PEDON DESCRIPTION -- NEON Site KONZ

Print Date: Sep 3 2017
Description Date: Oct 26 2015
Describer: Brian Nester
NEON Plot ID: KONZ_006
Site ID: S2015KS061100
Pedon ID: S2015KS061100

Site Note: KONZ_006 - the center of pit is located 25.3 meters at 85 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 16N0260
Soil Name as Described/Sampled: Tully
Classification: Fine, mixed, superactive, mesic Pachic Argiustolls
Soil Name as Correlated:
Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series
Associated Soils:
Physiographic Division: Interior Plains
Physiographic Province: Central Lowland Province
Physiographic Section: Osage plain

State Physiographic Area: Flint Hills Upland
Local Physiographic Area: Flint Hills Uplands
Geomorphic Setting: on footslope of base slope of hillslope on upland
Upslope Shape: linear
Cross Slope Shape: concave
Particle Size Control Section: 66 to 100 cm.
Description origin: NASIS

Diagnostic Features: mollic epipedon 0 to 100 cm.
argillic horizon 66 to 100 cm.
redox concentrations 66 to 100 cm.

Country: United States
State: Kansas
County: Geary
MLRA: 76 -- Bluestem Hills
Soil Survey Area: KS061 -- Geary County, Kansas
Map Unit: 4783 -- Tully silty clay loam, 3 to 7 percent slopes

Pit Location: KONZ_006 - the center of pit is located 25.3 meters at 85 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Quad Name: Swede Creek, Kansas
Std Latitude: 39.0709800
Std Longitude: -96.5889000

Latitude:
Longitude:
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Primary Earth Cover: Grass/herbaceous cover
Secondary Earth Cover: Grassland rangeland
Existing Vegetation: big bluestem, buffalograss, composite dropseed, Illinois bundleflower, Indiangrass, Jersey tea, leadplant, little bluestem, Nuttall's sensitive-briar, pitcher sage, sideoats grama, switchgrass
Parent Material: colluvium
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Cont. Site ID: S2015KS061100 **Pedon ID:** S2015KS061100

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
4.0	416.0	225						well		

A1--0 to 15 centimeters (0.0 to 5.9 inches); very dark gray (10YR 3/1) interior silt loam, black (10YR 2/1) interior, moist; 26 percent clay; moderate fine granular structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine roots throughout and many fine roots throughout; noneffervescent, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00943

A2--15 to 44 centimeters (5.9 to 17.3 inches); very dark gray (10YR 3/1) interior silty clay loam, black (10YR 2/1) interior, moist; 30 percent clay; weak medium subangular blocky parts to moderate fine granular structure; slightly hard, friable, slightly sticky, slightly plastic; many very fine roots throughout and common fine roots throughout; common fine low-continuity tubular pores; 1 percent nonflat subangular indurated 2 to 5-millimeter Chert fragments; noneffervescent, by HCl, unspecified; gradual smooth boundary. Lab sample # 16N00944

BA--44 to 66 centimeters (17.3 to 26.0 inches); very dark grayish brown (10YR 3/2) interior silty clay loam, very dark brown (10YR 2/2) interior, moist; 33 percent clay; weak fine subangular blocky structure; hard, firm, moderately sticky, moderately plastic; common fine roots throughout; common medium low-continuity tubular and common fine low-continuity tubular pores; 1 percent nonflat subangular indurated 2 to 5-millimeter Chert fragments; noneffervescent, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00945

Bt--66 to 100 centimeters (26.0 to 39.4 inches); very dark grayish brown (10YR 3/2) interior silty clay, very dark brown (10YR 2/2) interior, moist; 42 percent clay; moderate medium prismatic parts to moderate fine subangular blocky structure; hard, firm, very sticky, very plastic; common very fine roots throughout; common very fine low-continuity tubular pores; 95 percent distinct 10YR 2/2), moist, clay films on all faces of peds; 2 percent fine distinct spherical 7.5YR 4/4), moist, iron-manganese masses with clear boundaries Between peds; 3 percent nonflat subangular indurated 2 to 5-millimeter Chert fragments; noneffervescent, by HCl, unspecified. Lab sample # 16N00946

PEDON DESCRIPTION -- NEON Site KONZ

Print Date: Sep 3 2017
Description Date: Oct 26 2015
Describer: Brian Nester
NEON Plot ID: KONZ_010
Site ID: S2015KS161100
Pedon ID: S2015KS161100

Site Note: KONZ_010 - the center of pit is located 7 meters at 45 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 16N0261
Soil Name as Described/Sampled: Benfield
Classification: Fine, mixed, superactive, mesic Udertic Argiustolls
Soil Name as Correlated:
Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series
Associated Soils:
Physiographic Division: Interior Plains
Physiographic Province: Central Lowland Province
Physiographic Section: Osage plain

State Physiographic Area: Flint Hills Upland

Local Physiographic Area: Flint Hills Uplands
Geomorphic Setting: on backslope of side slope of hillslope on upland
Upslope Shape: linear
Cross Slope Shape: linear
Particle Size Control Section: 27 to 77 cm.
Description origin: NASIS

Diagnostic Features: mollic epipedon 0 to 72 cm.
argillic horizon 27 to 100 cm.
redox concentrations 44 to 100 cm.
lithologic discontinuity 72 to 100 cm.

Country: United States
State: Kansas
County: Riley
MLRA: 76 -- Bluestem Hills
Soil Survey Area: KS161 -- Riley County, Kansas
Map Unit: 4530 -- Benfield-Florence complex, 5 to 30 percent slopes

Pit Location: KONZ_010 - the center of pit is located 7 meters at 45 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Quad Name: Swede Creek, Kansas
Std Latitude: 39.0736100
Std Longitude: -96.5713300

Latitude:
Longitude:
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Primary Earth Cover: Grass/herbaceous cover
Secondary Earth Cover: Grassland rangeland
Existing Vegetation: big bluestem, buffalograss, composite dropseed, Illinois bundleflower, Indiangrass, Jersey tea, leadplant, little bluestem, Nuttall's sensitive-briar, pitcher sage, sideoats grama, switchgrass
Parent Material: colluvium over residuum weathered from clayey shale
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Cont. Site ID: S2015KS161100 **Pedon ID:** S2015KS161100

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
8.0	424.0	90						well		

A--0 to 27 centimeters (0.0 to 10.6 inches); very dark gray (10YR 3/1) interior silty clay loam, black (10YR 2/1) interior, moist; 32 percent clay; moderate fine granular structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine roots throughout and common fine roots throughout; 2 percent nonflat angular indurated 5 to 20-millimeter Chert fragments and 2 percent nonflat angular indurated 2 to 5-millimeter Chert fragments and 3 percent nonflat subangular indurated 20 to 75-millimeter Chert fragments; noneffervescent, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00947

