PEDON DESCRIPTION -- NEON Site RMNP

Print Date: Apr 14 2018
Description Date: Aug 14 2017
Describer: Chris Fabian, Kari Sever, John Norman, Mike More, Andy Steinert
NEON Plot ID: RMNP_030
Site ID: S2017CO013008

Pedon ID: S2017CO013008
Site Note:
Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N0207
Soil Name as Described/Sampled: SND
Classification: Loamy-skeletal, mixed, superactive, frigid Lithic Argiustolls

Soil Name as Correlated:

Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: family
Associated Soils:
Physiographic Division: Rocky Mountain System
Physiographic Province: Southern Rocky Mountains
Physiographic Section:

State Physiographic Area:

Local Physiographic Area: Front Range Mountains
Geomorphic Setting: on footslope of side slope of ls mountains on footslope of side slope of lf hillslope
Upslope Shape: concave
Cross Slope Shape: linear
Particle Size Control Section: 18 to 49 cm.

Description origin: Pedon PC 6.3
Diagnostic Features: mollic epipedon 2 to 29 cm.
argillic horizon 18 to 49 cm.

Country: United States
State: Colorado
County: Boulder
MLRA: 48A -- Southern Rocky Mountains
Soil Survey Area: CO643 -- Boulder County Area, Colorado
Map Unit:
Pit Location:
Quad Name:
Std Latitude: 40.1512785
Std Longitude: -105.4727772

Latitude: 40 degrees 9 minutes 4.61 seconds north
Longitude: 105 degrees 28 minutes 22.01 seconds west
Datum: WGS84
UTM Zone: 13
UTM Easting: 459733 meters
UTM Northing: 4444655 meters

Primary Earth Cover: Tree cover
Secondary Earth Cover: Conifers
Existing Vegetation: bitterbrush, common juniper, ponderosa pine, prairie Junegrass, wax currant
Parent Material: colluvium derived from granite over residuum weathered from granite
Bedrock Kind: Granite
Bedrock Depth: 49 centimeters
Bedrock Hardness: indurated
Bedrock Fracture Interval:
Surface Fragments: 1.0 percent nonflat subangular indurated 250- to 600-millimeter Granite fragments and 2.0 percent nonflat subangular indurated 600- to 4000-millimeter Granite fragments

Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
49	200	bedrock, lithic	Indurated

Cont. Site ID: S2017CO013008 **Pedon ID:** S2017CO013008

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
19.0	2,438.0	118						well		

Oi--0 to 2 centimeters (0.0 to 0.8 inches); slightly decomposed plant material; . Lab sample # 18N01420

A1--2 to 7 centimeters (0.8 to 2.8 inches); very gravelly coarse sandy loam, very dark brown (10YR 2/2), moist; 75 percent sand; 11 percent clay; moderate coarse granular structure; loose, very friable, nonsticky, nonplastic; common very fine roots throughout and common very fine roots throughout and common medium roots throughout; common tubular pores; 5 percent nonflat subrounded indurated 75 to 250-millimeter Igneous rock fragments and 45 percent nonflat subrounded indurated 2 to 75-millimeter Igneous rock fragments; strongly acid, pH 5.4; clear smooth boundary. Lab sample # 18N01421

A2--7 to 18 centimeters (2.8 to 7.1 inches); very gravelly sandy loam, very dark grayish brown (10YR 3/2), moist; 72 percent sand; 13 percent clay; moderate medium subangular blocky structure; soft, very friable, slightly sticky, slightly plastic; common fine roots throughout and common coarse roots throughout; common vesicular and common tubular pores; 55 percent nonflat subrounded indurated 2 to 75-millimeter Igneous rock fragments; moderately acid, pH 5.9; clear smooth boundary. Lab sample # 18N01422

BAt--18 to 29 centimeters (7.1 to 11.4 inches); grayish brown (10YR 5/2) extremely gravelly coarse sandy loam, dark brown (10YR 3/3), moist; 75 percent sand; 16 percent clay; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; common fine roots throughout and common coarse roots throughout; common vesicular and common tubular pores; 5 percent distinct clay films on all faces of peds; 15 percent nonflat subrounded indurated 75 to 250-millimeter Igneous rock fragments and 50 percent nonflat subrounded indurated 2 to 75-millimeter Igneous rock fragments; moderately acid, pH 5.6; clear wavy boundary. Lab sample # 18N01423

Bt--29 to 49 centimeters (11.4 to 19.3 inches); light brownish gray (10YR 6/2) extremely gravelly coarse sandy loam, dark brown (10YR 3/3), moist; 75 percent sand; 16 percent clay; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; common fine roots throughout and common coarse roots throughout; common vesicular and common tubular pores; 10 percent distinct clay films on all faces of peds; 5 percent nonflat subrounded indurated 75 to 250-millimeter Igneous rock fragments and 55 percent nonflat subrounded indurated 2 to 75-millimeter Igneous rock fragments; strongly acid, pH 5.5; clear wavy boundary. Lab sample # 18N01424

R--49 to 200 centimeters (19.3 to 78.7 inches); indurated Granite bedrock; .

PEDON DESCRIPTION -- NEON Site RMNP

Print Date: Apr 14 2018
Description Date: Aug 14 2017
Describer: Chris Fabian, Kari Sever, John Norman, Mike More, Andy Steinert
NEON Plot ID: RMNP_016
Site ID: S2017CO013009

Pedon ID: S2017CO013009
Site Note:
Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N0208
Soil Name as Described/Sampled: SND
Classification: Sandy-skeletal, mixed, superactive, frigid Lithic Ustorthents

Soil Name as Correlated:

Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: family
Associated Soils:
Physiographic Division: Rocky Mountain System
Physiographic Province: Southern Rocky Mountains
Physiographic Section:

State Physiographic Area:

Local Physiographic Area: Front Range Mountains
Geomorphic Setting: on shoulder of crest of ls mountains
on shoulder of crest of lf hillslope
Upslope Shape: convex
Cross Slope Shape: convex
Particle Size Control Section: 24 to 43 cm.

Description origin: Pedon PC 6.3
Diagnostic Features: ochric epipedon 6 to 15 cm.

Country: United States
State: Colorado
County: Boulder
MLRA: 48A -- Southern Rocky Mountains
Soil Survey Area: CO643 -- Boulder County Area, Colorado
Map Unit:
Pit Location:
Quad Name:
Std Latitude: 40.1543495
Std Longitude: -105.4752877

Latitude: 40 degrees 9 minutes 15.66 seconds north
Longitude: 105 degrees 28 minutes 31.04 seconds west
Datum: WGS84
UTM Zone: 13
UTM Easting: 459521 meters
UTM Northing: 4444997 meters

Primary Earth Cover: Tree cover
Secondary Earth Cover: Shrubby rangeland
Existing Vegetation: Indian ricegrass, mullein, ponderosa pine, Rocky Mountain juniper, wax currant
Parent Material: colluvium derived from quartz-monzonite over residuum weathered from quartz-monzonite
Bedrock Kind: Granite
Bedrock Depth: 43 centimeters
Bedrock Hardness: indurated
Bedrock Fracture Interval:
Surface Fragments: 5.0 percent nonflat subangular indurated 250- to 600-millimeter Granite fragments and 2.0 percent nonflat subangular indurated 600- to 3000-millimeter Granite fragments

Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
43	200	bedrock, lithic	Indurated

Cont. Site ID: S2017CO013009 **Pedon ID:** S2017CO013009

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	2,532.0	217						well		

Oe--0 to 6 centimeters (0.0 to 2.4 inches); moderately decomposed plant material; common fine roots throughout and common coarse roots throughout; clear wavy boundary. Lab sample # 18N01425

Bw--6 to 15 centimeters (2.4 to 5.9 inches); brown (7.5YR 4/3) extremely gravelly coarse sandy loam; 76 percent sand; 11 percent clay; weak medium subangular blocky structure; common very coarse roots throughout and common fine roots throughout and common coarse roots throughout; 25 percent nonflat subrounded indurated 75 to 250-millimeter Igneous rock fragments and 55 percent nonflat subrounded indurated 2 to 75-millimeter Igneous rock fragments; noneffervescent; strongly acid, pH 5.4; gradual wavy boundary. Lab sample # 18N01426

C1--15 to 33 centimeters (5.9 to 13.0 inches); brown (7.5YR 5/3) extremely gravelly sandy loam; 77 percent sand; 8 percent clay; massive; common fine roots throughout and common coarse roots throughout; 20 percent nonflat subrounded indurated 75 to 250-millimeter Igneous rock fragments and 60 percent nonflat subrounded indurated 2 to 75-millimeter Igneous rock fragments; noneffervescent; strongly acid, pH 5.4; gradual wavy boundary. Lab sample # 18N01427

C2--33 to 43 centimeters (13.0 to 16.9 inches); brown (7.5YR 4/3) extremely gravelly loamy coarse sand; 83 percent sand; 6 percent clay; single grain; common fine roots throughout and common coarse roots throughout; 20 percent nonflat subrounded indurated 75 to 250-millimeter Igneous rock fragments and 65 percent nonflat subrounded indurated 2 to 75-millimeter Igneous rock fragments; noneffervescent; strongly acid, pH 5.3; gradual wavy boundary. Lab sample # 18N01428

R--43 to 200 centimeters (16.9 to 78.7 inches); indurated Granite bedrock; .

