PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018

Description Date: Jun 21 2018

Describer: Martin Figueroa

NEON Plot ID: GUAN_006

Site ID: S2018PR055006

Pedon ID: S2018PR055006

Site Note: This site was sampling for NEON. Plot ID: GUAN_006. Site was correlated to La Covana soil. This site was GUAN_006; it was sampled 5 meters at 68 degrees northeast of SW_006 corner. It is located 86 meters west of the southeast corner of the Guanica NE Quadrant. Temperature at 8:39am was 84.4 F; wind speed 1.2 km/hrs.; humidity 82%. Very deep soil. Peodogenic carbonate stage IV. Dry forest.; Site vegetation: Tragia volubilis (Pringamosa) 5%, Bucida buceras (Ucar) 60%, Thournia striata Radlk. var. portoricensis (Serrasuela) 4%, piticellobium 20%, Leptocereus quadeicostatus (Sebucan) 4%, Leucaena leucocephala(Zarcilla) 6%, Guaiacum officinale (Guayacan) 1%

Pedon Note:

Lab Source ID: KSSL

Lab Pedon #: 18N2031

Soil Name as Described/Sampled: La Covana

Classification: Clayey-skeletal, carbonatic, isohyperthermic Calcic Lithic Petrocalcids

Soil Name as Correlated:

Classification:

Pedon Type:

Pedon Purpose: laboratory sampling site

Taxon Kind: series

Associated Soils: Limestone outcrop, Pitahaya, Seboruco

Physiographic Division: Caribbean Basin

Physiographic Province: Caribbean Islands Province

Physiographic Section: Greater Antilles (Puerto Rico)

State Physiographic Area:

Local Physiographic Area: Carenero Ward, Guanica Dry Forest

Geomorphic Setting: on shoulder of side slope of hill
on shoulder of side slope of karst

Upslope Shape: linear

Cross Slope Shape: concave

Particle Size Control Section: 0 to 37 cm.

Description origin: NASIS

Diagnostic Features: ochric epipedon 0 to 37 cm.
calcic horizon 11 to 37 cm.
petrocalcic horizon 37 to 100 cm.

Country: United States

State: Puerto Rico

County: Guanica

MLRA: 271 -- Semiarid Mountains and Valleys

Soil Survey Area: PR787 -- San German Area, Southwestern Puerto Rico

Map Unit: PsF -- Pitahaya-Limestone outcrop-Seboruco complex, 40 to 60 percent slopes

Pit Location:

Quad Name:

Std Latitude: 17.9636560

Std Longitude: -66.8758100

Latitude: 17 degrees 57 minutes 49.16 seconds north

Longitude: 66 degrees 52 minutes 32.92 seconds west

Datum: WGS84

UTM Zone: 19

UTM Easting:

UTM Northing:

Primary Earth Cover: Tree cover

Secondary Earth Cover: Other shrub cover

Existing Vegetation:

Parent Material: residuum weathered from limestone

Bedrock Kind: Limestone

Bedrock Depth:

Bedrock Hardness:

Bedrock Fracture Interval:

Surface Fragments: 10.5 percent 40- to 70-millimeter Limestone fragments and 4.5 percent 90- to 130-millimeter Limestone fragments

Description database: KSSL

Cont. Site ID: S2018PR055006 **Pedon ID:** S2018PR055006

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
37	100	petrocalcic	Very strongly cemented

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
12.0	97.0	225	26.2	27.5	24.6	794	365	well		

A--0 to 11 centimeters (0.0 to 4.3 inches); dark brown (10YR 3/3) broken face mucky loam, very dark brown (10YR 2/2) broken face, moist; weak very fine, and fine granular structure; soft, very friable, slightly sticky, nonplastic; very fine roots and fine roots throughout; 2 percent nonflat angular 76 to 250-millimeter Limestone fragments and 10 percent nonflat angular 2 to 75-millimeter Limestone fragments; strong effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear smooth boundary. Lab sample # 18N06135

Bk--11 to 37 centimeters (4.3 to 14.6 inches); brown (10YR 4/3) broken face paragravelly clay loam, dark yellowish brown (10YR 3/4) broken face, moist; weak very fine, and fine granular structure; soft, very friable, slightly sticky, moderately plastic; very fine roots and medium roots and fine roots and coarse roots throughout; 5 percent nonflat angular moderately cemented 76 to 250-millimeter Limestone fragments and 80 percent nonflat angular moderately cemented 2 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear wavy boundary. Lab sample # 18N06136

Bkkm1--37 to 62 centimeters (14.6 to 24.4 inches); very pale brown (10YR 8/2) broken face silt loam, white (10YR 8/1) broken face, moist; moderate medium, and coarse, and very coarse platy structure; very hard, extremely firm, slightly sticky, nonplastic; very fine roots and medium roots in cracks and fine roots; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; gradual smooth boundary. Lab sample # 18N06137

Bkkm2--62 to 100 centimeters (24.4 to 39.4 inches); very pale brown (10YR 8/3) broken face silt loam, white (10YR 8/1) broken face, moist; weak fine, and medium subangular blocky structure; very hard, extremely firm, nonsticky, nonplastic; very fine roots and medium roots in cracks and fine roots; 23 percent coarse carbonate nodules at top of horizon and 22 percent medium carbonate nodules at top of horizon; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions. Lab sample # 18N06138

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018

Description Date: Jun 19 2018

Describer: Manuel Matos

NEON Plot ID: GUAN_009

Site ID: S2018PR055009

Pedon ID: S2018PR055009

Site Note: This site was sampling for NEON. Plot ID: GUAN_009. Site was correlated to Montalva soil. The site is located to drainage. Evidence of previously grazing operation. The site is 2.6 meters at 72 degrees east of SW 40x40 corner. Alluvial material over colluvium. Dry forest.; Site vegetation: Guaiacum officinale (Guayacan), vines

Pedon Note: Over colluvium material with gravel from different sources. 15, 50 cm reversible cracks, trans-horizon cracks. 1-5% shell fragments in all horizons.

Lab Source ID: KSSL

Lab Pedon #: 18N2033

Soil Name as Described/Sampled: Montalva

Classification: Fine, mixed, superactive, isohyperthermic Typic Haplotorrerts

Soil Name as Correlated:

Classification:

Pedon Type:

Pedon Purpose: laboratory sampling site

Taxon Kind: series

Associated Soils: El Papayo, Melones

Physiographic Division: Caribbean Basin

Physiographic Province: Caribbean Islands Province

Physiographic Section: Greater Antilles (Puerto Rico)

State Physiographic Area:

Local Physiographic Area: Carenero Ward, Guanica Dry Forest

Geomorphic Setting: on footslope of base slope of alluvial fan
on footslope of base slope of karst

Upslope Shape: linear

Cross Slope Shape: concave

Particle Size Control Section: 25 to 100 cm.

Description origin: NASIS

Diagnostic Features: ochric epipedon 0 to 7 cm.
calcic horizon 7 to 62 cm.

Country: United States

State: Puerto Rico

County: Guanica

MLRA: 271 -- Semiarid Mountains and Valleys

Soil Survey Area: PR787 -- San German Area, Southwestern Puerto Rico

Map Unit: MoC -- Montalva clay, 5 to 12 percent slopes

Pit Location:

Quad Name:

Std Latitude: 17.9792650

Std Longitude: -66.8680030

Latitude: 17 degrees 52 minutes 45.35 seconds north

Longitude: 66 degrees 52 minutes 4.81 seconds west

Datum: WGS84

UTM Zone:

UTM Easting:

UTM Northing:

Primary Earth Cover: Tree cover

Secondary Earth Cover: Other shrub cover

Existing Vegetation:

Parent Material: alluvium derived from igneous and sedimentary rock over colluvium derived from igneous and sedimentary rock

Bedrock Kind:

Bedrock Depth:

Bedrock Hardness:

Bedrock Fracture Interval:

Surface Fragments:

Description database: KSSL

Cont. Site ID: S2018PR055009 **Pedon ID:** S2018PR055009

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	120.0	50	26.2	27.5	24.6	794	365	well		

Ap--0 to 7 centimeters (0.0 to 2.8 inches); dark olive gray (5Y 3/2) broken face clay loam, very dark grayish brown (2.5Y 3/2) broken face, dry; 35 percent clay; moderate very coarse granular parts to moderate medium granular, and moderate very coarse granular parts to moderate medium granular structure; hard, friable, moderately sticky, moderately plastic; very fine roots between peds; fine tubular and fine interstitial pores; 10 percent distinct clay films on surfaces along root channels; 1 percent carbonate, finely disseminated; 1 percent subangular 5 to 20-millimeter unspecified fragments and 5 percent subangular 2 to 4-millimeter unspecified fragments; slight effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear smooth boundary. Lab sample # 18N06142

Btk1--7 to 25 centimeters (2.8 to 9.8 inches); dark olive brown (2.5Y 3/3) broken face clay, grayish brown (2.5Y 5/2) broken face, dry; 45 percent clay; strong medium prismatic parts to strong coarse subangular blocky structure; very hard, firm, very sticky, very plastic; very fine roots between peds and medium roots between peds and fine roots between peds; very coarse tubular and fine tubular and fine interstitial pores; 15 percent distinct clay films on surfaces along root channels and 15 percent distinct clay films on top faces of peds; 10 percent carbonate, finely disseminated; 1 percent subangular 5 to 20-millimeter unspecified fragments and 5 percent subangular 2 to 5-millimeter unspecified fragments; strong effervescence, by HCl, 1 normal; moderately alkaline, pH 8.2, pH indicator solutions; clear smooth boundary. Lab sample # 18N06143

Btk2--25 to 37 centimeters (9.8 to 14.6 inches); olive brown (2.5Y 4/3) broken face clay, dark grayish brown (10YR 4/2) broken face, dry; 50 percent clay; strong medium prismatic parts to strong coarse subangular blocky structure; very hard, very firm, very sticky, very plastic; fine roots between peds; fine tubular and fine interstitial pores; 15 percent distinct clay films on surfaces along root channels and 15 percent distinct clay films on top faces of peds; 30 percent carbonate, finely disseminated; 1 percent subangular 2 to 5-millimeter unspecified fragments; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.2, pH indicator solutions; clear smooth boundary. Lab sample # 18N06144

