EXPLANATORY BOOKLET ON THE

RECONNAISSANCE SOIL MAP OF FOREST AREA

Western Karnataka and Goa

G. BOURGEON

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ANNEXES

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ANNEXES

In the following pages, profiles are described and results of analyses of these profiles are given. Each description of a soil profile is accompanied by a scheme. The legend of the symbols used in the schemes is given at the end of the chapter (page).

Differences exist between the estimates of the percentage of coarse elements made while describing some profiles and those determined by analyses of samples. This is due to the fact that at the time of sampling, part of the most voluminous coarse elements was eliminated.

The ECEC provided in the analyses tables is calculated by taking the sum of exchangeable bases augmented by the aluminium and manganese extractable by 1 *M* KC1. Hence for some soils it differs slightly from that used by the authors of "Keys for Soil Taxonomy" which does not include manganese.

Results of mineralogical analyses of the clay fraction are given at the end of the description of the profiles for some samples. These analyses are semi-quantitative, symbols used are:

- ++++ : exclusive, other minerals are present only in traces,
- +++ : very abundant,
- ++ : abundant,
- + : not abundant,
- tr. : traces.

LIST OF SOIL PROFILES IN THE ANNEXES

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GP 01	XXVI
YELL 1	XXVIII
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BELG 2	XXXII
NAGUR 2	XXXIV
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SMSG 01	XXXVIII
T 01	XL
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HLL 1	XLVIII
SIDD 1	L
KDKP	LII
SONDA 4	LIV
SIGGA	LVI
MERC 2	LVIII
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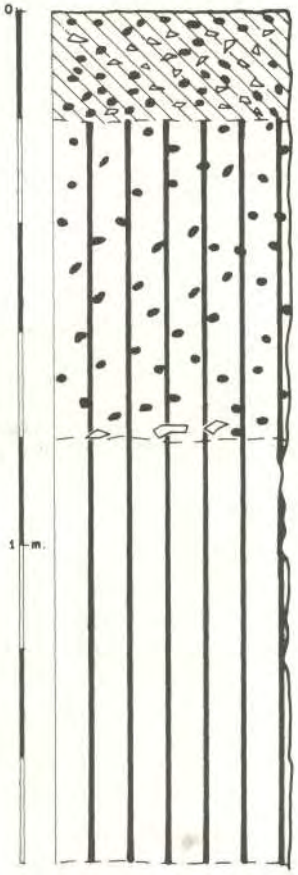
KDK 2	XC
DSG 1	XCII
KANK 3	XCIV
UPP 11	XCVI
BHAT 10	XCVIII
SRIN 1	C
BHAT 5	CII
KDK 4	CIV
BEL 1	CVI

Profile : NITTUR
Village / Location : Nittur
Coordinates : Long.: 74° 54' 15" E; Lat: 13° 55' 14" N; Alt.: 600 m.
Vegetation : Grassland,
Geology : Dharwar schist,
Landscape unit : 6b, partially dissected intermediate levels on greywackes,
Classification : Soil Taxonomy: Typic Haplustox, French Classification: Ferrallitic soil weakly desaturated in B, reworked.

From 0 to 20 cm. Moist. Dark brown (7.5YR 4/4) moist. Humus. No effervescence. 50% of coarse elements, gravels of ironstone and quartz. Weak subangular blocky structure, 8 mm size. Coherent, very plastic, friable. Clay loam with coarse sand. Very porous. Smooth transition in 5 cm.

From 20 to 80 cm. Moist. Yellowish red (5YR 5/6) moist. Non organic. No effervescence. 15% of coarse elements, gravels of ironstone and quartz. Very fine granular structure, less than 1 mm size. Slightly coherent, plastic, very friable. Clay loam with coarse sand. Very porous. Smooth transition in 5 cm.

From 80 to 160 cm and more. Moist. Yellowish red (5YR 5/8) moist Non organic. No effervescence. No coarse element. Weak blocky structure, 10 mm size. Coherent, very plastic, friable. Clay loam with fine sand. Very porous.



Profile NITTUR

Sample N°		614	615	616
Depth in cm		0-20	20-80	80-120
Coarse elements	%	51	17	0
pH				
Water		5.35	5.60	6.50
KC1		4.35	5.40	6.10
ΔpH		1.00	0.20	0.40
Particle-size analysis				
Coarse sand	%	25.8	17.4	9.7
Fine sand	%	8.6	6.8	10.3
Coarse silt	%	7.5	9.5	14.8
Fine silt	%	19.5	28.6	34.5
Clay	%	38.6	37.7	30.6
Organic matter				
Carbon	%	3.08	1.01	
Nitrogen	‰	3.30	0.64	
Org. matter	%	5.30	1.74	
Carbonates : **CaCO3** %				
Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	2.5	2.4	2.5
Mg	meq/l00g	0.7	0.8	1.0
Na	meq/l00g	0.8	1.0	0.6
K	meq/l00g	0.2	0.4	0.1
S=**Σ**	meq/l00g	4.2	4.6	4.2
Exch. cap.	**meq/l00g**	12.2	5.2	4.6
Base saturation	%	34	88	91
Exch. acid el. by KC1 N				
Al	meq/l00g	0.4	0.4	
Mn	meq/l00g	0.1	0.0	
ECEC	meq/l00g	4.7	5.0	
Al sat % (Exch.Al/ECEC)		9	8	
Triacid analysis				
Fire loss	%	14.9	12.8	11.6
Quartz+insol.	%	24.8	14.8	18.9
SiO2	%	22.7	25.3	24.6
A12O3	%	19.8	25.1	23.3
Fe2O3	%	13.6	16.7	16.7
TiO2	%	1.0	1.3	1.0
MnO	%	0.2	0.1	0.0
MgO	%	0.4	0.1	0.1
CaO	%	0.1	0.0	0.1
K2O	%			
Na2O	%			
P2O5	%	0.1	0.0	0.0
Total	%	97.6	96.2	96.3
Ki = SiO2/A12O3 (molec.)		1.95	1.71	1.79
CEC me / l00g of clay		31.6	13.8	15.0

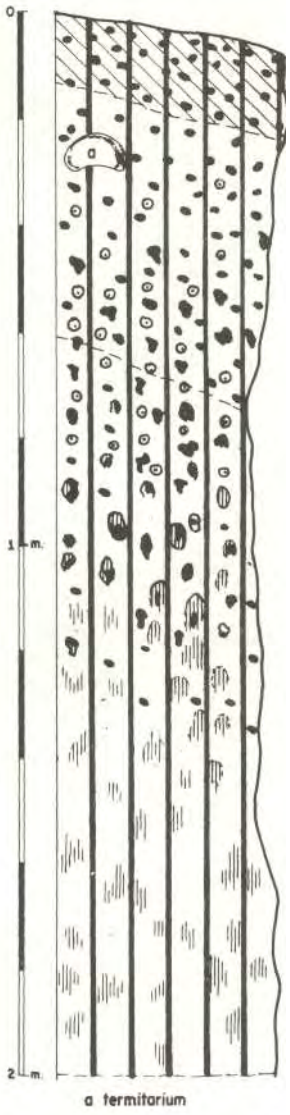
Profile : TSN 3
Village / Location : Kerekon
Coordinates : Long.: 74° 30' 05" E; Lat: 14° 19' 45" N; Alt.: 100 m.
Vegetation : Cashew plantation,
Geology : Dharwar schists,
Landscape unit : 2b, coastal area, dissected hilly hinterland.
Classification : Soil Taxonomy: Plinthic Haplustox, French Classification: Ferrallitic soil moderately desaturated in B, typic.

From 0 to 15 cm. Dry. Yellowish red (5YR 4/6) moist. Humus. No effervescence. 50% of coarse elements, gravels of ironstone. Moderate blocky structure, 8 mm size, associated with massive structure with angular chippings. Coherent, plastic, very friable, slightly fragile. Clay with fine sand. Very porous. Smooth transition in 2 cm.

From 15 to 60 cm. Dry. Yellowish red (5YR 5/8) moist. Non organic. No effervescence. Few oxy-hydroxydes elements as nodules. 15% of coarse elements, gravels of ironstone. Moderate blocky structure, 4 mm size. Slightly coherent, plastic, very friable, slightly fragile. Clay with fine sand. Porous. Smooth transition in 15 cm.

From 60 to 200 cm and more. Dry. Yellowish red (5YR 5/8) moist. Common mottles, red (2.5YR 4/6). Non organic. No effervescence. Common oxy-hydroxydes elements as nodules. No coarse element. Massive structure with angular chippings. Coherent, plastic, very friable, fragile. Clay loam with fine sand. Very porous.

< 2 µm fraction mineralogy.
Sample n°292:
- Kaolinite +++
- (10-14)Sm +
- Chlorite tr.



