PEDON DESCRIPTION (Trench 1, location 5 m)

Print Date: Jun 11 2019
Description Date: Mar 13 2019
Describer: Ashley Anderson, Travis Waiser, Geraldine Vega
Site ID: S2019TX1370007

Pedon ID: S2019TX1370007

Site Note:

Pit Location:
Pedon Note:

Lab Source ID:
Lab Pedon #:

User Transect ID:
Soil Name as Described/Sampled: Harper
Classification: Clayey, smectitic, thermic Lithic Haplustolls

Soil Name as Correlated:

Classification:
Pedon Type: undefined observation
Pedon Purpose: research site
Taxon Kind: family

Associated Soils:
Physiographic Division:
Physiographic Province:
Physiographic Section:

State Physiographic Area:

Local Physiographic Area:
Geomorphic Setting: on footslope of base slope of ridge on dissected plateau
Upslope Shape: concave
Cross Slope Shape: linear

Country: Texas
State: Texas
County: Edwards
MLRA: 81B -- Edwards Plateau, Central Part
Soil Survey Area: TX607 -- Edwards and Real Counties, Texas
Soil Survey Area: TX607 -- Edwards and Real Counties, Texas
Map Unit:
Quad Name: Dunbar Draw SE, Texas
Std Latitude: 30.2895833
Std Longitude: -100.5594333
Latitude: 30 degrees 17 minutes 22.50 seconds north
Longitude: 100 degrees 33 minutes 33.96 seconds west
Datum: WGS84
UTM Zone: 14
UTM Easting: 350026 meters
UTM Northing: 3351904 meters
Primary Earth Cover:
Secondary Earth Cover:
Existing Vegetation:
algerita, live oak, redberry juniper, slim tridens, Texas persimmon, Texas wintergrass
Parent Material: alluvium derived from limestone
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Particle Size Control Section: 25 to 44 cm.
Description origin: NASIS

Diagnostic Features: mollic epipedon 0 to 18 cm.
cambic horizon 18 to 44 cm.
lithic contact 44 to cm.

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<th>Top Depth (cm)</th>
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<th>Restriction Kind</th>
<th>Restriction Hardness</th>
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<td>44</td>
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<td>bedrock, lithic</td>
<td>Indurated</td>
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Cont. Site ID: S2019TX1370007
Pedon ID: S2019TX1370007

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<th>Slope (%)</th>
<th>Elevation (meters)</th>
<th>Aspect (deg)</th>
<th>MAAT (C)</th>
<th>MSAT (C)</th>
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<th>MAP (mm)</th>
<th>Frost-Free Days</th>
<th>Drainage Class</th>
<th>Slope Length (meters)</th>
<th>Upslope Length (meters)</th>
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<td>675.7</td>
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A--0 to 18 centimeters (0.0 to 7.1 inches); silty clay, very dark brown (10YR 2/2), moist; moderate fine granular structure; slightly hard, friable; common very fine roots throughout and common fine roots throughout; 4 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; strong effervescence, by HCl, 1 normal; gradual smooth boundary.

Bw--18 to 44 centimeters (7.1 to 17.3 inches); silty clay, brown (10YR 4/3), moist; weak medium subangular blocky, and moderate fine subangular blocky structure; slightly hard, friable; common very fine roots throughout and common fine roots throughout; 7 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; abrupt smooth boundary.

R--44 centimeters (17.3 inches); bedrock; .
PEDON DESCRIPTION (Trench 1, location 17 m)

Print Date: Jun 11 2019
Description Date: Mar 13 2019
Describer: Ashley Anderson, Travis Waiser, Geraldine Vega
Site ID: P2019TX1370005
Pedon ID: P2019TX1370005

Site Note:

Pit Location:
Pedon Note:

Lab Source ID:
Lab Pedon #:

User Transect ID:
Soil Name as Described/Sampled: Prade
Classification: Clayey-skeletal, smectitic, thermic, shallow Petrocalcic Calciustolls

Soil Name as Correlated:

Classification:
Pedon Type: undefined observation
Pedon Purpose: research site
Taxon Kind: family

Associated Soils:
Physiographic Division:
Physiographic Province:
Physiographic Section:

State Physiographic Area:

Local Physiographic Area:
Geomorphic Setting: on backslope of side slope of ridge on dissected plateau
Upslope Shape: linear
Cross Slope Shape: linear

Country:
State: Texas
County: Edwards
MLRA: 81B -- Edwards Plateau, Central Part
Soil Survey Area: TX607 -- Edwards and Real Counties, Texas
Soil Survey Area: TX607 -- Edwards and Real Counties, Texas
Map Unit:
Quad Name: Dunbar Draw SE, Texas
Std Latitude: 30.2895667
Std Longitude: -100.5593000
Latitude: 30 degrees 17 minutes 22.44 seconds north
Longitude: 100 degrees 33 minutes 33.48 seconds west
Datum: WGS84
UTM Zone: 14
UTM Easting: 350038 meters
UTM Northing: 3351902 meters
Primary Earth Cover:
Secondary Earth Cover:
Existing Vegetation: cedar sedge, hairy wedelia, purple threeawn, redberry juniper, Texas bluebonnet
Parent Material: residuum weathered from limestone
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Particle Size Control Section: 0 to 34 cm.