Bt1--27 to 44 centimeters (10.6 to 17.3 inches); very dark grayish brown (10YR 3/2) interior silty clay, very dark brown (10YR 2/2) interior, moist; 45 percent clay; moderate medium granular structure; hard, very firm, moderately sticky, moderately plastic; common very fine roots throughout and common fine roots throughout; common coarse low-continuity tubular pores; 45 percent distinct 10YR 2/2), moist, clay films on all faces of peds; 1 percent nonflat angular indurated 5 to 20-millimeter Chert fragments and 5 percent nonflat angular indurated 2 to 5-millimeter Chert fragments; noneffervescent, by HCl, unspecified; gradual smooth boundary. Lab sample # 16N00948

Bt2--44 to 72 centimeters (17.3 to 28.3 inches); brown (10YR 4/3) interior silty clay, dark brown (10YR 3/3) interior, moist; 50 percent clay; weak medium prismatic parts to moderate medium subangular blocky structure; hard, very firm, moderately sticky, moderately plastic; common very fine roots throughout; common fine low-continuity tubular and common coarse low-continuity tubular pores; 90 percent distinct 10YR 3/3), moist, clay films on all faces of peds; 5 percent fine distinct spherical very weakly cemented 10YR 2/1), moist, iron-manganese concretions with clear boundaries Throughout; 2 percent flat angular indurated 2 to 5-millimeter Chert fragments; noneffervescent, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00949

2Bt3--72 to 100 centimeters (28.3 to 39.4 inches); brown (10YR 5/3) interior clay, dark yellowish brown (10YR 4/4) interior, moist; 55 percent clay; moderate medium subangular blocky structure; hard, very firm, very sticky, very plastic; common very fine roots throughout; common very fine low-continuity tubular pores; 8 percent distinct 10YR 4/4), moist, pressure faces on vertical faces of peds and 90 percent distinct 10YR 4/4), moist, clay films on all faces of peds; 5 percent fine distinct spherical masses of oxidized iron with clear boundaries Between peds and 10 percent fine distinct spherical very weakly cemented 10YR 2/1), moist, iron-manganese concretions with clear boundaries Throughout; noneffervescent, by HCl, unspecified. Lab sample # 16N00950

PEDON DESCRIPTION -- NEON Site KONZ

Print Date: Sep 3 2017
Description Date: Oct 26 2015
Describer: Brian Nester
NEON Plot ID: KONZ_001
Site ID: S2015KS161101
Pedon ID: S2015KS161101

Country: United States
State: Kansas
County: Riley
MLRA: 76 -- Bluestem Hills
Soil Survey Area: KS161 -- Riley County, Kansas
Map Unit: 4530 -- Benfield-Florence complex, 5 to 30 percent slopes

Site Note: KONZ_001 - the center of pit is located 13 meters at 89 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Pit Location: KONZ_001 - the center of pit is located 13 meters at 89 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Pedon Note: Hand digging at this site was difficult as the pit was a clayey-skeletal soil full of chert channers and gravel. We were only able to dig to 70cm. We did not hit bedrock or other restrictions and roots appeared to continue further down the profile. We assume we would find more clayey-skeletal material down to one meter. THis site is simialr to S2014KS161501 that was sampled and sent to KSSL last year in a backhoe pit. That site was on the same landform psotion as this site.

Quad Name: Swede Creek, Kansas

Lab Source ID: KSSL
Lab Pedon #: 16N0262
Soil Name as Described/Sampled: Florence
Classification: Clayey-skeletal, smectitic, mesic Udic Argiustolls
Soil Name as Correlated:
Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series
Associated Soils:

Std Latitude: 39.0749500
Std Longitude: -96.5560200
Latitude:
Longitude:
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Physiographic Division: Interior Plains
Physiographic Province: Central Lowland Province
Physiographic Section: Osage plain

State Physiographic Area: Flint Hills Upland

Local Physiographic Area: Flint Hills Uplands
Geomorphic Setting: on summit of interfluve of hillslope on upland
Upslope Shape: linear
Cross Slope Shape: linear
Particle Size Control Section: 34 to 70 cm.
Description origin: NASIS

Primary Earth Cover: Grass/herbaceous cover
Secondary Earth Cover: Grassland rangeland
Existing Vegetation: big bluestem, composite dropseed, Cuman ragweed, Indiangrass, Jersey tea, leadplant, little bluestem, sideoats grama, switchgrass

Parent Material: residuum weathered from cherty limestone
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Diagnostic Features: mollic epipedon 0 to 34 cm.
argillic horizon 34 to 70 cm.
redox concentrations 34 to 70 cm.

Cont. Site ID: S2015KS161101 **Pedon ID:** S2015KS161101

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
3.0	434.0	270						well		

A1--0 to 20 centimeters (0.0 to 7.9 inches); very dark grayish brown (10YR 3/2) interior very cobbly silty clay loam, very dark brown (10YR 2/2) interior, moist; 29 percent clay; moderate fine granular structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine roots throughout; 15 percent nonflat subangular indurated 75 to 250-millimeter Chert fragments and 25 percent nonflat subangular indurated 2 to 75-millimeter Chert fragments; noneffervescent, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00951

A2--20 to 34 centimeters (7.9 to 13.4 inches); very dark gray (10YR 3/1) interior extremely cobbly silty clay loam, very dark brown (10YR 2/2) interior, moist; 37 percent clay; weak fine granular structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine roots throughout; 30 percent nonflat subangular indurated 75 to 250-millimeter Chert fragments and 45 percent nonflat subangular indurated 2 to 75-millimeter Chert fragments; noneffervescent, by HCl, unspecified; gradual smooth boundary. Lab sample # 16N00952

Bt--34 to 70 centimeters (13.4 to 27.6 inches); dark reddish brown (5YR 3/4) interior extremely cobbly clay, dark reddish brown (5YR 3/4) interior, moist; 56 percent clay; moderate fine subangular blocky structure; slightly hard, firm, moderately sticky, moderately plastic; common very fine low-continuity tubular pores; 40 percent faint 5YR 3/4), moist, clay films on all faces of peds; 1 percent medium faint spherical 10YR 4/4), moist, masses of oxidized iron Throughout and 1 percent fine distinct spherical 10YR 2/2), moist, manganese masses Throughout; 30 percent nonflat subangular indurated 75 to 250-millimeter Chert fragments and 45 percent nonflat subangular indurated 2 to 75-millimeter Chert fragments; noneffervescent, by HCl, unspecified. Lab sample # 16N00953

PEDON DESCRIPTION -- NEON Site KONZ

Print Date: Sep 3 2017
Description Date: Oct 27 2015
Describer: Brian Nester
NEON Plot ID: KONZ_002
Site ID: S2015KS161102
Pedon ID: S2015KS161102

Site Note: KONZ_002 - the center of pit is located 8.1 meters at 45 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Pedon Note: Roots were present in the Cr horizon. The restrictive horizon in this pedon is the R horizon.
Lab Source ID: KSSL
Lab Pedon #: 16N0263
Soil Name as Described/Sampled: Clime
Classification: Fine, mixed, active, mesic Udorthentic Haplustolls
Soil Name as Correlated:
Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series
Associated Soils:
Physiographic Division: Interior Plains
Physiographic Province: Central Lowland Province
Physiographic Section: Osage plain

State Physiographic Area: Flint Hills Upland

Local Physiographic Area: Flint Hills Uplands
Geomorphic Setting: on backslope of side slope of hillslope on upland
Upslope Shape: linear
Cross Slope Shape: linear
Particle Size Control Section: 25 to 83 cm.