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Profile TSN 3

Sample N°		290	291	292
Depth in cm		0-15	15-60	60-200
Coarse elements	%	43	27	13
pH				
Water		5.02	4.87	4.85
KC1		4.47	4.56	5.80
ΔpH		0.55	0.31	-0.95
Particle-size analysis				
Coarse sand	%	10.4	7.3	15.0
Fine sand	%	13.8	10.5	17.4
Coarse silt	%	7.5	6.8	14.6
Fine silt	%	20.5	19.9	22.4
Clay	%	47.6	55.5	30.6
Organic matter				
Carbon	%	2.71	1.51	0.43
Nitrogen	‰	2.59	1.71	
Org. matter	%	4.66	2.60	0.74
Carbonates : **CaCO3** %				
Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	1.7	1.3	1.1
Mg	meq/l00g	0.6	0.1	0.7
Na	meq/l00g	0.1	0.0	0.0
K	meq/l00g	0.1	0.1	0.0
S=**Σ**	meq/l00g	2.5	1.5	1.8
Exch. cap.	**meq/l00g**	9.0	8.5	5.6
Base saturation	%	28	18	32
Exch. acid el. by KC1 N				
Al	meq/l00g	0.3	0.2	0.0
Mn	meq/l00g	0.1	0.1	0.0
ECEC	meq/l00g	2.9	1.8	1.8
Al sat % (Exch.Al/ECEC)		10	11	0
Triacid analysis				
Fire loss	%	13.7	12.6	11.5
Quartz+insol.	%	18.3	13.5	8.7
SiO2	%	23.6	26.6	23.5
A12O3	%	21.7	23.4	21.7
Fe2O3	%	18.1	21.0	32.4
TiO2	%	1.7	1.7	1.7
MnO	%	0.1	0.1	0.2
MgO	%	0.0	0.2	0.0
CaO	%	0.5	0.4	0.2
K2O	%			
Na2O	%			
P2O5	%	0.1	0.1	0.1
Total	%	97.8	99.6	100.0
Ki = SiO2/A12O3 (molec.)		1.85	1.93	1.84
CEC me / l00g of clay		18.9	15.3	18.3

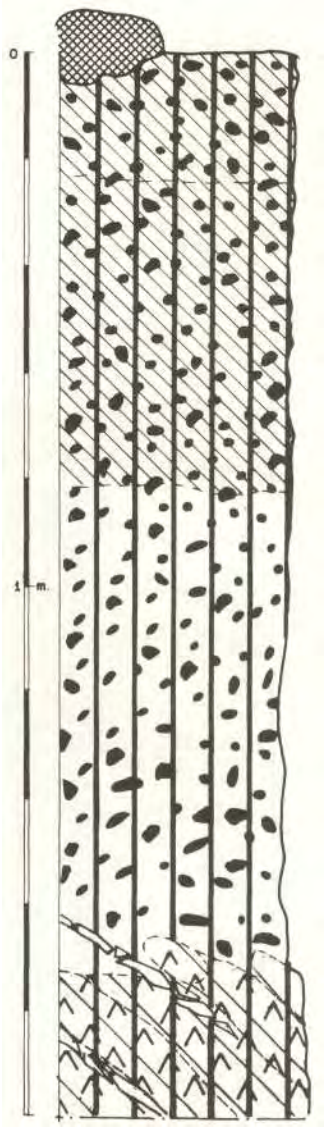
Profile : KARW 1
Village / Location : Anashi
Coordinates : Long.:74° 22' 20" E; Lat.: 15° 59' 00" N; Alt.: 560 m.
Vegetation : Secondary moist-deciduous forest,
Geology : Dharwar amphibolite,
Landscape unit : 3, Ghats,
Classification : Soil Taxonomy: Inceptic Eutrudox, French Classification: Ferrallitic soil moderately desaturated in B, reworked.

From 0 to 25 cm. Dry. Reddish brown (5YR 4/4) moist. Humus. No effervescence. 50% of coarse elements, gravels of ironstone. Moderate subangular blocky structure, 10 mm size. Coherent, plastic, fragile. Clay with medium sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 25 to 80 cm. Slightly moist. Yellowish red (5YR 4/6) moist. Humus. No effervescence. 50% of coarse elements, gravels of ironstone. Moderate subangular blocky structure, 10 mm size. Coherent, plastic, friable. Clay with medium sand. Very porous. Many roots. Smooth transition in 15 cm.

From 80 to 175 cm. Moist. Yellowish red (5YR 5/8) moist. Non organic. No effervescence. 50% of coarse elements, gravels of ironstone and quartz. Massive structure with blunt chippings. Slightly coherent, plastic, very friable. Clay with medium sand. Porous. Many roots. Smooth transition in 25 cm.

From 175 to 240 cm and more. Moist. Yellowish red (5YR 5/8) moist Non organic. No effervescence. 50% of coarse elements, gravels of quartz. Massive structure with angular chippings. Coherent, plastic, very friable. Clay with medium sand. Slightly porous. Few roots.

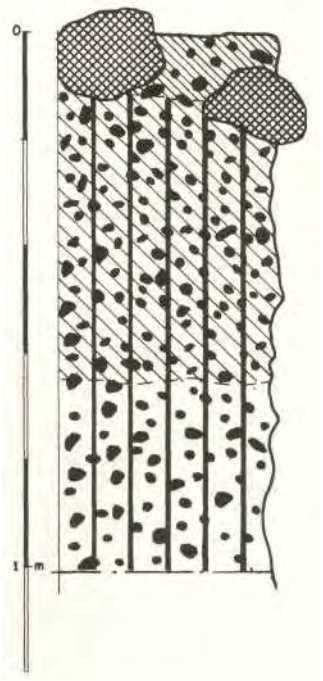


Profile KARW 1

Sample N°		413	414	415	416
Depth in cm		0-10	-50-	-100-	-200-
Coarse elements	%	53	65	52	58
pH					
Water		5.61	5.60	5.96	5.48
KC1		4.83	4.84	5.67	5.59
ΔpH		0.78	0.76	0.29	-0.11
Particle-size analysis					
Coarse sand	%	13.1	11.3	17.9	17.9
Fine sand	%	6.1	6.3	8.2	9.3
Coarse silt	%	2.8	3.5	5.1	6.0
Fine silt	%	30.3	27.1	16.3	23.8
Clay	%	47.7	51.7	52.4	43.0
Organic matter					
Carbon	%	4.43	2.35	0.20	
Nitrogen	‰	3.64	2.30		
Org. matter	%	7.62	4.04	0.34	
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	6.5	4.1	3.0	1.3
Mg	meq/l00g	1.0	0.7	1.1	0.6
Na	meq/l00g	0.0	0.0	0.0	0.0
K	meq/l00g	0.3	0.2	0.1	0.0
S=**Σ**	meq/l00g	7.8	5.0	4.2	1.9
Exch. cap.	**meq/l00g**	18.1	13.7	7.4	5.4
Base saturation	%	43	36	57	35
Exch. acid el. by KC1 N					
Al	meq/l00g	0.0	0.0	0.0	0.0
Mn	meq/l00g	0.0	0.1	0.0	0.0
ECEC	meq/l00g	7.8	5.1	4.2	1.9
Al sat % (Exch.Al/ECEC)		0	0	0	0
Triacid analysis					
Fire loss	%	19.6	16.7	15.5	15.7
Quartz+insol.	%	11.0	10.3	1.7	2.3
SiO2	%	23.6	24.5	21.8	21.5
A12O3	%	21.2	23.2	28.0	28.2
Fe2O3	%	20.0	20.0	27.7	26.7
TiO2	%	1.9	1.9	1.9	1.7
MnO	%	0.2	0.2	0.1	0.1
MgO	%	1.1	1.1	0.6	0.5
CaO	%	0.3	0.2	0.1	0.0
K2O	%				
Na2O	%				
P2O5	%	0.1	0.1	0.1	0.1
Total	%	99.0	98.2	97.5	96.8
Ki = SiO2/A12O3 (molec.)		1.90	1.8	1.32	1.30
CEC me / l00g of clay		37.9	26.5	14.1	12.6

VIII RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile : KANK 1
Village / Location : Chorla
Coordinates : Long.:74° 09' 00" E; Lat.: 13° 40' 00" N; Alt.: 770 m.
Vegetation : Evergreen forest, *Memecylon* type,
Geology : Deccan basalt,
Landscape unit : 5b, partially dissected intermediate levels on basalt,
Classification : Soil Taxonomy: Typic Kandiudox, French Classification: Ferrallitic soil moderately desaturated in B, reworked.



From 0 to 10 cm. Dry. Dark reddish brown (5YR 3/3) moist. Humus. No effervescence. 50% of coarse elements, gravels of ironstone. Moderate crumb structure, 10 mm size. Coherent, plastic, very fragile. Clay loam with coarse sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 10 to 65 cm. Dry. Yellowish red (5YR 4/6) moist. Non organic. No effervescence. 75% of coarse elements, gravels of ironstone. Weak subangular blocky structure, 5 mm size. Coherent, plastic, fragile. Clay with coarse sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 65 to 100 cm and more. Dry. Red (2.5YR 4/6) moist. Non organic. No effervescence. 70% of coarse elements, gravels and cobbles of ironstone. Weak blocky structure, 5 mm size. Coherent, plastic, fragile. Clay with coarse sand. Very porous. Plentiful roots.