Surface Fragments: 25.0 percent nonflat subangular indurated 2- to 75-millimeter Limestone fragments and 15.0 percent nonflat subangular indurated 75- to 250-millimeter Limestone fragments

Description origin: NASIS

Description database: MLRA09_Temple

Diagnostic Features: mollic epipedon 0 to 34 cm.
petrocalcic horizon 34 to 65 cm.
lithic contact 65 to cm.

<table>
<thead>
<tr>
<th>Top Depth (cm)</th>
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<th>Restriction Kind</th>
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<td>65</td>
<td>petrocalcic</td>
<td>Strongly cemented</td>
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<tr>
<td>65</td>
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<td>bedrock, lithic</td>
<td>Indurated</td>
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Cont. Site ID: P2019TX1370005

Pedon ID: P2019TX1370005

Slope (%), Elevation (meters), Aspect (deg), MAAT (C), MSAT (C), MWAT (C), MAP (mm), Frost-Free Days, Drainage Class, Slope Length (meters), Upslope Length (meters)

676.7

A--0 to 14 centimeters (0.0 to 5.5 inches); gravelly clay, black (10YR 2/1), moist; moderate fine granular structure; slightly hard, friable; common very fine roots throughout and few medium roots throughout and common fine roots throughout; 5 percent nonflat subangular indurated 75 to 250-millimeter Limestone fragments and 12 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; clear smooth boundary.

Bw--14 to 34 centimeters (5.5 to 13.4 inches); very dark grayish brown (10YR 3/2) very gravelly clay, very dark brown (10YR 2/2), moist; moderate fine granular structure; slightly hard, friable; common very fine roots throughout and common medium roots throughout and common fine roots throughout; 20 percent nonflat subangular indurated 75 to 250-millimeter Limestone fragments and 35 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; abrupt wavy boundary.

Bkkm--34 to 65 centimeters (13.4 to 25.6 inches); material; few very fine roots throughout and few fine roots throughout; abrupt wavy boundary.

R--65 centimeters (25.6 inches); bedrock; .
PEDON DESCRIPTION (Trench 1, location 25 m)

Print Date: Jun 11 2019
Description Date: Mar 13 2019
Describer: Ashley Anderson, Travis Waiser, Geraldine Vega
Site ID: S2019TX1370004

Pedon ID: S2019TX1370004

Site Note:

Pit Location:
Pedon Note:

Lab Source ID:
Lab Pedon #:

User Transect ID:
Soil Name as Described/Sampled: Prade
Classification: Clayey-skeletal, smectitic, thermic, shallow Petrocalcic Calciustolls

Soil Name as Correlated:

Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series

Associated Soils:
Physiographic Division:
Physiographic Province:
Physiographic Section:

State Physiographic Area:

Local Physiographic Area:
Geomorphic Setting: on backslope of side slope of ridge on dissected plateau
Upslope Shape: linear
Cross Slope Shape: linear

Country:
State: Texas
County: Edwards
MLRA: 81B -- Edwards Plateau, Central Part
Soil Survey Area: TX607 -- Edwards and Real Counties, Texas

Soil Survey Area: TX607 -- Edwards and Real Counties, Texas

Map Unit:
Quad Name: Dunbar Draw SE, Texas
Std Latitude: 30.2895167
Std Longitude: -100.5591667

Latitude: 30 degrees 17 minutes 22.26 seconds north
Longitude: 100 degrees 33 minutes 33.00 seconds west
Datum: WGS84
UTM Zone: 14
UTM Easting: 350051 meters
UTM Northing: 3351896 meters

Primary Earth Cover:
Secondary Earth Cover:
Existing Vegetation: cedar sedge, hairy wedelia, redberry juniper, Texas bluebonnet, Texas pricklypear
Parent Material: residuum weathered from limestone
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
**Particle Size Control Section:** 0 to 31 cm.

**Surface Fragments:**
- 30.0 percent nonflat subangular indurated 2- to 75-millimeter Limestone fragments and
- 34.0 percent nonflat subangular indurated 75- to 250-millimeter Limestone fragments and
- 1.0 percent nonflat subangular indurated 250- to 600-millimeter Limestone fragments

**Description origin:** NASIS

**Description database:** MLRA09_Temple

**Diagnostic Features:**
- mollic epipedon 0 to 31 cm.
- petrocalcic horizon 31 to 50 cm.
- paralithic contact 50 to cm.

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<th>Top Depth (cm)</th>
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<th>Restriction Hardness</th>
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<td>31</td>
<td>50</td>
<td>petrocalcic</td>
<td>Weakly cemented</td>
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<tr>
<td>50</td>
<td>bedrock, paralithic</td>
<td>Weakly cemented</td>
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**Cont. Site ID:** S2019TX1370004

**Pedon ID:** S2019TX1370004

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<th>Drainage Class</th>
<th>Slope Length (meters)</th>
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</table>

A--0 to 15 centimeters (0.0 to 5.9 inches); clay, black (10YR 2/1), moist; moderate fine granular structure; slightly hard, friable; common very fine roots throughout and common medium roots throughout and common fine roots throughout; 2 percent nonflat angular indurated 75 to 250-millimeter Limestone fragments and 5 percent nonflat angular indurated 2 to 75-millimeter Limestone fragments; slight effervescence, by HCl, 1 normal; clear wavy boundary.

Bw--15 to 31 centimeters (5.9 to 12.2 inches); extremely gravelly clay, very dark gray (10YR 3/1), moist; moderate fine granular structure; slightly hard, friable; common very fine roots throughout and common medium roots throughout and common fine roots throughout and few coarse roots throughout; 25 percent flat subangular 2 to 150-millimeter Petrocalcic fragments and 40 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; strong effervescence, by HCl, 1 normal; abrupt wavy boundary.