Description origin: NASIS

Diagnostic Features: mollic epipedon 0 to 27 cm.
cambic horizon 27 to 44 cm.
lithologic discontinuity 44 to 83 cm.
lithic contact 83 to 83 cm.

Country: United States
State: Kansas
County: Riley
MLRA: 76 -- Bluestem Hills
Soil Survey Area: KS161 -- Riley County, Kansas
Map Unit: 4550 -- Clime silty clay loam, 20 to 40 percent slopes, very stony

Pit Location: KONZ_002 - the center of pit is located 8.1 meters at 45 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Quad Name: Swede Creek, Kansas
Std Latitude: 39.1198300
Std Longitude: -96.5461300

Latitude:
Longitude:
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Primary Earth Cover: Grass/herbaceous cover
Secondary Earth Cover: Grassland rangeland
Existing Vegetation: big bluestem, buffalograss, composite dropseed, Illinois bundleflower, Indiangrass, Jersey tea, leadplant, little bluestem, Nuttall's sensitive-briar, pitcher sage, sideoats grama, switchgrass
Parent Material: colluvium derived from cherty limestone over residuum weathered from calcareous shale
Bedrock Kind: Calcareous shale
Bedrock Depth: 83 centimeters
Bedrock Hardness: indurated
Bedrock Fracture Interval:
Surface Fragments: 30.0 percent flat subrounded indurated 150- to 380-millimeter Limestone fragments

Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
83	83	bedrock, lithic	Indurated

Cont. Site ID: S2015KS161102 **Pedon ID:** S2015KS161102

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
30.0	399.0	135						well		

A1--0 to 16 centimeters (0.0 to 6.3 inches); very dark gray (10YR 3/1) interior gravelly silty clay loam, black (10YR 2/1) interior, moist; 36 percent clay; moderate medium granular structure; hard, very friable, slightly sticky, moderately plastic; common very fine roots throughout and common fine roots throughout; 18 percent nonflat subangular indurated 2 to 75-millimeter Cherty limestone fragments; noneffervescent, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00954

A2--16 to 27 centimeters (6.3 to 10.6 inches); dark gray (10YR 4/1) interior very gravelly silty clay loam, very dark gray (10YR 3/1) interior, moist; 38 percent clay; weak fine granular structure; slightly hard, very friable, moderately sticky, moderately plastic; common very fine roots throughout; 40 percent nonflat angular indurated 2 to 75-millimeter Cherty limestone fragments; strong effervescence, by HCl, unspecified; gradual smooth boundary. Lab sample # 16N00955

Bw--27 to 44 centimeters (10.6 to 17.3 inches); dark grayish brown (10YR 4/2) interior very gravelly silty clay, dark grayish brown (10YR 4/2) interior, moist; 41 percent clay; weak fine granular structure; slightly hard, very friable, moderately sticky, moderately plastic; common very fine roots throughout; 50 percent nonflat subangular indurated 2 to 75-millimeter Cherty limestone fragments; strong effervescence, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00956

2Cr--44 to 83 centimeters (17.3 to 32.7 inches); gray (10YR 6/1) interior bedrock, grayish brown (10YR 5/2) interior, moist; structureless massive; common very fine roots throughout; strong effervescence, by HCl, unspecified; abrupt smooth boundary. Lab sample # 16N00957

2R--83 to 108 centimeters (32.7 to 42.5 inches); indurated Calcareous shale bedrock; .

PEDON DESCRIPTION -- NEON Site KONZ

Print Date: Sep 3 2017
Description Date: Oct 27 2015
Describer: Brian Nester
NEON Plot ID: KONZ_004
Site ID: S2015KS161103
Pedon ID: S2015KS161103

Site Note: KONZ_004 - the center of pit is located 5.6 meters at 45 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 16N0264
Soil Name as Described/Sampled: Sogn
Classification: Loamy, mixed, superactive, mesic Lithic Haplustolls
Soil Name as Correlated:
Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series
Associated Soils:
Physiographic Division: Interior Plains
Physiographic Province: Central Lowland Province
Physiographic Section: Osage plain

State Physiographic Area: Flint Hills Upland

Local Physiographic Area: Flint Hills Uplands
Geomorphic Setting: on summit of interfluve of hillslope on upland
Upslope Shape: linear
Cross Slope Shape: linear
Particle Size Control Section: 0 to 27 cm.
Description origin: NASIS
Diagnostic Features: mollic epipedon 0 to 27 cm.
lithic contact 27 to 27 cm.

Country: United States
State: Kansas
County: Riley
MLRA: 76 -- Bluestem Hills
Soil Survey Area: KS161 -- Riley County, Kansas
Map Unit: 4590 -- Clime-Sogn complex, 3 to 20 percent slopes

Pit Location: KONZ_004 - the center of pit is located 5.6 meters at 45 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Quad Name: Swede Creek, Kansas
Std Latitude: 39.1103300
Std Longitude: -96.5503100

Latitude:
Longitude:
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Primary Earth Cover: Grass/herbaceous cover
Secondary Earth Cover: Grassland rangeland
Existing Vegetation: big bluestem, blue grama, Cuman ragweed, hairy grama, Indiangrass, little bluestem, sideoats grama, switchgrass
Parent Material: residuum weathered from limestone
Bedrock Kind: Limestone
Bedrock Depth: 27 centimeters
Bedrock Hardness: indurated
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
27	27	bedrock, lithic	Indurated

Cont. Site ID: S2015KS161103 **Pedon ID:** S2015KS161103

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
2.0	372.0	45						somewhat excessively		

A1--0 to 12 centimeters (0.0 to 4.7 inches); very dark gray (10YR 3/1) interior silty clay loam, black (10YR 2/1) interior, moist; 31 percent clay; moderate medium granular structure; slightly hard, very friable, slightly sticky, moderately plastic; common very fine roots throughout and common fine roots throughout; 2 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; slight effervescence, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00958

A2--12 to 27 centimeters (4.7 to 10.6 inches); very dark gray (10YR 3/1) interior silty clay loam, black (10YR 2/1) interior, moist; 33 percent clay; weak medium subangular blocky parts to moderate medium granular structure; slightly hard, very friable, slightly sticky, moderately plastic; common very fine roots throughout and common fine roots throughout; 2 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; strong effervescence, by HCl, unspecified; abrupt wavy boundary. Lab sample # 16N00959

R--27 to 200 centimeters (10.6 to 78.7 inches); indurated Limestone bedrock; .

