 | Pale brown (10YR 6/3) loamy sand, brown (10YR 5/3) moist; massive parting to single grain; soft, friable; common very fine pores; abrupt boundary. |
| 215-267 | C5 | Light brownish gray (10YR 6/2) coarse-very coarse sand, grayish |

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| | | brown (10YR 5/2) moist; single grain; loose; abrupt boundary. |
| 267-350 | C6 | Laminated grayish brown (10YR 5/2) loamy sand, dark grayish brown (10YR 4/2) moist; massive parting to single grain; soft, friable; common very fine pores; abrupt boundary. |
| 350-380+ | C7 | Light brownish gray (10YR 6/2) coarse-very coarse sand and very fine pebble gravel, grayish brown (10YR 5/2) moist; single grain; loose. |

Table S9. Description of core A-4.

Landform: Alluvial fan (AF-0c).
 GPS Location: -99.411511, 40.090578 (NAD 83)
 Slope: 1%
 Parent material: Alluvium
 Elevation above river channel: 3.1 m
 Remarks: Fan grades to the T-0c floodplain surface. Core taken on the distal portion of the fan. Soil organic matter from the upper 10 cm of Soil 2 (97-107 cm) yielded a radiocarbon age of 1185±30 yr. B.P. Soil organic matter the upper and lower 10 cm of Soil 3 (150-160 cm and 186-196 cm, respectively) yielded radiocarbon ages of 1210±25 and 1815±25 yr. B.P. Soil organic matter from the upper 10 cm of the A1b3 and A2b3 horizons of Soil 4 (233-243 cm and 271-281 cm, respectively) yielded radiocarbon ages of 2010±30 and 1915±30 yr. B.P. Gastropod shells were found at 272 and 278 cm in the A2b3 horizon of Soil 4.

| Depth (cm) | Soil Horizon | Description |
|---------------|--------------|---|
| Soil 1 | | |
| 0-20 | A | Dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular structure parting to moderate medium granular; slightly hard, friable; common fine and very fine roots; common very fine pores; clear boundary. |
| 20-82 | C1 | Light brownish gray (10YR 6/2) loam grading down to fine to very fine sand, grayish brown (10YR 5/2) moist; massive parting to single grain; soft, friable; few very fine roots; abrupt boundary. |
| 82-97 | C2 | Stratified, weakly laminated light brownish gray (10YR 6/2) very fine sand, grayish brown (10YR 5/2) moist; massive parting to single grain; very soft, very friable; abrupt boundary. Contains 1-5 cm-thick beds of laminated dark gray (10YR 4/1) silty clay loam, very dark gray (10YR 3/1) moist; weak subangular blocky structure; hard, friable; few very fine and fine roots; common very fine pores; abrupt boundary. |
| Soil 2 | | |
| 97-121 | Akb1 | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure parting to moderate medium granular; slightly hard, friable; very few fine threads of calcium carbonate; few fine and very fine roots; few fine and many very fine pores; clear boundary. |
| 121-150 | Cb1 | Weakly laminated light brownish gray (10YR 6/2) very fine sand, |

grayish brown (10YR 5/2) moist, interbedded with 1-2 cm thick beds of very dark gray (10YR 3/1) silt loam; massive; soft, very friable; abrupt boundary.

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| 150-196 | Ab2 | <p>Soil 3</p> <p>Dark gray (10YR 4/1) silt loam, very dark gray (10YR 3/1) moist; weak fine subangular blocky structure parting to moderate fine granular; slightly hard, friable; few fine and common very fine roots; many fine and very fine pores; many worm casts; clear boundary.</p> |
| 196-233 | Cb2 | <p>Weakly laminated gray (10YR 6/1) fine sand, gray (10YR 5/1) moist; massive; soft, friable; common fine and many very fine pores; abrupt boundary.</p> |
| 233-271 | A1b3 | <p>Soil 4</p> <p>Grayish brown (10YR 5/2) silty clay loam, dark grayish brown (10YR 4/2) moist; weak medium and fine subangular blocky structure parting to moderate medium granular; hard, friable; common very fine pores; clear boundary.</p> |
| 271-300 | A2b3 | <p>Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure parting to moderate medium and fine granular; slightly hard, friable; common very fine pores; gradual boundary.</p> |
| 300-420+ | Cb3 | <p>Stratified pale brown (10YR 6/3) medium-coarse sand, brown (10YR 5/3) moist; massive parting to single grain; very soft, very friable. Contains 10-20 cm-thick beds of laminated gray (10YR 6/1) fine sand, gray (10YR 5/1) moist; massive; soft, friable.</p> |