PEDON DESCRIPTION -- NEON Site RMNP

Print Date: Apr 14 2018

Description Date: Aug 14 2017

Describer: Chris Fabian, Kari Sever, John Norman, Mike More, Andy Steinert

NEON Plot ID: RMNP_004

Site ID: S2017CO013010

Pedon ID: S2017CO013010

Site Note:

Pedon Note:

Lab Source ID: KSSL

Lab Pedon #: 18N0209

Soil Name as Described/Sampled: SND

Classification: Loamy-skeletal, active Typic Haplocryalfs

Soil Name as Correlated:

Classification:

Pedon Type:

Pedon Purpose: laboratory sampling site

Taxon Kind: family

Associated Soils:

Physiographic Division: Rocky Mountain System

Physiographic Province: Southern Rocky Mountains

Physiographic Section:

State Physiographic Area:

Local Physiographic Area: Front Range Mountains

Geomorphic Setting: on backslope of side slope of ls mountains on backslope of side slope of lf mountainside

Upslope Shape: linear

Cross Slope Shape: linear

Particle Size Control Section: 36 to 80 cm.

Description origin: Pedon PC 6.3

Diagnostic Features: ochric epipedon 8 to 36 cm.
argillic horizon 36 to 80 cm.

Country: United States

State: Colorado

County: Boulder

MLRA: 48A -- Southern Rocky Mountains

Soil Survey Area: CO643 -- Boulder County Area, Colorado

Map Unit: 7700C -- Leighcan family, 40 to 75 percent slopes

Pit Location:

Quad Name:

Std Latitude: 40.1867110

Std Longitude: -105.5410859

Latitude: 40 degrees 11 minutes 12.16 seconds north

Longitude: 105 degrees 32 minutes 27.92 seconds west

Datum: WGS84

UTM Zone: 13

UTM Easting: 453939 meters

UTM Northing: 4448621 meters

Primary Earth Cover: Tree cover

Secondary Earth Cover: Conifers

Existing Vegetation: blueberry, Engelmann spruce, lodgepole pine, subalpine fir

Parent Material: colluvium over residuum weathered from granite

Bedrock Kind:

Bedrock Depth:

Bedrock Hardness:

Bedrock Fracture Interval:

Surface Fragments: 10.0 percent nonflat subangular indurated 250- to 600-millimeter Granite fragments and 20.0 percent nonflat subangular indurated 600- to 5000-millimeter Granite fragments

Description database: KSSL

Cont. Site ID: S2017CO013010 **Pedon ID:** S2017CO013010

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
46.0	2,875.0	334						well		

Oe--0 to 8 centimeters (0.0 to 3.1 inches); black (10YR 2/1) moderately decomposed plant material; many medium roots throughout and many fine roots throughout and common coarse roots throughout; many medium and many fine and common coarse pores; abrupt smooth boundary. Lab sample # 18N01429

E--8 to 36 centimeters (3.1 to 14.2 inches); light brownish gray (10YR 6/2) extremely gravelly sandy loam, light gray (10YR 7/1), dry; 75 percent sand; 8 percent clay; weak fine granular structure; loose, nonsticky, nonplastic; common very coarse roots throughout and many medium roots throughout and many fine roots throughout and many coarse roots throughout; common very coarse and many medium and many fine and many coarse pores; 60 percent nonflat subrounded indurated 2 to 75-millimeter Igneous rock fragments; noneffervescent; very strongly acid, pH 5.0; abrupt smooth boundary. Lab sample # 18N01430

Bt1--36 to 50 centimeters (14.2 to 19.7 inches); brown (7.5YR 4/4) extremely gravelly coarse sandy loam; 65 percent sand; 16 percent clay; moderate fine subangular blocky structure; friable, moderately sticky, moderately plastic; many medium roots throughout and many fine roots throughout and common coarse roots throughout; many medium and many fine and common coarse pores; 10 percent faint clay films on all faces of peds; 10 percent nonflat subrounded indurated 75 to 250-millimeter Igneous rock fragments and 70 percent nonflat subrounded indurated 2 to 75-millimeter Igneous rock fragments; noneffervescent; strongly acid, pH 5.4; gradual wavy boundary. Lab sample # 18N01431

Bt2--50 to 80 centimeters (19.7 to 31.5 inches); brown (7.5YR 5/4) extremely gravelly loamy sand; 80 percent sand; 8 percent clay; moderate fine subangular blocky structure; loose, nonsticky, nonplastic; many very fine roots throughout and common medium roots throughout and many fine roots throughout and common coarse roots throughout; many very fine and common medium and many fine and common coarse pores; 5 percent clay bridges between sand grains; 10 percent nonflat subrounded indurated 75 to 250-millimeter Igneous rock fragments and 70 percent nonflat subrounded indurated 2 to 75-millimeter Igneous rock fragments; noneffervescent; moderately acid, pH 5.6; gradual wavy boundary. Lab sample # 18N01432

PEDON DESCRIPTION -- NEON Site RMNP

Print Date: Apr 14 2018

Description Date: Aug 15 2017

Describer: Chris Fabian, Kari Sever, John Norman, Mike More, Andy Steinert

NEON Plot ID: RMNP_003

Site ID: S2017CO013011

Pedon ID: S2017CO013011

Site Note:

Pedon Note:

Lab Source ID: KSSL

Lab Pedon #: 18N0210

Soil Name as Described/Sampled: SND

Classification: Sandy-skeletal, mixed, superactive Lithic Dystrocryepts

Soil Name as Correlated:

Classification:

Pedon Type:

Pedon Purpose: laboratory sampling site

Taxon Kind: family

Associated Soils:

Physiographic Division:

Physiographic Province:

Physiographic Section:

State Physiographic Area:

Local Physiographic Area: Front Range Mountains

Geomorphic Setting: on backslope of side slope of ls mountains on backslope of side slope of lf mountain

Upslope Shape: linear

Cross Slope Shape: linear

Particle Size Control Section: 27 to 49 cm.

Description origin: Pedon PC 6.3

Diagnostic Features: ochric epipedon 2 to 12 cm.
cambic horizon 12 to 49 cm.

Country: United States

State: Colorado

County: Boulder

MLRA: 48A -- Southern Rocky Mountains

Soil Survey Area: CO643 -- Boulder County Area, Colorado

Map Unit: 4703D -- Bullwark-Catamount families-Rock outcrop complex, 40 to 150 percent slopes

Pit Location:

Quad Name:

Std Latitude: 40.2012634

Std Longitude: -105.4836166

Latitude: 40 degrees 12 minutes 4.54 seconds north

Longitude: 105 degrees 29 minutes 1.03 seconds west

Datum: WGS84

UTM Zone: 13

UTM Easting: 458840 meters

UTM Northing: 4450208 meters

Primary Earth Cover: Tree cover

Secondary Earth Cover: Conifers

Existing Vegetation: bluegrass, Engelmann spruce, lodgepole pine, Rocky Mountain juniper, subalpine fir

Parent Material: colluvium over residuum weathered from granite

Bedrock Kind: Granite

Bedrock Depth: 49 centimeters

Bedrock Hardness: indurated

Bedrock Fracture Interval:

Surface Fragments: 2.0 percent nonflat subangular indurated 250- to 600-millimeter Granite fragments

Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
49	200	bedrock, lithic	Indurated

Cont. Site ID: S2017CO013011 **Pedon ID:** S2017CO013011

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
32.0	2,666.0	307						well		

Oe--0 to 2 centimeters (0.0 to 0.8 inches); moderately decomposed plant material; clear wavy boundary.