< 2 µm fraction mineralogy.

Sample n°452:
- Kaolinite ++
- Chlorite ++
- Illite +
- (14c-14v) +

Sample n°454:
- Kaolinite ++
- Vermiculite +
- (10-14)C +
- Illite +
- Gibbsite +

Profile Kank 1

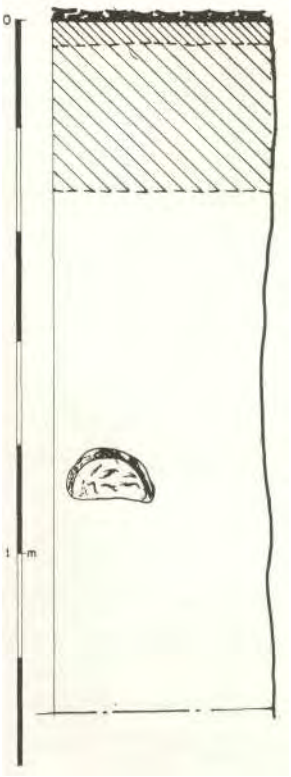
Sample N° **Depth in cm**		452 0-10	453 -50-	454 -80-	452(a) 0-10	452(b) 0-10
Coarse elements	%	58	75	58	gravels a	gravels b
pH						
Water		5.8	5.5	5.35		
KC1		5.15	4.95	5.3		
ΔpH		0.65	0.55	0.05		
Particle-size analysis						
Coarse sand	%	17.0	14.5	16.1		
Fine sand	%	5.2	4.7	5.2		
Coarse silt	%	5.2	6.6	5.9		
Fine silt	%	35.4	27.2	18.0		
Clay	%	37.1	46.9	54.7		
Organic matter						
Carbon	%	8.06	1.63	0.71		
Nitrogen	‰	5.73	1.65	0.87		
Org. matter	%	13.86	2.80	1.22		
Carbonates : **CaCO3** % Exch. Ca for calcareous soils						
Exchangeable bases						
Ca	meq/l00g	17.8	3.5	1.6		
Mg	meq/l00g	4.2	0.6	0.3		
Na	meq/l00g	0.0	0.1	0.0		
K	meq/l00g	0.4	0.4	0.2		
S=**Σ**	meq/l00g	22.4	4.6	2.1		
Exch. cap.	**meq/l00g**	31.5	11.9	6.0		
Base saturation	%	71	39	35		
Exch. acid el. by KC1 N						
Al	meq/l00g	0.0	0.0	0.0		
Mn	meq/l00g	0.1	0.0	0.0		
ECEC	meq/l00g	22.5	4.6	2.1		
Al sat % (Exch.Al/ECEC)		0	0	0		
Triacid analysis						
Fire loss	%	26.2	16.3	15.6	13.3	27.8
Quartz+insol.	%	5.1	4.1	2.9	3.9	2.2
SiO2	%	18.0	19.9	16.9	12.2	20.2
A12O3	%	24.2	30.2	33.1	24.1	20.8
Fe2O3	%	23.9	27.7	29.6	45.8	26.2
TiO2	%	1.9	1.9	2.3	1.7	2.3
MnO	%	0.2	0.2	0.1	0.1	0.2
MgO	%	0.6	0.5	0.6	0.1	0.1
CaO	%	0.7	0.1	0.1	0.0	0.7
K2O	%					
Na2O	%					
P2O5	%	0.2	0.3	0.3	0.1	0.2
Total	%	101.0	101.2	101.5	101.3	100.7
Ki = SiO2/A12O3 (molec.)		1.26	1.12	0.87	0.86	1.65
CEC me / l00g of clay		84.9	25.4	11.0		

Profile **:** SAK 1
Village / Location : Bachhalli
Coordinates : Long.:75° 46' 30" E; Lat: 12° 45'20" N; Alt.: 930 m.
Vegetation : Evergreen forest,
Geology : Gneissic complex,
Landscape unit : 9a, "meio laranjas",
Classification : Soil Taxonomy: Typic Haplohumult, French Classification: Ferrallitic soil weakly desaturated in B, impoverished.

From 0 to 4 cm. Slightly moist. Very dark brown (10YR 2/2) moist Humus. No effervescence. No coarse element. Massive structure with blunt chippings associated with crumb structure, 10 mm size. Coherent, plastic, very friable. Sandy clay loam with coarse sand. Very porous. Many roots. Smooth transition in 1 cm.

From 4 to 35 cm. Slightly moist. Dark yellowish brown (10YR 3/4) moist. Humus. No effervescence. No coarse element. Massive structure with blunt chippings. Coherent, plastic, very friable. Sandy clay loam with coarse sand. Very porous. Many roots. Smooth transition in 5 cm.

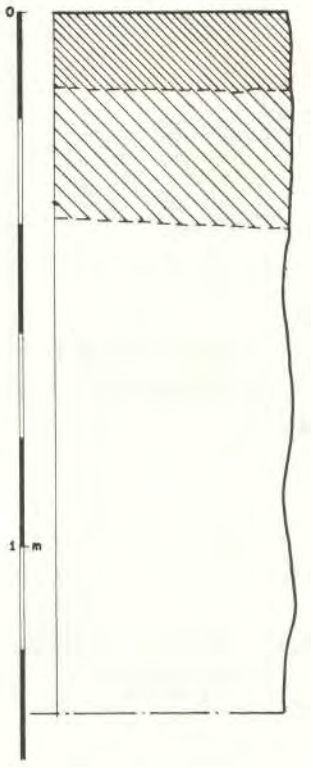
From 35 to 130 cm and more. Moist. Strong brown (7.5YR 5/6) moist. Non organic. No effervescence. No coarse element. Massive structure with angular chippings. Coherent, plastic, very friable. Clay with coarse sand. Porous. Many roots.



Profile SAK 1

Sample N°		378	379	380
Depth in cm		0-4	4-35	-100-
Coarse elements	%	8	5	1
pH				
Water		6.55	6.11	5.75
KC1		5.93	5.34	5.04
ΔpH		0.62	0.77	0.71
Particle-size analysis				
Coarse sand	%	47.7	42.1	32.8
Fine sand	%	13.2	16.2	15.4
Coarse silt	%	4.5	3.5	3.1
Fine silt	%	12.0	10.7	8.3
Clay	%	22.5	27.5	40.3
Organic matter				
Carbon	%	3.63	2.09	1.08
Nitrogen	‰	2.95	2.04	0.95
Org. matter	%	6.24	3.59	1.86
Carbonates : **CaCO3** %				
Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	8.9	5.6	2.3
Mg	meq/l00g	2.3	1.2	0.4
Na	meq/l00g	0.1	0.2	0.0
K	meq/l00g	0.7	0.4	0.3
S=**Σ**	meq/l00g	12.0	7.4	3.0
Exch. cap.	**meq/l00g**	12.2	9.9	7.6
Base saturation	%	98	75	39
Exch. acid el. by KC1 N				
Al	meq/l00g	0.0	0.0	0.0
Mn	meq/l00g	0.0	0.0	0.0
ECEC	meq/l00g	12.0	7.4	3.0
Al sat % (Exch.Al/ECEC)		0	0	0
Triacid analysis				
Fire loss	%	12.4	9.2	8.8
Quartz+insol.	%	54.7	56.7	46.1
SiO2	%	12.8	13.9	18.6
A12O3	%	11.0	11.3	16.3
Fe2O3	%	7.6	5.2	6.7
TiO2	%	0.5	0.3	0.8
MnO	%	0.1	0.1	0.1
MgO	%	0.3	0.3	0.4
CaO	%	0,0	0.2	0.1
K2O	%			
Na2O	%			
P2O5	%	0.1	0.1	0.0
Total	%	99.5	97.3	97.9
Ki = SiO2/A12O3 (molec.)		1.98	2.09	1.94
CEC me / l00g of clay		54.2	36.0	18.9

Profile **:** SAK 2
Village / Location **:** Bannahalli
Coordinates : Long.: 75° 46'45" E; Lat: 12° 49' 00" N; Alt.: 930 m.
Vegetation : Pasture,
Geology : Gneissic complex,
Landscape unit : 9a, "meio laranjas",
Classification : Soil Taxonomy: (Oxic) Haplohumult, French Classification: Ferrallitic soil Strongly desaturated in B, impoverished.



From 0 to 15 cm. Slightly moist. Dark brown (7.5YR 4/4) moist. Humus. No effervescence. No coarse element. Massive structure with angular chippings. Coherent, plastic, very friable. Clay loam with coarse sand. Very porous. Many roots. Smooth transition in 5 cm.

From 15 to 40 cm. Slightly moist Dark brown (7.5YR 4/4) moist Non organic. No effervescence. No coarse element. Massive structure with angular chippings. Coherent, plastic, very friable. Clay loam with coarse sand. Porous. Many roots. Smooth transition in 5 cm.