Table S10. Description of core C-2

Landform: Alluvial fan (AF-0c).
 GPS Location: -99.20389, 40.057451 (NAD 83)
 Slope: 1%
 Parent material: Alluvium
 Elevation above river channel: 7.2 m
 Remarks: Fan grades to the T-0c floodplain surface. Core taken near the apex of the fan.
 Soil organic matter from the upper 5 cm of Soil 2 (69-74 cm) and Soil 3 (267-272) yielded radiocarbon ages of 1300±25 and 1680±20 yr. B.P., respectively.

| Depth (cm) | Soil Horizon | Description |
|---------------|--------------|--|
| Soil 1 | | |
| 0-10 | Ap | Dark grayish brown (10YR 4/2) silt loam, dark grayish brown (10YR 3/2) moist; moderate medium granular structure; slightly hard, friable; common medium, many fine, and common very fine roots; common fine and very fine pores; clear boundary. |
| 10-32 | A | Dark grayish brown (10YR 4/2) silt loam, dark grayish brown (10YR 3/2) moist; weak subangular blocky structure parting to moderate medium granular; slightly hard, friable; many fine and very fine roots; common fine and many very fine pores; clear boundary. |
| 32-59 | AC | Grayish brown (10YR 5/2) silt loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure parting to moderate medium and fine granular; soft, friable; many fine and very fine roots; many very fine pores; clear boundary. |
| 59-69 | C | Weakly laminated light brownish gray (10YR 6/2) silt loam, grayish brown (10YR 5/2) moist; massive; soft, very friable; common very fine pores; abrupt boundary. Contains 1 cm-thick bed of medium-coarse sand at 68 cm. |
| Soil 2 | | |
| 69-86 | Ab1 | Grayish brown (10YR 5/2) loam, dark grayish brown (10YR 4/2) moist; moderate medium and fine granular; slightly hard, friable; many fine and very fine roots; many fine and very fine pores; clear boundary. |
| 86-160 | C1b1 | Pale brown (10YR 6/3) loamy sand, brown (10YR 5/3) moist; massive parting to single grain; soft, friable; common fine and very fine roots; abrupt boundary. Contains very fine to medium |

pebble gravel clasts at 105 cm.

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| 160-199 | C2b1 | Stratified, brown (10YR 5/3) medium-very coarse sand and very fine pebble gravel, brown (10YR 4/3) moist; massive parting to single grain; soft, friable; abrupt boundary. Contains 15-30 cm-thick beds of pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; very soft, friable; common very fine pores; abrupt boundary. |
| 199-267 | C3b1 | Laminated light brownish gray (10YR 6/2) silt loam, grayish brown (10YR 5/2) moist; massive; soft, friable; few very fine pores; abrupt boundary. |
| 267-290 | Ab2 | Soil 3 Dark grayish brown (10YR 4/2) silt loam, dark grayish brown (10YR 3/2) moist; moderate medium and fine granular structure; slightly hard, friable; common fine and many very fine pores; common worm casts; clear boundary. |
| 290-310 | ACb2 | Dark grayish brown (10YR 4/2) silt loam, dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, friable; many very fine pores; common worm cast filled burrows; clear boundary. |
| 310-371 | C1b2 | Laminated pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; soft, friable; common fine and many very fine pores; abrupt boundary. |
| 371-470 | C2b2 | Weakly laminated pale brown (10YR 6/3) very fine sand, brown (10YR 5/3) moist; massive; very soft, very friable; common very fine pores; abrupt boundary. |
| 470-490+ | C3b2 | Light brownish gray (10YR 6/2) medium-coarse sand, grayish brown (10YR 5/2) moist; massive parting to single grain; very soft, very friable. |

Table S11. Description of core A-1.