Bkkm--31 to 50 centimeters (12.2 to 19.7 inches); cemented material; few very fine roots in cracks and few medium roots in cracks and few fine roots in cracks and few coarse roots in cracks; soil in cracks, ; abrupt wavy boundary.

Cr--50 centimeters (19.7 inches); bedrock; .
PEDON DESCRIPTION (Trench 2)

Print Date: Jun 11 2019
Description Date: Mar 13 2019
Describer: Ashley Anderson, Travis Waiser, Geraldine Vega
Site ID: S2019TX1370009

Pedon ID: S2019TX1370009

Site Note:

Pit Location:
Pedon Note:

Lab Source ID:
Lab Pedon #:

User Transect ID:
Soil Name as Described/Sampled: Tarrant
Classification: Clayey-skeletal, smectitic, thermic Lithic Calciustolls

Soil Name as Correlated:

Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series

Associated Soils:
Physiographic Division:
Physiographic Province:
Physiographic Section:

State Physiographic Area:

Local Physiographic Area:
Geomorphic Setting: on summit of interfluve of ridge on dissected plateau
Upslope Shape: linear
Cross Slope Shape: linear

Country:
State: Texas
County: Edwards
MLRA: 81B -- Edwards Plateau, Central Part
Soil Survey Area: TX607 -- Edwards and Real Counties, Texas
Soil Survey Area: TX607 -- Edwards and Real Counties, Texas

Map Unit:
Quad Name: Dunbar Draw SE, Texas
Std Latitude: 30.289583
Std Longitude: -100.553450

Latitude: 30 degrees 17 minutes 22.50 seconds north
Longitude: 100 degrees 33 minutes 12.42 seconds west
Datum: WGS84
UTM Zone: 14
UTM Easting: 350601 meters
UTM Northing: 3351896 meters

Primary Earth Cover:
Secondary Earth Cover:
Existing Vegetation: algerita, live oak, redberry juniper, Texas persimmon, Texas pricklypear, Texas wintergrass
Parent Material: residuum weathered from limestone
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
**Particle Size Control Section:** 25 to 41 cm.

**Surface Fragments:** 5.0 percent flat indurated 2- to 150-millimeter Limestone fragments

**Description origin:** NASIS

**Description database:** MLRA09_Temple

**Diagnostic Features:** mollic epipedon 0 to 41 cm.
calcic horizon 17 to 41 cm.
lithic contact 41 to cm.

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<th>Top Depth (cm)</th>
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<th>Restriction Hardness</th>
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<tr>
<td>41</td>
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<td>Indurated</td>
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**Cont. Site ID:** S2019TX1370009

**Pedon ID:** S2019TX1370009

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<th>Slope (%)</th>
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<th>Slope Length (meters)</th>
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</table>

A--0 to 17 centimeters (0.0 to 6.7 inches); silty clay, black (10YR 2/1), moist; moderate fine subangular blocky parts to moderate fine granular structure; hard, friable; common very fine roots throughout and few medium roots throughout and common fine roots throughout and few coarse roots throughout; 5 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; slight effervescence, by HCl, 1 normal; clear wavy boundary.

Ak--17 to 41 centimeters (6.7 to 16.1 inches); very dark gray (10YR 3/1) extremely gravelly clay, black (10YR 2/1), moist; moderate fine subangular blocky parts to moderate fine granular structure; hard, friable; common very fine roots throughout and common medium roots throughout and common fine roots throughout and few coarse roots throughout; 5 percent carbonate nodules on bottom of rock fragments; 15 percent flat indurated 2 to 150-millimeter Limestone fragments and 15 percent flat indurated 150 to 350-millimeter Limestone fragments and 35 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; strong effervescence, by HCl, 1 normal; abrupt wavy boundary.

R--41 centimeters (16.1 inches); .
PEDON DESCRIPTION (Trench 4)

Print Date: Jun 11 2019
Description Date: Mar 13 2019
Describer: Ashley Anderson, Travis Waiser, Geraldine Vega
Site ID: P2019TX1370010

Pedon ID: P2019TX1370010

Site Note:

Pit Location:
Pedon Note:

Lab Source ID:
Lab Pedon #:

User Transect ID:
Soil Name as Described/Sampled: Tarrant
Classification: Clayey-skeletal, smectitic, thermic, shallow Typic Calciustolls

Soil Name as Correlated:

Classification:
Pedon Type: taxadjunct to the series
Pedon Purpose: research site
Taxon Kind: taxadjunct

Associated Soils:
Physiographic Division:
Physiographic Province:
Physiographic Section:

State Physiographic Area:
Local Physiographic Area:
Geomorphic Setting: on summit of interfluve of ridge on dissected plateau
Upslope Shape: linear
Cross Slope Shape: linear

Country: Texas
State: Edwards
County: Edwards Plateau, Central Part
MLRA: 81B -- Edwards Plateau, Central Part
Soil Survey Area: TX607 -- Edwards and Real Counties, Texas
Soil Survey Area: TX607 -- Edwards and Real Counties, Texas
Map Unit:
Quad Name: Dunbar Draw SE, Texas
Std Latitude: 30.2799833
Std Longitude: -100.5603667
Latitude: 30 degrees 16 minutes 47.94 seconds north
Longitude: 100 degrees 33 minutes 37.32 seconds west
Datum: WGS84
UTM Zone: 14
UTM Easting: 349921 meters
UTM Northing: 3350841 meters
Primary Earth Cover:
Secondary Earth Cover:
Existing Vegetation: live oak, redberry juniper, sacahuista, Texas pricklypear, Texas wintergrass
Parent Material: residuum weathered from limestone
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
**Particle Size Control Section:** 25 to 42 cm.