Btk3--37 to 62 centimeters (14.6 to 24.4 inches); grayish brown (10YR 5/2) broken face clay, dark grayish brown (10YR 4/2) broken face, dry; 50 percent clay; moderate medium prismatic parts to moderate coarse subangular blocky structure; hard, firm, very sticky, very plastic; medium roots between peds; fine tubular and fine interstitial pores; 30 percent carbonate, finely disseminated; 1 percent subangular 20 to 75-millimeter unspecified fragments; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.2, pH indicator solutions; clear wavy boundary. Lab sample # 18N06145

BC--62 to 100 centimeters (24.4 to 39.4 inches); olive brown (2.5Y 4/3) broken face clay; 55 percent clay; weak medium angular blocky, and weak coarse angular blocky structure; hard, firm, very sticky, very plastic; 10 percent fine prominent 10YR 2/1), moist, iron-manganese masses and 10 percent fine prominent 7.5YR 6/8), moist, masses of oxidized iron; 10 percent carbonate, finely disseminated; 1 percent subangular 20 to 75-millimeter unspecified fragments; strong effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions. Lab sample # 18N06146

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018
Description Date: Jan 19 2018
Describer: Manuel Matos
NEON Plot ID: GUAN_010
Site ID: S2018PR055010

Pedon ID: S2018PR055010

Site Note: This site was sampling for NEON. Plot ID: GUAN_010. Site was correlated to La Covana soil. This site was GUAN_010; it was sampled 6.1 meters at 34 degrees northeast of SW_010 corner. Peodogenic carbonate stage betwee V and VI with evidence of carbonate plugs. Shallow to fractured petrocalcic, carbonate stage between V and VI. Dry forest.; Site vegetation: Tabebuia heterophylla (Roble nativo), Gymnanthes lucida (Yaiti), Croton spp

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N2034
Soil Name as Described/Sampled: La Covana
Classification: Clayey-skeletal, carbonatic, isohyperthermic Calcic Lithic Petrocalcids
Soil Name as Correlated:

Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: series
Associated Soils: La Covana, Pitahaya, Seboruco
Physiographic Division: Caribbean Basin
Physiographic Province: Caribbean Islands Province
Physiographic Section: Greater Antilles (Puerto Rico)
State Physiographic Area:

Local Physiographic Area: Carenero Ward, Guanica Dry Forest
Geomorphic Setting: on shoulder of side slope of hill
on shoulder of side slope of karst
Upslope Shape: concave
Cross Slope Shape: linear
Particle Size Control Section: 0 to 9 cm.
Description origin: NASIS
Diagnostic Features: ochric epipedon 0 to 9 cm.
petrocalcic horizon 9 to 100 cm.

Country: United States
State: Puerto Rico
County: Guanica
MLRA: 271 -- Semiarid Mountains and Valleys
Soil Survey Area: PR787 -- San German Area, Southwestern Puerto Rico
Map Unit: LcE -- La Covana-Limestone outcrop-Seboruco complex, 12 to 40 percent slopes

Pit Location:

Quad Name:
Std Latitude: 17.9723000
Std Longitude: -66.8715300

Latitude: 17 degrees 58 minutes 20.28 seconds north
Longitude: 66 degrees 52 minutes 17.51 seconds west
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Other shrub cover
Existing Vegetation:
Parent Material: residuum weathered from limestone
Bedrock Kind: Limestone
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
9	100	petrocalcic	Very strongly cemented

Cont. Site ID: S2018PR055010 **Pedon ID:** S2018PR055010

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	176.0	180	26.2	27.5	24.6	794	365	well		

A--0 to 9 centimeters (0.0 to 3.5 inches); very dark brown (10YR 2/2) broken face very paragravelly clay loam, black (10YR 2/1) broken face, moist; 32 percent clay; moderate fine granular structure; slightly hard, very firm, slightly sticky, slightly plastic; very fine roots and medium roots and fine roots throughout and coarse roots throughout; medium interstitial and fine pores; 15 percent distinct 10YR 8/1), dry, carbonate nodules and carbonate root casts; 1 percent moderately cemented 2 to 5-millimeter Limestone fragments and 1 percent moderately cemented 5 to 20-millimeter Limestone fragments and 45 percent moderately cemented 20 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; abrupt wavy boundary. Lab sample # 18N06147

Bkkm1--9 to 32 centimeters (3.5 to 12.6 inches); white (10YR 8/1) broken face, very pale brown (10YR 8/2) broken face, moist; 5 percent fine (10YR 6/8) and 5 percent fine (10YR 6/8) mottles; massive; very fine roots in cracks and fine roots in cracks and coarse roots in cracks; medium tubular and fine tubular and coarse tubular pores; 75 percent distinct 10YR 8/1), dry, carbonate nodules; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.2, pH indicator solutions; clear wavy boundary. Lab sample # 18N06148. Carbonate engulfments, full OM, laminar

Bkkm2--32 to 100 centimeters (12.6 to 39.4 inches); white (10YR 8/1) broken face very gravelly clay loam, light gray (10YR 7/2) broken face, moist; massive; very fine roots between peds and fine roots between peds and coarse roots between peds; coarse vesicular pores; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; gradual broken boundary. Lab sample # 18N06149

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018
Description Date: Jun 21 2018
Describer: Manuel Matos
NEON Plot ID: GUAN_012
Site ID: S2018PR055012

Pedon ID: S2018PR055012

Site Note: This site was sampling for NEON. Plot ID: GUAN_012. Site was correlated to La Covana soil. This site was GUAN_012; it was sampled 7.2 meters at 55 degrees northeast of SW_012 corner. 90% of rock outcrop. Dry forest.; Site vegetation: Gymnanthes lucida (Yaiti) 70%, Thouinia striata Radlk. var. portoricensis (Serrasuela) 20%, Cactus 10%

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N2035
Soil Name as Described/Sampled: La Covana
Classification: Clayey-skeletal, carbonatic, isohyperthermic Calcic Lithic Petrocalcids
Soil Name as Correlated:

Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: series
Associated Soils: La Covana, Pitahaya, Seboruco
Physiographic Division: Caribbean Basin
Physiographic Province: Caribbean Islands Province
Physiographic Section: Greater Antilles (Puerto Rico)
State Physiographic Area:

Local Physiographic Area: Carenero Ward, Guanica Dry Forest
Geomorphic Setting: on shoulder of interfluve of hill
on shoulder of interfluve of karst
Upslope Shape: linear
Cross Slope Shape: linear
Particle Size Control Section: 0 to 10 cm.
Description origin: NASIS
Diagnostic Features: ochric epipedon 0 to 10 cm.
petrocalcic horizon 10 to 31 cm.
calcic horizon 31 to 100 cm.

Country: United States
State: Puerto Rico
County: Guanica
MLRA: 271 -- Semiarid Mountains and Valleys
Soil Survey Area: PR787 -- San German Area, Southwestern Puerto Rico
Map Unit: PsF -- Pitahaya-Limestone outcrop-Seboruco complex, 40 to 60 percent slopes

Pit Location:

Quad Name:
Std Latitude: 17.9514600
Std Longitude: -66.8991300

Latitude: 17 degrees 57 minutes 5.26 seconds north
Longitude: 66 degrees 53 minutes 56.87 seconds west
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Other shrub cover
Existing Vegetation:
Parent Material: residuum weathered from limestone
Bedrock Kind: Limestone
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
10	31	petrocalcic	

Cont. Site ID: S2018PR055012 **Pedon ID:** S2018PR055012

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	20.4	150	26.2	27.5	24.6	794	365	well		

A--0 to 10 centimeters (0.0 to 3.9 inches); dark brown (7.5YR 3/2) broken face paragravelly mucky sandy loam, very dark brown (7.5YR 2/2) broken face, moist; weak fine subangular blocky parts to weak very fine granular structure; soft, very friable, slightly sticky, slightly plastic; very fine roots and medium roots and fine roots throughout and coarse roots throughout; medium and coarse interstitial pores; 10 percent nonflat 20 to 75-millimeter unspecified fragments and 10 percent flat 30 to 70-millimeter unspecified fragments; very slight effervescence, by HCl, 1 normal; abrupt smooth boundary. Lab sample # 18N06150

Bkkm--10 to 31 centimeters (3.9 to 12.2 inches); light gray (2.5Y 7/2) broken face, light yellowish brown (2.5Y 6/3) broken face, moist; massive; strong effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; abrupt wavy boundary. Lab sample # 18N06151. Cemented calcic horizon. fine laminae 12 top. carb. stage IV

Bk--31 to 44 centimeters (12.2 to 17.3 inches); dark brown (10YR 3/3) broken face extremely gravelly loam, very dark grayish brown (10YR 3/2) broken face, moist; 20 percent clay; massive; soft, very friable, slightly sticky, slightly plastic; very fine roots and medium roots throughout and fine roots; 80 percent very coarse 2.5Y 6/2), moist, carbonate nodules; 20 percent 20 to 75-millimeter Limestone fragments and 30 percent 5 to 20-millimeter Limestone fragments and 30 percent 2 to 5-millimeter Limestone fragments; strong effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear smooth boundary. Lab sample # 18N06152. Carbonate engulfments and plug mayorito=y of B horizon

Bkk--44 to 100 centimeters (17.3 to 39.4 inches); grayish brown (2.5Y 5/2) broken face extremely gravelly sandy clay loam, dark grayish brown (2.5Y 4/2) broken face, moist; 30 percent clay; massive; loose, moderately sticky, slightly plastic; medium roots throughout and fine roots; 60 percent very coarse 2.5Y 6/2), moist, carbonate nodules; 20 percent 20 to 75-millimeter Limestone fragments and 25 percent 5 to 20-millimeter Limestone fragments and 35 percent 2 to 5-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions. Lab sample # 18N06153. Carbonate engulfments and plug mayorito=y of B horizon

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018
Description Date: Jun 20 2018
Describer: Martin Figueroa
NEON Plot ID: GUAN_016
Site ID: S2018PR055016

Pedon ID: S2018PR055016

Site Note: Site vegetation: Croton sp 10%, Bucida buceras (Ucar)60%, Bucera simaruba (Almacigo) 10%, Cocoloba uvifera (Uva playera) 10%, Sable Palm 5%, Picteta aculeata (Tachuelo) 5%; This site was sampling for NEON. Plot ID: GUAN_016 Site was correlated to La Covana soil. This site was GUAN_016; it was sampled 5 meters at 32 degrees northeast of SW_016 corner. Temperature at 1:52pm was 90 F; wind speed 0 km/hrs.; humidity 70%. Very deep soil. Peodogenic carbonate stages between III and IV. Dry forest.