Landform: Alluvial fan (AF-1).
 GPS Location: -99.423583, 40.08728 (NAD 83)
 Slope: 2%
 Parent material: Alluvium
 Elevation above river channel: 8.0 m
 Remarks: Fan grades to the T-1 terrace surface. Core taken on the axial portion close to valley wall.
 Soil organic matter from the upper 5 cm of Soil 2 (173-178 cm) and Soil 3 (397-402 cm) yielded radiocarbon ages of 1770 ± 25 and 3125 ± 25 yr. B.P., respectively.

| Depth (cm) | Soil Horizon | Description |
|---------------|-----------------|--|
| Soil 1 | | |
| 0-15 | Ap | Dark grayish brown (10YR 4/2) silt loam, dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, friable; many fine and very fine roots; many worm casts; clear boundary. |
| 15-26 | A | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure parting moderate medium and fine granular; hard, friable; many fine and very fine roots; many fine and very fine pores; common worm casts; clear boundary. |
| 26-75 | AB | Grayish brown (10YR 5/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure parting to weak medium granular; slightly hard, friable; common fine and very fine roots; few medium, common fine and many very fine pores; common worm casts in macropores; clear boundary. |
| 75-105 | Bk1 | Light brownish gray (10YR 6/2) silt loam, grayish brown (10YR 5/2) moist; weak medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable; few fine threads and flecks of calcium carbonate; few fine and common very fine roots; few medium, common fine and many very fine pores; few worm casts in macropores; gradual boundary. |
| 105-145 | Bk2 | Light brownish gray (10YR 6/2) silt loam, grayish brown (10YR 5/2) moist; weak medium prismatic structure parting to weak fine subangular blocky; slightly hard, friable; common fine threads and flecks of calcium carbonate; few fine and very fine roots; few medium, few fine and many very fine pores; few worm casts in macropores; clear boundary. |

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| 145-173 | Ck | Pale brown (10YR 6/3) silt loam grading down to loamy fine sand, brown (10YR 5/3) moist; massive; soft, friable; very few fine threads of calcium carbonate; common very fine pores; abrupt boundary. |
| Soil 2 | | |
| 173-189 | Ak1b1 | Grayish brown (10YR 5/2) silt loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure parting to moderate fine granular; slightly hard, friable; few fine threads of calcium carbonate; common fine and many very fine pores; gradual boundary. |
| 189-205 | Ak2b1 | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable; common fine threads of calcium carbonate; common fine and many very fine pores; clear boundary. |
| 205-235 | Bk1b1 | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to moderate medium and fine subangular blocky; slightly hard, friable; common fine threads of calcium carbonate and few films on ped faces; common fine and many very fine pores; gradual boundary. |
| 235-265 | Bk2b1 | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to weak fine subangular blocky; slightly hard, friable; few fine threads of calcium carbonate and few films on ped faces; common fine and many very fine pores; gradual boundary. |
| 265-300 | BCKb1 | Pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; very weak medium prismatic structure parting to weak fine subangular blocky; soft, friable; very few fine threads of calcium carbonate; many very fine pores; gradual boundary. |
| 300-397 | Ckb1 | Laminated pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; very soft, very friable; very few fine threads of calcium carbonate; common fine and many very fine pores; abrupt boundary. |
| Soil 3 | | |
| 397-425 | Akb2 | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium and fine subangular blocky structure parting to moderate medium granular; slightly hard, friable; few fine threads of calcium carbonate; few fine and very fine roots; many fine and very fine pores; gradual boundary. |