PEDON DESCRIPTION -- NEON Site KONZ

Print Date: Sep 3 2017
Description Date: Oct 27 2015
Describer: Brian Nester
NEON Plot ID: KONZ_024
Site ID: S2015KS161104
Pedon ID: S2015KS161104

Site Note: KONZ_024 - the center of pit is located 4.8 meters at 45 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 16N0265
Soil Name as Described/Sampled: Tuttle
Classification: Fine, mixed, mesic Pachic Haplustolls
Soil Name as Correlated:
Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series
Associated Soils:
Physiographic Division: Interior Plains
Physiographic Province: Central Lowland Province
Physiographic Section: Osage plain

State Physiographic Area: Flint Hills Upland

Local Physiographic Area: Flint Hills Uplands
Geomorphic Setting: on backslope of side slope of hillslope on upland
Upslope Shape: linear
Cross Slope Shape: linear
Particle Size Control Section: 25 to 100 cm.
Description origin: NASIS

Diagnostic Features: mollic epipedon 0 to 78 cm.
cambic horizon 27 to 78 cm.
lithologic discontinuity 78 to 100 cm.
redox concentrations 78 to 100 cm.

Country: United States
State: Kansas
County: Riley
MLRA: 76 -- Bluestem Hills
Soil Survey Area: KS161 -- Riley County, Kansas
Map Unit: 4550 -- Clime silty clay loam, 20 to 40 percent slopes, very stony

Pit Location: KONZ_024 - the center of pit is located 4.8 meters at 45 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Quad Name: Swede Creek, Kansas
Std Latitude: 39.1107400
Std Longitude: -96.5523600

Latitude:
Longitude:
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Hardwoods
Existing Vegetation: common hackberry, eastern redcedar, elm, honeylocust, Osage-orange, roughleaf dogwood, smooth sumac
Parent Material: colluvium over residuum weathered from limestone
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Cont. Site ID: S2015KS161104 **Pedon ID:** S2015KS161104

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
50.0	360.0	270						somewhat excessively		

A--0 to 12 centimeters (0.0 to 4.7 inches); very dark gray (10YR 3/1) interior silty clay loam, black (10YR 2/1) interior, moist; 35 percent clay; strong medium granular structure; slightly hard, very friable, slightly sticky, moderately plastic; common very fine roots throughout; 5 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; strong effervescence, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00960

BA--12 to 27 centimeters (4.7 to 10.6 inches); very dark gray (10YR 3/1) interior silty clay loam, black (10YR 2/1) interior, moist; 39 percent clay; moderate coarse granular structure; slightly hard, very friable, slightly sticky, moderately plastic; common very fine roots throughout; 5 percent nonflat angular indurated 2 to 75-millimeter Limestone fragments; strong effervescence, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00961

Bw1--27 to 50 centimeters (10.6 to 19.7 inches); very dark grayish brown (10YR 3/2) interior silty clay loam, very dark grayish brown (10YR 3/2) interior, moist; 38 percent clay; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky, moderately plastic; common very fine roots throughout; common very fine low-continuity tubular pores; 8 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; strong effervescence, by HCl, unspecified; gradual smooth boundary. Lab sample # 16N00962

Bw2--50 to 78 centimeters (19.7 to 30.7 inches); very dark grayish brown (10YR 3/2) interior silty clay, very dark grayish brown (10YR 3/2) interior, moist; 42 percent clay; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky, very plastic; common very fine roots throughout and common fine roots throughout; common very fine low-continuity tubular pores; 7 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; strong effervescence, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00963

2BC--78 to 100 centimeters (30.7 to 39.4 inches); dark grayish brown (10YR 4/2) interior very gravelly silty clay, dark grayish brown (10YR 4/2) interior, moist; 44 percent clay; weak coarse subangular blocky structure; slightly hard, friable, moderately sticky, very plastic; common fine roots throughout; 1 percent fine faint spherical very weakly cemented 10YR 2/1), moist, iron-manganese concretions with clear boundaries Throughout; 40 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; strong effervescence, by HCl, unspecified. Lab sample # 16N00964

PEDON DESCRIPTION -- NEON Site KONZ

Print Date: Sep 3 2017
Description Date: Oct 27 2015
Describer: Brian Nester
NEON Plot ID: KONZ_025
Site ID: S2015KS161105
Pedon ID: S2015KS161105
Site Note: KONZ_025 - the center of pit is located 8.9 meters at 25 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 16N0266
Soil Name as Described/Sampled: Tully
Classification: Fine, mixed, superactive, mesic Pachic Argiustolls
Soil Name as Correlated:
Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series
Associated Soils:
Physiographic Division: Interior Plains
Physiographic Province: Central Lowland Province
Physiographic Section: Osage plain

State Physiographic Area: Flint Hills Upland
Local Physiographic Area: Flint Hills Uplands
Geomorphic Setting: on footslope of base slope of hillslope on upland
Upslope Shape: linear
Cross Slope Shape: linear
Particle Size Control Section: 20 to 70 cm.
Description origin: NASIS
Diagnostic Features: mollic epipedon 0 to 54 cm.
argillic horizon 20 to 100 cm.
redox concentrations 54 to 100 cm.

Country: United States
State: Kansas
County: Riley
MLRA: 76 -- Bluestem Hills
Soil Survey Area: KS161 -- Riley County, Kansas
Map Unit: 4053 -- Ivan silty clay loam, channeled
Pit Location: KONZ_025 - the center of pit is located 8.9 meters at 25 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.
Quad Name: Swede Creek, Kansas
Std Latitude: 39.1039600
Std Longitude: -96.5963100

Latitude:
Longitude:
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Hardwoods
Existing Vegetation: common hackberry, eastern redcedar, elm, honeylocust, Osage-orange, roughleaf dogwood, smooth sumac
Parent Material: colluvium
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Cont. Site ID: S2015KS161105 **Pedon ID:** S2015KS161105

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
4.0	339.0	315						well		

A--0 to 20 centimeters (0.0 to 7.9 inches); very dark brown (10YR 2/2) interior silty clay loam, black (10YR 2/1) interior, moist; 30 percent clay; strong fine angular blocky parts to moderate medium granular structure; slightly hard, friable, slightly sticky, moderately plastic; common very fine roots throughout and common fine roots throughout; noneffervescent, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00965

Bt1--20 to 32 centimeters (7.9 to 12.6 inches); dark brown (7.5YR 3/2) interior silty clay, dark brown (7.5YR 3/2) interior, moist; 43 percent clay; moderate medium subangular blocky structure; hard, firm, moderately sticky, moderately plastic; common very fine roots throughout and common very coarse roots throughout; common very fine low-continuity tubular pores; 20 percent faint 7.5YR 3/2), moist, clay films on all faces of peds; 1 percent nonflat angular indurated 2 to 75-millimeter Chert fragments; noneffervescent, by HCl, unspecified; gradual smooth boundary. Lab sample # 16N00966

Bt2--32 to 54 centimeters (12.6 to 21.3 inches); brown (7.5YR 4/3) interior silty clay, dark brown (7.5YR 3/3) interior, moist; 50 percent clay; moderate medium prismatic structure; hard, very firm, moderately sticky, very plastic; common very fine roots throughout; common very fine low-continuity tubular pores; 30 percent faint 7.5YR 3/3), moist, clay films on all faces of peds; noneffervescent, by HCl, unspecified; gradual smooth boundary. Lab sample # 16N00967