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N2039
Soil Name as Described/Sampled: La Covana
Classification: Clayey-skeletal, carbonatic, isohyperthermic Calcic Lithic Petrocalcids
Soil Name as Correlated:

Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: series
Associated Soils: La Covana, Pitahaya, Seboruco
Physiographic Division: Caribbean Basin
Physiographic Province: Caribbean Islands Province
Physiographic Section: Greater Antilles (Puerto Rico)
State Physiographic Area:

Local Physiographic Area: Carenero Ward, Guanica Dry Forest
Geomorphic Setting: on backslope of side slope of hill
on backslope of side slope of karst
Upslope Shape: linear
Cross Slope Shape: concave
Particle Size Control Section: 0 to 24 cm.
Description origin: NASIS
Diagnostic Features: ochric epipedon 0 to 24 cm.
calcic horizon 11 to 24 cm.
petrocalcic horizon 24 to 100 cm.

Country: United States
State: Puerto Rico
County: Guanica
MLRA: 271 -- Semiarid Mountains and Valleys
Soil Survey Area: PR787 -- San German Area, Southwestern Puerto Rico
Map Unit: LcE -- La Covana-Limestone outcrop-Seboruco complex, 12 to 40 percent slopes

Pit Location:

Quad Name:
Std Latitude: 17.9678220
Std Longitude: -66.8848430

Latitude: 17 degrees 58 minutes 4.16 seconds north
Longitude: 66 degrees 53 minutes 5.43 seconds west
Datum: WGS84
UTM Zone: 19
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Other shrub cover
Existing Vegetation:
Parent Material: residuum weathered from limestone
Bedrock Kind: Limestone
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
24	100	petrocalcic	

Cont. Site ID: S2018PR055016 **Pedon ID:** S2018PR055016

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	161.0	285	26.2	27.5	24.6	794	365	well		

A--0 to 11 centimeters (0.0 to 4.3 inches); brown (10YR 4/3) broken face clay loam, dark brown (7.5YR 3/3) broken face, moist; weak fine granular structure; soft, very friable, slightly sticky, slightly plastic; very fine roots and medium roots throughout and fine roots; very fine and fine interstitial pores; 10 percent weakly cemented Limestone fragments; strong effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear smooth boundary. Lab sample # 18N06163

Bk--11 to 24 centimeters (4.3 to 9.4 inches); dark yellowish brown (10YR 4/4) broken face paragravelly clay loam, brown (7.5YR 4/4) broken face, moist; weak fine granular structure; soft, very friable, slightly sticky, slightly plastic; very fine roots and medium roots throughout and fine roots; very fine and fine interstitial pores; 30 percent weakly cemented Limestone fragments; strong effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear wavy boundary. Lab sample # 18N06164

Bkkm1--24 to 55 centimeters (9.4 to 21.7 inches); pinkish gray (7.5YR 7/2) broken face clay loam, brown (7.5YR 5/3) broken face, moist; strong medium platy, and strong coarse platy structure; very hard, extremely firm, slightly sticky, slightly plastic; fine roots throughout; medium and medium and fine and fine and coarse interstitial and coarse irregular pores; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear wavy boundary. Lab sample # 18N06165. Highly fractured Petrocalcic horizon

Bkkm2--55 to 100 centimeters (21.7 to 39.4 inches); pink (7.5YR 8/3) broken face silt loam, reddish yellow (7.5YR 7/6) broken face, moist; weak fine subangular blocky, and weak medium subangular blocky structure; very hard, extremely firm, slightly sticky, nonplastic; fine roots throughout; medium and medium and coarse tubular and coarse irregular pores; 15 percent fine carbonate nodules throughout and 15 percent medium carbonate nodules throughout; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions. Lab sample # 18N06166

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018
Description Date: Jun 21 2018
Describer: Manuel Matos
NEON Plot ID: GUAN_020
Site ID: S2018PR055020

Pedon ID: S2018PR055020

Site Note: Site vegetation: Cacti, Bursera simaruba (Almacigo); This site was sampling for NEON. Plot ID: GUAN_020 Site was correlated to Seboruco soil. This site was GUAN_020; it was sampled 0.9 meters at 58 degrees northeast of SW_020 corner. Fine sediments over the limestone; High iron oxides, no reaction to HCl 1N. Dry forest.

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N2041
Soil Name as Described/Sampled: Seboruco
Classification: Fine-loamy, mixed, superactive, isohyperthermic Typic Calciargids
Soil Name as Correlated:

Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: series
Associated Soils: La Covana, Pitahaya, Seboruco
Physiographic Division: Caribbean Basin
Physiographic Province: Caribbean Islands Province
Physiographic Section: Greater Antilles (Puerto Rico)
State Physiographic Area:

Local Physiographic Area: Carenero Ward, Guanica Dry Forest
Geomorphic Setting: on summit of side slope of hill
on summit of side slope of karst
Upslope Shape: linear
Cross Slope Shape: linear
Particle Size Control Section: 4 to 46 cm.
Description origin: NASIS
Diagnostic Features: ochric epipedon 0 to 4 cm.
argillic horizon 4 to 46 cm.

Country: United States
State: Puerto Rico
County: Guanica
MLRA: 271 -- Semiarid Mountains and Valleys
Soil Survey Area: PR787 -- San German Area, Southwestern Puerto Rico
Map Unit: PsF -- Pitahaya-Limestone outcrop-Seboruco complex, 40 to 60 percent slopes

Pit Location:

Quad Name:
Std Latitude: 17.9540590
Std Longitude: -66.8929500

Latitude: 17 degrees 57 minutes 14.61 seconds north
Longitude: 66 degrees 53 minutes 34.62 seconds west
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Other shrub cover
Existing Vegetation:
Parent Material: old marine alluvium derived from limestone and/or residuum weathered from limestone
Bedrock Kind: Limestone
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Cont. Site ID: S2018PR055020 **Pedon ID:** S2018PR055020

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	26.0		26.2	27.5	24.6	794	365	well		

A--0 to 4 centimeters (0.0 to 1.6 inches); dusky red (10R 3/3) broken face silty clay loam, very dusky red (10R 2.5/2) broken face, moist; weak very fine granular structure; soft, very friable, moderately sticky, moderately plastic; very fine roots throughout and medium roots throughout and fine roots throughout; very fine interstitial pores; noneffervescent, by HCl, 1 normal; strongly acid, pH 5.5, pH indicator solutions; clear smooth boundary. Lab sample # 18N06168

Bt1--4 to 12 centimeters (1.6 to 4.7 inches); red (10R 4/6) broken face silty clay, dusky red (10R 3/4) broken face, moist; weak medium subangular blocky parts to weak fine granular, and weak medium subangular blocky parts to weak medium granular structure; soft, very friable, very sticky, very plastic; very fine roots throughout and medium roots throughout and fine roots throughout and coarse roots throughout; very fine interstitial and very fine and fine tubular pores; 3 percent faint clay films on surfaces along root channels and 10 percent distinct clay films on all faces of peds; noneffervescent, by HCl, 1 normal; neutral, pH 7.0, pH indicator solutions; clear wavy boundary. Lab sample # 18N06169

Bt2--12 to 46 centimeters (4.7 to 18.1 inches); red (10R 4/8) broken face extremely gravelly silty clay loam, dusky red (10R 3/4) broken face, moist; weak medium subangular blocky, and weak fine subangular blocky structure; soft, very friable, very sticky, very plastic; very fine roots throughout and fine roots throughout; very coarse interstitial pores; 7 percent prominent clay films on top faces of peds and 7 percent prominent clay films on vertical faces of peds; 2 percent 2 to 5-millimeter Limestone fragments and 2 percent 5 to 20-millimeter Limestone fragments and 15 percent 75 to 125-millimeter Limestone fragments and 70 percent 20 to 75-millimeter Limestone fragments; noneffervescent, by HCl, 1 normal; neutral, pH 7.0, pH indicator solutions; gradual wavy boundary. Lab sample # 18N06170

BC--46 to 100 centimeters (18.1 to 39.4 inches); red (10R 4/8) broken face extremely gravelly silty clay loam, dusky red (10R 3/3) broken face, moist; weak fine subangular blocky, and weak very fine subangular blocky structure; soft, very friable, very sticky, very plastic; very fine roots throughout and fine roots throughout; very coarse interstitial pores; 5 percent 2 to 5-millimeter Limestone fragments and 10 percent 5 to 20-millimeter Limestone fragments and 70 percent 20 to 75-millimeter Limestone fragments; noneffervescent, by HCl, 1 normal; neutral, pH 7.0, pH indicator solutions. Lab sample # 18N06171

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018
Description Date: Jun 20 2018
Describer: Manuel Matos
NEON Plot ID: GUAN_023
Site ID: S2018PR055023

Pedon ID: S2018PR055023

Site Note: Site vegetation: Bursera simaruba (Almacigo); This site was sampling for NEON. Plot ID: GUAN_023 Site was correlated to Seboruco soil. This site was GUAN_023; it was sampled 5.1 meters at 72 degrees northeast of SW_023 corner. Very shallow to hard limestone bedrock. Lithic contact. Boundary distinctness is very abrupt wavy to irregular. Dry forest.

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N2043
Soil Name as Described/Sampled: Seboruco
Classification: Fine-loamy, mixed, superactive, isohyperthermic Typic Calciargids
Soil Name as Correlated:

Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: series
Associated Soils: La Covana, Pitahaya, Seboruco
Physiographic Division: Caribbean Basin
Physiographic Province: Caribbean Islands Province
Physiographic Section: Greater Antilles (Puerto Rico)
State Physiographic Area:

Local Physiographic Area: Carenero Ward, Guanica Dry Forest
Geomorphic Setting: on shoulder of crest of hill
on shoulder of crest of karst
Upslope Shape: linear
Cross Slope Shape: linear
Particle Size Control Section: 0 to 20 cm.
Description origin: NASIS
Diagnostic Features: ochric epipedon 0 to 20 cm.
lithic contact 20 to 100 cm.