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| 425-470 | Bkb2 | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable; few fine threads of calcium carbonate; few very fine roots; common fine and many very fine pores; gradual boundary. |
| 470-510 | BCkb2 | Pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; soft, friable; few fine threads of calcium carbonate; many very fine pores; gradual boundary. |
| 510-560 | Cb2 | Pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; soft, friable; many fine and very fine pores; abrupt boundary. |

Table S12. Description of section MC-1

Landform: Co-alluvial fan (AF-1)
 GPS Location: -99.355023, 40.071606 (NAD 83)
 Slope: 1%.
 Parent material: Alluvium and colluvium
 Elevation above river channel: 10.0 m
 Remarks: Fan is interpreted as grading to the T-1 terrace surface. Soil organic matter from the upper 10 cm of Soil 2 (71-81 cm), Soil 3 (118-128 cm), Soil 4 (190-200 cm), Soil 5 (360-370 cm), and Soil 6 (507-517 cm) yielded radiocarbon ages of 880±25, 2165±30, 3665±30, 5915±50, and 9485±40 yr. B.P., respectively.

| Depth (cm) | Soil Horizon | Description |
|-----------------|-----------------|--|
| ALLUVIUM | | |
| Soil 1 | | |
| 0-24 | A | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure parting to moderate medium and fine granular; soft, very friable; many fine and very fine roots; many worm casts and open worm and insect burrows; gradual smooth boundary. |
| 24-36 | AB | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium prismatic structure parting to weak fine subangular blocky; slightly hard, friable; many fine and very fine and common medium roots; many worm casts and open worm and insect burrows; gradual smooth boundary. |
| 36-55 | Bw | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to weak fine subangular blocky; slightly hard, friable; many fine and very fine and common medium roots; many worm casts and open worm and insect burrows; gradual smooth boundary. |
| 55-71 | BC | Faintly laminated pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; very weak medium prismatic structure parting to very weak fine subangular blocky; slightly hard, friable; common fine and many very fine roots; common fine and many very fine pores; abrupt smooth boundary. |

Soil 2

| | | |
|---------|------|---|
| 71-95 | Akb1 | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium to coarse prismatic structure parting to moderate fine granular; slightly hard, friable; few (1-2%) flecks and very fine threads of calcium carbonate; common fine and very fine roots; common worm casts and open worm and insect burrows; many fine and very fine pores; gradual smooth boundary. |
| 95-118 | Bkb1 | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium and fine subangular blocky; slightly hard, friable; common (3-5%) fine and medium threads of calcium carbonate; common fine and very fine roots; common worm casts and open worm and insect burrows; many fine and very fine pores; abrupt smooth boundary. |
| 118-135 | Akb2 | Soil 3 Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to moderate medium and fine granular; slightly hard, very friable; common (3-4%) fine and very fine threads of calcium carbonate; common fine and very fine roots; few worm casts and open worm and insect burrows; many fine and very fine pores; gradual smooth boundary. |
| 135-190 | Bkb2 | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable; common (3-5%) fine flecks of calcium carbonate; common fine and very fine roots; few open worm and insect burrows; many fine and very fine pores; abrupt smooth boundary. |
| 190-220 | Akb3 | Soil 4 Dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure parting to moderate medium and fine granular; slightly hard, very friable; common (5-8%) films and threads of calcium carbonate; few very fine roots; common worm casts and open worm and insect burrows; many fine and very fine pores; gradual smooth boundary. |
| 220-235 | Bkb3 | Brown (10YR 5/3) fine sandy loam, brown (10YR 4/3) moist; weak medium and fine subangular blocky structure; slightly hard, very friable; common (5-8%) films and threads of calcium carbonate; few very fine roots; few open worm and insect |