Bt3--54 to 74 centimeters (21.3 to 29.1 inches); strong brown (7.5YR 5/6) interior silty clay, brown (7.5YR 4/4) interior, moist; 50 percent clay; moderate medium prismatic structure; hard, very firm, moderately sticky, very plastic; common very fine roots throughout; common very fine moderate-continuity tubular pores; 50 percent faint 10YR 3/3), moist, clay films on all faces of peds; 3 percent very fine prominent spherical very weakly cemented 10YR 2/1), moist, iron-manganese concretions with clear boundaries In matrix; noneffervescent, by HCl, unspecified; gradual smooth boundary. Lab sample # 16N00968

Bt4--74 to 100 centimeters (29.1 to 39.4 inches); brown (7.5YR 4/4) interior clay, dark brown (7.5YR 3/3) interior, moist; 60 percent clay; moderate medium prismatic structure; slightly hard, firm, moderately sticky, very plastic; common very fine roots throughout; common very fine moderate-continuity tubular pores; 60 percent faint 10YR 4/4), moist, clay films on all faces of peds; 1 percent fine distinct spherical very weakly cemented 10YR 2/1), moist, iron-manganese concretions with clear boundaries In matrix; noneffervescent, by HCl, unspecified. Lab sample # 16N00969

PEDON DESCRIPTION -- NEON Site KONZ

Print Date: Sep 3 2017
Description Date: Oct 28 2015
Describer: Brian Nester
NEON Plot ID: KONZ_011
Site ID: S2015KS161106
Pedon ID: S2015KS161106

Site Note: KONZ_011 - the center of pit is located 5 meters at 89 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 16N0267
Soil Name as Described/Sampled: Clime
Classification: Fine, mixed, active, mesic Udorthentic Haplustolls
Soil Name as Correlated:
Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series
Associated Soils:
Physiographic Division: Interior Plains
Physiographic Province: Central Lowland Province
Physiographic Section: Osage plain

State Physiographic Area: Flint Hills Upland

Local Physiographic Area: Flint Hills Uplands
Geomorphic Setting: on backslope of side slope of hillslope on upland
Upslope Shape: linear
Cross Slope Shape: linear
Particle Size Control Section: 25 to 80 cm.
Description origin: NASIS

Diagnostic Features: mollic epipedon 0 to 40 cm.
cambic horizon 40 to 80 cm.
lithologic discontinuity 40 to 80 cm.
secondary carbonates 60 to 80 cm.
lithic contact 80 to 80 cm.

Country: United States
State: Kansas
County: Riley
MLRA: 76 -- Bluestem Hills
Soil Survey Area: KS161 -- Riley County, Kansas
Map Unit: 4590 -- Clime-Sogn complex, 3 to 20 percent slopes

Pit Location: KONZ_011 - the center of pit is located 5 meters at 89 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Quad Name: Swede Creek, Kansas
Std Latitude: 39.1060300
Std Longitude: -96.5976300

Latitude:
Longitude:
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Primary Earth Cover: Grass/herbaceous cover
Secondary Earth Cover: Grassland rangeland
Existing Vegetation: big bluestem, buffalograss, composite dropseed, Illinois bundleflower, Indiangrass, Jersey tea, leadplant, little bluestem, Nuttall's sensitive-briar, pitcher sage, sideoats grama, switchgrass
Parent Material: colluvium over residuum weathered from calcareous shale
Bedrock Kind: Limestone
Bedrock Depth: 80 centimeters
Bedrock Hardness: indurated
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
80	80	bedrock, lithic	Indurated

Cont. Site ID: S2015KS161106 **Pedon ID:** S2015KS161106

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
18.0	363.0	180						well		

A1--0 to 17 centimeters (0.0 to 6.7 inches); very dark brown (10YR 2/2) interior silty clay loam, black (10YR 2/1) interior, moist; 29 percent clay; moderate medium granular structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine roots throughout and common fine roots throughout; 3 percent nonflat subangular indurated 5 to 20-millimeter Limestone fragments and 3 percent nonflat subangular indurated 2 to 5-millimeter Limestone fragments; slight effervescence, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00970

A2--17 to 40 centimeters (6.7 to 15.7 inches); dark grayish brown (10YR 4/2) interior very gravelly silty clay loam, very dark grayish brown (10YR 3/2) interior, moist; 34 percent clay; weak medium subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine roots throughout and common very coarse roots throughout and common fine roots throughout; 5 percent nonflat subangular indurated 75 to 250-millimeter Limestone fragments and 50 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; slight effervescence, by HCl, unspecified; gradual smooth boundary. Lab sample # 16N00971

2Bw--40 to 60 centimeters (15.7 to 23.6 inches); dark grayish brown (10YR 4/2) interior clay, very dark grayish brown (10YR 3/2) interior, moist; 54 percent clay; moderate medium prismatic parts to moderate medium subangular blocky structure; hard, firm, moderately sticky, moderately plastic; common very coarse roots throughout and common fine roots throughout; common very fine low-continuity tubular and common fine low-continuity tubular pores; 3 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; slight effervescence, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00972

2Bk--60 to 80 centimeters (23.6 to 31.5 inches); light brownish gray (10YR 6/2) interior silty clay, brown (10YR 5/3) interior, moist; 42 percent clay; weak medium prismatic parts to weak medium subangular blocky structure; hard, firm, moderately sticky, moderately plastic; common fine roots throughout; common very fine low-continuity tubular pores; 10 percent medium distinct irregular 10YR 8/1), moist, carbonate masses with clear boundaries throughout and 5 percent medium distinct irregular extremely weakly cemented 10YR 8/1), moist, carbonate nodules with clear boundaries throughout; 2 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; strong effervescence, by HCl, unspecified; abrupt smooth boundary. Lab sample # 16N00973

2R--80 to 105 centimeters (31.5 to 41.3 inches); indurated Limestone bedrock; .

PEDON DESCRIPTION -- NEON Site KONZ

Print Date: Sep 3 2017
Description Date: Oct 28 2015
Describer: Brian Nester
NEON Plot ID: KONZ_029
Site ID: S2015KS161107
Pedon ID: S2015KS161107

Site Note: KONZ_029 - the center of pit is located 6.1 meters at 45 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Pedon Note: This site is a taxadjunct to Ivan since it is Fine instead of Fine-Silty.

Lab Source ID: KSSL
Lab Pedon #: 16N0268
Soil Name as Described/Sampled: Ivan
Classification: Fine, mixed, superactive, mesic Cumulic Haplustolls
Soil Name as Correlated:
Classification:
Pedon Type: taxadjunct to the series
Pedon Purpose: research site
Taxon Kind: taxadjunct
Associated Soils:
Physiographic Division: Interior Plains
Physiographic Province: Central Lowland Province
Physiographic Section: Osage plain

State Physiographic Area: Flint Hills Upland
Local Physiographic Area: Flint Hills Uplands
Geomorphic Setting: drainageway on upland
Upslope Shape: linear
Cross Slope Shape: linear
Particle Size Control Section: 25 to 100 cm.
Description origin: NASIS

Diagnostic Features: mollic epipedon 0 to 100 cm.
redox concentrations 18 to 100 cm.
cambic horizon 37 to 100 cm.