E--2 to 12 centimeters (0.8 to 4.7 inches); dark grayish brown (10YR 4/2) extremely gravelly coarse sandy loam; 78 percent sand; 10 percent clay; weak medium subangular blocky structure; very friable, nonsticky, nonplastic; common very fine roots throughout and common medium roots throughout; common very fine tubular pores; 70 percent nonflat subrounded indurated 2 to 75-millimeter Granite fragments; noneffervescent; strongly acid, pH 5.2; gradual smooth boundary. Lab sample # 18N01433

Bw1--12 to 26 centimeters (4.7 to 10.2 inches); 60 percent dark grayish brown (10YR 4/2) and 40 percent brown (10YR 4/3) extremely gravelly coarse sandy loam; 78 percent sand; 9 percent clay; weak medium subangular blocky structure; very friable, slightly sticky, nonplastic; common medium roots throughout and common fine roots throughout; interstitial pores; 75 percent nonflat subrounded indurated 2 to 75-millimeter Granite fragments; noneffervescent; strongly acid, pH 5.2; gradual wavy boundary. Lab sample # 18N01434

Bw2--26 to 49 centimeters (10.2 to 19.3 inches); brown (10YR 5/3) extremely gravelly coarse sandy loam; 78 percent sand; 9 percent clay; weak medium subangular blocky structure; very friable, slightly sticky, nonplastic; common medium roots throughout and common fine roots throughout; interstitial pores; 30 percent nonflat subrounded indurated 2 to 75-millimeter Granite fragments and 50 percent nonflat subrounded indurated 75 to 250-millimeter Granite fragments; noneffervescent; strongly acid, pH 5.5; gradual wavy boundary. Lab sample # 18N01435

R--49 to 200 centimeters (19.3 to 78.7 inches); indurated Granite bedrock; .

PEDON DESCRIPTION -- NEON Site RMNP

Print Date: Apr 14 2018

Description Date: Aug 15 2017

Describer: Chris Fabian, Kari Sever, John Norman, Mike More, Andy Steinert

NEON Plot ID: RMNP_017

Site ID: S2017CO013012

Pedon ID: S2017CO013012

Site Note:

Pedon Note:

Lab Source ID: KSSL

Lab Pedon #: 18N0211

Soil Name as Described/Sampled: SND

Classification: Loamy, mixed, superactive Lithic Cryorthents

Soil Name as Correlated:

Classification:

Pedon Type:

Pedon Purpose: laboratory sampling site

Taxon Kind: family

Associated Soils:

Physiographic Division: Rocky Mountain System

Physiographic Province: Southern Rocky Mountains

Physiographic Section:

State Physiographic Area:

Local Physiographic Area: Front Range Mountains

Geomorphic Setting: on shoulder of nose slope of ls mountains on shoulder of nose slope of ls mountain

Upslope Shape: convex

Cross Slope Shape: convex

Particle Size Control Section: 3 to 17 cm.

Description origin: Pedon PC 6.3

Diagnostic Features: cambic horizon 3 to 17 cm.

Country: United States

State: Colorado

County: Boulder

MLRA: 48A -- Southern Rocky Mountains

Soil Survey Area: CO643 -- Boulder County Area, Colorado

Map Unit: 4703D -- Bullwark-Catamount families-Rock outcrop complex, 40 to 150 percent slopes

Pit Location:

Quad Name:

Std Latitude: 40.1999379

Std Longitude: -105.4924193

Latitude: 40 degrees 11 minutes 59.78 seconds north

Longitude: 105 degrees 29 minutes 32.71 seconds west

Datum: WGS84

UTM Zone: 13

UTM Easting: 458090 meters

UTM Northing: 4450065 meters

Primary Earth Cover: Tree cover

Secondary Earth Cover: Conifers

Existing Vegetation: Engelmann spruce, limber pine, lodgepole pine, ponderosa pine, Rocky Mountain juniper, Rocky Mountain maple, rose, subalpine fir

Parent Material: slope alluvium derived from granite over residuum weathered from granite

Bedrock Kind: Granite

Bedrock Depth: 12 centimeters

Bedrock Hardness: indurated

Bedrock Fracture Interval:

Surface Fragments: 5.0 percent nonflat subangular indurated 250- to 600-millimeter Granite fragments and 10.0 percent nonflat subangular indurated 600- to 4000-millimeter Granite fragments

Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
17	200	bedrock, lithic	Indurated

Cont. Site ID: S2017CO013012 **Pedon ID:** S2017CO013012

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
13.0	2,578.0	64						well		

Oe--0 to 3 centimeters (0.0 to 1.2 inches); moderately decomposed plant material; common very fine roots throughout; abrupt smooth boundary. Lab sample # 18N01436

Bw--3 to 17 centimeters (1.2 to 6.7 inches); dark brown (7.5YR 3/3) sandy loam, light brown (7.5YR 6/3), dry; 80 percent sand; 12 percent clay; weak medium subangular blocky structure; few very coarse roots throughout and common fine roots throughout and common coarse roots throughout; 10 percent nonflat subrounded indurated 75 to 250-millimeter Granite fragments and 40 percent nonflat subrounded indurated 2 to 75-millimeter Granite fragments; noneffervescent; moderately acid, pH 5.9; clear smooth boundary. Lab sample # 18N01437

R--17 to 200 centimeters (6.7 to 78.7 inches); bedrock; massive; .

PEDON DESCRIPTION -- NEON Site RMNP

Print Date: Apr 14 2018

Description Date: Aug 15 2017

Describer: Chris Fabian, Kari Sever, John Norman, Mike More, Andy Steinert

NEON Plot ID: RMNP_019

Site ID: S2017CO013013

Pedon ID: S2017CO013013

Site Note:

Pedon Note:

Lab Source ID: KSSL

Lab Pedon #: 18N0212

Soil Name as Described/Sampled: SND

Classification: Fine-loamy, mixed, superactive, frigid Lithic Haplustalfs

Soil Name as Correlated:

Classification:

Pedon Type:

Pedon Purpose: laboratory sampling site

Taxon Kind: family

Associated Soils:

Physiographic Division: Rocky Mountain System

Physiographic Province: Southern Rocky Mountains

Physiographic Section:

State Physiographic Area:

Local Physiographic Area: Front Range Mountains

Geomorphic Setting: on shoulder of side slope of ls mountains on shoulder of side slope of lf hillslope

Upslope Shape: convex

Cross Slope Shape: linear

Particle Size Control Section: 18 to 48 cm.

Description origin: Pedon PC 6.3

Diagnostic Features: ochric epipedon 5 to 18 cm.
argillic horizon 18 to 28 cm.

Country: United States

State: Colorado

County: Boulder

MLRA: 48A -- Southern Rocky Mountains

Soil Survey Area: CO643 -- Boulder County Area, Colorado

Map Unit: 4704B -- Bullwark-Catamount families-Rubble land complex, 10 to 40 percent slopes

Pit Location:

Quad Name:

Std Latitude: 40.1958069

Std Longitude: -105.4914025

Latitude: 40 degrees 11 minutes 44.92 seconds north

Longitude: 105 degrees 29 minutes 29.04 seconds west

Datum: WGS84

UTM Zone: 13

UTM Easting: 458174 meters

UTM Northing: 4449606 meters

Primary Earth Cover: Tree cover

Secondary Earth Cover: Conifers

Existing Vegetation: antelope bitterbrush, aspen fleabane, Engelmann spruce, geranium, kinnikinnick, limber pine, lodgepole pine, lupine, ponderosa pine, prairie sagewort, pussytoes, Rocky Mountain juniper, Rocky Mountain maple, western wheatgrass, yarrow

Parent Material: colluvium derived from granite over residuum weathered from granite

Bedrock Kind: Granite

Bedrock Depth: 48 centimeters

Bedrock Hardness: indurated

Bedrock Fracture Interval:

Surface Fragments: 6.0 percent nonflat subangular indurated 250- to 600-millimeter Granite fragments and 12.0 percent nonflat subangular indurated 600- to 2000-millimeter Granite fragments

Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
48	200	bedrock, lithic	Indurated

Cont. Site ID: S2017CO013013 **Pedon ID:** S2017CO013013

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
14.0	2,664.0	196						well		

Oe--0 to 5 centimeters (0.0 to 2.0 inches); moderately decomposed plant material, black (10YR 2/1), moist; many very fine roots throughout and common fine roots throughout; abrupt smooth boundary. Lab sample # 18N01438

E--5 to 18 centimeters (2.0 to 7.1 inches); gravelly coarse sandy loam; 75 percent sand; 14 percent clay; weak medium subangular blocky structure; very friable, slightly sticky, slightly plastic; common very fine roots throughout and common very coarse roots throughout and common coarse roots throughout; many fine tubular pores; 2 percent nonflat subrounded indurated 75 to 250-millimeter Igneous rock fragments and 30 percent nonflat subrounded indurated 2 to 75-millimeter Igneous rock fragments; noneffervescent; moderately acid, pH 5.6; clear smooth boundary. Lab sample # 18N01439