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| | | burrows; many fine and common very fine pores; gradual smooth boundary. |
| 235-255 | BCkb3 | Brown (10YR 5/3) loamy fine sand, brown (10YR 4/3) moist; weak medium and fine subangular blocky structure; slightly hard, very friable; few (1-2%) fine and very fine threads of calcium carbonate; few medium and fine roots; many very fine pores; gradual smooth boundary. |
| 255-360 | Cb3 | Stratified brown (10YR 5/3), yellowish brown (10YR 5/4), and pale brown (10YR 6/3) sand; single grain; loose; few thin beds of granules and fine pebbles; abrupt smooth boundary. |
| COLLUVIUM | | |
| Soil 5 | | |
| 360-395 | 2ABkb4 | Dark grayish brown (10YR 4/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; moderate coarse and medium prismatic structure subangular blocky structure parting to moderate medium angular blocky; hard, friable; many (10-15%) very fine, fine and medium films and threads of calcium carbonate; common fine shale fragments scattered through the fine-grained matrix; few very fine roots; common worm casts and open worm and insect burrows; gradual smooth boundary. |
| 395-417 | 2Btkb4 | Dark grayish brown (10YR 4/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; moderate coarse and medium prismatic structure subangular blocky structure parting to moderate medium angular blocky; hard, friable; common distinct discontinuous very dark grayish brown (2.5Y 3/2) clay films on ped faces; common (5-8%) very fine, fine and medium films and threads of calcium carbonate; common shale fragments scattered through the fine-grained matrix; few very fine roots; common worm casts and open worm and insect burrows; gradual smooth boundary. |
| 417-507 | 2BCkb4 | Alternating beds of dark gray (10YR 4/1) clay loam, very dark gray (10YR 3/1) moist, and brown (10YR 5/3) heavy silty clay loam, brown (10YR 4/3) moist; very weak fine prismatic structure parting to very weak fine subangular blocky; hard, friable; common (4-5%) fine and very fine threads of calcium carbonate; many fragments of shale scattered through the fine-grained matrix; beds are 10-20 cm thick; clear smooth boundary. |
| Soil 6 | | |
| 507-532 | 2Btk1b5 | Brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate |

| | | |
|----------|---------|---|
| | | medium and fine subangular blocky; very hard, very firm; common distinct discontinuous dark grayish brown (10YR 4/2) clay films on ped faces; common (4-5%) very fine, fine and medium threads of calcium carbonate; many fragments of shale scattered through the fine-grained matrix; few very fine roots; many very fine pores; gradual smooth boundary. |
| 532-560 | 2Btk2b5 | Brown (10YR 5/3) heavy silty clay loam, brown (10YR 4/3) moist; very weak medium and fine subangular blocky; slightly hard, friable; common distinct discontinuous dark grayish brown (10YR 4/2) clay films on ped faces; common (3-4%) very fine, fine and medium threads of calcium carbonate; many fragments of shale scattered through the fine-grained matrix; few very fine roots; many very fine pores; gradual smooth boundary. |
| 560-620 | 2CBkb5 | Brown (10YR 5/3) heavy silty clay loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to weak medium subangular blocky; hard, friable; common (3-4%) very fine, fine and medium threads of calcium carbonate; many fragments of shale scattered through the fine-grained matrix; few very fine roots; many very fine pores; abrupt wavy boundary. |
| 620-630+ | 3R | BEDROCK Shale |

Table S13. Description of core B-2

Landform: Co-Alluvial fan (AF-2)/T-2 terrace
 GPS Location: -99.274248, 40.071235 (NAD 83)
 Slope: 1%
 Parent material: Alluvium, colluvium, and loess
 Elevation above river channel: 19.1 m
 Remarks: Fan grades to the T-2 terrace surface. Soil organic matter from the upper 10 cm of the Akb1 and Bk2b1 horizons of Soil 2 (37-47 and 100-110 cm, respectively) yielded radiocarbon ages of 1220±30 and 4525±35 yr. B.P. Soil organic matter from the upper 10 cm of the Ak1b2 horizon (215-225 cm), the Ak2b2 horizon (260-270 cm), the BAtkb2 horizon (320-330 cm), the Btk1b2 horizon (370-380 cm), and the Btk2b2 horizon (450-460 cm) of Soil 3 yielded radiocarbon ages of 9550±50, 10,080±60, 10,980±60, 14,140±45 and 16,410±60 yr. B.P., respectively.