Country: United States
State: Kansas
County: Riley
MLRA: 76 -- Bluestem Hills
Soil Survey Area: KS161 -- Riley County, Kansas
Map Unit: 7690 -- Wymore-Kennebec complex, 0 to 17 percent slopes

Pit Location: KONZ_029 - the center of pit is located 6.1 meters at 45 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Quad Name: Swede Creek, Kansas
Std Latitude: 39.0987700
Std Longitude: -96.6017600

Latitude:
Longitude:
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Hardwoods
Existing Vegetation: American elm, black willow, common buttonbush, common hackberry, eastern cottonwood, eastern redcedar, honeylocust, Osage-orange, roughleaf dogwood, smooth sumac
Parent Material: calcareous alluvium
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Cont. Site ID: S2015KS161107 **Pedon ID:** S2015KS161107

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
1.0	349.0	0						well		

A1--0 to 18 centimeters (0.0 to 7.1 inches); very dark gray (10YR 3/1) interior silty clay loam, black (10YR 2/1) interior, moist; 32 percent clay; moderate medium granular structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine roots throughout and common fine roots throughout; 3 percent nonflat subangular indurated 2 to 5-millimeter Chert fragments; slight effervescence, by HCl, unspecified; clear wavy boundary. Lab sample # 16N00974. There is a gravel line present at the bottom of this horizon.

A2--18 to 37 centimeters (7.1 to 14.6 inches); very dark gray (10YR 3/1) interior silty clay loam, black (10YR 2/1) interior, moist; 34 percent clay; moderate medium subangular blocky parts to moderate medium granular structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine roots throughout and common fine roots throughout; common very fine low-continuity tubular and common fine low-continuity tubular pores; 1 percent fine prominent dendritic 10YR 5/8), moist, masses of oxidized iron with clear boundaries On surfaces along root channels; 3 percent nonflat subangular indurated 2 to 5-millimeter Chert fragments; slight effervescence, by HCl, unspecified; clear wavy boundary. Lab sample # 16N00975

Bw1--37 to 64 centimeters (14.6 to 25.2 inches); very dark grayish brown (10YR 3/2) interior silty clay loam, very dark brown (10YR 2/2) interior, moist; 38 percent clay; moderate medium subangular blocky structure; hard, firm, moderately sticky, moderately plastic; common very fine roots throughout and common fine roots throughout; common fine low-continuity tubular pores; 1 percent fine prominent dendritic 10YR 5/8), moist, masses of oxidized iron with clear boundaries On surfaces along root channels; 5 percent nonflat subangular indurated 2 to 5-millimeter Chert fragments; slight effervescence, by HCl, unspecified; gradual wavy boundary. Lab sample # 16N00976

Bw2--64 to 100 centimeters (25.2 to 39.4 inches); very dark brown (10YR 2/2) interior silty clay loam, black (10YR 2/1) interior, moist; 36 percent clay; moderate medium subangular blocky structure; hard, firm, moderately sticky, moderately plastic; common very fine roots throughout and common fine roots throughout; common fine low-continuity tubular pores; 1 percent fine prominent dendritic 10YR 5/8), moist, masses of oxidized iron with clear boundaries On surfaces along root channels; 2 percent nonflat subangular indurated 5 to 20-millimeter Chert fragments and 5 percent nonflat subangular indurated 2 to 5-millimeter Chert fragments; noneffervescent, by HCl, unspecified. Lab sample # 16N00977. There is a gravel line present in the top of this horizon.

PEDON DESCRIPTION -- NEON Site KONZ

Print Date: Sep 3 2017
Description Date: Oct 28 2015
Describer: Brian Nester
NEON Plot ID: KONZ_016
Site ID: S2015KS161108
Pedon ID: S2015KS161108

Site Note: KONZ_016 - the center of pit is located 13.4 meters at 45 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Pedon Note: Roots in the Cr horizon were present only in cracks that occurred over four inches apart.
Lab Source ID: KSSL
Lab Pedon #: 16N0269
Soil Name as Described/Sampled: Kipson
Classification: Fine, mixed, superactive, mesic, shallow Udorthentic Haplustolls
Soil Name as Correlated:
Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series
Associated Soils:
Physiographic Division: Interior Plains
Physiographic Province: Central Lowland Province
Physiographic Section: Osage plain

State Physiographic Area: Flint Hills Upland

Local Physiographic Area: Flint Hills Uplands
Geomorphic Setting: on backslope of side slope of hillslope on upland
Upslope Shape: linear
Cross Slope Shape: linear

Particle Size Control Section: 25 to 49 cm.
Description origin: NASIS

Diagnostic Features: mollic epipedon 0 to 34 cm.
lithologic discontinuity 34 to 62 cm.
cambic horizon 34 to 49 cm.
paralithic contact 49 to 62 cm.

Country: United States
State: Kansas
County: Riley
MLRA: 76 -- Bluestem Hills
Soil Survey Area: KS161 -- Riley County, Kansas
Map Unit: 4590 -- Clime-Sogn complex, 3 to 20 percent slopes

Pit Location: KONZ_016 - the center of pit is located 13.4 meters at 45 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Quad Name: Swede Creek, Kansas
Std Latitude: 39.0920300
Std Longitude: -96.5841100

Latitude:
Longitude:
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Primary Earth Cover: Grass/herbaceous cover
Secondary Earth Cover: Grassland rangeland
Existing Vegetation: big bluestem, buffalograss, composite dropseed, Illinois bundleflower, Indiangrass, Jersey tea, leadplant, little bluestem, Nuttall's sensitive-briar, pitcher sage, sideoats grama, switchgrass
Parent Material: colluvium over residuum weathered from calcareous shale
Bedrock Kind: Calcareous shale
Bedrock Depth: 49 centimeters
Bedrock Hardness: moderately cemented
Bedrock Fracture Interval: 10 to less than 45 centimeters
Surface Fragments:
Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
49	62	bedrock, paralithic	Moderately cemented

Cont. Site ID: S2015KS161108 **Pedon ID:** S2015KS161108

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
17.0	370.0	270						somewhat excessively		

A1--0 to 11 centimeters (0.0 to 4.3 inches); dark grayish brown (10YR 4/2) interior silty clay loam, very dark grayish brown (10YR 3/2) interior, moist; 30 percent clay; moderate medium granular structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine roots throughout and many fine roots throughout; 5 percent nonflat subangular indurated 2 to 5-millimeter Limestone fragments; strong effervescence, by HCl, unspecified; gradual smooth boundary. Lab sample # 16N00978

A2--11 to 34 centimeters (4.3 to 13.4 inches); very dark gray (10YR 3/1) interior very gravelly silty clay loam, black (10YR 2/1) interior, moist; 33 percent clay; moderate medium granular structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine roots throughout and common fine roots throughout; 5 percent nonflat subangular indurated 75 to 250-millimeter Limestone fragments and 50 percent nonflat subangular indurated 2 to 75-millimeter Limestone fragments; strong effervescence, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00979

2Bw--34 to 49 centimeters (13.4 to 19.3 inches); light reddish brown (2.5YR 6/3) interior very gravelly silty clay loam, reddish brown (2.5YR 5/3) interior, moist; 33 percent clay; weak medium subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine roots throughout and common medium roots throughout and common fine roots throughout; 15 percent nonflat subangular indurated 75 to 250-millimeter Calcareous shale fragments and 35 percent nonflat subangular indurated 2 to 75-millimeter Calcareous shale fragments; violent effervescence, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00980

2Cr--49 to 62 centimeters (19.3 to 24.4 inches); light reddish brown (2.5YR 6/3) interior moderately cemented Calcareous shale bedrock, fractured at intervals of 10 to less than 45 centimeters, reddish brown (2.5YR 5/3) interior, moist; structureless massive; common very fine roots in cracks; . Lab sample # 16N00981. Roots found in horizon were only present in cracks that occurred more than 4 inches apart.