**Surface Fragments:** 40.0 percent nonflat subangular indurated 2- to 75-millimeter Limestone fragments and 5.0 percent nonflat subangular indurated 75- to 250-millimeter Limestone fragments

**Description origin:** NASIS

**Diagnostic Features:** mollic epipedon 0 to 42 cm.
- calcic horizon 16 to 42 cm.
- paralithic contact 42 to cm.

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<th>Restriction Hardness</th>
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<tbody>
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<td>42</td>
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<td>bedrock, paralithic</td>
<td>Moderately cemented</td>
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**Cont. Site ID:** P2019TX1370010

**Pedon ID:**
P2019TX1370010

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A--0 to 16 centimeters (0.0 to 6.3 inches); clay, black (10YR 2/1), moist; moderate fine granular structure; common very fine roots throughout and common medium roots throughout and common fine roots throughout and few coarse roots throughout; 5 percent nonflat subangular moderately cemented 2 to 75-millimeter Petrocalcic fragments.

Ak--16 to 42 centimeters (6.3 to 16.5 inches); extremely gravelly clay, very dark grayish brown (10YR 3/2), moist; moderate fine granular structure; common very fine roots throughout and few very coarse roots throughout and common medium roots throughout and common fine roots throughout and few coarse roots throughout; 5 percent carbonate nodules on bottom of rock fragments; 20 percent flat moderately cemented 2 to 150-millimeter Petrocalcic fragments and 20 percent flat moderately cemented 150 to 380-millimeter Petrocalcic fragments and 25 percent nonflat subangular moderately cemented 2 to 75-millimeter Petrocalcic fragments.

Cr--42 centimeters (16.5 inches); bedrock; .
PEDON DESCRIPTION (Trench 5A, location 10 m)

Print Date: Jun 11 2019
Description Date: Mar 14 2019
Describer: Ashley Anderson, Travis Waiser, Geraldine Vega
Site ID: S2019TX1370013

Pedon ID: S2019TX1370013

Site Note: 

Pit Location: 
Pedon Note: 

Lab Source ID: 
Lab Pedon #: 

User Transect ID: 
Soil Name as Described/Sampled: Ozona
Classification: Loamy, mixed, superactive, thermic, shallow Petrocalcic Calciustolls

Soil Name as Correlated: 

Classification: 
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series

Associated Soils: 

Physiographic Division: 
Physiographic Province: 
Physiographic Section: 

State Physiographic Area: 
Local Physiographic Area: 
Geomorphic Setting: on backslope of side slope of ridge on dissected plateau
Upslope Shape: linear
Cross Slope Shape: convex

Country: 
State: Texas
County: Edwards
MLRA: 81B -- Edwards Plateau, Central Part
Soil Survey Area: TX607 -- Edwards and Real Counties, Texas
Soil Survey Area: TX607 -- Edwards and Real Counties, Texas
Map Unit: 
Quad Name: Dunbar Draw SE, Texas
Std Latitude: 30.2553056
Std Longitude: -100.5723333
Latitude: 30 degrees 15 minutes 19.10 seconds north
Longitude: 100 degrees 34 minutes 20.40 seconds west
Datum: WGS84
UTM Zone: 14
UTM Easting: 348732 meters
UTM Northing: 3348122 meters
Primary Earth Cover: 
Secondary Earth Cover: 
Existing Vegetation: cedar sedge, purple threeawn, redberry juniper
Parent Material: residuum weathered from limestone
Bedrock Kind: 
Bedrock Depth: 
Bedrock Hardness: 
Bedrock Fracture Interval:
Particle Size Control Section: 0 to 34 cm.

Surface Fragments: 5.0 percent nonflat subangular strongly cemented 2- to 75-millimeter Limestone fragments and 5.0 percent nonflat subangular strongly cemented 75- to 250-millimeter Limestone fragments

**Description origin:** NASIS

**Diagnostic Features:** mollic epipedon 0 to 34 cm.
petrocalcic horizon 34 to 37 cm.
paralithic contact 37 to 200 cm.

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<th>Top Depth (cm)</th>
<th>Bottom Depth (cm)</th>
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<th>Restriction Hardness</th>
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<tr>
<td>37</td>
<td>200</td>
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<td>Weakly cemented</td>
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**Cont. Site ID:** S2019TX1370013

**Pedon ID:** S2019TX1370013

### geology data

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<th>Drainage Class</th>
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</table>

A1--0 to 20 centimeters (0.0 to 7.9 inches); very dark grayish brown (10YR 3/2) silty clay loam, very dark brown (10YR 2/2), moist; moderate medium granular structure; slightly hard, friable; common very fine roots throughout and few medium roots throughout and common fine roots throughout; 8 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; clear wavy boundary.

A2--20 to 34 centimeters (7.9 to 13.4 inches); dark grayish brown (10YR 4/2) extremely channery silty clay loam, very dark brown (10YR 2/2), moist; moderate medium granular structure; slightly hard, friable; common very fine roots throughout and common medium roots throughout and common fine roots throughout and common coarse roots throughout; 30 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments and 35 percent flat angular indurated 2 to 150-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; clear wavy boundary.