| Depth (cm) | Soil Horizon | Description |
|-------------------------------|-----------------|--|
| ALLUVIUM AND COLLUVIUM | | |
| Soil 1 | | |
| 0-15 | A | Dark grayish brown (10YR 4/2) silt loam, dark grayish brown (10YR 3/2) moist; moderate fine and medium granular structure; slightly hard, friable; many fine and very fine roots; common fine and very fine pores; many worm casts; clear boundary. |
| 15-37 | Bw | Grayish brown (10YR 5/2) silt loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure parting to weak fine granular; soft, friable; common fine and very fine roots; common very fine pores; abrupt boundary. |
| Soil 2 | | |
| 37-55 | Akb1 | Dark grayish brown (10YR 4/2) silt loam, dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure parting to moderate medium granular; slightly hard, friable; few fine threads of calcium carbonate; many fine and very fine roots; few very fine pores; common worm casts; gradual boundary. |
| 55-100 | Bk1b1 | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable; common fine threads of calcium carbonate and films on ped faces; common fine and very fine roots; common very fine pores; few worm casts; gradual boundary. |
| 100-120 | Bk2b1 | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable; few |

very fine threads of calcium carbonate; few fine and very fine roots; common very fine pores; few worm casts; gradual boundary.

BIGNELL LOESS

Soil 3

| | | |
|---------|-------|--|
| 120-155 | 2Bkb2 | Grayish brown (10YR 5/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate medium to fine subangular blocky structure parting to moderate medium granular; slightly hard, friable; common fine threads of calcium carbonate and common films on ped faces; few fine roots; many very fine pores; common worm casts; clear boundary. |
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| 155-215 | 2Ckb2 | Grayish brown (10YR 5/2) silt, dark grayish brown (10YR 4/2) moist; massive; soft, very friable; few very fine threads of calcium carbonate; few fine and very fine roots; common very fine pores; gradual boundary. |
|---------|-------|--|

PEORIA LOESS

Soil 4

| | | |
|---------|--------|---|
| 215-260 | 2Ak1b3 | Brown (10YR 4/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to moderate medium and fine granular; slightly hard, friable; common fine and very fine threads of calcium carbonate; common fine and many very fine pores; many worm casts; clear boundary. |
|---------|--------|---|

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|---------|--------|---|
| 260-320 | 2Ak2b3 | Dark grayish brown (10YR 4/2) silt loam, dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure parting to moderate medium granular; slightly hard, friable; few fine and very fine threads of calcium carbonate; few fine and many very fine pores; many worm casts; gradual boundary. |
|---------|--------|---|

| | | |
|---------|---------|--|
| 320-370 | 2BAtkb3 | Brown (10YR 4/3) silt loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure; hard, friable; few distinct discontinuous very dark brown (10YR 2/2) clay films on ped faces; few fine threads of calcium carbonate; common very fine pores; clear boundary. |
|---------|---------|--|

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|---------|---------|---|
| 370-450 | 2Btk1b3 | Brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; moderate medium prismatic structure; hard, friable; common prominent discontinuous very dark grayish brown (10YR 3/2) clay films on ped faces and in macropores; very few fine threads of calcium carbonate; few medium and common very fine pores; gradual boundary. |
|---------|---------|---|

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|---------|---------|--|
| 450-530 | 2Btk2b3 | Pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; weak medium prismatic structure parting to weak medium subangular |
|---------|---------|--|

blocky; slightly hard, friable; common prominent discontinuous very dark grayish brown (10YR 3/2) clay films on ped faces and in macropores; very few fine threads of calcium carbonate; few fine and common very fine pores; clear boundary.