Bt--18 to 28 centimeters (7.1 to 11.0 inches); very gravelly sandy clay loam, strong brown (7.5YR 4/6), moist; 60 percent sand; 21 percent clay; weak medium subangular blocky structure; friable, moderately sticky, moderately plastic; common fine roots throughout and common coarse roots throughout; many fine tubular pores; 10 percent clay films on all faces of peds; 4 percent nonflat subrounded indurated 75 to 250-millimeter Granite fragments and 60 percent nonflat subrounded indurated 2 to 75-millimeter Granite fragments; noneffervescent; moderately acid, pH 5.7; clear smooth boundary. Lab sample # 18N01440

CBt--28 to 48 centimeters (11.0 to 18.9 inches); extremely gravelly sandy clay loam, yellowish brown (10YR 5/6), moist; 60 percent sand; 23 percent clay; weak fine subangular blocky structure; friable, moderately sticky, moderately plastic; common fine roots throughout and common coarse roots throughout; common fine tubular pores; 10 percent clay films on rock fragments; 8 percent nonflat subrounded indurated 75 to 250-millimeter Granite fragments and 15 percent nonflat subrounded 75 to 250-millimeter Granite fragments and 65 percent nonflat subrounded indurated 2 to 75-millimeter Granite fragments; noneffervescent; moderately acid, pH 5.7; clear wavy boundary. Lab sample # 18N01441

R--48 to 200 centimeters (18.9 to 78.7 inches); massive; .

PEDON DESCRIPTION -- NEON Site RMNP

Print Date: Apr 14 2018
Description Date: Aug 16 2017
Describer: Chris Fabian, Kari Sever, John Norman, Mike More, Andy Steinert
NEON Plot ID: RMNP_020
Site ID: S2017CO013014

Pedon ID: S2017CO013014
Site Note:
Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N0213
Soil Name as Described/Sampled: SND
Classification: Loamy-skeletal, mixed, superactive Typic Haplocryalfs

Soil Name as Correlated:

Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: family
Associated Soils:
Physiographic Division: Rocky Mountain System
Physiographic Province: Southern Rocky Mountains
Physiographic Section:

State Physiographic Area:

Local Physiographic Area: Front Range Mountains
Geomorphic Setting: on shoulder of crest of ls mountains
on shoulder of crest of lf mountain
Upslope Shape: convex
Cross Slope Shape: linear
Particle Size Control Section: 30 to 79 cm.

Description origin: Pedon PC 6.3
Diagnostic Features: ochric epipedon 11 to 30 cm.
argillic horizon 30 to 60 cm.

Country: United States
State: Colorado
County: Boulder
MLRA: 48A -- Southern Rocky Mountains
Soil Survey Area: CO643 -- Boulder County Area, Colorado
Map Unit:
Pit Location:
Quad Name:
Std Latitude: 40.1973339
Std Longitude: -105.4686088

Latitude: 40 degrees 11 minutes 50.39 seconds north
Longitude: 105 degrees 28 minutes 7.00 seconds west
Datum: WGS84
UTM Zone: 13
UTM Easting: 460115 meters
UTM Northing: 4449765 meters

Primary Earth Cover: Tree cover
Secondary Earth Cover: Conifers
Existing Vegetation: bluegrass, buffaloberry, Engelmann spruce, kinnikinnick, lodgepole pine, lupine, mullein, Rocky Mountain juniper, subalpine fir, wax currant
Parent Material: colluvium derived from granite and/or colluvium derived from metavolcanics over residuum weathered from biotite schist
Bedrock Kind: Granite
Bedrock Depth: 79 centimeters
Bedrock Hardness: indurated
Bedrock Fracture Interval:
Surface Fragments: 2.0 percent nonflat subangular indurated 250- to 600-millimeter Granite fragments and 3.0 percent nonflat subangular indurated 600- to 3000-millimeter Granite fragments
Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
79	120	bedrock, lithic	Indurated

Cont. Site ID: S2017CO013014 **Pedon ID:** S2017CO013014

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
16.0	2,777.0	355						well		

Oi--0 to 4 centimeters (0.0 to 1.6 inches); black (10YR 2/1) slightly decomposed plant material; common very coarse roots throughout; clear smooth boundary.

Oe--4 to 11 centimeters (1.6 to 4.3 inches); black (10YR 2/1) moderately decomposed plant material; common fine roots throughout and common coarse roots throughout; abrupt smooth boundary. Lab sample # 18N01442

E--11 to 30 centimeters (4.3 to 11.8 inches); brown (10YR 4/3) very gravelly sandy loam, brown (10YR 5/3), dry; 75 percent sand; 7 percent clay; weak medium subangular blocky structure; nonsticky, nonplastic; many very fine roots throughout and common coarse roots throughout; interstitial pores; 10 percent fine mica flakes, unspecified; 10 percent nonflat subrounded indurated 75 to 250-millimeter Metaconglomerate fragments and 35 percent nonflat subrounded indurated 2 to 75-millimeter Metaconglomerate fragments; noneffervescent; strongly acid, pH 5.5; clear smooth boundary. Lab sample # 18N01443

Bt--30 to 60 centimeters (11.8 to 23.6 inches); brown (7.5YR 4/4) extremely cobbly sandy loam; 63 percent sand; 15 percent clay; moderate medium subangular blocky structure; slightly sticky, slightly plastic; common fine roots throughout and common coarse roots throughout; interstitial pores; 15 percent clay films on all faces of peds; 13 percent fine mica flakes, unspecified; 28 percent nonflat subrounded indurated 75 to 250-millimeter Mixed rock fragments and 40 percent nonflat subrounded indurated 2 to 75-millimeter Mixed rock fragments; noneffervescent; slightly acid, pH 6.1; gradual wavy boundary. Lab sample # 18N01444

BCt--60 to 79 centimeters (23.6 to 31.1 inches); yellowish red (5YR 4/6) very gravelly sandy loam, reddish brown (5YR 4/4), dry; 60 percent sand; 14 percent clay; moderate fine subangular blocky structure; slightly sticky, slightly plastic; common medium roots throughout; interstitial pores; 10 percent clay films on rock fragments; 8 percent fine mica flakes, unspecified; 26 percent nonflat subrounded indurated 75 to 250-millimeter Metaconglomerate fragments and 50 percent nonflat subrounded indurated 2 to 75-millimeter Metaconglomerate fragments; noneffervescent; moderately acid, pH 6.0; clear wavy boundary. Lab sample # 18N01445

C--79 to 120 centimeters (31.1 to 47.2 inches); brown (7.5YR 4/4) indurated Granite bedrock; .

PEDON DESCRIPTION -- NEON Site RMNP

Print Date: Apr 14 2018

Description Date: Aug 16 2017

Describer: Chris Fabian, Kari Sever, John Norman, Mike More, Andy Steinert

NEON Plot ID: RMNP_002

Site ID: S2017CO013015

Pedon ID: S2017CO013015

Site Note:

Pedon Note:

Lab Source ID: KSSL

Lab Pedon #: 18N0214

Soil Name as Described/Sampled: SND

Classification: Loamy-skeletal, mixed, active Typic Haplocryalfs

Soil Name as Correlated:

Classification:

Pedon Type:

Pedon Purpose: laboratory sampling site

Taxon Kind: family

Associated Soils:

Physiographic Division: Rocky Mountain System

Physiographic Province: Southern Rocky Mountains

Physiographic Section:

State Physiographic Area:

Local Physiographic Area: Front Range Mountains

Geomorphic Setting: on backslope of side slope of mountainflank, center third of ls mountains
on backslope of side slope of mountainflank, center third of lf mountain slope

Upslope Shape: linear

Cross Slope Shape: linear

Particle Size Control Section: 70 to 103 cm.

Description origin: Pedon PC 6.3

Diagnostic Features: ochric epipedon 12 to 70 cm.
argillic horizon 70 to 103 cm.