From 40 to 80 cm. Slightly moist Dark brown (7.5YR 4/4) moist Non organic. No effervescence. No coarse element Massive structure with angular chippings. Coherent, plastic, very friable. Clay loam with coarse sand. Porous. Few roots. Smooth transition in 5 cm.

From 80 to 120 cm and more. Moist Dark brown (7.5YR 4/4) moist. Non organic. No effervescence. No coarse element Massive structure with angular chippings. Coherent, plastic, very friable. Clay with coarse sand. Porous. Few roots.

< 2 µm fraction mineralogy.

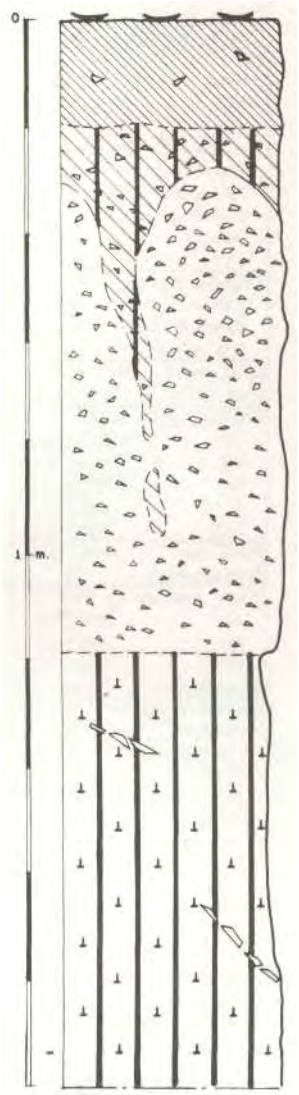
Sample n°382:

- Kaolinite +++
- Gibbsite +
- Chlorite +
- Illite +

Profile SAK 2

Sample N°		381	382	383	384
Depth in cm		1-15	25-35	-50-	-100-
Coarse elements	%	0	0	0	0
pH					
Water		4.70	4.80	4.79	4.89
KC1		4.07	4.14	4.00	3.91
ΔpH		0.63	0.66	0.79	0.98
Particle-size analysis					
Coarse sand	%	30.5	29.4	28.9	24.4
Fine sand	%	13.5	12.7	12.7	10.7
Coarse silt	%	3.4	3.3	4.4	3.0
Fine silt	%	19.4	17.5	17.9	10.0
Clay	%	33.1	37.1	36.1	51.9
Organic matter					
Carbon	%	2.46	1.72	1.51	0.89
Nitrogen	‰	2.02	1.51	1.15	0.91
Org. matter	%	4.23	2.96	2.60	1.53
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	0.6	0.4	0.4	0.1
Mg	meq/l00g	0.4	0.2	0.0	0.2
Na	meq/l00g	0.0	0.0	0.0	0.0
K	meq/l00g	0.1	0.0	0.1	0.1
S=**Σ**	meq/l00g	1.1	0.6	0.5	0.4
Exch. cap.	**meq/l00g**	11.1	11.3	10.6	12.0
Base saturation	%	10	5	5	3
Exch. acid el. by KC1 N					
Al	meq/l00g	2.9	2.6	2.4	2.6
Mn	meq/l00g	0.0	0.0	0.1	0.0
ECEC	meq/l00g	4.0	3.2	3.0	3.0
Al sat % (Exch.Al/ECEC)		73	81	80	87
Triacid analysis					
Fire loss	%	12.1	11.2	10.4	10.5
Quartz+insol.	%	45.3	43.7	42.7	36.0
SiO2	%	17.1	17.9	20.1	21.8
A12O3	%	15.5	17.0	17.4	19.7
Fe2O3	%	8.1	7.2	7.2	7.6
TiO2	%	0.5	0.6	0.8	0.5
MnO	%	0.1	0.1	0.1	0.1
MgO	%	0.5	0.5	0.5	0.5
CaO	%	0.1	0.0	0.0	0.0
K2O	%				
Na2O	%				
P2O5	%	0.0	0.1	0.1	0.1
Total	%	99.3	98.3	99.3	96.8
Ki = SiO2/A12O3 (molec.)		1.88	1.79	1.96	1.88
CEC me / l00g of clay		33.5	30.5	29.4	23.1

Profile : BHAT 6
Village / Location : Yadur
Coordinates : Long.: 75° 02' 00" E; Lat: 13° 41' 10" N; Alt.: 580 m.
Vegetation : Evergreen forest,
Geology : Gneissic complex,
Landscape unit : 7, partially dissected intermediate levels on gneiss,
Classification : Soil Taxonomy: Acric Kanhapludult, French Classification: Ferrallitic soil moderately desaturated in B, reworked, impoverished.



From 0 to 20 cm. Dry. Dark yellowish brown (10YR 3/6) moist. Humus. No effervescence. 10% of coarse elements, gravels of quartz. Weak subangular blocky structure, 10 mm size, associated with massive structure with angular chippings. Coherent, plastic, slightly fragile. Sandy clay loam with coarse sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 20 to 80 cm. Dry. Yellowish red (5YR 4/6) moist. Humus. No effervescence. 40% of coarse elements, gravels of quartz. Weak subangular blocky structure, 10 mm size. Coherent, plastic, slightly fragile. Sandy clay loam with coarse sand. Very porous. Plentiful roots. Irregular transition in 2 cm.

From 80 to 120 cm. Dry. Reddish yellow (7.5YR 6/8) moist. Oxidation mottles, yellowish red (5YR 4/6), associated with voids. Non organic. No effervescence. 50% of coarse elements, gravels of quartz. Massive structure with angular chippings. Coherent, plastic, slightly fragile. Clay loam with coarse sand. Porous. Many roots. Smooth transition in 5 cm.

From 120 to 200 cm and more. Dry. Red (2.5YR 5/8) moist. Non organic. No effervescence. No coarse element. Massive structure with angular chippings. Coherent, slightly plastic, very fragile. Sandy loam with coarse sand. Slightly porous. Few roots.

< 2 µm fraction mineralogy.

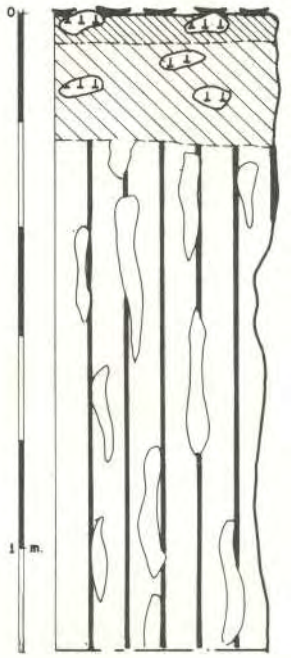
Sample n°486:
- Kaolinite +++
- Chlorite +
- Illite +
- (10-14)C +

Sample n°487:
- Kaolinite ++
- (14c-14 v) +
- Illite +
- Vermiculite +

Profile BHAT 6

Sample N° **Depth in cm**		484 0-20	485 -40-	486 -100-	487 -160-
Coarse elements	%	10	37	54	3
pH					
Water		5.50	5.20	5.20	4.82
KC1		4.90	4.71	4.91	4.50
ΔpH		0.60	0.49	0.29	0.32
Particle-size analysis					
Coarse sand	%	36.3	31.9	37.4	35.0
Fine sand	%	17.6	15.2	10.6	17.9
Coarse silt	%	6.0	6.2	5.1	10.3
Fine silt	%	19.8	18.8	17.6	24.7
Clay	%	20.3	27.9	29.2	12.1
Organic matter					
Carbon	%	2.34	1.54	0.83	
Nitrogen	‰	2.16	1.33	0.38	
Org. matter	%	4.02	2.65	1.43	
Carbonates : **CaCO3** % Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	4.2	2.5	1.2	0.4
Mg	meq/l00g	0.8	0.6	0.4	0.1
Na	meq/l00g	0.1	0.2	0.1	0.0
K	meq/l00g	0.3	0.2	0.1	0.0
S=**Σ**	meq/l00g	5.4	3.5	1.8	0.5
Exch. cap.	**meq/l00g**	7.8	6.5	3.7	1.6
Base saturation	%	69	54	49	31
Exch. acid el. by KC1 N					
Al	meq/l00g	0.1	0.2	0.0	0.5
Mn	meq/l00g	0.0	0.0	0.0	0.0
ECEC	meq/l00g	5.5	3.7	1.8	1.0
Al sat % (Exch.Al/ECEC)		2	5	0	50
Triacid analysis					
Fire loss	%	10.1	10.1	9.2	8.3
Quartz+insol.	%	54.6	47.1	44.1	43.0
SiO2	%	10.4	14.1	17.7	21.1
A12O3	%	19.4	22.7	24.6	25.0
Fe2O3	%	3.3	4.1	2,0	0.8
TiO2	%	0.4	0.4	0.9	0.2
MnO	%	0.1	0.1	0.0	0.0
MgO	%	0.6	0.6	0.3	0.1
CaO	%	0.1	0.1	0.0	0.0
K2O	%				
Na2O	%				
P2O5	%	0.1	0.1	0.1	0.0
Total	%	99.1	99.4	98.9	98.5
Ki = SiO2/A12O3 (molec.)		0.91	1.06	1.22	1.43
CEC me / l00g of clay		38.4	23.3	12.7	13.2

Profile : UPP 08
Village / Location : Uppugala
Coordinates : Long.: 75° 40' 22" E; Lat: 12° 32' 29" N; Alt.: 360 m.
Vegetation : Evergreen forest,
Geology : Gneissic complex,
Landscape unit : 3, Ghats,
Classification : Soil Taxonomy: Typic Paleudult, French Classification: Ferrallitic soil strongly desaturated in B, impoverished.