| | | |
|----------|-------|--|
| 530-600 | 2BCb3 | Pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; soft, friable; common very fine pores; gradual boundary. |
| 600-720+ | 2Cb3 | Pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; soft, friable. |

Table S14. Description of section CC-1

Landform: Co-alluvial fan (AF-2)
 GPS Location: -99.328882, 40.061606 (NAD 83)
 Slope: 10%
 Parent material: Alluvium and colluvium
 Elevation above river channel: 16.2 m
 Remarks: Co-alluvial fan is interpreted as grading to the T-2 terrace surface. Soil organic matter from the upper 10 cm of Soil 2 (58 cm) yielded a radiocarbon age of 880 ± 30 yr. B.P. Soil organic matter from the upper 10 cm of Soil 3 (290-300 cm) yielded a radiocarbon age of $10,060 \pm 40$ yr. B.P. Soil organic matter from the upper 10 cm of the Ak1b3 horizon (330-340 cm) and Ak2b3 horizon (361-371 cm) of Soil 4 yielded radiocarbon ages of $10,335 \pm 40$ and $10,790 \pm 45$ yr. B.P., respectively. A piece of conifer charcoal from a burn layer at 610 cm yielded a radiocarbon age of $20,250 \pm 100$ yr. B.P.

| Depth (cm) | Soil Horizon | Description |
|-------------------------------|-----------------|--|
| ALLUVIUM AND COLLUVIUM | | |
| Soil 3 | | |
| 290-330 | Ak1b2 | Brown (10YR 4/3) silt loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure parting to moderate medium granular; slightly hard, friable; common (4-5%) fine and very fine threads of calcium carbonate; common fine and few very fine roots; few worm burrows filled with worm casts; common fine and many very fine pores; clear smooth boundary. |
| Soil 4 | | |
| 330-361 | Ak1b3 | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure parting to moderate fine subangular blocky; hard, friable; many (6-8%) fine and medium threads of calcium carbonate; common fine and few very fine roots; few worm casts and open worm and insect burrows; common fine and many very fine pores; gradual smooth boundary. |
| 361-388 | Ak2b3 | Dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; hard, friable; parts along bedding planes; few (1-2%) very fine threads of calcium carbonate; common fine and few very fine roots; few worm casts and open worm and insect burrows; common fine and many very fine pores; gradual smooth boundary. |

| | | |
|---------|-------|--|
| 388-410 | ACkb3 | Light olive brown (2.5Y 5/3) silt loam, olive brown (2.5Y 4/3) moist; common prominent fine and few medium yellowish red (7.5YR 6/8 and 7/8) mottles stains concentrated along bedding planes; very weak fine subangular blocky structure; slightly hard, friable; parts along bedding planes; few (1-2%) very fine threads of calcium carbonate; common fine and few very fine roots; few worm casts and open worm and insect burrows; many very fine pores; clear smooth boundary. |
| 410-475 | Ckb3 | Laminated pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; many prominent fine and medium and few coarse yellowish red (7.5YR 6/8 and 7/8) mottles concentrated along bedding planes; massive; hard, friable; parts along bedding planes; few (1-2%) very fine threads of calcium carbonate; common very fine soft to slightly hard manganese oxide concentrations; common fine and few very fine roots; few worm casts and open worm and insect burrows; many very fine pores; clear smooth boundary. |
| | | PEORIA LOESS |
| 475-615 | 2Ckb3 | Light gray (2.5Y 7/2) silt loam, light brownish gray (2.5Y 6/2) moist; common prominent fine, medium and coarse yellowish red (7.5YR 6/8 and 7/8) mottles; massive; hard, friable; common hard yellowish red (7.5YR 6/8 and 7/8) iron oxide concretions that are 1-4 cm in diameter; common calcium carbonate concretions that are 1-4 cm in diameter; common iron oxide and calcium carbonate rhizoliths; many very fine pores. |