Country: United States

State: Colorado

County: Boulder

MLRA: 48A -- Southern Rocky Mountains

Soil Survey Area: CO643 -- Boulder County Area, Colorado

Map Unit: 2704D -- Typic Haplustolls-Cathedral family-Rock outcrop complex, 40 to 150 percent slopes

Pit Location:

Quad Name:

Std Latitude: 40.1973650

Std Longitude: -105.4720515

Latitude: 40 degrees 11 minutes 50.50 seconds north

Longitude: 105 degrees 28 minutes 19.38 seconds west

Datum: WGS84

UTM Zone: 13

UTM Easting: 459822 meters

UTM Northing: 4449770 meters

Primary Earth Cover: Tree cover

Secondary Earth Cover: Conifers

Existing Vegetation: buffaloberry, Douglas-fir, Engelmann spruce, kinnikinnick, limber pine, lodgepole pine, ponderosa pine, Rocky Mountain juniper, subalpine fir

Parent Material: colluvium derived from granitoid

Bedrock Kind:

Bedrock Depth:

Bedrock Hardness:

Bedrock Fracture Interval:

Surface Fragments: 20.0 percent nonflat subangular indurated 250- to 600-millimeter Granite fragments and 2.0 percent nonflat subangular indurated 600- to 4000-millimeter Granite fragments

Description database: KSSL

Cont. Site ID: S2017CO013015 **Pedon ID:** S2017CO013015

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
47.0	2,685.0	260						well		

Oi--0 to 5 centimeters (0.0 to 2.0 inches); black (10YR 2/1) slightly decomposed plant material; common very fine roots throughout; clear smooth boundary. Lab sample # 18N01446

A--5 to 12 centimeters (2.0 to 4.7 inches); dark brown (10YR 3/3) extremely cobbly coarse sandy loam; 78 percent sand; 10 percent clay; weak fine granular structure; loose, slightly sticky, slightly plastic; common fine roots throughout; common medium tubular and common fine tubular pores; 25 percent nonflat subrounded indurated 2 to 75-millimeter Granite fragments and 25 percent nonflat subrounded indurated 75 to 250-millimeter Granite fragments; noneffervescent; slightly acid, pH 6.3; clear smooth boundary.

E1--12 to 30 centimeters (4.7 to 11.8 inches); brown (10YR 4/3) extremely cobbly coarse sandy loam; 76 percent sand; 7 percent clay; weak fine granular structure; loose, slightly sticky, slightly plastic; common very coarse roots throughout and common medium roots throughout and many fine roots throughout; common medium tubular and common fine tubular pores; 20 percent nonflat subrounded indurated 75 to 250-millimeter Granite fragments and 40 percent nonflat subrounded indurated 2 to 75-millimeter Granite fragments; noneffervescent; slightly acid, pH 6.3; clear wavy boundary. Lab sample # 18N01447

E2--30 to 70 centimeters (11.8 to 27.6 inches); yellowish brown (10YR 5/4) extremely cobbly coarse sandy loam; 75 percent sand; 9 percent clay; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common very fine roots throughout and common medium roots throughout and common fine roots throughout; common very fine tubular pores; 25 percent nonflat subrounded indurated 75 to 250-millimeter Granite fragments and 45 percent nonflat subrounded indurated 2 to 75-millimeter Granite fragments; noneffervescent; slightly acid, pH 6.5; clear wavy boundary. Lab sample # 18N01448

Bt--70 to 103 centimeters (27.6 to 40.6 inches); strong brown (7.5YR 4/6) very gravelly sandy clay loam; 48 percent sand; 33 percent clay; moderate medium subangular blocky structure; friable, moderately sticky, moderately plastic; common medium roots throughout and common fine roots throughout and common coarse roots throughout; common very fine tubular pores; 20 percent distinct clay films on all faces of peds; 20 percent nonflat subrounded indurated 75 to 250-millimeter Granite fragments and 40 percent nonflat subrounded indurated 2 to 75-millimeter Granite fragments; noneffervescent; slightly acid, pH 6.5. Lab sample # 18N01449

PEDON DESCRIPTION -- NEON Site RMNP

Print Date: Apr 14 2018

Description Date: Aug 16 2017

Describer: Chris Fabian, Kari Sever, John Norman, Mike More, Andy Steinert

NEON Plot ID: RMNP_014

Site ID: S2017CO013016

Pedon ID: S2017CO013016

Site Note:

Pedon Note:

Lab Source ID: KSSL

Lab Pedon #: 18N0215

Soil Name as Described/Sampled: SND

Classification: Loamy-skeletal, mixed, active Typic Haplocryalfs

Soil Name as Correlated:

Classification:

Pedon Type:

Pedon Purpose: laboratory sampling site

Taxon Kind: family

Associated Soils:

Physiographic Division: Rocky Mountain System

Physiographic Province: Southern Rocky Mountains

Physiographic Section:

State Physiographic Area:

Local Physiographic Area: Front Range Mountains

Geomorphic Setting: on backslope of side slope of mountainflank, lower third of ls mountain
on backslope of side slope of mountainflank, lower third of lf mountainside

Upslope Shape: linear

Cross Slope Shape: convex

Particle Size Control Section: 37 to 87 cm.

Description origin: Pedon PC 6.3

Diagnostic Features: ochric epipedon 4 to 37 cm.
argillic horizon 37 to 110 cm.

Country: United States

State: Colorado

County: Boulder

MLRA: 48A -- Southern Rocky Mountains

Soil Survey Area: CO643 -- Boulder County Area, Colorado

Map Unit:

Pit Location:

Quad Name:

Std Latitude: 40.1615690

Std Longitude: -105.5345334

Latitude: 40 degrees 9 minutes 41.65 seconds north

Longitude: 105 degrees 32 minutes 4.31 seconds west

Datum: WGS84

UTM Zone: 13

UTM Easting: 454480 meters

UTM Northing: 4445827 meters

Primary Earth Cover: Tree cover

Secondary Earth Cover: Conifers

Existing Vegetation: arnica, blueberry, Engelmann spruce, lodgepole pine, subalpine fir

Parent Material: colluvium derived from biotite schist

Bedrock Kind:

Bedrock Depth:

Bedrock Hardness:

Bedrock Fracture Interval:

Surface Fragments: 2.0 percent nonflat subangular indurated 250- to 600-millimeter Granite fragments and 4.0 percent nonflat subangular indurated 600- to 3000-millimeter Granite fragments

Description database: KSSL

Cont. Site ID: S2017CO013016 **Pedon ID:** S2017CO013016

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
28.0	2,953.0	335						well		

Oi--0 to 4 centimeters (0.0 to 1.6 inches); black (10YR 2/1) moderately decomposed plant material; many very coarse roots throughout and common fine roots throughout; abrupt smooth boundary. Lab sample # 18N01450

E--4 to 37 centimeters (1.6 to 14.6 inches); dark grayish brown (10YR 4/2) very cobbly sandy loam, light grayish olive (10Y 6/2), dry; 70 percent sand; 13 percent clay; weak medium subangular blocky structure; soft, very friable, slightly sticky, slightly plastic; many very coarse roots throughout and common fine roots throughout and common coarse roots throughout; interstitial pores; 5 percent 10YR 4/3), moist, organic stains; 15 percent nonflat subrounded indurated 2 to 75-millimeter Granite fragments and 20 percent nonflat subrounded indurated 75 to 250-millimeter Granite fragments; noneffervescent; very strongly acid, pH 5.0; clear wavy boundary. Lab sample # 18N01451

Bt1--37 to 72 centimeters (14.6 to 28.3 inches); yellowish brown (10YR 5/4) very gravelly coarse sandy loam; 70 percent sand; 17 percent clay; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; common medium roots throughout and common fine roots throughout; common fine tubular pores; 8 percent clay bridges and 10 percent distinct clay films on all faces of peds; 15 percent nonflat subrounded indurated 75 to 250-millimeter Granite fragments and 35 percent nonflat subrounded indurated 2 to 75-millimeter Granite fragments; noneffervescent; strongly acid, pH 5.3; gradual wavy boundary. Lab sample # 18N01452

Bt2--72 to 110 centimeters (28.3 to 43.3 inches); brown (7.5YR 4/4) extremely gravelly coarse sandy loam; 10 percent sand; 16 percent clay; weak medium subangular blocky structure; slightly hard, friable, moderately sticky, moderately plastic; common fine roots throughout; common fine tubular pores; 3 percent fine masses of oxidized iron; 10 percent nonflat subrounded indurated 75 to 250-millimeter Granite fragments and 55 percent nonflat subrounded indurated 2 to 75-millimeter Granite fragments; noneffervescent; strongly acid, pH 5.4. Lab sample # 18N01453

PEDON DESCRIPTION -- NEON Site RMNP

Print Date: Apr 14 2018

Description Date: Aug 17 2017

Describer: Chris Fabian, Kari Sever, John Norman, Mike More, Andy Steinert

NEON Plot ID: RMNP_024

Site ID: S2017CO013017

Pedon ID: S2017CO013017

Site Note:

Pedon Note:

Lab Source ID: KSSL

Lab Pedon #: 18N0216

Soil Name as Described/Sampled: SND

Classification: Loamy-skeletal, mixed, superactive Typic Haplocryalfs

Soil Name as Correlated:

Classification:

Pedon Type:

Pedon Purpose: laboratory sampling site

Taxon Kind: family

Associated Soils:

Physiographic Division: Rocky Mountain System

Physiographic Province: Southern Rocky Mountains

Physiographic Section:

State Physiographic Area:

Local Physiographic Area: Front Range Mountains

Geomorphic Setting: on footslope of base slope of ls mountains on footslope of base slope of lf hillslope

Upslope Shape: concave

Cross Slope Shape: linear

Particle Size Control Section: 17 to 67 cm.