PEDON DESCRIPTION -- NEON Site KONZ

Print Date: Sep 3 2017
Description Date: Oct 28 2015
Describer: Brian Nester
NEON Plot ID: KONZ_027
Site ID: S2015KS161109
Pedon ID: S2015KS161109

Site Note: KONZ_027 - the center of pit is located 9.2 meters at 45 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 16N0270
Soil Name as Described/Sampled: Tully
Classification: Fine, mixed, superactive, mesic Pachic Argiustolls
Soil Name as Correlated:
Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series
Associated Soils:
Physiographic Division: Interior Plains
Physiographic Province: Central Lowland Province
Physiographic Section: Osage plain

State Physiographic Area: Flint Hills Upland
Local Physiographic Area: Flint Hills Uplands
Geomorphic Setting: on toeslope of base slope of hillslope on upland
Upslope Shape: linear
Cross Slope Shape: linear
Particle Size Control Section: 17 to 67 cm.
Description origin: NASIS

Diagnostic Features: mollic epipedon 0 to 62 cm.
argillic horizon 17 to 100 cm.
secondary carbonates 62 to 100 cm.

Country: United States
State: Kansas
County: Riley
MLRA: 76 -- Bluestem Hills
Soil Survey Area: KS161 -- Riley County, Kansas
Map Unit: 4590 -- Clime-Sogn complex, 3 to 20 percent slopes

Pit Location: KONZ_027 - the center of pit is located 9.2 meters at 45 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Quad Name: Swede Creek, Kansas
Std Latitude: 39.1006800
Std Longitude: -96.5855800

Latitude:
Longitude:
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Hardwoods
Existing Vegetation: common hackberry, eastern redcedar, elm, honeylocust, Osage-orange, roughleaf dogwood, smooth sumac
Parent Material: colluvium
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Cont. Site ID: S2015KS161109 **Pedon ID:** S2015KS161109

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
7.0	354.0	270						well		

A--0 to 17 centimeters (0.0 to 6.7 inches); very dark grayish brown (10YR 3/2) interior silty clay loam, very dark brown (10YR 2/2) interior, moist; 36 percent clay; weak medium subangular blocky parts to moderate medium granular structure; slightly hard, friable, slightly sticky, slightly plastic; common medium roots throughout and common fine roots throughout; 3 percent nonflat subangular indurated 2 to 75-millimeter Chert fragments; slight effervescence, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00982

Bt1--17 to 32 centimeters (6.7 to 12.6 inches); brown (10YR 4/3) interior silty clay, dark brown (10YR 3/3) interior, moist; 44 percent clay; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine roots throughout and common medium roots throughout and common fine roots throughout; common very fine low-continuity tubular and common fine low-continuity tubular pores; 20 percent faint 10YR 3/3), moist, clay films on all faces of peds; 5 percent nonflat subangular indurated 2 to 75-millimeter Chert fragments; slight effervescence, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00983

Bt2--32 to 62 centimeters (12.6 to 24.4 inches); brown (10YR 4/3) interior very gravelly silty clay, dark brown (10YR 3/3) interior, moist; 45 percent clay; moderate medium subangular blocky structure; hard, firm, moderately sticky, moderately plastic; common very coarse roots throughout and common fine roots throughout and common coarse roots throughout; common fine low-continuity tubular pores; 30 percent faint 10YR 3/3), moist, clay films on all faces of peds; 5 percent flat subangular indurated 70 to 150-millimeter Chert fragments and 10 percent flat subangular indurated 40 to 60-millimeter Chert fragments and 30 percent nonflat subangular indurated 2 to 5-millimeter Chert fragments; slight effervescence, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00984

Btk--62 to 100 centimeters (24.4 to 39.4 inches); brown (10YR 5/3) interior silty clay, brown (10YR 4/3) interior, moist; 48 percent clay; moderate medium prismatic structure; hard, firm, moderately sticky, moderately plastic; common very coarse roots throughout and common coarse roots throughout; common very fine low-continuity tubular and common fine low-continuity tubular pores; 60 percent faint 10YR 3/3), moist, clay films on all faces of peds; 2 percent fine prominent spherical 10YR 8/1), moist, carbonate masses with clear boundaries throughout; slight effervescence, by HCl, unspecified. Lab sample # 16N00985

PEDON DESCRIPTION -- NEON Site KONZ

Print Date: Sep 3 2017
Description Date: Oct 29 2015
Describer: Brian Nester
NEON Plot ID: KONZ_020
Site ID: S2015KS161110
Pedon ID: S2015KS161110

Site Note: KONZ_020 - the center of pit is located 10.5 meters at 89 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Pedon Note: THis site is outside the range of characteristics of Florence since it is only moderately deep instead of deep.
Lab Source ID: KSSL
Lab Pedon #: 16N0271
Soil Name as Described/Sampled: Florence
Classification: Clayey-skeletal, mixed, mesic Udic Argiustolls
Soil Name as Correlated:
Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series
Associated Soils:
Physiographic Division: Interior Plains
Physiographic Province: Central Lowland Province
Physiographic Section: Osage plain

State Physiographic Area: Flint Hills Upland

Local Physiographic Area: Flint Hills Uplands
Geomorphic Setting: on backslope of side slope of hillslope on upland
Upslope Shape: linear
Cross Slope Shape: linear
Particle Size Control Section: 23 to 52 cm.
Description origin: NASIS
Diagnostic Features: mollic epipedon 0 to 52 cm.
argillic horizon 23 to 52 cm.
lithologic discontinuity 52 to 52 cm.
lithic contact 52 to 52 cm.