Bkkm--34 to 37 centimeters (13.4 to 14.6 inches); material; clear wavy boundary.

Cr--37 to 200 centimeters (14.6 to 78.7 inches); bedrock; very few very fine roots throughout and few medium roots throughout and very few fine roots throughout; Small pocket at 100 to 130 cm of soil material in Cr was silty clay with 17% sand, 42% silt, and 41% clay.
PEDON DESCRIPTION (Trench 5A, location 18 m)

Print Date: Jun 11 2019
Description Date: Mar 14 2019
Describer: Ashley Anderson, Travis Waiser, Geraldine Vega
Site ID: P2019TX1370014

Pedon ID: P2019TX1370014

Site Note:

Pit Location:
Pedon Note:

Lab Source ID:
Lab Pedon #:

User Transect ID:
Soil Name as Described/Sampled: Prade
Classification: Clayey-skeletal, smectitic, thermic, shallow Petrocalcic Calciustolls

Soil Name as Correlated:

Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series

Associated Soils:
Physiographic Division:
Physiographic Province:
Physiographic Section:

State Physiographic Area:

Local Physiographic Area:
Geomorphic Setting: on backslope of side slope of ridge on dissected plateau
Upslope Shape: linear
Cross Slope Shape: convex

Country: Texas
State: Texas
County: Edwards
MLRA: 81B -- Edwards Plateau, Central Part
Soil Survey Area: TX607 -- Edwards and Real Counties, Texas
Soil Survey Area: TX607 -- Edwards and Real Counties, Texas
Map Unit:
Quad Name: Dunbar Draw SE, Texas
Std Latitude: 30.2555833
Std Longitude: -100.5726389
Latitude: 30 degrees 15 minutes 20.10 seconds north
Longitude: 100 degrees 34 minutes 21.50 seconds west
Datum: WGS84
UTM Zone: 14
UTM Easting: 348703 meters
UTM Northing: 3348153 meters
Primary Earth Cover:
Secondary Earth Cover:
Existing Vegetation: cedar sedge, purple threeawn, redberry juniper
Parent Material: residuum weathered from limestone
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Particle Size Control Section: 25 to 41 cm.

Surface Fragments: 5.0 percent nonflat subangular strongly cemented 2- to 75-millimeter Limestone fragments and 5.0 percent nonflat subangular strongly cemented 75- to 250-millimeter Limestone fragments

Description origin: NASIS

Description database: MLRA09_Temple

Diagnostic Features: mollic epipedon 0 to 41 cm.
petrocalcic horizon 41 to 43 cm.
paralithic materials 43 to 86 cm.

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<th>Restriction Kind</th>
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<td>43</td>
<td>petrocalcic</td>
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<td>43</td>
<td>86</td>
<td>bedrock, paralithic</td>
<td>Moderately cemented</td>
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Cont. Site ID: P2019TX1370014

Pedon ID: P2019TX1370014

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<th>MSAT (C)</th>
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<th>Drainage Class</th>
<th>Slope Length (meters)</th>
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A1--0 to 21 centimeters (0.0 to 8.3 inches); very dark grayish brown (10YR 3/2) clay, very dark brown (10YR 2/2), moist; moderate medium granular structure; slightly hard, friable; common very fine roots throughout and few medium roots throughout and common fine roots throughout; 6 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; clear wavy boundary.

A2--21 to 41 centimeters (8.3 to 16.1 inches); dark grayish brown (10YR 4/2) extremely gravelly clay, very dark brown (10YR 2/2), moist; moderate medium granular structure; slightly hard, friable; common very fine roots throughout and few very coarse roots throughout and few medium roots throughout and common fine roots throughout and few coarse roots throughout; 10 percent flat angular moderately cemented 2 to 150-millimeter Petrocalcic fragments and 25 percent flat angular moderately cemented 150 to 350-millimeter Petrocalcic fragments and 30 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; clear wavy boundary.

Bkkm--41 to 43 centimeters (16.1 to 16.9 inches); material; clear wavy boundary.

Cr--43 to 86 centimeters (16.9 to 33.9 inches); bedrock; .
PEDON DESCRIPTION (Trench 5B)

Print Date: Jun 11 2019
Description Date: Mar 14 2019
Describer: Ashley Anderson, Travis Waiser, Geraldine Vega
Site ID: S2019TX1370012

Pedon ID: S2019TX1370012

Country: Texas
State: Texas
County: Edwards
MLRA: 81B -- Edwards Plateau, Central Part
Soil Survey Area: TX607 -- Edwards and Real Counties, Texas

Site Note:

Pit Location:
Pedon Note:

Lab Source ID:
Lab Pedon #:

User Transect ID:
Soil Name as Described/Sampled: Rio Diablo
Classification: Fine, mixed, superactive, thermic Pachic Haplustolls

Soil Name as Correlated:

Classification:
Pedon Type: taxadjunct to the series
Pedon Purpose: research site
Taxon Kind: taxadjunct

Associated Soils:
Physiographic Division:
Physiographic Province:
Physiographic Section:

State Physiographic Area:

Local Physiographic Area:
Geomorphic Setting: on footslope of base slope of ridge on dissected plateau
Upslope Shape: concave
Cross Slope Shape: linear

Latitude: 30 degrees 15 minutes 18.90 seconds north
Longitude: 100 degrees 34 minutes 19.80 seconds west
Datum: WGS84
UTM Zone: 14
UTM Easting: 348748 meters
UTM Northing: 3348115 meters

Primary Earth Cover:
Secondary Earth Cover:
Existing Vegetation: Christmas cactus, honey mesquite, redberry juniper, Texas pricklypear
Parent Material: alluvium derived from limestone
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
**Particle Size Control Section:** 25 to 100 cm.