Country: United States
State: Puerto Rico
County: Guanica
MLRA: 271 -- Semiarid Mountains and Valleys
Soil Survey Area: PR787 -- San German Area, Southwestern Puerto Rico
Map Unit: LcE -- La Covana-Limestone outcrop-Seboruco complex, 12 to 40 percent slopes

Pit Location:

Quad Name:
Std Latitude: 17.9834800
Std Longitude: -66.8792500

Latitude: 17 degrees 59 minutes 0.52 seconds north
Longitude: 66 degrees 52 minutes 45.30 seconds west
Datum: WGS84
UTM Zone:
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Other shrub cover
Existing Vegetation:
Parent Material: old marine alluvium derived from limestone and/or residuum weathered from limestone
Bedrock Kind: Limestone
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
20	100	bedrock, lithic	Indurated

Cont. Site ID: S2018PR055023 **Pedon ID:** S2018PR055023

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	140.0	60	26.2	27.5	24.6	794	365	well		

A--0 to 5 centimeters (0.0 to 2.0 inches); dusky red (10R 3/3) broken face silty clay loam, very dusky red (10R 2.5/2) broken face, moist; 28 percent clay; weak very fine subangular blocky parts to weak fine granular structure; soft, very friable, slightly sticky, slightly plastic; very fine roots and medium roots throughout and fine roots and coarse roots throughout; fine tubular pores; 1 percent 5 to 20-millimeter unspecified fragments and 1 percent 2 to 5-millimeter unspecified fragments; noneffervescent, by HCl, 1 normal; neutral, pH 7.0, pH indicator solutions; clear smooth boundary. Lab sample # 18N06176

Bt--5 to 20 centimeters (2.0 to 7.9 inches); dusky red (10R 3/3) broken face extremely gravelly silty clay, very dusky red (10R 2.5/2) broken face, moist; 40 percent clay; weak fine subangular blocky parts to weak fine granular structure; soft, very friable, very sticky, very plastic; very fine roots and medium roots throughout and fine roots throughout; 10 percent clay bodies on surfaces along root channels; 5 percent 2 to 5-millimeter Limestone fragments and 30 percent 5 to 20-millimeter Limestone fragments and 50 percent 20 to 75-millimeter Limestone fragments; noneffervescent, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; very abrupt wavy boundary. Lab sample # 18N06177. fine aggregates with higher percent of clay content

R--20 to 100 centimeters (7.9 to 39.4 inches); .

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018
Description Date: Jun 21 2018
Describer: Martin Figueroa
NEON Plot ID: GUAN_024
Site ID: S2018PR055024

Pedon ID: S2018PR055024

Site Note: Site vegetation: Leptocereus quadricostatus, Bursera simaruba (Almacigo), Comocladia dodonaea (Carrasco), Gymnanthes lucida (Yaiti); This site was sampling for NEON. Plot ID: GUAN_024 Site was correlated to Seboruco soil. This site was GUAN_024; it was sampled 3.1 meters at 60 degrees northeast of SW_024 corner. Very shallow to hard limestone bedrock. Temperature at 2:45pm was 87.5 F; wind speed 1.2 km/hrs.; humidity 82%. Very shallow to hard limestone bedrock. Lithic contact. Dry forest.

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N2044
Soil Name as Described/Sampled: Seboruco
Classification: Fine-loamy, mixed, superactive, isohyperthermic Typic Calciargids
Soil Name as Correlated:

Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: series
Associated Soils: La Covana, Pitahaya, Seboruco
Physiographic Division: Caribbean Basin
Physiographic Province: Caribbean Islands Province
Physiographic Section: Greater Antilles (Puerto Rico)
State Physiographic Area:

Local Physiographic Area: Carenero Ward, Guanica Dry Forest
Geomorphic Setting: on backslope of side slope of hill
on backslope of side slope of karst
Upslope Shape: linear
Cross Slope Shape: concave
Particle Size Control Section: 0 to 24 cm.
Description origin: NASIS
Diagnostic Features: ochric epipedon 0 to 7 cm.
argillic horizon 7 to 24 cm.
lithic contact 24 to 100 cm.

Country: United States
State: Puerto Rico
County: Guanica
MLRA: 271 -- Semiarid Mountains and Valleys
Soil Survey Area: PR787 -- San German Area, Southwestern Puerto Rico
Map Unit: PsF -- Pitahaya-Limestone outcrop-Seboruco complex, 40 to 60 percent slopes

Pit Location:

Quad Name:
Std Latitude: 17.9615250
Std Longitude: -66.9007230

Latitude: 17 degrees 57 minutes 41.48 seconds north
Longitude: 66 degrees 54 minutes 2.60 seconds west
Datum: WGS84
UTM Zone: 19
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Other shrub cover
Existing Vegetation:
Parent Material: residuum weathered from limestone
Bedrock Kind: Limestone
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
24	100	bedrock, lithic	Indurated

Cont. Site ID: S2018PR055024 **Pedon ID:** S2018PR055024

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	127.0	95	26.2	27.5	24.6	794	365	well		

A--0 to 7 centimeters (0.0 to 2.8 inches); dark red (10R 3/6) broken face clay, dusky red (7.5R 3/4) broken face, moist; moderate very fine granular, and moderate fine granular structure; soft, very friable, slightly sticky, moderately plastic; very fine roots and medium roots and fine roots and coarse roots throughout; very fine and fine interstitial pores; 10 percent angular 76 to 250-millimeter Limestone fragments; noneffervescent, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear smooth boundary. Lab sample # 18N06178

Bt--7 to 24 centimeters (2.8 to 9.4 inches); dark red (10R 3/6) broken face clay, dusky red (7.5R 3/4) broken face, moist; moderate fine subangular blocky, and moderate medium subangular blocky structure; soft, very friable, slightly sticky, moderately plastic; very fine roots and medium roots and fine roots and coarse roots throughout; very fine and fine interstitial pores; 7 percent faint clay films on all faces of peds and 7 percent faint clay bridges on all faces of peds and 10 percent faint clay films on tops of rock fragments; 12 percent angular 76 to 250-millimeter Limestone fragments; noneffervescent, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; very abrupt wavy boundary. Lab sample # 18N06179

R--24 to 100 centimeters (9.4 to 39.4 inches); .

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018
Description Date: Jun 19 2018
Describer: Martin Figueroa
NEON Plot ID: GUAN_002
Site ID: S2018PR059002

Pedon ID: S2018PR059002

Site Note: Site vegetation: Gymnanthes lucida (Yaiti)68%, Bursera simaruba (Almacigo)6%, Cocoloba uvifera (Uva playera)4%, Thouinia striataRaslk. var. portoricensis (Serrasuela)5%, Pisonia albida (Corcho bobo) 10%, Tabebuia heterophylla (Roble nativo) 5%, Plumeria alba (Aleli blanco) 2%; This site was sampling for NEON. Plot ID: GUAN_002 Site was correlated to Pitahaya soil. This site was GUAN_002; it was sampled 5.0 meters at 54 degrees northeast of SW_002 corner. Temperature at 9:20am was 90 F; wind speed 2 km/hrs.; humidity 65%.Shallow to hard limestone bedrock. Lithic contact. Dry Forest

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N2028
Soil Name as Described/Sampled: Pitahaya
Classification: Clayey-skeletal, mixed, superactive, nonacid, isohyperthermic, shallow Typic Torriorthents
Soil Name as Correlated:

Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: series
Associated Soils: Pitahaya, Seboruco, Tuque
Physiographic Division: Caribbean Basin
Physiographic Province: Caribbean Islands Province
Physiographic Section: Greater Antilles (Puerto Rico)
State Physiographic Area:

Local Physiographic Area: Boca ward, Guayanilla (Dry Forest)
Geomorphic Setting: on backslope of side slope of hill
on backslope of side slope of karst
Upslope Shape: linear
Cross Slope Shape: concave
Particle Size Control Section: 0 to 19 cm.
Description origin: NASIS
Diagnostic Features: ochric epipedon 0 to 19 cm.
calcic horizon 7 to 19 cm.
lithic contact 19 to 100 cm.

Country: United States
State: Puerto Rico
County: Guayanilla
MLRA: 271 -- Semiarid Mountains and Valleys
Soil Survey Area: PR688 -- Ponce Area, Puerto Rico Southern Part
Map Unit: TuF -- Tuque stony clay loam, 12 to 60 percent slopes

Pit Location:

Quad Name:
Std Latitude: 17.9701410
Std Longitude: -66.8247780

Latitude: 17 degrees 58 minutes 12.50 seconds north
Longitude: 66 degrees 49 minutes 29.20 seconds west
Datum: WGS84
UTM Zone: 19
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Other shrub cover
Existing Vegetation:
Parent Material: residuum weathered from limestone
Bedrock Kind: Limestone
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
19	100	bedrock, lithic	Indurated

Cont. Site ID: S2018PR059002 **Pedon ID:** S2018PR059002

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
12.0	85.0	23	26.2	27.5	24.6	794	365	well		

A--0 to 7 centimeters (0.0 to 2.8 inches); dark brown (7.5YR 3/3) broken face very gravelly clay loam, very dark brown (7.5YR 2.5/2) broken face, moist; weak fine granular, and weak medium granular structure; soft, very friable, slightly sticky, slightly plastic; medium roots throughout and fine roots; 10 percent subangular 76 to 250-millimeter Limestone fragments and 20 percent subangular 2 to 75-millimeter Limestone fragments; slight effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear smooth boundary. Lab sample # 18N06128

Bt--7 to 19 centimeters (2.8 to 7.5 inches); dark brown (7.5YR 3/3) broken face very gravelly clay loam, very dark brown (7.5YR 2.5/2) broken face, moist; moderate medium granular, and moderate fine granular structure; soft, very friable, slightly sticky, slightly plastic; very coarse roots throughout and medium roots throughout and fine roots throughout; 50 percent subangular 25 to 75-millimeter Limestone fragments; strong effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear wavy boundary. Lab sample # 18N06129

R--19 to 100 centimeters (7.5 to 39.4 inches); white (7.5YR 8/1); 30 percent coarse prominent irregular (7.5YR 7/3) mottles; .

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018
Description Date: Jun 19 2018
Describer: Martin Figueroa
NEON Plot ID: GUAN_008
Site ID: S2018PR059008

Pedon ID: S2018PR059008

Site Note: Site vegetation: Gymnanthes lucida (Yaiti)70%, Bursera simaruba (Almacigo)10%, , Cocoloba uvifera (Uva playera)5%,Tabebuia heterophylla (Roble nativo) 6% , Plumeria alba (Aleli blanco) 5%, Thouinia striataRaslk. var. portoricensis (Serrasuela)4%; This site was sampling for NEON. Plot ID: GUAN_008 Site was correlated to Seboruco soil. This site was GUAN_008; it was sampled 5.0 meters at 20 degrees northeast of SW_008 corner. Temperature at 2:00pm was 96 F; wind speed 1.2 km/hrs.; humidity 76%. Shallow to hard limestone bedrock. Lithic contact. Dry forest.