Description origin: Pedon PC 6.3

Diagnostic Features: ochric epipedon 5 to 17 cm.
argillic horizon 32 to 110 cm.

Country: United States

State: Colorado

County: Boulder

MLRA: 48A -- Southern Rocky Mountains

Soil Survey Area: CO643 -- Boulder County Area, Colorado

Map Unit:

Pit Location:

Quad Name:

Std Latitude: 40.1630282

Std Longitude: -105.5423657

Latitude: 40 degrees 9 minutes 46.91 seconds north

Longitude: 105 degrees 32 minutes 32.53 seconds west

Datum: WGS84

UTM Zone: 13

UTM Easting: 453814 meters

UTM Northing: 4445993 meters

Primary Earth Cover: Tree cover

Secondary Earth Cover: Conifers

Existing Vegetation: blueberry, lodgepole pine, Rocky Mountain juniper, subalpine fir

Parent Material: colluvium derived from quartz-monzonite

Bedrock Kind:

Bedrock Depth:

Bedrock Hardness:

Bedrock Fracture Interval:

Surface Fragments: 2.0 percent nonflat subangular indurated 250- to 600-millimeter Granite fragments and 0.5 percent nonflat subangular indurated 600- to 3000-millimeter Granite fragments

Description database: KSSL

Cont. Site ID: S2017CO013017 **Pedon ID:** S2017CO013017

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
15.0	2,936.0	109						well		

Oe--0 to 5 centimeters (0.0 to 2.0 inches); black (10YR 2/1) moderately decomposed plant material, dark brown (10YR 3/3), dry; common coarse roots throughout; clear smooth boundary. Lab sample # 18N01454

E--5 to 17 centimeters (2.0 to 6.7 inches); grayish brown (10YR 5/2) very stony sandy loam, dark yellowish brown (10YR 4/4), dry; 76 percent sand; 7 percent clay; weak fine granular structure; loose, very friable, nonsticky, nonplastic; common medium roots and common coarse roots; 2 percent nonflat subrounded indurated 75 to 250-millimeter Quartz-monzonite fragments and 30 percent nonflat subrounded indurated 2 to 75-millimeter Quartz-monzonite fragments; noneffervescent; very strongly acid, pH 4.9; clear wavy boundary. Lab sample # 18N01455

EBt--17 to 32 centimeters (6.7 to 12.6 inches); grayish brown (10YR 5/2) very stony sandy loam, dark yellowish brown (10YR 3/4), dry; 77 percent sand; 10 percent clay; weak fine subangular blocky structure; loose, very friable, nonsticky, nonplastic; common medium roots and common coarse roots; 15 percent clay bridges between sand grains; 10 percent nonflat subrounded indurated 75 to 250-millimeter Quartz-monzonite fragments and 30 percent nonflat subrounded indurated 2 to 75-millimeter Quartz-monzonite fragments; noneffervescent; very strongly acid, pH 4.9; clear wavy boundary. Lab sample # 18N01456

Bt1--32 to 61 centimeters (12.6 to 24.0 inches); 60 percent dark yellowish brown (10YR 4/6) and 40 percent dark yellowish brown (10YR 4/4) extremely gravelly loamy coarse sand; 82 percent sand; 10 percent clay; moderate medium subangular blocky structure; friable, nonsticky, nonplastic; common medium roots and common fine roots; 25 percent clay films on all faces of peds; 2 percent fine mica flakes, unspecified throughout; 2 percent nonflat subrounded indurated 75 to 250-millimeter Quartz-monzonite fragments and 60 percent nonflat subrounded indurated 2 to 75-millimeter Quartz-monzonite fragments; noneffervescent; strongly acid, pH 5.2; gradual wavy boundary. Lab sample # 18N01457

Bt2--61 to 110 centimeters (24.0 to 43.3 inches); brown (7.5YR 4/4) very gravelly loamy coarse sand; 82 percent sand; 12 percent clay; weak coarse subangular blocky, and moderate medium subangular blocky structure; friable, nonsticky, nonplastic; common very fine roots and common fine roots; 15 percent clay films on all faces of peds and 20 percent clay bridges on all faces of peds; 2 percent fine mica flakes, unspecified throughout; 50 percent nonflat subrounded indurated 2 to 75-millimeter Quartz-monzonite fragments; noneffervescent; strongly acid, pH 5.3.

PEDON DESCRIPTION -- NEON Site RMNP

Print Date: Apr 14 2018

Description Date: Aug 17 2017

Describer: Chris Fabian, Kari Sever, John Norman, Mike More, Andy Steinert

NEON Plot ID: RMNP_018

Site ID: S2017CO013018

Pedon ID: S2017CO013018

Site Note:

Pedon Note:

Lab Source ID: KSSL

Lab Pedon #: 18N0217

Soil Name as Described/Sampled: SND

Classification: Loamy-skeletal, mixed, superactive Typic Haplocryalfs

Soil Name as Correlated:

Classification:

Pedon Type:

Pedon Purpose: laboratory sampling site

Taxon Kind: family

Associated Soils:

Physiographic Division: Rocky Mountain System

Physiographic Province: Southern Rocky Mountains

Physiographic Section:

State Physiographic Area:

Local Physiographic Area: Front Range Mountains

Geomorphic Setting: on backslope of side slope of mountainflank, center third of ls mountains
on backslope of side slope of mountainflank, center third of lf hillslope

Upslope Shape: linear

Cross Slope Shape: linear

Particle Size Control Section: 10 to 60 cm.

Description origin: Pedon PC 6.3

Diagnostic Features: ochric epipedon 5 to 10 cm.
argillic horizon 10 to 73 cm.

Country: United States

State: Colorado

County: Boulder

MLRA: 48A -- Southern Rocky Mountains

Soil Survey Area: CO643 -- Boulder County Area, Colorado

Map Unit: 7201B -- Leighcan family, till substratum, 5 to 40 percent slopes

Pit Location:

Quad Name:

Std Latitude: 40.1636646

Std Longitude: -105.5392118

Latitude: 40 degrees 9 minutes 49.18 seconds north

Longitude: 105 degrees 32 minutes 21.16 seconds west

Datum: WGS84

UTM Zone: 13

UTM Easting: 454083 meters

UTM Northing: 4446062 meters

Primary Earth Cover: Tree cover

Secondary Earth Cover: Conifers

Existing Vegetation: blueberry, creeping barberry, Engelmann spruce, lodgepole pine, Rocky Mountain juniper, subalpine fir

Parent Material: colluvium derived from granodiorite

Bedrock Kind:

Bedrock Depth:

Bedrock Hardness:

Bedrock Fracture Interval:

Surface Fragments: 2.0 percent nonflat subangular indurated 250- to 600-millimeter Granite fragments and 1.0 percent nonflat subangular indurated 600- to 4000-millimeter Granite fragments

Description database: KSSL

Cont. Site ID: S2017CO013018 **Pedon ID:** S2017CO013018

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
23.0	2,836.0	53						well		

Oe--0 to 5 centimeters (0.0 to 2.0 inches);, 10YR (10YR/),, dry; common very fine roots throughout and common fine roots throughout; clear smooth boundary. Lab sample # 18N01459

E--5 to 10 centimeters (2.0 to 3.9 inches); brown (10YR 5/3) very gravelly sandy loam, light brownish gray (10YR 6/2), dry; 75 percent sand; 18 percent clay; weak fine granular structure; soft, very friable, nonsticky, nonplastic; common very coarse roots and common medium roots and common fine roots; 2 percent nonflat subrounded indurated 75 to 250-millimeter Granodiorite fragments and 40 percent nonflat subrounded indurated 2 to 75-millimeter Granodiorite fragments; noneffervescent; very strongly acid, pH 5.0; clear wavy boundary. Lab sample # 18N01460