**Surface Fragments:** 2.0 percent nonflat subrounded indurated 2- to 75-millimeter Limestone fragments

**Description origin:** NASIS

**Description database:** MLRA09_Temple

**Diagnostic Features:** mollic epipedon 0 to 60 cm.
cambic horizon 60 to 118 cm.
paralithic materials 118 to 147 cm.

### Top Depth (cm) | Bottom Depth (cm) | Restriction Kind       | Restriction Hardness
--- | --- | --- | ---
118  | 147  | bedrock, paralithic | Moderately cemented

**Cont. Site ID:** S2019TX1370012

**Pedon ID:** S2019TX1370012

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</table>

A1--0 to 18 centimeters (0.0 to 7.1 inches); very dark grayish brown (10YR 3/2) silty clay loam, very dark brown (10YR 2/2), moist; weak medium subangular blocky parts to moderate fine granular structure; slightly hard, friable; common very fine roots throughout and common fine roots throughout; 2 percent nonflat subangular indurated 2 to 20-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; clear smooth boundary.

A2--18 to 35 centimeters (7.1 to 13.8 inches); very dark grayish brown (10YR 3/2) silty clay, very dark brown (10YR 2/2), moist; weak medium subangular blocky parts to moderate fine granular structure; slightly hard, friable; common very fine roots throughout and few medium roots throughout and common fine roots throughout; 4 percent nonflat subangular indurated 2 to 20-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; clear smooth boundary.

Bw--35 to 60 centimeters (13.8 to 23.6 inches); brown (7.5YR 4/3) silty clay, dark brown (10YR 3/3), moist; moderate medium subangular blocky structure; hard, firm; common very fine roots throughout and few medium roots throughout and common fine roots throughout and few coarse roots throughout; common very fine tubular pores; 6 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; gradual wavy boundary.

Bk1--60 to 92 centimeters (23.6 to 36.2 inches); brown (7.5YR 4/4) silty clay, brown (7.5YR 4/4), moist; weak medium subangular blocky parts to moderate fine subangular blocky structure; hard, firm; common very fine roots throughout and few medium roots throughout and common fine roots throughout and few coarse roots throughout; common very fine tubular pores; 2 percent fine threadlike carbonate masses throughout; 8 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; violent
effervescence, by HCl, 1 normal; gradual wavy boundary.

Bk2--92 to 118 centimeters (36.2 to 46.5 inches); strong brown (7.5YR 5/6) silty clay, strong brown (7.5YR 5/6), moist; moderate fine subangular blocky structure; hard, firm; few very fine roots throughout and few medium roots throughout and few fine roots throughout; common very fine tubular and common fine tubular pores; 4 percent fine threadlike carbonate masses throughout; 8 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal.

Cr--118 to 147 centimeters (46.5 to 57.9 inches); bedrock; few fine roots throughout; violent effervescence, by HCl, 1 normal.
PEDON DESCRIPTION (Trench 6, location 4 m)

Country: Texas
State: Texas
County: Edwards
MLRA: 81B -- Edwards Plateau, Central Part
Soil Survey Area: TX607 -- Edwards and Real Counties, Texas

Pedon ID: P2019TX1370002

Lab Source ID:
Lab Pedon #:
User Transect ID:

Soil Name as Described/Sampled: Mereta
Classification: Clayey, mixed, superactive, thermic, shallow Petrocalcic Calciustolls

Soil Name as Correlated:
Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series
Associated Soils:

State Physiographic Area:
Local Physiographic Area:
Geomorphic Setting: on toeslope of base slope of ridge on dissected plateau
Upslope Shape: linear
Cross Slope Shape: linear

Primary Earth Cover:
Secondary Earth Cover:
Existing Vegetation: honey mesquite, live oak, redberry juniper, Texas pricklypear, Texas wintergrass
Parent Material: alluvium derived from limestone
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Particle Size Control Section: 25 to 39 cm.

Surface Fragments: 5.0 percent nonflat subangular indurated 2- to 75-millimeter Limestone fragments and 5.0 percent nonflat subangular indurated 75- to 250-millimeter Limestone fragments

Description origin: NASIS

Description database: MLRA09_Temple

Diagnostic Features: mollic epipedon 0 to 39 cm.
petrocalcic horizon 39 to 65 cm.
cambic horizon 65 to 145 cm.
paralithic contact 145 to 155 cm.

<table>
<thead>
<tr>
<th>Top Depth (cm)</th>
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<th>Restriction Kind</th>
<th>Restriction Hardness</th>
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<tbody>
<tr>
<td>39</td>
<td>65</td>
<td>petrocalcic</td>
<td>Strongly cemented</td>
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<tr>
<td>145</td>
<td>155</td>
<td>bedrock, paralithic</td>
<td>Weakly cemented</td>
</tr>
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</table>

Cont. Site ID: P2019TX1370002

Pedon ID: P2019TX1370002

A1--0 to 20 centimeters (0.0 to 7.9 inches); very dark gray (10YR 3/1) clay, very dark brown (10YR 2/2), moist; moderate medium subangular blocky, and moderate fine subangular blocky structure; slightly hard, friable; common very fine roots throughout and few medium roots throughout and common fine roots throughout; 8 percent nonflat subrounded indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; clear smooth boundary.