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N2032
Soil Name as Described/Sampled: Seboruco
Classification: Fine-loamy, mixed, superactive, isohyperthermic Typic Calciargids
Soil Name as Correlated:

Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: series
Associated Soils: Pitahaya, Seboruco, Tuque
Physiographic Division: Caribbean Basin
Physiographic Province: Caribbean Islands Province
Physiographic Section: Greater Antilles (Puerto Rico)
State Physiographic Area:

Local Physiographic Area: Boca ward, Guayanilla (Dry Forest)
Geomorphic Setting: on backslope of side slope of hill
on backslope of side slope of karst
Upslope Shape: concave
Cross Slope Shape: concave
Particle Size Control Section: 9 to 40 cm.

Description origin: NASIS
Diagnostic Features: ochric epipedon 0 to 9 cm.
argillic horizon 9 to 40 cm.
lithic contact 40 to 100 cm.

Country: United States
State: Puerto Rico
County: Guayanilla
MLRA: 271 -- Semiarid Mountains and Valleys
Soil Survey Area: PR688 -- Ponce Area, Puerto Rico Southern Part
Map Unit: TuF -- Tuque stony clay loam, 12 to 60 percent slopes

Pit Location:

Quad Name:
Std Latitude: 17.9656240
Std Longitude: -66.8322040

Latitude: 17 degrees 57 minutes 56.24 seconds north
Longitude: 66 degrees 49 minutes 55.93 seconds west
Datum: WGS84
UTM Zone: 19
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Other shrub cover
Existing Vegetation:
Parent Material: old marine alluvium derived from limestone and/or residuum weathered from limestone
Bedrock Kind: Limestone
Bedrock Depth:
Bedrock Hardness:
Bedrock Fracture Interval:
Surface Fragments: 20.0 percent 185- to 195-millimeter Limestone fragments and 5.0 percent 250- to 560-millimeter Limestone fragments
Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
40	100	bedrock, lithic	

Cont. Site ID: S2018PR059008 **Pedon ID:** S2018PR059008

Slope (%)	Elevation (meters)	Aspect (deg)	MAAT (C)	MSAT (C)	MWAT (C)	MAP (mm)	Frost-Free Days	Drainage Class	Slope Length (meters)	Upslope Length (meters)
12.0	65.0	180	26.2	27.5	24.6	794	365	well		

A--0 to 9 centimeters (0.0 to 3.5 inches); dark reddish brown (5YR 3/4) broken face clay loam, dark reddish brown (2.5YR 3/4) broken face, moist; moderate very fine granular, and moderate fine granular structure; soft, very friable, slightly sticky, moderately plastic; very fine roots and medium roots and fine roots and coarse roots throughout; very fine and very fine and fine interstitial and fine tubular pores; noneffervescent, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear smooth boundary. Lab sample # 18N06139

Bt1--9 to 19 centimeters (3.5 to 7.5 inches); red (2.5YR 4/8) broken face clay loam, dark red (2.5YR 3/6) broken face, moist; moderate medium subangular blocky, and moderate fine subangular blocky structure; soft, very friable, slightly sticky, moderately plastic; medium roots and fine roots and coarse roots throughout; very fine and very fine and fine irregular and fine tubular pores; 10 percent faint clay films on surfaces along root channels; noneffervescent, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear wavy boundary. Lab sample # 18N06140

Bt2--19 to 40 centimeters (7.5 to 15.7 inches); red (2.5YR 4/8) broken face very paragravelly clay loam, dark red (2.5YR 3/6) broken face, moist; weak medium subangular blocky, and weak fine subangular blocky structure; soft, very friable, slightly sticky, moderately plastic; medium roots and fine roots and coarse roots throughout; very fine and very fine and fine irregular and fine tubular pores; 5 percent faint clay films on surfaces along root channels and 5 percent faint clay films on rock fragments; 45 percent subrounded moderately cemented 15 to 70-millimeter unspecified fragments; noneffervescent, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear wavy boundary. Lab sample # 18N06141. Paragravel 15 to 70mm

R--40 to 100 centimeters (15.7 to 39.4 inches); .

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018

Description Date: Jun 18 2018

Describer: Martin Figueroa

NEON Plot ID: GUAN_013

Site ID: S2018PR059013

Pedon ID: S2018PR059013

Site Note: Site vegetation: Leptocereus quadricostatus (Sebucan) 3%, Gymnanthes lucida (Yaiti)58%,Plumeria alba (Aleli blanco) 2%, Bursera simaruba (Almacigo)10%, Thouinia striataRaslk. var. portoricensis (Serrasuela)2%, Bucida buseras (Ucar) 6%, Comocladia dodonaea (Carrasco) 6%, Picteta aculeata (Tachuelo) 5%, Tabebuia heterophylla (Roble nativo) 6%, Bromelia pinguin (Bromelia) 2%; This site was sampling for NEON. Plot ID: GUAN_013 Site was correlated to Pitahaya soil. This site was GUAN_013; it was sampled 6.0 meters at 40 degrees northeast of SW_013 corner. Temperature at 2:00pm was 95.5 F; wind speed 1 km/hrs.; humidity 75%.Very shallow to hard limestone bedrock. Lithic contact. Dry forest.

Pedon Note:

Lab Source ID: KSSL

Lab Pedon #: 18N2036

Soil Name as Described/Sampled: Pitahaya

Classification: Clayey-skeletal, mixed, superactive, nonacid, isohyperthermic, shallow Typic Torriorthents

Soil Name as Correlated:

Classification:

Pedon Type:

Pedon Purpose: laboratory sampling site

Taxon Kind: series

Associated Soils: Pitahaya, Seboruco, Tuque

Physiographic Division: Caribbean Basin

Physiographic Province: Caribbean Islands Province

Physiographic Section: Greater Antilles (Puerto Rico)

State Physiographic Area:

Local Physiographic Area: Boca ward, Guayanilla (Dry Forest)

Geomorphic Setting: on shoulder of side slope of hill
on shoulder of side slope of karst

Upslope Shape: convex

Cross Slope Shape: convex

Particle Size Control Section: 0 to 14 cm.

Description origin: NASIS

Diagnostic Features: ochric epipedon 0 to 14 cm.
lithic contact 14 to 100 cm.

Country: United States

State: Puerto Rico

County: Guayanilla

MLRA: 271 -- Semiarid Mountains and Valleys

Soil Survey Area: PR688 -- Ponce Area, Puerto Rico Southern Part

Map Unit: TuF -- Tuque stony clay loam, 12 to 60 percent slopes

Pit Location:

Quad Name:

Std Latitude: 17.9635350

Std Longitude: -66.8378860

Latitude: 17 degrees 57 minutes 48.72 seconds north

Longitude: 66 degrees 50 minutes 16.38 seconds west

Datum: WGS84

UTM Zone: 19

UTM Easting:

UTM Northing:

Primary Earth Cover: Tree cover

Secondary Earth Cover: Other shrub cover

Existing Vegetation:

Parent Material: residuum weathered from limestone

Bedrock Kind: Limestone

Bedrock Depth:

Bedrock Hardness:

Bedrock Fracture Interval:

Surface Fragments: 10.0 percent 76- to 250-millimeter Limestone fragments and 25.0 percent 251- to 600-millimeter Limestone fragments and 10.0 percent 601- to 1500-millimeter Limestone fragments

Description database: KSSL

Cont. Site ID: S2018PR059013 **Pedon ID:** S2018PR059013

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
14	100	bedrock, lithic	Indurated

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	59.0	166	26.2	27.5	24.6	794	365	well		

0 to 14 centimeters (0.0 to 5.5 inches); black (5YR 2/1) broken face cobbly mucky loam, greenish black (10Y 2/1) broken face, moist; weak very fine, and fine granular structure; very fine roots and medium roots throughout and fine roots; very fine and fine interstitial pores; 15 percent 76 to 250-millimeter Limestone fragments. Lab sample # 18N06154

14 to 100 centimeters (5.5 to 39.4 inches); .

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018

Description Date: Jun 19 2018

Describer: Martin Figueroa

NEON Plot ID: GUAN_017

Site ID: S2018PR059017

Pedon ID: S2018PR059017

Site Note: This site was GUAN_017; it was sampled 5.5 meters at 48 degrees northeast of SW_017 corner. It is located bout 3,062 meters north and 2,420 meters west of the southeast corner of the NW Punta Verraco Quadrant. Air temperature at 3:30 pm was 33 degrees Celsius. Relative humidity was 78 percent. Wind velocity 1.2 Km\hrs northeast. The site was a forested site \ natural preserve. No Bulk density samples where collected. ; Vegetation List: Gymnanthes lucida (Oysterwood) Bursera simaruba (Turpentine tree) Cocoloba uvifera (Sea grape) Bucida bucera (Black olive) Plumeria alba (Plumeria frangipani) Thouinia striata Radlk. var. portoricensis Tabebuia heterophylla (White oak)

Pedon Note:

Lab Source ID: KSSL

Lab Pedon #: 18N2040

Soil Name as Described/Sampled: Pitahaya

Classification: Clayey-skeletal, mixed, superactive, nonacid, isohyperthermic, shallow Typic Torriorthents

Soil Name as Correlated:

Classification:

Pedon Type:

Pedon Purpose: laboratory sampling site

Taxon Kind: series

Associated Soils: Altamira, Costa, Pitahaya, Seborruco, Tuque

Physiographic Division: Caribbean Basin

Physiographic Province: Caribbean Islands Province

Physiographic Section: Greater Antilles (Puerto Rico)

State Physiographic Area:

Local Physiographic Area: Boca Ward, Guanica Dry Forest

Geomorphic Setting: on summit of interfluve of hill
on summit of interfluve of karst

Upslope Shape: linear

Cross Slope Shape: linear

Particle Size Control Section: 0 to 20 cm.

Description origin: NASIS

Diagnostic Features: ochric epipedon 0 to 20 cm.
lithic contact 20 to cm.

Country: United States

State: Puerto Rico

County: Guayanilla

MLRA: 271 -- Semiarid Mountains and Valleys

Soil Survey Area: PR688 -- Ponce Area, Puerto Rico Southern Part

Map Unit:

Pit Location:

Quad Name: Punta Verraco, Puerto Rico

Std Latitude: 17.9653560

Std Longitude: -66.8353440

Latitude: 17 degrees 57 minutes 55.28 seconds north

Longitude: 66 degrees 50 minutes 7.24 seconds west

Datum: WGS84

UTM Zone:

UTM Easting:

UTM Northing:

Primary Earth Cover: Tree cover

Secondary Earth Cover: Other shrub cover

Existing Vegetation:

Parent Material: residuum weathered from limestone

Bedrock Kind: Limestone

Bedrock Depth: 20 centimeters

Bedrock Hardness: very strongly cemented

Bedrock Fracture Interval: 10 to less than 45 centimeters

Surface Fragments: 15.0 percent nonflat angular very strongly cemented 110- to 220-millimeter Limestone fragments and 10.0 percent nonflat angular very strongly cemented 290- to 540-millimeter Limestone fragments

Description database: KSSL

Cont. Site ID: S2018PR059017 **Pedon ID:** S2018PR059017

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

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	72.0	185	26.2	27.5	24.6	794	365	well		

A--0 to 20 centimeters (0.0 to 7.9 inches); very dark grayish brown (10YR 3/2) broken face extremely gravelly mucky loam, very dark grayish brown (10YR 3/2) broken face, moist; strong very fine granular, and strong fine granular structure; soft, very friable, nonsticky, nonplastic; very fine roots throughout and medium roots throughout and fine roots throughout; very fine interstitial and fine interstitial pores; 80 percent nonflat angular strongly cemented 2 to 75-millimeter Limestone fragments; strong effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear wavy boundary. Lab sample # 18N06167

R--20 to 100 centimeters (7.9 to 39.4 inches); .

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018

Description Date: Jun 20 2018

Describer: Martin Figueroa

NEON Plot ID: GUAN_022

Site ID: S2018PR059022

Pedon ID: S2018PR059022

Site Note: This site was GUAN_022; it was sampled 7.0 meters at 66 degrees northeast of SW_022 corner. Temperature at 9:53am was 80.6 F; wind speed 0 km/hrs.; humidity 70%. Very deep soil. Peodogenic carbonate stage IV. Dry forest.; Vegetation List: Gymnanthes lucida (Oysterwood) Bursera simaruba (Turpentine tree) Cocoloba uvifera (Sea grapes) Tabebuia heterophylla (White oak) Plumeria alba (Plumeria frangipani) Thouinia striata Radlk. var. portoricensis Pisonia albida Pictetia aculeata (Fustic)

Pedon Note:

Lab Source ID: KSSL

Lab Pedon #: 18N2042

Soil Name as Described/Sampled: La Covana

Classification: Clayey-skeletal, carbonatic, isohyperthermic Calcic Lithic Petrocalcids

Soil Name as Correlated:

Classification:

Pedon Type:

Pedon Purpose: laboratory sampling site

Taxon Kind: series

Associated Soils: Altamira, Costa, Costa, Limestone outcrop, Pitahaya, Seboruco, Tuque

Physiographic Division: Caribbean Basin

Physiographic Province: Caribbean Islands Province

Physiographic Section: Greater Antilles (Puerto Rico)

State Physiographic Area:

Local Physiographic Area: Boca Ward, Guanica Dry Forest

Geomorphic Setting: on summit of interfluve of hill
on summit of interfluve of karst

Upslope Shape: convex

Cross Slope Shape: convex

Particle Size Control Section: 0 to 31 cm.

Description origin: NASIS

Diagnostic Features: ochric epipedon 0 to 10 cm.
calcic horizon 10 to 31 cm.
petrocalcic horizon 31 to 100 cm.

Country: United States

State: Puerto Rico

County: Guayanilla

MLRA: 271 -- Semiarid Mountains and Valleys

Soil Survey Area: PR688 -- Ponce Area, Puerto Rico Southern Part

Map Unit:

Pit Location:

Quad Name: Punta Verraco, Puerto Rico

Std Latitude: 17.9577650

Std Longitude: -66.8339720

Latitude: 17 degrees 57 minutes 27.95 seconds north

Longitude: 66 degrees 50 minutes 2.30 seconds west

Datum: WGS84

UTM Zone: 19

UTM Easting:

UTM Northing:

Primary Earth Cover: Tree cover

Secondary Earth Cover: Other shrub cover

Existing Vegetation:

Parent Material: residuum weathered from limestone

Bedrock Kind: Limestone

Bedrock Depth:

Bedrock Hardness: very strongly cemented

Bedrock Fracture Interval:

Surface Fragments: 10.0 percent nonflat angular very strongly cemented 2- to 75-millimeter Limestone fragments and 5.0 percent nonflat angular very strongly cemented 77- to 590-millimeter Limestone fragments

Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
31	100	petrocalcic	Very strongly cemented

Cont. Site ID: S2018PR059022 **Pedon ID:** S2018PR059022

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	44.8	150	26.2	27.5	24.6	794	365	well		

A--0 to 10 centimeters (0.0 to 3.9 inches); dark brown (10YR 3/3) broken face clay loam, very dark grayish brown (10YR 3/2) broken face, moist; weak fine granular structure; soft, very friable, slightly sticky, moderately plastic; medium roots throughout and fine roots throughout and coarse roots throughout; very fine interstitial and fine pores; 10 percent nonflat angular very strongly cemented 5 to 75-millimeter Limestone fragments; strong effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, Unspecified; clear smooth boundary. Lab sample # 18N06172

Bk--10 to 31 centimeters (3.9 to 12.2 inches); very paragravelly clay loam; weak fine granular structure; soft, very friable, Strongly cemented, slightly sticky, moderately plastic; medium roots throughout and fine roots throughout and coarse roots throughout; very fine interstitial and fine pores; 20 percent nonflat angular moderately cemented 80 to 200-millimeter Limestone fragments and 60 percent nonflat angular moderately cemented 5 to 75-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, Unspecified; clear smooth boundary. Lab sample # 18N06173

Bkkm1--31 to 61 centimeters (12.2 to 24.0 inches); sandy loam; weak fine angular blocky structure; extremely hard, slightly rigid, Weakly cemented, nonsticky, nonplastic; fine roots throughout; medium irregular and fine and coarse pores; 50 percent fine strongly cemented carbonate laminae at top of horizon; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, Unspecified; gradual wavy boundary. Lab sample # 18N06174

Bkkm2--61 to 100 centimeters (24.0 to 39.4 inches); sandy loam; weak fine subangular blocky, and weak medium subangular blocky structure; hard, firm, slightly sticky; fine roots throughout; medium irregular and coarse pores; 25 percent fine irregular weakly cemented carbonate nodules throughout and medium; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, Unspecified. Lab sample # 18N06175

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018
Description Date: Jun 18 2018
Describer: Manuel Matos
NEON Plot ID: GUAN_001
Site ID: S2018PR153001

Pedon ID: S2018PR153001
Site Note: This site was GUAN_001; it was sampled 7.7 meters at 56 degrees northeast of SW_001 corner. Weak discontinue petrocalcic horizon. Dry forest. ; Vegetation List: Thouinia striata Radlk. var. portoricensis Eugenia
Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N2027
Soil Name as Described/Sampled: Tuque
Classification: Clayey, carbonatic, isohyperthermic Calcic Lithic Petrocalcids
Soil Name as Correlated:

Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: series
Associated Soils: Costa, La Covana, Limestone outcrop, Pitahaya, Seboruco
Physiographic Division: Caribbean Basin
Physiographic Province: Caribbean Islands Province
Physiographic Section: Greater Antilles (Puerto Rico)
State Physiographic Area:

Local Physiographic Area: Barina Ward, Guanica Dry Forest
Geomorphic Setting: on shoulder of side slope of hill
on shoulder of side slope of karst
Upslope Shape: convex
Cross Slope Shape: convex
Particle Size Control Section: 0 to 28 cm.
Description origin: NASIS
Diagnostic Features: ochric epipedon 0 to 10 cm.
calcic horizon 10 to 28 cm.
petrocalcic horizon 28 to 48 cm.

Country: United States
State: Puerto Rico
County: Yauco
MLRA: 271 -- Semiarid Mountains and Valleys
Soil Survey Area: PR787 -- San German Area, Southwestern Puerto Rico
Map Unit:

Pit Location:

Quad Name: Punta Verraco, Puerto Rico
Std Latitude: 17.9726600
Std Longitude: -66.8513700

Latitude: 17 degrees 58 minutes 21.58 seconds north
Longitude: 66 degrees 51 minutes 4.93 seconds west
Datum: WGS84
UTM Zone: 19
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Other shrub cover
Existing Vegetation:
Parent Material: residuum weathered from limestone
Bedrock Kind: Limestone
Bedrock Depth:
Bedrock Hardness: very strongly cemented
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
28	48	petrocalcic	Very strongly cemented

Cont. Site ID: S2018PR153001 **Pedon ID:** S2018PR153001

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	150.6	280	26.2	27.5	24.6	794	365	well		

A--0 to 10 centimeters (0.0 to 3.9 inches); very dark grayish brown (2.5Y 3/2) broken face silty clay loam, very dark gray (2.5Y 3/1) broken face, moist; moderate coarse granular, and fine granular structure; slightly hard, friable, slightly sticky, slightly plastic; very fine roots throughout and very coarse roots throughout and fine roots throughout; very fine interstitial and fine interstitial pores; 1 percent nonflat subrounded strongly cemented 2 to 5-millimeter Limestone fragments; slight effervescence, by HCl, 1 normal; slightly alkaline, pH 7.5, pH indicator solutions; clear smooth boundary. Lab sample # 18N06122

Bk--10 to 28 centimeters (3.9 to 11.0 inches); brown (10YR 4/3) broken face clay, 3/3 3/3) broken face, moist; moderate medium subangular blocky structure; moderately hard, firm, moderately sticky, slightly plastic; very coarse roots throughout and medium roots throughout and fine roots throughout; fine tubular pores; 2 percent fine distinct 10YR 8/1) carbonate masses throughout; 3 percent nonflat subrounded strongly cemented 2 to 5-millimeter Limestone fragments; strong effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; abrupt wavy boundary. Lab sample # 18N06123

Bkkm--28 to 48 centimeters (11.0 to 18.9 inches);, very pale brown (10YR 7/4) broken face, moist; massive; very hard, rigid, Strongly cemented; very fine roots throughout and medium roots throughout and fine roots throughout; 2 percent fine prominent carbonate laminae at top of horizon; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear wavy boundary. Lab sample # 18N06124. Stratified, Indurate and discontinuous petrocalcic horizon. Stage between III and IV.

BCk--48 to 56 centimeters (18.9 to 22.0 inches); light yellowish brown (2.5Y 6/4) broken face silty clay loam, light olive brown (2.5Y 5/3) broken face, moist; weak medium subangular blocky structure; soft, very friable, slightly sticky, slightly plastic; fine roots throughout; fine interstitial and fine irregular pores; 2 percent fine 10YR 8/1) carbonate masses throughout and medium distinct 10YR 8/1); violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear smooth boundary. Lab sample # 18N06125

C1--56 to 70 centimeters (22.0 to 27.6 inches); white (5Y 8/1) broken face silty clay loam, light yellowish brown (2.5Y 6/3) broken face, moist; 2 percent fine prominent (10YR 6/8) mottles; massive; soft, very friable, slightly sticky, slightly plastic; fine roots throughout; fine tubular pores; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear smooth boundary. Lab sample # 18N06126

C2--70 to 100 centimeters (27.6 to 39.4 inches); very pale brown (10YR 7/3) broken face silty clay loam, light yellowish brown (10YR 6/4) broken face, moist; massive; soft, very friable, slightly sticky, slightly plastic; strong effervescence, by HCl, 1 normal; moderately alkaline, pH 8.2, pH indicator solutions. Lab sample # 18N06127

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018
Description Date: Jun 18 2018
Describer: Manuel Matos
NEON Plot ID: GUAN_003
Site ID: S2018PR153003

Pedon ID: S2018PR153003
Site Note: This site was GUAN_003; it was sampled 9 meters at 40 degrees northeast of SW_003 corner. Duff layer presence at the surface. Evergreen forest. Massive indurate Bkkm; carbonate stage IV. ; Vegetation List: Gymnanthes lucida (Oysterwood) Cocoloba uvivefa (Sea grapes) Comocladia dodonaea (poison ash/Christmas bush) Bursera simaruba (Turpentine tree)
Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N2029
Soil Name as Described/Sampled: La Covana
Classification: Clayey-skeletal, carbonatic, isohyperthermic Calcic Lithic Petrocalcids
Soil Name as Correlated:

Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: series
Associated Soils: Costa, Limestone outcrop, Pitahaya, Seboruco
Physiographic Division: Caribbean Basin
Physiographic Province: Caribbean Islands Province
Physiographic Section: Greater Antilles (Puerto Rico)
State Physiographic Area:

Local Physiographic Area: Barina Ward, Guanica Dry Forest
Geomorphic Setting: on summit of interfluve of hill
on summit of interfluve of karst
Upslope Shape: convex
Cross Slope Shape: convex
Particle Size Control Section: 0 to 28 cm.

Description origin: NASIS
Diagnostic Features: ochric epipedon 0 to 28 cm.
calcic horizon 9 to 28 cm.
petrocalcic horizon 28 to 35 cm.

Country: United States
State: Puerto Rico
County: Yauco
MLRA: 271 -- Semiarid Mountains and Valleys
Soil Survey Area: PR787 -- San German Area, Southwestern Puerto Rico
Map Unit:

Pit Location:

Quad Name:
Std Latitude: 17.9730250
Std Longitude: -66.8618280

Latitude: 17 degrees 58 minutes 22.90 seconds north
Longitude: 66 degrees 51 minutes 42.58 seconds west
Datum: WGS84
UTM Zone: 19
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Other shrub cover
Existing Vegetation:
Parent Material: residuum weathered from limestone
Bedrock Kind: Limestone
Bedrock Depth: 35 centimeters
Bedrock Hardness: very strongly cemented
Bedrock Fracture Interval:
Surface Fragments: 3.0 percent nonflat angular very strongly cemented 80- to 200-millimeter Limestone fragments

Description database: KSSL

Top Depth (cm)	Bottom Depth (cm)	Restriction Kind	Restriction Hardness
28	35	petrocalcic	Very strongly cemented

Cont. Site ID: S2018PR153003 **Pedon ID:** S2018PR153003

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	182.3	150	26.2	27.5	24.6	794	365	well		

A--0 to 9 centimeters (0.0 to 3.5 inches); dark brown (7.5YR 3/2) broken face gravelly mucky loam, very dark gray (10YR 3/1) broken face, moist; weak very fine granular, and weak fine granular structure; soft, very friable, nonsticky, nonplastic; very fine roots throughout and medium roots throughout and fine roots throughout and coarse roots throughout; very fine interstitial and fine interstitial pores; 5 percent nonflat angular strongly cemented 75 to 150-millimeter Limestone fragments and 25 percent nonflat angular strongly cemented 2 to 15-millimeter Limestone fragments; noneffervescent, by HCl, 1 normal; slightly alkaline, pH 7.5, pH indicator solutions; clear smooth boundary. Lab sample # 18N06130

Bk--9 to 28 centimeters (3.5 to 11.0 inches); very dark grayish brown (10YR 3/2) broken face very paragravelly mucky loam, very dark brown (10YR 2/2) broken face, moist; weak very fine granular, and weak fine granular structure; soft, very friable, nonsticky, nonplastic; very fine roots throughout and medium roots throughout and fine roots throughout and coarse roots throughout; very fine interstitial and fine interstitial pores; carbonate, finely disseminated throughout; 20 percent nonflat angular moderately cemented 75 to 100-millimeter Limestone fragments and 50 percent nonflat angular moderately cemented 10 to 15-millimeter Limestone fragments; slight effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear wavy boundary. Lab sample # 18N06131

Bkkm--28 to 35 centimeters (11.0 to 13.8 inches); light reddish brown (2.5YR 7/3) broken face, pale brown (10YR 6/3) broken face, moist; massive; very fine roots throughout and fine roots throughout; very fine vesicular and very fine irregular and very fine tubular and fine tubular pores; medium 5YR 6/8) and 2 percent fine prominent 5YR 6/8) masses of oxidized iron Throughout; 10 percent fine 10YR 8/1) carbonate nodules throughout and medium 10YR 8/1); violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions. Lab sample # 18N06132

R--35 to 100 centimeters (13.8 to 39.4 inches); .

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018
Description Date: Jun 18 2018
Describer: Sameul Rios
NEON Plot ID: GUAN_004
Site ID: S2018PR153004

Pedon ID: S2018PR153004
Site Note: This site was GUAN_004; it was sampled 2.1 meters at 72 degrees northeast of SW_004 corner. 90% of surfaces are rock outcrop; Shallow to hard limestone bedrock. Lithic contact.; Vegetation List: Bucida bucera (Black olive) Bursera simaruba (Turpentine tree) Opuntia repens (Roving pricklypear) Opuntia stricta (Erect prickly pear)
Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N2030
Soil Name as Described/Sampled: Seboruco
Classification: Fine-loamy, mixed, superactive, isohyperthermic Typic Calciargids
Soil Name as Correlated:

Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: series
Associated Soils: Costa, La Covana, Limestone outcrop, Pitahaya, Seboruco
Physiographic Division: Caribbean Basin
Physiographic Province: Caribbean Islands Province
Physiographic Section: Greater Antilles (Puerto Rico)
State Physiographic Area:

Local Physiographic Area: Barina Ward, Guanica Dry Forest
Geomorphic Setting: on backslope of side slope of hill
on backslope of side slope of karst
Upslope Shape: convex
Cross Slope Shape: linear
Particle Size Control Section: 0 to 23 cm.

Description origin: NASIS
Diagnostic Features: ochric epipedon 0 to 11 cm.
argillic horizon 11 to 23 cm.
lithic contact 23 to cm.

Country: United States
State: Puerto Rico
County: Yauco
MLRA: 271 -- Semiarid Mountains and Valleys
Soil Survey Area: PR787 -- San German Area, Southwestern Puerto Rico
Map Unit:

Pit Location:

Quad Name: Punta Verraco, Puerto Rico
Std Latitude: 17.9690920
Std Longitude: -66.8528510

Latitude: 17 degrees 58 minutes 8.73 seconds north
Longitude: 66 degrees 51 minutes 10.26 seconds west
Datum: WGS84
UTM Zone: 19
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Other shrub cover
Existing Vegetation:
Parent Material: residuum weathered from limestone
Bedrock Kind: Limestone
Bedrock Depth: 23 centimeters
Bedrock Hardness: very strongly cemented
Bedrock Fracture Interval:
Surface Fragments: 15.0 percent nonflat angular very strongly cemented 80- to 200-millimeter Limestone fragments and 5.0 percent nonflat angular very strongly cemented 255- to 590-millimeter Limestone fragments
Description database: KSSL

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

Cont. Site ID: S2018PR153004 **Pedon ID:** S2018PR153004

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	135.3	215	26.2	27.5	24.6	794	365	well		

A--0 to 11 centimeters (0.0 to 4.3 inches); dusky red (10R 3/3) broken face gravelly clay loam, very dusky red (5R 2.5/3) broken face, moist; moderate very fine granular structure; loose, loose, slightly sticky, slightly plastic; very fine roots throughout and very coarse roots throughout and fine roots throughout; very fine interstitial pores; 23 percent nonflat angular strongly cemented 2 to 75-millimeter Limestone fragments; noneffervescent, by HCl, 1 normal; slightly alkaline, pH 7.5, pH indicator solutions; clear smooth boundary. Lab sample # 18N06133

Bt--11 to 23 centimeters (4.3 to 9.1 inches); weak red (10R 4/4) broken face very gravelly clay loam, dusky red (10R 3/3) broken face, moist; moderate medium subangular blocky, and moderate fine subangular blocky structure; slightly hard, friable, moderately sticky, moderately plastic; medium roots throughout and fine roots throughout; very fine interstitial and fine tubular pores; 2 percent distinct 5R 2.5/3) clay films on rock fragments and 2 percent distinct 5R 2.5/3) clay films on surfaces along root channels; 58 percent nonflat angular strongly cemented 2 to 75-millimeter Limestone fragments; noneffervescent, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear smooth boundary. Lab sample # 18N06134

R--23 to 100 centimeters (9.1 to 39.4 inches); .

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018
Description Date: Jun 21 2018
Describer: Samuel Rios
NEON Plot ID: GUAN_014
Site ID: S2018PR153014

Pedon ID: S2018PR153014
Site Note: This site was GUAN_014; it was sampled 11.7 meters at 53 degrees northeast of SW_014 corner. Shrubs forest less than 10 feet high; 90% of rock outcrop. Shallow soil with lithic contact. Dry forest. 90% limestone out crop.
Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N2037
Soil Name as Described/Sampled: Pitahaya
Classification: Clayey-skeletal, mixed, superactive, nonacid, isohyperthermic, shallow Typic Torriorthents
Soil Name as Correlated:

Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: series
Associated Soils: Costa, Limestone outcrop, Pitahaya, Seboruco
Physiographic Division: Caribbean Basin
Physiographic Province: Caribbean Islands Province
Physiographic Section: Greater Antilles (Puerto Rico)
State Physiographic Area:

Local Physiographic Area: Barina Ward, Guanica Dry Forest
Geomorphic Setting: on backslope of side slope of hill
on backslope of side slope of karst
Upslope Shape: convex
Cross Slope Shape: linear
Particle Size Control Section: 0 to 30 cm.

Description origin: NASIS
Diagnostic Features: ochric epipedon 0 to 30 cm.
lithic contact 30 to cm.

Country: United States
State: Puerto Rico
County: Yauco
MLRA: 271 -- Semiarid Mountains and Valleys
Soil Survey Area: PR787 -- San German Area, Southwestern Puerto Rico
Map Unit:

Pit Location:

Quad Name:
Std Latitude: 17.9556100
Std Longitude: -66.8523600

Latitude: 17 degrees 57 minutes 20.20 seconds north
Longitude: 66 degrees 51 minutes 8.49 seconds west
Datum: WGS84
UTM Zone: 19
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Other shrub cover
Existing Vegetation:
Parent Material: residuum weathered from limestone
Bedrock Kind: Limestone
Bedrock Depth: 30 centimeters
Bedrock Hardness: very strongly cemented
Bedrock Fracture Interval:
Surface Fragments: 1.0 percent nonflat subrounded moderately cemented 5- to 50-millimeter Shell fragments and 15.0 percent nonflat angular very strongly cemented 80- to 200-millimeter Limestone fragments and 50.0 percent nonflat angular very strongly cemented 255- to 590-millimeter Limestone fragments
Description database: KSSL

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

Cont. Site ID: S2018PR153014 **Pedon ID:** S2018PR153014

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	15.5	220	26.2	27.5	24.6	794	365	well		

A--0 to 8 centimeters (0.0 to 3.1 inches); very dark brown (10YR 2/2) broken face gravelly mucky silt loam, black (10YR 2/1) broken face, moist; moderate fine granular, and moderate medium granular structure; soft, very friable, nonsticky, nonplastic; very fine roots throughout and medium roots throughout and fine roots throughout; medium interstitial and fine interstitial pores; nonflat subangular strongly cemented 2 to 75-millimeter Limestone fragments; slight effervescence, by HCl, 1 normal; neutral, pH 7.0, pH indicator solutions; clear smooth boundary. Lab sample # 18N06155

AC--8 to 30 centimeters (3.1 to 11.8 inches); dark brown (10YR 3/3) broken face extremely paragravelly mucky loam, black (10YR 2/1) broken face, moist; moderate fine granular, and moderate medium granular structure; soft, very friable, nonsticky, nonplastic; very fine roots throughout and medium roots throughout and fine roots throughout; medium interstitial and fine interstitial pores; 90 percent nonflat subangular moderately cemented 2 to 75-millimeter Limestone fragments; slight effervescence, by HCl, 1 normal; neutral, pH 7.0, pH indicator solutions; clear wavy boundary. Lab sample # 18N06156

R--30 to 100 centimeters (11.8 to 39.4 inches); .

PEDON DESCRIPTION -- NEON Site GUAN

Print Date: Nov 15 2018
Description Date: Jun 20 2018
Describer: Samuel Rios
NEON Plot ID: GUAN_015
Site ID: S2018PR153015

Pedon ID: S2018PR153015

Site Note: This site was GUAN_015; it was sampled 2.3 meters at 25 degrees northeast of SW_015 corner. Fracture petrocalcic, Ground cover 100% with a duff layer. Very deep soil. Peodogenic carbonate stage III. Dry forest.; Vegetation List: Gymnanthes lucida (Oysterwood) Bursera simaruba (Turpentine tree) Plumeria alba (Plumeria frangipani)

Pedon Note:
Lab Source ID: KSSL
Lab Pedon #: 18N2038
Soil Name as Described/Sampled: Altamira

Classification: Coarse-loamy, carbonatic, isohyperthermic Typic Haplocalcids

Soil Name as Correlated:

Classification:
Pedon Type:
Pedon Purpose: laboratory sampling site
Taxon Kind: series

Associated Soils: Costa, La Covana, Limestone outcrop, Pitahaya, Segborruco

Physiographic Division: Caribbean Basin
Physiographic Province: Caribbean Islands Province
Physiographic Section: Greater Antilles (Puerto Rico)
State Physiographic Area:

Local Physiographic Area: Barina Ward, Guanica Dry Forest
Geomorphic Setting: on backslope of side slope of hill
on backslope of side slope of karst
Upslope Shape: linear
Cross Slope Shape: convex
Particle Size Control Section: 25 to 100 cm.
Description origin: NASIS

Diagnostic Features: ochric epipedon 0 to 16 cm.
calcic horizon 16 to 72 cm.

Country: United States
State: Puerto Rico
County: Yauco
MLRA: 271 -- Semiarid Mountains and Valleys
Soil Survey Area: PR787 -- San German Area, Southwestern Puerto Rico
Map Unit:

Pit Location:

Quad Name: Punta Verraco, Puerto Rico
Std Latitude: 17.9767700
Std Longitude: -66.8621100

Latitude: 17 degrees 58 minutes 36.37 seconds north
Longitude: 66 degrees 51 minutes 43.60 seconds west
Datum: WGS84
UTM Zone: 19
UTM Easting:
UTM Northing:

Primary Earth Cover: Tree cover
Secondary Earth Cover: Other shrub cover
Existing Vegetation:
Parent Material: residuum weathered from limestone
Bedrock Kind: Limestone
Bedrock Depth: 203 centimeters
Bedrock Hardness: very strongly cemented
Bedrock Fracture Interval:
Surface Fragments:
Description database: KSSL

Cont. Site ID: S2018PR153015 **Pedon ID:** S2018PR153015

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	205.0	140	26.2	27.5	24.6	794	365	well		

A1--0 to 6 centimeters (0.0 to 2.4 inches); mucky sandy loam, dark olive brown (2.5Y 3/3) broken face, moist; weak very fine granular, and weak fine granular, and weak medium granular structure; soft, very friable, slightly sticky, slightly plastic; very fine roots throughout and fine roots throughout; very fine interstitial pores; slight effervescence, by HCl, 1 normal; moderately alkaline, pH 8.3, pH indicator solutions; clear smooth boundary. Lab sample # 18N06157

A2--6 to 16 centimeters (2.4 to 6.3 inches); brown (10YR 4/3) broken face clay loam, dark brown (10YR 3/3) broken face, moist; weak very fine granular structure; soft, very friable, moderately sticky, moderately plastic; very fine roots throughout and medium roots throughout and fine roots throughout; very fine interstitial and fine interstitial pores; 5 percent nonflat subrounded strongly cemented 5 to 10-millimeter Limestone fragments; strong effervescence, by HCl, 1 normal; moderately alkaline, pH 8.0, pH indicator solutions; clear smooth boundary. Lab sample # 18N06158

ABk--16 to 31 centimeters (6.3 to 12.2 inches); dark yellowish brown (10YR 4/4) broken face extremely paragravelly clay loam, dark brown (10YR 3/3) broken face, moist; weak fine subangular blocky, and weak medium subangular blocky, and moderate medium granular, and moderate coarse granular structure; soft, friable, moderately sticky, moderately plastic; very fine roots throughout and medium roots throughout and fine roots throughout; very fine interstitial and very fine tubular pores; coarse 10YR 7/2), moist, carbonate nodules throughout and 25 percent medium 10YR 7/2), moist, carbonate nodules throughout; 5 percent nonflat angular moderately cemented 77 to 100-millimeter Limestone fragments and 55 percent nonflat angular moderately cemented 2 to 75-millimeter Limestone fragments; strong effervescence, by HCl, 1 normal; moderately alkaline, pH 8.2, pH indicator solutions; clear wavy boundary. Lab sample # 18N06159

Bkk1--31 to 40 centimeters (12.2 to 15.7 inches); pale brown (10YR 6/3) broken face extremely paragravelly clay loam, yellowish brown (10YR 5/4) broken face, moist; weak medium subangular blocky structure; slightly hard, friable, moderately sticky, moderately plastic; very fine roots throughout and medium roots throughout and fine roots throughout and coarse roots throughout; very fine irregular and fine irregular pores; 75 percent coarse 10YR 7/2), moist, carbonate nodules throughout and 20 percent very coarse 10YR 6/8), moist, carbonate nodules throughout; 60 percent nonflat angular moderately cemented 5 to 76-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.2, pH indicator solutions; clear wavy boundary. Lab sample # 18N06160

Bkk2--40 to 72 centimeters (15.7 to 28.3 inches); light yellowish brown (10YR 6/4) broken face clay loam, brownish yellow (10YR 6/6) broken face, moist; weak medium subangular blocky structure; slightly hard, friable, moderately sticky, moderately plastic; very fine roots throughout and medium roots throughout and fine roots throughout and coarse roots throughout; very fine irregular and fine irregular pores; 75 percent coarse 10YR 7/2), moist, carbonate nodules throughout and 20 percent medium 10YR 8/1), moist, carbonate masses throughout; 10 percent nonflat angular moderately cemented 2 to 20-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.2, pH indicator solutions; clear smooth boundary. Lab sample # 18N06161

C--72 to 100 centimeters (28.3 to 39.4 inches); light yellowish brown (2.5Y 6/4) broken face clay loam, olive yellow (2.5Y 6/6) broken face, moist; massive; soft, friable, moderately sticky, moderately plastic; very fine roots throughout and medium roots throughout and fine roots throughout and coarse roots throughout; very fine irregular and fine irregular pores; 10 percent nonflat angular moderately cemented 2 to 20-millimeter Limestone fragments; violent effervescence, by HCl, 1 normal; moderately alkaline, pH 8.2, pH indicator solutions. Lab sample # 18N06162