Bt1--10 to 43 centimeters (3.9 to 16.9 inches); brown (7.5YR 4/4) extremely gravelly sandy clay loam, brown (7.5YR 5/4), dry; 61 percent sand; 24 percent clay; weak medium subangular blocky structure; slightly hard, friable, moderately sticky, moderately plastic; common very fine roots and common medium roots; 18 percent clay films on all faces of peds; 5 percent nonflat subrounded indurated 75 to 250-millimeter Granodiorite fragments and 40 percent nonflat subrounded indurated 2 to 75-millimeter Granodiorite fragments; noneffervescent; strongly acid, pH 5.3; gradual wavy boundary. Lab sample # 18N01461

Bt2--43 to 73 centimeters (16.9 to 28.7 inches); brown (7.5YR 4/4) very gravelly sandy clay loam, brown (7.5YR 5/4), dry; 55 percent sand; 30 percent clay; weak medium subangular blocky structure; slightly hard, friable, moderately sticky, moderately plastic; common very fine roots and common fine roots and common coarse roots; 35 percent clay films on all faces of peds; 2 percent nonflat subrounded indurated 75 to 250-millimeter Granodiorite fragments and 45 percent nonflat subrounded indurated 2 to 75-millimeter Granodiorite fragments; noneffervescent; strongly acid, pH 5.5; gradual wavy boundary. Lab sample # 18N01462

C--73 to 110 centimeters (28.7 to 43.3 inches); brown (7.5YR 5/4) very gravelly loamy sand; 83 percent sand; 3 percent clay; granular structure; loose, loose, nonsticky, nonplastic; common very fine roots; 2 percent nonflat subrounded indurated 75 to 250-millimeter Granodiorite fragments and 45 percent nonflat subrounded indurated 2 to 75-millimeter Granodiorite fragments; noneffervescent; moderately acid, pH 5.6.

PEDON DESCRIPTION -- NEON Site RMNP

Print Date: Apr 14 2018

Description Date: Aug 17 2017

Describer: Chris Fabian, Kari Sever, John Norman, Mike More, Andy Steinert

NEON Plot ID: RMNP_006

Site ID: S2017CO013019

Pedon ID: S2017CO013019

Site Note:

Pedon Note:

Lab Source ID: KSSL

Lab Pedon #: 18N0218

Soil Name as Described/Sampled: SND

Classification: Loamy-skeletal, mixed, superactive Typic Haplocryalfs

Soil Name as Correlated:

Classification:

Pedon Type:

Pedon Purpose: laboratory sampling site

Taxon Kind: family

Associated Soils:

Physiographic Division: Rocky Mountain System

Physiographic Province: Southern Rocky Mountains

Physiographic Section:

State Physiographic Area:

Local Physiographic Area: Front Range Mountains

Geomorphic Setting: on backslope of side slope of mountainflank, center third of lf mountainside
on backslope of side slope of mountainflank, center third of ls mountains

Upslope Shape: linear

Cross Slope Shape: linear

Particle Size Control Section: 32 to 82 cm.

Description origin: Pedon PC 6.3

Diagnostic Features: ochric epipedon 10 to 32 cm.
argillic horizon 32 to 114 cm.

Country: United States

State: Colorado

County: Boulder

MLRA: 48A -- Southern Rocky Mountains

Soil Survey Area: CO643 -- Boulder County Area, Colorado

Map Unit: 7700C -- Leighcan family, 40 to 75 percent slopes

Pit Location:

Quad Name:

Std Latitude: 40.1580221

Std Longitude: -105.5436057

Latitude: 40 degrees 9 minutes 28.87 seconds north

Longitude: 105 degrees 32 minutes 37.00 seconds west

Datum: WGS84

UTM Zone: 13

UTM Easting: 453705 meters

UTM Northing: 4445438 meters

Primary Earth Cover: Tree cover

Secondary Earth Cover: Conifers

Existing Vegetation: arnica, blueberry, lodgepole pine, subalpine fir

Parent Material: colluvium derived from monzonite

Bedrock Kind:

Bedrock Depth:

Bedrock Hardness:

Bedrock Fracture Interval:

Surface Fragments: 1.0 percent nonflat subangular indurated 250- to 600-millimeter Granite fragments and 1.5 percent nonflat subangular indurated 600- to 3000-millimeter Granite fragments

Description database: KSSL

Cont. Site ID: S2017CO013019 **Pedon ID:** S2017CO013019

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
20.0	2,978.0	22						well		

Oe--0 to 10 centimeters (0.0 to 3.9 inches); moderately decomposed plant material; common very fine roots; clear smooth boundary.

E--10 to 32 centimeters (3.9 to 12.6 inches); dark grayish brown (10YR 4/2) extremely stony sandy loam; 73 percent sand; 10 percent clay; weak fine granular structure; many very coarse roots and common medium roots and many coarse roots; 10 percent nonflat subrounded indurated 75 to 250-millimeter Mixed rock fragments and 35 percent nonflat subrounded indurated 2 to 75-millimeter Mixed rock fragments; noneffervescent; very strongly acid, pH 5.0; clear wavy boundary. Lab sample # 18N01464

Bt1--32 to 52 centimeters (12.6 to 20.5 inches); dark yellowish brown (10YR 4/4) very stony sandy loam; 73 percent sand; 9 percent clay; weak medium subangular blocky structure; common medium roots and common fine roots; 15 percent clay films on all faces of peds; 3 percent nonflat subrounded indurated 75 to 250-millimeter Mixed rock fragments and 30 percent nonflat subrounded indurated 2 to 75-millimeter Mixed rock fragments; noneffervescent; strongly acid, pH 5.3; gradual wavy boundary. Lab sample # 18N01465

Bt2--52 to 83 centimeters (20.5 to 32.7 inches); dark yellowish brown (10YR 4/4) extremely stony sandy loam; 73 percent sand; 12 percent clay; weak medium subangular blocky structure; common very fine roots and common coarse roots; 20 percent clay films on all faces of peds; 15 percent nonflat subrounded indurated 75 to 250-millimeter Mixed rock fragments and 40 percent nonflat subrounded indurated 2 to 75-millimeter Mixed rock fragments; noneffervescent; strongly acid, pH 5.3; gradual wavy boundary. Lab sample # 18N01466

Bt3--83 to 114 centimeters (32.7 to 44.9 inches); yellowish brown (10YR 5/4) extremely stony sandy loam; 70 percent sand; 19 percent clay; weak medium subangular blocky structure; common very fine roots; 10 percent clay films on all faces of peds; 15 percent nonflat subrounded indurated 75 to 250-millimeter Mixed rock fragments and 45 percent nonflat subrounded indurated 2 to 75-millimeter Mixed rock fragments; noneffervescent; strongly acid, pH 5.3. Lab sample # 18N01467

PEDON DESCRIPTION -- NEON Site RMNP

Print Date: Apr 14 2018
Description Date: Aug 18 2017
Describer: Chris Fabian, Kari Sever, John Norman, Mike More, Andy Steinert
NEON Plot ID: RMNP_010
Site ID: S2017CO013020
Pedon ID: S2017CO013020
Site Note:
Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N0219
Soil Name as Described/Sampled: SND
Classification: Sandy-skeletal, mixed, superactive, frigid Typic Haplustepts
Soil Name as Correlated:
Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: family
Associated Soils:
Physiographic Division: Rocky Mountain System
Physiographic Province: Southern Rocky Mountains
Physiographic Section:
State Physiographic Area:
Local Physiographic Area: Front Range Mountains
Geomorphic Setting: on backslope of side slope of mountainflank, upper third of ls mountains
on backslope of side slope of mountainflank, upper third of ls mountainside
Upslope Shape: convex
Cross Slope Shape: convex
Particle Size Control Section: 32 to 70 cm.
Description origin: Pedon PC 6.3
Diagnostic Features: ochric epipedon 7 to 16 cm.
cambic horizon 33 to 70 cm.