A2--20 to 39 centimeters (7.9 to 15.4 inches); dark grayish brown (10YR 4/2) gravelly clay, dark brown (10YR 3/3), moist; moderate fine subangular blocky structure; hard, firm; common very fine roots throughout and few very coarse roots throughout and few medium roots throughout and common medium roots throughout and common fine roots throughout and few coarse roots throughout; 1 percent nonflat subrounded indurated 75 to 250-millimeter Limestone fragments and 15 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; clear wavy boundary.

Bkkm--39 to 65 centimeters (15.4 to 25.6 inches); cemented material; few very fine roots throughout and few medium roots throughout and few fine roots throughout; violent effervescence, by HCl, 1 normal; abrupt wavy boundary.
Bk1--65 to 107 centimeters (25.6 to 42.1 inches); brown (7.5YR 4/3) clay, brown (7.5YR 4/3), moist; weak fine subangular blocky structure; slightly hard, friable; common very fine roots throughout and few very coarse roots throughout and common fine roots throughout and few coarse roots throughout; 3 percent fine threadlike carbonate masses; 2 percent nonflat subrounded indurated 75 to 250-millimeter Limestone fragments and 10 percent nonflat subrounded indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; clear wavy boundary.

Bk2--107 to 145 centimeters (42.1 to 57.1 inches); light brown (7.5YR 6/4) clay, brown (7.5YR 5/4), moist; weak fine subangular blocky structure; slightly hard, friable; common very fine roots throughout and few medium roots throughout and common fine roots throughout and few coarse roots throughout; 3 percent fine threadlike carbonate masses; 1 percent nonflat subrounded indurated 75 to 250-millimeter Limestone fragments and 8 percent nonflat subrounded indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; abrupt wavy boundary.

Cr--145 to 155 centimeters (57.1 to 61.0 inches); bedrock; violent effervescence, by HCl, 1 normal.
PEDON DESCRIPTION (Trench 6, location 6 m)

Print Date: Jun 11 2019
Description Date: Mar 12 2019
Describer: Ashley Anderson, Travis Waiser, Geraldine Vega
Site ID: S2019TX1370001

Pedon ID: S2019TX1370001

Site Note:

Pit Location:
Pedon Note:

Lab Source ID:
Lab Pedon #:

User Transect ID:
Soil Name as Described/Sampled: Mereta
Classification: Clayey, mixed, superactive, thermic, shallow Petrocalcic Calciustolls

Soil Name as Correlated:

Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series

Associated Soils:
Physiographic Division:

Physiographic Province:

Physiographic Section:

State Physiographic Area:
Local Physiographic Area:
Geomorphic Setting: on toeslope of base slope of ridge on dissected plateau
Upslope Shape: linear

Country: Texas
State: Texas
County: Edwards
MLRA: 81B -- Edwards Plateau, Central Part
Soil Survey Area: TX607 -- Edwards and Real Counties, Texas

Soil Survey Area: TX607 -- Edwards and Real Counties, Texas

Map Unit:
Quad Name: Dunbar Draw SE, Texas
Std Latitude: 30.283383
Std Longitude: -100.541117

Latitude: 30 degrees 17 minutes 0.18 seconds north
Longitude: 100 degrees 32 minutes 28.02 seconds west
Datum: WGS84
UTM Zone: 14
UTM Easting: 351778 meters
UTM Northing: 3351193 meters

Primary Earth Cover: Grass/herbaceous cover
Secondary Earth Cover: Savanna rangeland
Existing Vegetation: honey mesquite, live oak, redberry juniper, Texas pricklypear, Texas wintergrass
Parent Material: alluvium derived from limestone
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Cross Slope Shape: linear

Particle Size Control Section: 25 to 43 cm.

Bedrock Fracture Interval:

Surface Fragments: 5.0 percent nonflat subangular indurated 2- to 75-millimeter Limestone fragments and 5.0 percent nonflat subangular indurated 75- to 250-millimeter Limestone fragments

Description origin: NASIS

Diagnostic Features: mollic epipedon 0 to 43 cm.

Surface Fragments: 5.0 percent nonflat subangular indurated 2- to 75-millimeter Limestone fragments and 5.0 percent nonflat subangular indurated 75- to 250-millimeter Limestone fragments

Description database:
MLRA09_Temple

Top Depth (cm) | Bottom Depth (cm) | Restriction Kind | Restriction Hardness
--- | --- | --- | ---
43 | 55 | petrocalcic | Weakly cemented

Cont. Site ID: S2019TX1370001

Pedon ID: S2019TX1370001

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A1--0 to 23 centimeters (0.0 to 9.1 inches); very dark grayish brown (10YR 3/2) clay, very dark brown (10YR 2/2), moist; moderate medium subangular blocky, and moderate fine subangular blocky structure; slightly hard, friable; common very fine roots throughout and common medium roots throughout and common fine roots throughout and few coarse roots throughout; few fine tubular pores; 8 percent nonflat subrounded indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; gradual smooth boundary.