Country: United States
State: Kansas
County: Riley
MLRA: 76 -- Bluestem Hills
Soil Survey Area: KS161 -- Riley County, Kansas
Map Unit: 4530 -- Benfield-Florence complex, 5 to 30 percent slopes

Pit Location: KONZ_020 - the center of pit is located 10.5 meters at 89 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Quad Name: Swede Creek, Kansas
Std Latitude: 39.0904400
Std Longitude: -96.5626900

Latitude:
Longitude:
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Primary Earth Cover: Grass/herbaceous cover
Secondary Earth Cover: Grassland rangeland
Existing Vegetation: big bluestem, buffalograss, composite dropseed, Illinois bundleflower, Indiangrass, Jersey tea, leadplant, little bluestem, Nuttall's sensitive-briar, pitcher sage, sideoats grama, switchgrass
Parent Material: colluvium derived from chert over residuum weathered from limestone
Bedrock Kind: Limestone
Bedrock Depth: 52 centimeters
Bedrock Hardness: indurated
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
52	52	bedrock, lithic	Indurated

Cont. Site ID: S2015KS161110 **Pedon ID:** S2015KS161110

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
10.0	417.0	315						well		

A1--0 to 14 centimeters (0.0 to 5.5 inches); very dark grayish brown (10YR 3/2) interior silty clay loam, very dark brown (10YR 2/2) interior, moist; 31 percent clay; moderate medium granular structure; slightly hard, friable, slightly sticky, slightly plastic; common fine roots throughout; 1 percent nonflat subangular indurated 5 to 20-millimeter Chert fragments and 3 percent nonflat subangular indurated 2 to 5-millimeter Chert fragments; noneffervescent, by HCl, unspecified; gradual smooth boundary. Lab sample # 16N00986

A2--14 to 23 centimeters (5.5 to 9.1 inches); very dark grayish brown (10YR 3/2) interior gravelly silty clay loam, very dark brown (10YR 2/2) interior, moist; 33 percent clay; weak medium subangular blocky parts to moderate medium granular structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine roots throughout and common fine roots throughout; common very fine low-continuity tubular and common fine low-continuity tubular pores; 5 percent flat subangular indurated 55 to 75-millimeter Chert fragments and 10 percent nonflat subangular indurated 2 to 5-millimeter Chert fragments; noneffervescent, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00987

Bt--23 to 52 centimeters (9.1 to 20.5 inches); dark brown (7.5YR 3/2) interior extremely channery silty clay loam, very dark brown (7.5YR 2/2) interior, moist; 37 percent clay; weak medium subangular blocky structure; slightly hard, friable, moderately sticky, slightly plastic; common very fine roots throughout; 30 percent faint 7.5YR 2/2), moist, clay films on all faces of peds; 5 percent nonflat subangular indurated 2 to 20-millimeter Chert fragments and 80 percent flat subangular indurated 50 to 140-millimeter Chert fragments; noneffervescent, by HCl, unspecified; abrupt smooth boundary. Lab sample # 16N00988

2R--52 to 77 centimeters (20.5 to 30.3 inches); indurated Limestone bedrock; . Lab sample # 16N00989

PEDON DESCRIPTION -- NEON Site KONZ

Print Date: Sep 3 2017
Description Date: Oct 29 2015
Describer: Brian Nester
NEON Plot ID: KONZ_012
Site ID: S2015KS161111
Pedon ID: S2015KS161111
Site Note: KONZ_012 - the center of pit is located 3 meters at 45 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 16N0272
Soil Name as Described/Sampled: Tully
Classification: Fine, mixed, superactive, mesic Pachic Argiustolls
Soil Name as Correlated:
Classification:
Pedon Type: correlates to named soil
Pedon Purpose: research site
Taxon Kind: series
Associated Soils:
Physiographic Division: Interior Plains
Physiographic Province: Central Lowland Province
Physiographic Section: Osage plain

State Physiographic Area: Flint Hills Upland
Local Physiographic Area: Flint Hills Uplands
Geomorphic Setting: on footslope of base slope of hillslope on upland
Upslope Shape: linear
Cross Slope Shape: concave
Particle Size Control Section: 29 to 79 cm.
Description origin: NASIS

Diagnostic Features: mollic epipedon 0 to 100 cm.
argillic horizon 29 to 100 cm.
redox concentrations 29 to 100 cm.
secondary carbonates 57 to 100 cm.

Country: United States
State: Kansas
County: Riley
MLRA: 76 -- Bluestem Hills
Soil Survey Area: KS161 -- Riley County, Kansas
Map Unit: 4051 -- Ivan silt loam, channeled
Pit Location: KONZ_012 - the center of pit is located 3 meters at 45 degree compass bearing from the 40x40 SW marker. 0.3 meters at 90 degrees from pit center to pit face.
Quad Name: Swede Creek, Kansas
Std Latitude: 39.0843300
Std Longitude: -96.5824200

Latitude:
Longitude:
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Primary Earth Cover: Grass/herbaceous cover
Secondary Earth Cover: Grassland rangeland
Existing Vegetation: big bluestem, buffalograss, composite dropseed, Illinois bundleflower, Indiangrass, Jersey tea, leadplant, little bluestem, Nuttall's sensitive-briar, pitcher sage, sideoats grama, switchgrass
Parent Material: colluvium
Bedrock Kind:
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Cont. Site ID: S2015KS161111 **Pedon ID:** S2015KS161111

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
5.0	386.0	270						well		

A1--0 to 15 centimeters (0.0 to 5.9 inches); very dark gray (10YR 3/1) interior silty clay loam, black (10YR 2/1) interior, moist; 36 percent clay; moderate medium granular structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine roots throughout and common fine roots throughout and common coarse roots throughout; 1 percent nonflat subangular indurated 2 to 5-millimeter Chert fragments; noneffervescent, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00990

A2--15 to 29 centimeters (5.9 to 11.4 inches); very dark gray (10YR 3/1) interior silty clay, black (10YR 2/1) interior, moist; 45 percent clay; weak medium subangular blocky parts to moderate medium granular structure; hard, firm, moderately sticky, moderately plastic; common fine roots throughout; common fine low-continuity tubular pores; 2 percent nonflat subangular indurated 2 to 5-millimeter Chert fragments; noneffervescent, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00991

Bt1--29 to 57 centimeters (11.4 to 22.4 inches); very dark gray (10YR 3/1) interior silty clay, black (10YR 2/1) interior, moist; 47 percent clay; weak medium prismatic parts to moderate medium subangular blocky structure; hard, firm, moderately sticky, moderately plastic; common fine roots throughout; common fine low-continuity tubular pores; 20 percent faint 10YR 2/1), moist, clay films on all faces of peds; 1 percent fine prominent irregular 2.5Y 6/8), moist, masses of oxidized iron with clear boundaries Throughout; 2 percent nonflat subangular indurated 2 to 5-millimeter Chert fragments; noneffervescent, by HCl, unspecified; clear smooth boundary. Lab sample # 16N00992

Bt2--57 to 100 centimeters (22.4 to 39.4 inches); very dark grayish brown (10YR 3/2) interior silty clay, very dark brown (10YR 2/2) interior, moist; 47 percent clay; weak medium prismatic parts to moderate medium subangular blocky structure; hard, firm, moderately sticky, moderately plastic; common fine roots throughout; common fine low-continuity tubular pores; 45 percent faint 10YR 2/2), moist, clay films on all faces of peds; 4 percent fine prominent irregular 2.5Y 6/4), moist, masses of oxidized iron with clear boundaries Throughout; 1 percent fine prominent irregular very weakly cemented 10YR 8/1), moist, carbonate nodules with clear boundaries throughout; 2 percent nonflat subangular indurated 2 to 5-millimeter Chert fragments; noneffervescent, by HCl, unspecified. Lab sample # 16N00993