Country: United States
State: Colorado
County: Boulder
MLRA: 48A -- Southern Rocky Mountains
Soil Survey Area: CO643 -- Boulder County Area, Colorado
Map Unit: 2704D -- Typic Haplustolls-Cathedral family-Rock outcrop complex, 40 to 150 percent slopes
Pit Location:
Quad Name:
Std Latitude: 40.1785460
Std Longitude: -105.5358176
Latitude: 40 degrees 10 minutes 42.76 seconds north
Longitude: 105 degrees 32 minutes 8.94 seconds west
Datum: WGS84
UTM Zone: 13
UTM Easting: 454382 meters
UTM Northing: 4447712 meters
Primary Earth Cover: Tree cover
Secondary Earth Cover: Conifers
Existing Vegetation: Douglas-fir, kinnikinnick, limber pine, lodgepole pine, ponderosa pine, Rocky Mountain juniper, Rocky Mountain maple, subalpine fir
Parent Material: residuum weathered from monzonite over colluvium derived from monzonite
Bedrock Kind: Granite
Bedrock Depth: 70 centimeters
Bedrock Hardness: indurated
Bedrock Fracture Interval:
Surface Fragments: 15.0 percent nonflat subangular indurated 250- to 600-millimeter Granite fragments and 25.0 percent nonflat subangular indurated 600- to 3000-millimeter Granite fragments
Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
70	200	bedrock, lithic	Indurated

Cont. Site ID: S2017CO013020 **Pedon ID:** S2017CO013020

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
38.0	2,887.0	90						well		

Oe--0 to 7 centimeters (0.0 to 2.8 inches); moderately decomposed plant material, black (10YR 2/1), moist; common very fine roots throughout and common fine roots throughout; clear smooth boundary. Lab sample # 18N01468

A--7 to 16 centimeters (2.8 to 6.3 inches); extremely stony loamy coarse sand, very dark grayish brown (10YR 3/2), moist; 85 percent sand; 10 percent clay; weak fine granular structure; loose, nonsticky, nonplastic; many very fine roots throughout and common medium roots throughout and many fine roots throughout and common coarse roots throughout; interstitial pores; 5 percent nonflat subrounded indurated 75 to 250-millimeter Granite fragments and 35 percent nonflat subrounded indurated 2 to 75-millimeter Granite fragments; noneffervescent; moderately acid, pH 5.6; clear smooth boundary. Lab sample # 18N01469

E--16 to 33 centimeters (6.3 to 13.0 inches); light gray (10YR 7/2) extremely gravelly loamy coarse sand, brown (10YR 5/3), moist; 84 percent sand; 5 percent clay; weak fine granular structure; loose, nonsticky, nonplastic; common very fine roots throughout and many very coarse roots throughout and common fine roots throughout; interstitial pores; 5 percent nonflat subrounded indurated 75 to 250-millimeter Granite fragments and 50 percent nonflat subrounded indurated 2 to 75-millimeter Granite fragments; noneffervescent; moderately acid, pH 5.6; gradual wavy boundary. Lab sample # 18N01470

Bw--33 to 70 centimeters (13.0 to 27.6 inches); very pale brown (10YR 7/3) extremely stony coarse sandy loam, yellowish brown (10YR 5/4), moist; 77 percent sand; 8 percent clay; weak fine subangular blocky structure; very friable, nonsticky, nonplastic; common very fine roots and common medium roots; common fine and common coarse pores; 15 percent nonflat subrounded indurated 75 to 250-millimeter Granite fragments and 45 percent nonflat subrounded indurated 2 to 75-millimeter Granite fragments; noneffervescent; strongly acid, pH 5.4; abrupt wavy boundary. Lab sample # 18N01471

R--70 to 200 centimeters (27.6 to 78.7 inches); indurated Granite bedrock; .

PEDON DESCRIPTION -- NEON Site RMNP

Print Date: Apr 14 2018

Description Date: Aug 18 2017

Describer: Chris Fabian, Kari Sever, John Norman, Mike More, Andy Steinert

NEON Plot ID: RMNP_026

Site ID: S2017CO013021

Pedon ID: S2017CO013021

Site Note:

Pedon Note:

Lab Source ID: KSSL

Lab Pedon #: 18N0220

Soil Name as Described/Sampled: SND

Classification: Fine-loamy, mixed, superactive Typic Haplocryalfs

Soil Name as Correlated:

Classification:

Pedon Type:

Pedon Purpose: laboratory sampling site

Taxon Kind: family

Associated Soils:

Physiographic Division: Rocky Mountain System

Physiographic Province: Southern Rocky Mountains

Physiographic Section:

State Physiographic Area:

Local Physiographic Area: Front Range Mountains

Geomorphic Setting: on backslope of side slope of ls mountains on backslope of side slope of lf mountainside

Upslope Shape: linear

Cross Slope Shape: linear

Particle Size Control Section: 18 to 52 cm.

Description origin: Pedon PC 6.3

Diagnostic Features: ochric epipedon 9 to 18 cm.
argillic horizon 18 to 52 cm.

Country: United States

State: Colorado

County: Boulder

MLRA: 48A -- Southern Rocky Mountains

Soil Survey Area: CO643 -- Boulder County Area, Colorado

Map Unit: 7201B -- Leighcan family, till substratum, 5 to 40 percent slopes

Pit Location:

Quad Name:

Std Latitude: 40.1651471

Std Longitude: -105.5322950

Latitude: 40 degrees 9 minutes 54.52 seconds north

Longitude: 105 degrees 31 minutes 56.26 seconds west

Datum: WGS84

UTM Zone: 13

UTM Easting: 454673 meters

UTM Northing: 4446223 meters

Primary Earth Cover: Tree cover

Secondary Earth Cover: Conifers

Existing Vegetation: arnica, Douglas-fir, Engelmann spruce, lodgepole pine, rose, subalpine fir

Parent Material: colluvium derived from monzonite over ablation till derived from monzonite

Bedrock Kind:

Bedrock Depth:

Bedrock Hardness:

Bedrock Fracture Interval:

Surface Fragments: 4.0 percent nonflat subangular indurated 250- to 600-millimeter Granite fragments and 2.0 percent nonflat subangular indurated 600- to 3000-millimeter Granite fragments

Description database: KSSL

Cont. Site ID: S2017CO013021 **Pedon ID:** S2017CO013021

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
28.0	2,753.0	302						well		

Oi--0 to 9 centimeters (0.0 to 3.5 inches); slightly decomposed plant material; common medium roots and common fine roots; common medium tubular and common fine tubular pores; clear smooth boundary. Lab sample # 18N01472

E--9 to 18 centimeters (3.5 to 7.1 inches); grayish brown (10YR 5/2) gravelly fine sandy loam, light brownish gray (10YR 6/2), dry; 60 percent sand; 17 percent clay; weak fine granular structure; soft, very friable, moderately sticky, moderately plastic; common medium roots and common coarse roots; common medium tubular and common coarse tubular pores; 5 percent flat subangular indurated 2 to 150-millimeter Mixed rock fragments and 10 percent nonflat subrounded indurated 75 to 250-millimeter Mixed rock fragments and 12 percent nonflat subrounded indurated 2 to 75-millimeter Mixed rock fragments; noneffervescent; strongly acid, pH 5.2; clear smooth boundary. Lab sample # 18N01473

Bt--18 to 52 centimeters (7.1 to 20.5 inches); dark yellowish brown (10YR 4/4) gravelly sandy clay loam, yellowish brown (10YR 5/4), dry; 65 percent sand; 21 percent clay; weak medium subangular blocky structure; slightly hard, friable, moderately sticky, moderately plastic; common very coarse roots and common medium roots and common fine roots and common coarse roots; common very coarse and common medium and common fine and common coarse pores; 20 percent distinct clay films on all faces of peds; 5 percent nonflat subrounded indurated 75 to 250-millimeter Mixed rock fragments and 10 percent flat subangular indurated 2 to 150-millimeter Mixed rock fragments and 15 percent nonflat subrounded indurated 2 to 75-millimeter Mixed rock fragments; noneffervescent; moderately acid, pH 5.7; gradual wavy boundary. Lab sample # 18N01474

C1--52 to 77 centimeters (20.5 to 30.3 inches); dark yellowish brown (10YR 4/4) very gravelly loamy coarse sand, yellowish brown (10YR 5/4), dry; 82 percent sand; 8 percent clay; single grain; slightly hard, friable, nonsticky, nonplastic; common medium roots and common fine roots and common coarse roots; common medium tubular and common fine tubular and common coarse tubular pores; 5 percent nonflat subrounded indurated 75 to 250-millimeter Mixed rock fragments and 35 percent nonflat subrounded indurated 2 to 75-millimeter Mixed rock fragments; slight effervescence; strongly acid, pH 5.5; clear wavy boundary. Lab sample # 18N01475

C2--77 to 107 centimeters (30.3 to 42.1 inches); dark yellowish brown (10YR 4/4) extremely cobbly loamy coarse sand, yellowish brown (10YR 5/4), dry; 88 percent sand; 4 percent clay; single grain; common fine tubular pores; 35 percent nonflat subrounded indurated 75 to 250-millimeter Mixed rock fragments and 40 percent nonflat subrounded indurated 2 to 75-millimeter Mixed rock fragments; slight effervescence.