A2--23 to 43 centimeters (9.1 to 16.9 inches); dark grayish brown (10YR 4/2) clay, dark brown (10YR 3/3), moist; moderate medium subangular blocky structure; hard, firm; common very fine roots throughout and very few very coarse roots throughout and common medium roots throughout and few fine roots throughout and few coarse roots throughout; 1 percent nonflat subangular indurated 75 to 255-millimeter Limestone fragments and 8 percent nonflat subrounded indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; abrupt wavy boundary.

Bkkm--43 to 55 centimeters (16.9 to 21.7 inches); cemented material; few very fine roots in cracks and few fine roots in cracks; violent effervescence, by HCl, 1 normal; gradual wavy boundary.

Ck1--55 to 125 centimeters (21.7 to 49.2 inches); pink (7.5YR 8/3) material; few very fine roots in cracks
and few medium roots in cracks and few fine roots in cracks; violent effervescence, by HCl, 1 normal; gradual wavy boundary.

Ck2--125 to 180 centimeters (49.2 to 70.9 inches); pink (7.5YR 8/3) material; few very fine roots in cracks and few medium roots in cracks and few fine roots in cracks; 10 percent coarse carbonate masses and 10 percent coarse carbonate nodules; violent effervescence, by HCl, 1 normal.
PEDON DESCRIPTION (Trench 6, location 8 m)

**Print Date:** Jun 11 2019  
**Description Date:** Mar 12 2019  
**Describer:** Ashley Anderson, Travis Waiser, Geraldine Vega  
**Site ID:** S2019TX1370003  
**Pedon ID:** S2019TX1370003  

**Site Note:**

**Pit Location:**  
**Pedon Note:**

**Lab Source ID:**  
**Lab Pedon #:**

**User Transect ID:**

**Soil Name as Described/Sampled:** Rio Diablo  
**Classification:** Fine, mixed, superactive, thermic Aridic Haplustolls

**Soil Name as Correlated:**

**Classification:**  
**Pedon Type:** correlates to named soil  
**Pedon Purpose:** research site  
**Taxon Kind:** series

**Associated Soils:**

**Physiographic Division:**  
**Physiographic Province:**  
**Physiographic Section:**

**State Physiographic Area:**

**Local Physiographic Area:**

**Geomorphic Setting:** on toeslope of base slope of ridge on dissected plateau

**Upslope Shape:** linear  
**Cross Slope Shape:** linear

**Country:**  
**State:** Texas  
**County:** Edwards  
**MLRA:** 81B -- Edwards Plateau, Central Part  
**Soil Survey Area:** TX607 -- Edwards and Real Counties, Texas  
**Map Unit:**

**Quad Name:** Dunbar Draw SE, Texas  
**Std Latitude:** 30.2834000  
**Std Longitude:** -100.5411667  
**Latitude:** 30 degrees 17 minutes 0.24 seconds north  
**Longitude:** 100 degrees 32 minutes 28.20 seconds west  
**Datum:** WGS84  
**UTM Zone:** 14  
**UTM Easting:** 351773 meters  
**UTM Northing:** 3351195 meters  

**Primary Earth Cover:**

**Secondary Earth Cover:**

**Existing Vegetation:** curly-mesquite, honey mesquite, redberry juniper, Texas pricklypear, Texas wintergrass

**Parent Material:** alluvium derived from limestone

**Bedrock Kind:**

**Bedrock Depth:**

**Bedrock Hardness:**

**Bedrock Fracture Interval:**
**Particle Size Control Section:** 25 to 100 cm.

**Surface Fragments:** 5.0 percent nonflat subangular indurated 2- to 75-millimeter Limestone fragments and 5.0 percent nonflat subangular indurated 75- to 250-millimeter Limestone fragments

**Description origin:** NASIS

**Diagnostic Features:** mollic epipedon 0 to 29 cm. cambic horizon 29 to 120 cm.

**Cont. Site ID:** S2019TX1370003

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A--0 to 29 centimeters (0.0 to 11.4 inches); very dark gray (10YR 3/1) silty clay, black (10YR 2/1), moist; strong fine subangular blocky parts to moderate fine granular structure; slightly hard, friable; common very fine roots throughout and common fine roots throughout; 4 percent nonflat subrounded indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; clear smooth boundary.

Bw--29 to 61 centimeters (11.4 to 24.0 inches); brown (7.5YR 4/3) clay, brown (7.5YR 4/3), moist; moderate medium subangular blocky, and moderate medium angular blocky structure; hard, firm; common very fine roots throughout and few medium roots throughout and common fine roots throughout; 8 percent nonflat subrounded indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; clear smooth boundary.

Bk1--61 to 100 centimeters (24.0 to 39.4 inches); weak red (7.5R 4/3) clay, brown (7.5YR 4/3), moist; moderate medium prismatic structure; hard, firm; common very fine roots throughout and common fine roots throughout; 4 percent fine threadlike carbonate masses; 1 percent nonflat subrounded indurated 75 to 250-millimeter Limestone fragments and 10 percent nonflat subrounded indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; clear smooth boundary.

Bk2--100 to 120 centimeters (39.4 to 47.2 inches); light brown (7.5YR 6/4) clay, red (7.5R 5/6), moist; weak medium subangular blocky structure; hard, firm; few very fine roots throughout and few fine roots throughout; 3 percent fine spherical carbonate masses; 1 percent nonflat subrounded indurated 75 to 250-millimeter Limestone fragments and 8 percent nonflat subrounded indurated 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal.