

Reference soil Greece 8: Eutric Cambisol

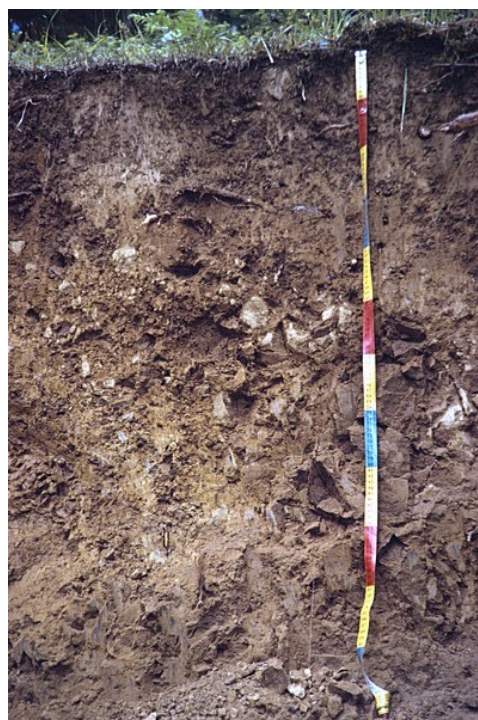
Description

LOCATION: The forest belongs to the forestry department of the university of Thessaloniki. CLIMATE: Continental. Precipitation is evenly distributed throughout the year with exception of a short drier period in July and August. VEGETATION AND LAND USE: Tree species: *Abies hybridogenous*, *Abies cephalonica*. Braekenferns: *Pteris aquilina*

Classification

FAO-UNESCO 1974:

Eutric Cambisol



Site description

General information:

Names of person(s) : Koroxenides N
who described the profile
General description : Trikkala, Pertouli forest, Lyxa,
of location of profile 50km W of Tikkala
(e.g., town, province)
Climate classification : Csb
according to Köppen
Date : September 1970
Latitude / Longitude : N 39.55° / E 21.2167°

Physiography:

The altitude of the : 1230 m asl
soil profile relative to
mean sea level,
specified in meters
Regional landform : mountain
Topography of the : mountainous
surrounding country
Physiographic Unit in : Pindos
the immediate
surrounding of the
site
The slope refers to : 60 %
the inclination of the
land immediately
surrounding the site.
The measured or
estimated slope
angle is specified to
the nearest per cent
The physiographic :
position of the site
where the profile is
located
Form of the slope :
surrounding the site
Slope Aspect of the : East
site

Parent material:

The main parent rock/ : arkosic sandstone
material over which
the soil has been
formed (1st entry)
Texture of parent :
material (1st entry)
Depth1 of lithological : cm
boundary
The main parent rock/ :
material over which
the soil has been
formed (2nd entry)
Resistance against :
weathering (solid
rock) (2nd entry)
Soil Depth; depth to : cm
which roots can easily
penetrate throughout
the year
Remarks on Parent : formation of flysch
Materials

Land use / vegetation:

Current land use at : afforestation
the site
Major crops :
Main type of irrigation :
Rotation scheme :
Vegetation Type;The : evergreen forest
natural vegetation at
the site
Status of vegetation :
Remarks on Land : firs, gr.cov.:braekenferns & short
Use / Vegetation : grass

Surface characteristics:

Microrelief type: small-scale :
differences in relief in the
direct vicinity of the site
Microrelief Height :
Rockiness : rocky
Stoniness : stony
Average size of stones :
Shape of stones (on average) :
Slaking of aggregates by :
tillage, rainfall or frost
Evidence of salt : non-saline
Evidence of alkali : non-alkaline

Nearest climate station:

Station : No representative climate station available for this site

Hydrology and drainage:

Depth of : cm
groundwater table
Groundwater Top : cm
Groundwater Bottom : cm
Kind of groundwater : no groundwater table observed
table
Top Stagnating : cm
Layer
Bottom Stagnating : cm
Layer
Runoff : medium
Estimated : moderate
permeability (class)
of least permeable
part of the profile
Drainage Class : excessive
To Drainage Class :
Moisture conditions : 3-260 cm
of the profile: dry
from -to
Moisture conditions : 0-3 cm
of the profile: moist
from -to
Wet From - To : cm

Erosion and aggradation:

Soil erosion type (1st :
entry)
Intensity of the soil : moderate
erosion type (1st
entry)
Occurrence of soil :
aggradation
Slope Stability :

Profile description:

- Oi 0-1 cm : needles nil, many very fine pores, no fragments,
 O 1-3 cm : (10YR 5.5/3, dry) dark greyish brown (10YR 4/2, moist), many very fine pores, no fragments, abrupt smooth boundary to,
 Ah 3-15 cm : pale brown (10YR 6/3, dry) (dark) brown (10YR 4/3, moist), loam, moderate fine subangular blocky, slightly hard very friable slightly sticky slightly plastic, no cutans, many very fine pores, no fragments, abrupt wavy boundary to,
 Bw 15-41 cm : light yellowish brown (10YR 6/4, dry) pale brown (10YR 6/3, moist), sandy loam, moderate fine subangular blocky, hard very friable slightly sticky slightly plastic, no cutans, many very fine pores, no fragments,
 CR 41-63 cm : very pale brown (10YR 7/4, dry) yellowish brown (10YR 5/6, moist), sandy loam, moderate fine subangular blocky, slightly hard very friable sticky slightly plastic, no cutans, many very fine pores, sandstone fragments,

Physical

Particle size distribution:

Depth (cm)	Gravel (%)	Very Coarse Sand (%)	Coarse Sand (%)	Medium Sand (%)	Fine Sand (%)	Very Fine Sand (%)	Total Sand (%)	Coarse Silt (%)	Fine Silt (%)	Total Silt (%)	Clay (%)
-3--2	-	-	-	-	-	-	-	-	-	-	-
-2-0	-	-	-	-	-	-	-	-	-	-	-
0-12	0	0.2	1.8	7.8	23.4	14.1	-	14.7	23.4	38.1	14.7
12-38	0	0.3	1.8	12	30.3	12.4	-	12.1	21.6	33.7	9.5
38-60	0	0.2	0.8	6.7	30.4	15.2	-	11.6	23.1	34.7	12
60-90	69	0.2	1.7	4.7	18.8	12.1	-	18.3	23.1	41.4	21

Other physical data

Depth (cm)	Bulk Density (kg/dm ³)	Spec. Surf. Area (m ² /g)	COLE (cm/cm)	Water Disp. Clay (%)	Clay (%)
-3--2	-	-	-	-	-
-2-0	-	-	-	-	-
0-12	-	-	-	-	14.7
12-38	-	-	-	-	9.5
38-60	-	-	-	-	12
60-90	-	-	-	-	21

Chemical characteristics:

Depth (cm)	pH H ₂ O	pH KCl	EC 1 : 2.5 (mS/cm)	CaC O ₃ (%)	Org. C (%)	Org. N (%)	C / N	Exch. Acid (cmol/kg)	Exch. Al (cmol/kg)	Ca (cmol/kg)	Mg (cmol/kg)	K (cmol/kg)	Na (cmol/kg)	Sum Cations (cmol/kg)
-3--2	5.6	5.4	-	-	-	-	-	-	-	-	-	-	-	-
-2-0	5.5	5.2	-	-	10.7 3	0.50	21	-	-	-	-	-	-	-
0-12	5.6	4.6	-	-	2.90	0.19	15	-	-	8.7	2.2	0.4	0.2	11.5
12-38	5.5	4.1	-	-	0.61	0.05	12	-	-	4.3	2.2	0.5	0.1	7.1
38-60	5.3	4.0	-	-	0.44	0.04	11	-	-	2.0	2.3	0.3	0.2	4.8
60-90	4.7	3.9	-	-	0.61	0.06	10	-	-	1.5	2.5	0.3	0.2	4.5

Depth (cm)	CEC Soil (cmol/kg)	CEC Clay (cmol/kg)	CEC Org (cmol/kg)	ECEC (cmol/kg)	Base sat. (%)	AI sat. (%)	ESP (%)
-3--2	-	-	-	-	-	-	-
-2-0	-	-	37.6	-	-	-	-
0-12	20.4	139	10.2	-	56	-	-
12-38	11.2	118	2.1	-	63	-	-
38-60	14.2	118	1.5	-	34	-	-
60-90	17.4	83	2.1	-	26	-	-

Source of analyzing procedures:

Laboratory Attribute	Description	Proc. ref
ISRIC Base sat.	Calculation; Sum of Exchangeable Cations (Na, K, Ca, Mg) / CEC soil	labmanual
ISRIC C / N	Calculation; Organic Carbon / Organic Nitrogen	labmanual
ISRIC Ca	Exchangeable bases with 1 M ammonium acetate at pH 7; Ca by atomic absorption spectrometry	9-4 and 9-5.3
ISRIC CEC Clay	Calculation; ((CEC soil - CEC org.m.)/ clay %)*100	9-6.3
ISRIC CEC Org	CEC organic matter; expert estimate for charge per unit C	9-6.3
ISRIC CEC Soil	CEC; with index cation in buffered solution pH7	9-4 and 9-5.3.3
ISRIC Clay; < 0.002 mm	Fraction by Pipette analysis; after removal CaCO ₃ and organic matter, dispersion and sedimentation	3-4.7
ISRIC Gravel	Fraction from field sample, after drying, crushing, sieving	1-1
ISRIC K	Exchangeable bases with 1 M ammonium acetate at pH 7; K by flame atomic emission spectrometry	9-6.1
ISRIC Mg	Exchangeable bases with 1 M ammonium acetate at pH 7; Mg by atomic absorption spectrometry	9-4 and 9-5.3
ISRIC Na	Exchangeable bases with 1 M ammonium acetate at pH 7; Na by flame atomic emission spectrometry	9-4 and 9-5.3
ISRIC Organic Carbon	Wet combustion of organic matter by potassium dichromate and sulphuric acid at about 125 degrees Celcius. Residual dichromate is back titrated against ferrous sulphate. To compensate for incomplete destruction an emprical correction factor of 1.3 is applied	5
ISRIC Organic Nitrogen	Organic Matter is digested in sulphuric acid (and hydrogen peroxide) with selenium as catalyst. Nitrogen is converted to ammonium sulphate. The solution is made alkaline and ammonia is distilled off. The evolved ammonia is trapped in boric acid and titrated with standardized acid solution	6
ISRIC pH H ₂ O	pH electrode; in supernatant suspension	4-1
ISRIC pH KCl	In supernatant suspension; potentiometrically	4-1
ISRIC Sand; 0.10 - 0.05 mm	Fraction by sieving; after removal CaCO ₃ and organic matter	3-4.6
ISRIC Sand; 0.25 - 0.10 mm	Fraction by sieving; after removal CaCO ₃ and organic matter	3-4.6
ISRIC Sand; 0.5 - 0.25 mm	Fraction by sieving; after removal CaCO ₃ and organic matter	3-4.6
ISRIC Sand; 1.0 - 0.5 mm	Fraction by sieving; after removal CaCO ₃ and organic matter	3-4.6
ISRIC Sand; 2.0 - 1.0 mm	Fraction by sieving; after removal CaCO ₃ and organic matter	3-4.6
ISRIC Silt; 0.02 - 0.002 mm	Fraction by Pipette analysis ; after removal CaCO ₃ and organic matter, dispersion and sedimentation	3-4.7
ISRIC Silt; 0.05 - 0.002 mm	Calculation; Sum fractions Silt 0.05 - 0.02 mm	3-4.7
ISRIC Silt; 0.05 - 0.02 mm	Fraction by Pipette analysis ; after removal CaCO ₃ and organic matter, dispersion and sedimentation	3-4.7
ISRIC Sum cations	Sum of Exchangeable Cations (Ca, Mg, Na, K) with 1 M ammonium acetate at pH 7	9-

*ref: no labmanual available, link to presumable used analytical methode

Other classification

USDA-SCS (1975) : Eutrochrept mesic
Classification (other) :
Brown forest soil