From 0 to 5 cm. Dry. Dark brown (10YR 3/3) moist. Humus. No effervescence. 30% of coarse elements, cobbles of weathered gneiss. Moderate subangular blocky structure, 10 mm size. Slightly coherent, non plastic, very friable. Sandy loam with coarse sand. Very porous. Plentiful roots. Smooth transition in 1 cm.

From 5 to 25 cm. Slightly moist. Brownish yellow (10YR 6/6) moist Humus. No effervescence. 20% of coarse elements, gravels of quartz. Massive structure with blunt chippings. Coherent, slightly plastic, very friable. Sandy loam with coarse sand. Very porous. Plentiful roots. Smooth transition in 1 cm.

From 25 to 120 cm and more. Slightly moist. Red (2.5YR 5/8) moist. Many mottles brownish yellow (10YR 6/6). Non organic. No effervescence. No coarse element. Massive structure with angular chippings. Coherent, plastic, slightly friable. Loam with medium sand. Porous. Few roots.

< 2 µm fraction mineralogy.

Sample n°339:
- Kaolinite +++
- Gibbsite +

Profile UPP 08

Sample N°		336	337	338	339
Depth in cm		0-5	10-25	40-60	100-120
Coarse elements	%	32	19	0	1
pH					
Water		5.43	5.00	4.97	5.38
KC1		4.80	4.32	4.26	4.23
ΔpH		0.63	0.68	0.71	1.15
Particle-size analysis			*	*	*
Coarse sand	%	50.4	51.5	25.1	25.8
Fine sand	%	25.3	18.1	17.9	20.8
Coarse silt	%	4.8	4.0	8.9	6.0
Fine silt	%	8.5	8.6	20.9	22.9
Clay	%	10.9	17.8	27.2	24.5
Organic matter					
Carbon	%	3.94	1.26	0.74	0.46
Nitrogen	‰	1.68	0.63	0.29	0.27
Org. matter	%	6.78	2.17	1.27	0.79
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	4.8	0.6	0.0	0.0
Mg	meq/l00g	0.7	0.0	0.1	0.1
Na	meq/l00g	0.1	0.1	0.1	0.1
K	meq/l00g	0.1	0.0	0.0	0.1
S=**Σ**	meq/l00g	5.7	0.7	0.2	0.3
Exch. cap.	**meq/l00g**	7.7	2.7	5.1	5.7
Base saturation	%	74	26	4	5
Exch. acid el. by KC1 N					
Al	meq/l00g	0.0	0.3	1.3	1.3
Mn	meq/l00g	0.1	0.0	0.0	0.0
ECEC	meq/l00g	5.8	1.0	1.5	1.6
Al sat % (Exch.Al/ECEC)		0	30	87	81
Triacid analysis					
Fire loss	%	8.5	4.1	8.7	8.9
Quartz+insol.	%	73.0	73.9	37.9	35.6
SiO2	%	9.2	10.6	24.5	25.7
A12O3	%	7.1	7.6	20.1	21.7
Fe2O3	%	0.0	0.0	3.3	5.7
TiO2	%	0.2	0.5	0.3	0.5
MnO	%	0.0	0.0	0.0	0.0
MgO	%	0.3	0.2	0.6	0.4
CaO	%	0.1	0.1	0.1	0.2
K2O	%				
Na2O	%				
P2O5	%	0.0	0.0	0.0	0.0
Total	%	98.4	97.0	95.5	98.7
Ki = SiO2/A12O3 (molec.)		2.20	2.37	2.07	2.01
CEC me / l00g of clay		70.6	15.2	18.8	23.3

* **Particle-size analysis after deferrification**

XVIII RECONNAISSANCE SOIL MAP OF FOREST AREA

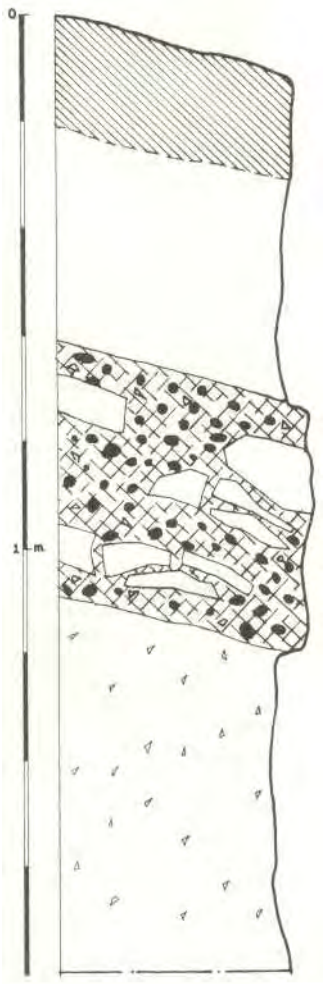
Profile **:** SB 04
Village / Location : Kudottumal
Coordinates : Long.: 76° 05' 50" E; Lat: 11° 42' 30" N; Alt.: 725 m**.**
Vegetation : Coconut plantation,
Geology : Gneissic complex,
Landscape unit : 9a, "meio laranjas",
Classification : Soil Taxonomy: Plinthustult, French Classification: Ferrallitic soil moderately desaturated in B, reworked, indurated.

From 0 to 20 cm. Slightly moist. Dark yellowish brown (10YR 4/6) moist. Humus. No effervescence. No coarse element. Massive structure with angular chippings. Coherent, plastic, very friable. Clay loam with medium sand. Very porous. Many roots. Smooth transition in 5 cm.

From 20 to 60 cm. Slightly moist. Strong brown (7.5YR 5/6) moist Non organic. No effervescence. No coarse element. Massive structure with angular chippings. Coherent, plastic, very friable. Clay with medium sand. Very porous. Many roots. Smooth transition in 1 cm.

From 60 to 110 cm. Moist. Strong brown (7.5YR 5/6) moist. Non organic. No effervescence. Oxy-hydroxides of iron as a carapace and some mottles. 80% of coarse elements, gravels and cobbles of ironstone and quartz. Massive structure with angular chippings. Very coherent, plastic, very friable. Clay loam with coarse sand. Slightly porous. Very few roots. Smooth transition in 1 cm.

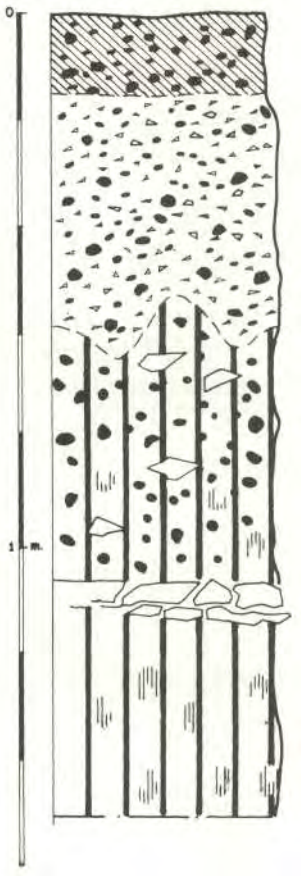
From 110 to 180 cm and more. Moist. Strong brown (7.5YR 5/6) moist. Non organic. No effervescence. 5% of coarse elements, gravels of quartz. Moderate blocky structure, 10 mm size. Very coherent, plastic, friable. Clay loam with fine sand. Very porous. Few roots.



Profile SB 04

Sample N°		99	100	101	102
Depth in cm		0-20	20-60	60-110	110-170
Coarse elements	%	2	1	61	2
pH					
Water		4.54	4.67	5.20	4.83
KC1		4.04	4.06	5.12	4.72
ΔpH		0.50	0.61	0.08	0.11
Particle-size analysis					
Coarse sand	%	19.6	16.4	29.5	9.4
Fine sand	%	26.9	24.5	14.8	14.8
Coarse silt	%	5.5	5.3	7.7	10.5
Fine silt	%	9.3	10.1	17.7	27.8
Clay	%	38.5	43.7	30.3	37.4
Organic matter					
Carbon	%	1.35	1.12	0.68	0.40
Nitrogen	‰	1.23	0.85	0.41	0.22
Org. matter	%	2.32	1.93	1.17	0.69
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	0.3	0.3	1.8	1.3
Mg	meq/l00g	0.0	0.0	0.0	0.0
Na	meq/l00g	0.0	0.0	0.0	0.0
K	meq/l00g	0.1	0.1	0.1	0.2
S=**Σ**	meq/l00g	0.4	0.4	1.9	1.5
Exch. cap.	**meq/l00g**	6.2	8.4	5.8	4.8
Base saturation	%	6	5	33	31
Exch. acid el. by KC1 N					
Al	meq/l00g	1.3	1.5	0.0	0.0
Mn	meq/l00g	0.3	0.4	0.2	0.1
ECEC	meq/l00g	2.0	2.3	2.1	1.6
Al sat % (Exch.Al/ECEC)		65	65	0	0
Triacid analysis					
Fire loss	%	8.8	9.3	10.6	10.7
Quartz+insol.	%	44.8	39.3	25.9	20.2
SiO2	%	17.3	17.8	22.9	26.5
A12O3	%	18.2	19.4	23.1	26.0
Fe2O3	%	11.4	13.3	19.0	17.2
TiO2	%	1.4	1.9	1.1	1.3
MnO	%	0.1	0.1	0.2	0.1
MgO	%	0.2	0.2	0.2	0.2
CaO	%	0.1	0.0	0.1	0.1
K2O	%				
Na2O	%				
P2O5	%	0.1	0.1	0.1	0.1
Total	%	102.4	101.4	103.2	102.4
Ki = SiO2/A12O3 (molec.)		1.62	1.56	1.69	1.74
CEC me / l00g of clay		16.1	19.2	19.1	12.8

Profile : THIR 1
Village / Location : Melinakoppa
Coordinates : Long.: 75° 21' 20" E; Lat: 13° 44' 00" N; Alt.: 600 m.
Vegetation : Secondary moist-deciduous forest,
Geology : Gneissic complex,
Landscape unit : 7, partially dissected intermediate levels On gneiss,
Classification : Soil Taxonomy: Typic Kanhaplustult, French Classification: Ferrallitic soil moderately desaturated in B, impoverished, reworked.



From 0 to 15 cm. Dry. Dark brown (7.5YR 4/4) moist. Humus. No effervescence. 60% of coarse elements, gravels and cobbles of ironstone. Massive structure with angular chippings. Coherent, plastic, fragile. Sandy clay loam with coarse sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 15 to 60 cm. Dry. Dark brown (7.5YR 4/4) moist. Non organic. No effervescence. 80% of coarse elements, gravels and cobbles of ironstone and quartz. Massive structure with angular chippings. Coherent, very plastic, slightly fragile. Clay with coarse sand. Very porous. Many roots. Irregular transition in 5 cm.

From 60 to 110 cm. Dry. Red (2.5YR 5/6) moist. Non organic. No effervescence, 60% of coarse elements, gravels and cobbles of quartz and ironstone. Massive structure with angular chippings. Coherent, very plastic, slightly fragile. Clay loam with coarse sand. Porous. Many roots. Smooth transition in 2 cm.

From 110 to 150 cm and more. Dry. Yellowish red (5YR 5/8) moist. Non organic. No effervescence. No coarse element. Moderate blocky structure, 15 mm size. Coherent, plastic, fragile. Clay loam with coarse sand. Slightly porous. Few roots.

< 2 µm fraction mineralogy.

Sample n°553:
- Kaolinite +++
- Chlorite +

Sample n°554:
- Kaolinite +++
- Chlorite +
- (10-14)C +

Profile THIR 1

Sample N°		552	553	554	555
Depth in cm		0-13	20-40	80-100	-130-
Coarse elements	%	40	74	64	14
pH					
Water		5.29	4.88	5.04	4.73
KC1		4.72	4.38	4.98	5.11
ΔpH		0.57	0.50	0.06	-0.38
Particle-size analysis					
Coarse sand	%	47.9	36.6	44.8	28.4
Fine sand	%	14.3	11.2	6.0	10.8
Coarse silt	%	2.5	2.7	2.1	4.4
Fine silt	%	7.7	7.3	10.2	23.4
Clay	%	27.6	42.1	36.8	33.0
Organic matter					
Carbon	%	2.64	1.91	0.98	0.37
Nitrogen	‰	1.78	1.06	0.55	0.29
Org. matter	%	4.54	3.28	1.68	0.63
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	2.5	1.4	1.4	0.9
Mg	meq/l00g	0.7	0.4	1.0	0.9
Na	meq/l00g	0.4	0.0	0.3	0.3
K	meq/l00g	0.2	0.0	0.1	0.0
S=**Σ**	meq/l00g	3.8	1.8	2.8	2.1
Exch. cap.	**meq/l00g**	6.8	6.6	4.8	11.2
Base saturation	%	56	27	58	19
Exch. acid el. by KC1 N					
Al	meq/l00g	0.1	0.5	0.0	0.0
Mn	meq/l00g	0.1	0.0	0.0	0.0
ECEC	meq/l00g	4.0	2.3	2.8	2.1
Al sat % (Exch.Al/ECEC)		3	22	0	0
Triacid analysis					
Fire loss	%	8.2	9.3	8.3	9.0
Quartz+insol.	%	60.5	47.6	43.3	34.0
SiO2	%	13.2	20.4	19.7	26.1
A12O3	%	10.8	18.1	19.8	24.0
Fe2O3	%	5.2	4.8	10.5	6.7
TiO2	%	0.3	0.2	0.0	0.2
MnO	%	0.1	0.1	0.0	0.0
MgO	%	0.2	0.2	0.2	0.2
CaO	%	0.1	0.0	0.0	0.0
K2O	%				
Na2O	%				
P2O5	%	0.0	0.0	0.0	0.0
Total	%	98.6	100.7	101.8	100.2
Ki = SiO2/A12O3 (molec.)		2.08	1.92	1.69	1.85
CEC me / l00g of clay		24.6	15.7	13.0	33.9

XXII RECONNAISSANCE SOIL MAP OF FOREST AREA

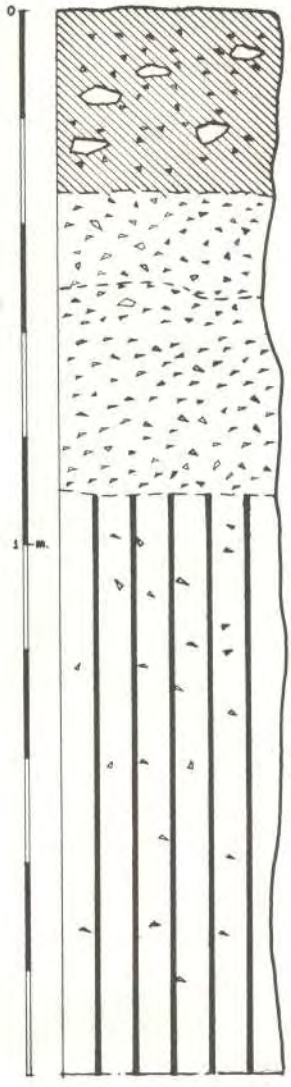
Profile : MERC 1
Village / Location : Kaggodlu
Coordinates : Long.: 75° 45' 00" E; Lat.: 12° 23' 15" N; Alt.: 930 m.
Vegetation : Grassland,
Geology : Gneissic complex,
Landscape unit : 4a, strongly dissected high level, rounded crests,
Classification : Soil Taxonomy: Epiaquic Kanhaplustult, French Classification: Ferrallitic soil Strongly desaturated in B, reworked, impoverished.

From 0 to 35 cm. Dry. Dark yellowish brown (10YR 4/4) moist. Humus. No effervescence. 50% of coarse elements, gravels and cobbles of quartz. Massive structure with blunt chippings. Coherent, slightly plastic, slightly fragile. Sandy clay loam with coarse sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 35 to 50 cm. Dry. Brown (10YR 5/3) moist. Non organic. No effervescence. 60% of coarse elements, gravels of quartz. Massive structure with blunt chippings. Coherent, slightly plastic, fragile. Sandy loam with coarse sand. Very porous. Many roots. Smooth transition in 2 cm.

From 50 to 90 cm. Dry. Reddish yellow (7.5YR 7/6) moist. Non organic. No effervescence. 60% of coarse elements, gravels of quartz. Massive structure with angular chippings. Coherent, plastic, slightly fragile. Clay loam with coarse sand. Porous. Many roots. Smooth transition in 10 cm.

From 90 to 200 cm and more. Dry. Light red (10R 6/6) moist. Non organic. No effervescence. 20% of coarse elements, gravels of quartz. Massive structure with angular chippings. Coherent, plastic, very fragile. Clay with medium sand. Slightly porous. Few roots.

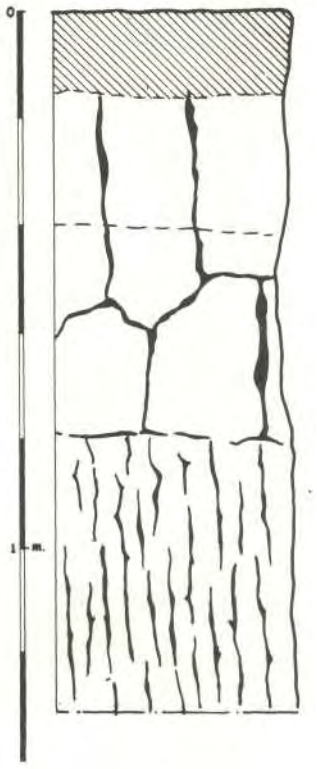


Profile MERC 1

Sample N°		789	790	791
Depth in cm		0-30	70-90	120-130
Coarse elements	%	34	58	22
pH				
Water		5.00	4.95	4.56
KC1		4.21	4.04	4.00
ΔpH		0.79	0.91	0.56
Particle-size analysis				
Coarse sand	%	39.2	28.8	17.4
Fine sand	%	8.9	7.0	10.5
Coarse silt	%	7.9	8.8	18.5
Fine silt	%	13.9	17.9	41.6
Clay	%	30.1	37.5	12.0
Organic matter				
Carbon	%	2.15	0.43	
Nitrogen	‰	2.18	0.41	
Org. matter	%	3.70	0.74	
Carbonates : **CaCO3** %				
Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	0.8	0.2	0.1
Mg	meq/l00g	0.3	0.8	03
Na	meq/l00g	0.0	0.0	0.0
K	meq/l00g	0.1	0.0	0.0
S=Σ	meq/l00g	1.2	1.0	0.4
Exch. cap.	**meq/l00g**	8.3	6.0	3.8
Base saturation	%	14	17	11
Exch. acid el. by KC1 N				
Al	meq/l00g	1.5	1.7	1.7
Mn	meq/l00g	0.1	0.0	0.0
ECEC	meq/l00g	2.8	2.7	2.1
Al sat % (Exch.Al/ECEC)		54	63	81
Triacid analysis				
Fire loss	%	8.4	8.1	10.0
Quartz+insol.	%	59.2	45.6	33.5
SiO2	%	15.7	22.9	24.6
A12O3	%	11.7	17.8	27.2
Fe2O3	%	2.3	3.1	2.3
TiO2	%	0.1	0.3	0.0
MnO	%	0.1	0.0	0.0
MgO	%	0.4	0.3	0.3
CaO	%	0.0	0.0	0.0
K2O	%	0.3	0.4	0.9
Na2O	%	0.1	0.0	0.1
P2O5	%	0.0	0.0	0.0
Total	%	98.3	98.5	98.9
Ki = SiO2/A12O3 (molec.)		2.28	2.19	1.54
CEC me / l00g of clay		27.6	16.0	31.7

XXIV RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile : BABA 01
Village / Location : Bababudangiri
Coordinates : Long.: 75° 46' 15" E; Lat.: 13° 25' 20" N; Alt**:** 1820 m.
Vegetation : Grassland,
Geology : Dharwar schist,
Landscape unit : 4a, strongly dissected high level, rounded crests,
Classification : Soil Taxonomy: Typic Paleustult, French Classification: Brunified and acidified soil.



From 0 to 15 cm. Dry. Dark yellowish brown (10YR 3/4) moist. Humus. No effervescence. No coarse element. Moderate blocky structure, 15 mm size. Coherent, plastic, slightly fragile. Silty clay loam with fine sand. Very porous. Plentiful roots. Smooth transition in 3 cm.

From 15 to 40 cm. Dry. Dark brown (7.5YR 4/4) moist Non organic. No effervescence. No coarse element. Massive structure with angular chippings. Coherent, plastic, slightly friable. Silty clay with fine sand. Cracks, 10 mm width, spaced of 20 cm. Porous. Many roots. Smooth transition in 3 cm.

From 40 to 70 cm. Dry. Dark brown (7.5YR 4/4) moist. Non organic. No effervescence. No coarse element. Strong blocky structure, 2 mm size and prismatic compound structure 25 mm size. Slightly coherent, very plastic, slightly friable. Silty clay with fine sand. Cracks, 10 mm width, spaced of 20 cm. Very porous. Few roots. Smooth transition in 5 cm.

From 70 to 130 cm and more. Dry. Dark reddish brown (5YR 3/4) moist. Non organic. No effervescence. No coarse element Strong blocky structure, 10 mm size. Coherent, plastic, very friable. Clay with fine sand. Cracks, 1 mm width, spaced of 2 cm. Glossy faces. Organic-clay cutans. Porous. Few roots.

< 2 µm fraction mineralogy.

Sample n°556:

- Chlorite ++
- Kaolinite +
- (10-14)Sm +
- Illite +

Sample n°557:

- Chlorite ++
- Illite ++
- Kaolinite +

Profile BABA 01

Sample N°		556	557	558
Depth in cm		0-15	40-60	90-110
Coarse elements	%	0	6	14
pH				
Water		4.55	4.62	4.82
KC1		4.15	4.08	3.97
ΔpH		0.40	0.54	0.85
Particle-size analysis				
Coarse sand	%	1.1	3.7	3.9
Fine sand	%	4.4	5.6	3.6
Coarse silt	%	6.9	1.7	2.5
Fine silt	%	52.7	40.6	20.1
Clay	%	34.9	48.4	69.9
Organic matter				
Carbon	%	5.17	1.14	0.46
Nitrogen	‰	4.20	1.25	
Org. matter	%	8.89	1.96	0.79
Carbonates : **CaCO3** %				
Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	1.1	0.5	1.2
Mg	meq/l00g	0.2	0.1	0.4
Na	meq/l00g	0.1	0.2	0.0
K	meq/l00g	0.2	0.2	0.3
S=**Σ**	meq/l00g	1.6	1.0	1.9
Exch. cap.	**meq/l00g**	27.3	15.9	17.3
Base saturation	%	6	6	11
Exch. acid el. by KC1 N				
Al	meq/l00g	4.3	4.0	5.0
Mn	meq/l00g	0.0	0.0	0.0
ECEC	meq/l00g	5.9	5.0	6.9
Al sat % (Exch.Al/ECEC)		73	80	72
Triacid analysis				
Fire loss	%	17.7	8.6	10.3
Quartz+insol.	%	29.5	26.9	16.5
SiO2	%	23.9	29.2	28.4
A12O3	%	16.3	19.8	26.5
Fe2O3	%	7.6	11.4	14.3
TiO2	%	1.3	1.7	1.5
MnO	%	0.1	0.2	0.2
MgO	%	1.3	1.5	1.0
CaO	%	0.2	0.2	0.0
K2O	%			
Na2O	%			
P2O5	%	0.2	0.2	0.3
Total	%	98.1	99.7	99.0
Ki = SiO2/A12O3 (molec.)		2.49	2.51	1.82
CEC me / l00g of clay		78.2	32.9	24.7

XXVI RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile : GP 01
Village / Location **:** Gopalapur
Coordinates **:** Long.: 75° 34' 50" E; Lat: 11° 43' 10" N; Alt: 1420 m.
Vegetation : Grassland,
Geology : Gneissic complex,
Landscape unit : 4a, strongly dissected high level, rounded crests,
Classification : Soil Taxonomy: Kanhaplic Haplustult, French Classification: Brunified and acidified soil.

From 0 to 20 cm. Dry. Very dark brown (10YR 2/2) moist. Humus. No effervescence. 50% of coarse elements, gravels of quartz and cobbles of weathered gneiss. Moderate subangular blocky structure, 5 mm size. Coherent, plastic, slightly fragile. Sandy clay loam with coarse sand. Very porous. Plentiful roots. Smooth transition in 3 cm.

From 20 to 60 cm. Dry. Dark yellowish brown (10YR 3/6) moist. Humus. No effervescence. 80% of coarse elements, gravels of quartz, stones and cobbles of highly weathered gneiss. Weak subangular blocky structure, 10 mm size. Coherent, plastic, fragile. Sandy clay loam with coarse sand. Very porous. Many roots. Irregular transition in 1 cm.

From 60 to 110 cm. Slightly moist. Reddish yellow (7.5YR 7/6) moist Common oxydation mottles, red (2.5YR 4/8). Non organic. No effervescence. 10% of coarse elements, gravels of quartz. Massive structure with angular chippings. Very coherent, plastic, friable. Sandy clay loam with coarse sand. Porous. Few roots. Smooth transition in 2 cm.

From 110 to 160 cm and more. Slightly moist. Yellowish red (5YR 5/8) moist. Many mottles, brownish yellow (10YR 6/8). Non organic. No effervescence. 5% of coarse elements, gravels of quartz. Massive structure with angular chippings. Very coherent, plastic, very friable. Sandy loam with coarse sand. Slightly porous. Very few roots.

< 2 µm fraction mineralogy.

Sample n°146:
- Kaolinite ++++

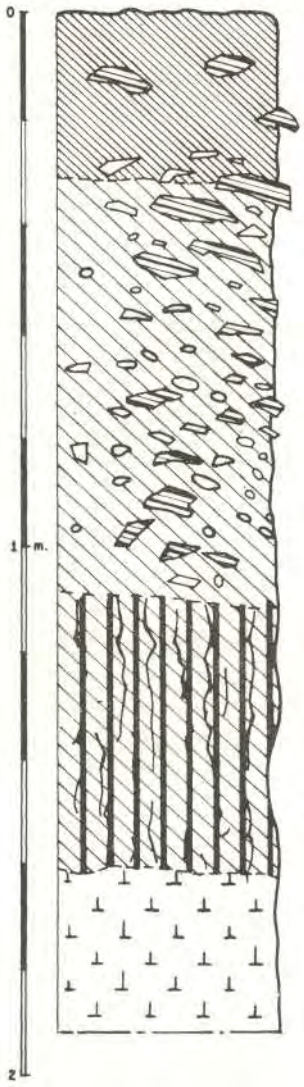
Sample n°148:
- Kaolinite +++
- Illite +

Profile GP 01

Sample N°		145	146	147	148
Depth in cm		0-20	20-60	60-110	110-160
Coarse elements	%	51	64	18	2
pH					
Water		5.17	4.73	4.81	4.95
KC1		4.05	3.81	3.83	3.83
ΔpH		1.12	0.92	0.98	1.12
Particle-size analysis					
Coarse sand	%	46.2	36.3	41.5	37.6
Fine sand	%	13.7	14.6	16.3	17.1
Coarse silt	%	4.5	4.2	5.4	7.0
Fine silt	%	8.8	7.7	14.6	22.7
Clay	%	26.7	37.2	22.0	15.6
Organic matter					
Carbon	%	3.19	1.68	0.15	
Nitrogen	‰	2.10	1.19		
Org. matter	%	5.49	2.89	0.26	
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	3.0	0.5	0.3	0.3
Mg	meq/l00g	1.6	0.1	0.0	0.0
Na	meq/l00g	0.1	0.0	0.0	0.0
K	meq/l00g	0.6	0.5	0.2	0.1
S=**Σ**	meq/l00g	5.3	1.1	0.5	0.4
Exch. cap.	**meq/l00g**	11.7	7.0	3.7	4.1
Base saturation	%	45	16	14	10
Exch. acid el. by KC1 N					
Al	meq/l00g	0.2	2.4	1.9	1.8
Mn	meq/l00g	0.2	0.1	0.0	0.0
ECEC	meq/l00g	5.7	3.6	2.4	2.2
Al sat % (Exch.Al/ECEC)		4	67	79	82
Triacid analysis					
Fire loss	%	11.2	8.0	6.6	7.0
Quartz+insol.	%	57.9	51.6	46.3	42.7
SiO2	%	15.3	18.5	23.3	24.6
A12O3	%	9.3	14.4	19.1	21.5
Fe2O3	%	3.3	5.7	3.8	1.9
TiO2	%	0.4	0.4	0.6	0.2
MnO	%	0.1	0.1	0.0	0.0
MgO	%	0.3	0.3	0.3	0.3
CaO	%	0.2	0.1	0.0	0.1
K2O	%				
Na2O	%				
P2O5	%	0.1	0.1	0.0	0.0
Total	%	98.1	99.2	100.0	98.3
Ki = SiO2/A12O3 (molec.)		2.80	2.18	2.07	1.95
CEC me / l00g of clay		43.8	18.8	16.8	26.3

XXVIII RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile : YELL 1
Village / Location : Tambur
Coordinates : Long.: 74° 55' 55" E; Lat.: 15° 06' 50" N; Alt.: 550 m.
Vegetation : Dry deciduous forest,
Geology : Dharwar schists and banded iron,
Landscape unit : 13, appalachian ridge,
Classification : Soil Taxonomy: Typic Argiustoll, French Classification: Tropical brown eutrophic soil.



From 0 to 30 cm. Dry. Dark reddish brown (5YR 3/2) moist. Humus. No effervescence. 10% of coarse elements, gravels and cobbles of quartzite. Moderate subangular blocky structure, 8 mm size. Coherent, plastic, slightly fragile. Clay loam with fine sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 30 to 110 cm. Dry. Dark reddish brown (2.5YR 3/4) moist. Little organic matter. No effervescence. 80% of coarse elements, gravels and cobbles of quartzite. Moderate blocky structure, 5 mm size. Coherent, plastic, slightly fragile. Clay with fine sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 110 to 160 cm. Dry. Dark red (2.5YR 3/6) moist. Little organic matter. No effervescence. 10% of coarse elements, gravels of quartz. Moderate prismatic structure, 15 mm size. Coherent, plastic, slightly fragile. Clay with medium sand. Cracks, 1 mm width, spaced of 4 cm. Porous. Many roots. Smooth transition in 2 cm.

From 160 to 190 cm and more. Dry. Strong brown (7.5YR 5/8) moist. Non organic. No effervescence. 20% of coarse elements, gravels of quartz. Massive structure with angular chippings. Very coherent, slightly plastic, slightly fragile. Loamy sand with coarse sand. Slightly porous.Very few roots.

< 2 µm fraction mineralogy.

Sample n°549:

- (10-14)Sm ++
- Kaolinite ++
- Illite tr.

Sample n°551:

- (10-14)Sm ++++
- Kaolinite tr.

Profile YELL 1

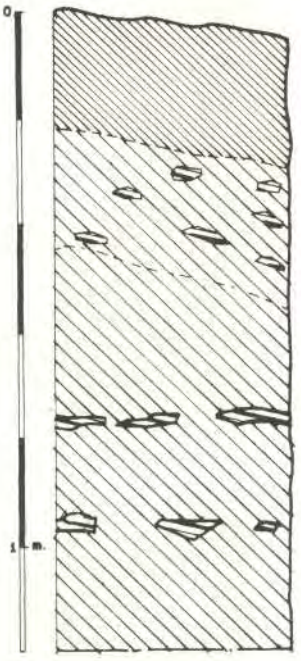
Sample N°		548	549	550	551
Depth in cm		0-25	60-80	110-120	180-200
Coarse elements	%	6	73	7	17
pH					
Water		5.92	5.43	5.62	6.17
KC1		5.39	4.61	4.53	4.32
ΔpH		0.53	0.82	1.09	1.85
Particle-size analysis					
Coarse sand	%	8.5	9.1	10.4	61.5
Fine sand	%	12.6	10.5	15.8	17.7
Coarse silt	%	20.2	10.5	9.7	6.8
Fine silt	%	22.6	16.4	21.3	6.9
Clay	%	36.1	53.5	42.7	7.1
Organic matter					
Carbon	%	3.51	1.20	0.86	0.31
Nitrogen	‰	2.24	1.04	0.57	0.27
Org. matter	%	6.03	2.06	1.48	0.53
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	24.0	21.0	31.0	30.0
Mg	meq/l00g	6.5	7.3	9.5	6.3
Na	meq/l00g	0.0	0.1	0.1	0.1
K	meq/l00g	0.3	0.3	0.3	0.1
S=Σ	meq/l00g	30.8	28.7	40.9	36.5
Exch. cap.	**meq/l00g**	28.1	30.0	36.4	27.0
Base saturation	%	>100	96	>100	>100
Exch. acid el. by KC1 N					
Al	meq/l00g				
Mn	meq/l00g				
ECEC	meq/l00g				
Al sat % (Exch.Al/ECEC)					
Triacid analysis					
Fire loss	%	9.8	8.5	8.7	4.2
Quartz+insol.	%	39.2	23.4	10.8	33.4
SiO2	%	20.0	28.0	35.6	24.9
A12O3	%	11.9	16.6	19.8	10.8
Fe2O3	%	18.1	19.1	21.9	19.1
TiO2	%	1.5	1.0	2.0	2.2
MnO	%	0.2	0.3	0.3	0.1
MgO	%	1.0	1.0	1.8	1.2
CaO	%	0.7	0.6	0.9	6.0
K2O	%				
Na2O	%				
P2O5	%	0.1	0.1	0.0	0.3
Total	%	102.5	98.6	101.8	102.2
Ki = SiO2/A12O3 (molec.)		2.86	2.87	3.06	3.92
CEC me / l00g of clay		77.8	56.1	85.2	380.3

Profile : KHAN 2
Village / Location : Honnapur
Coordinates : Long.: 74° 52' 05" E; Lat.: 15° 26' 30" N; Alt.: 750 m.
Vegetation : Dry deciduous forest,
Geology : Dharwar schists and banded iron,
Landscape unit : 13, appalachian ridge,
Classification : Soil Taxonomy: Typic Haplustoll, French Classification: Tropical brown eutrophic soil.

From 0 to 20 cm. Dry. Dusky red (2.5YR 3/2) moist. Humus. No effervescence. No coarse element. Moderate subangular blocky structure, 10 mm size. Coherent, plastic, slightly fragile. Clay loam with fine sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 20 to 40 cm. Dry. Dark reddish brown (2.5YR 3/4) moist. Little organic matter. No effervescence. 20% of coarse elements, cobbles of quartzite. Weak subangular blocky structure, 10 mm size. Coherent, plastic, slightly fragile. Clay loam with fine sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 40 to 120 cm and more. Dry. Dark reddish brown (2.5YR 3/4) moist. Little organic matter. No effervescence. 10% of coarse elements, gravels of quartzite. Weak subangular blocky structure, 10 mm size. Coherent, plastic, slightly fragile. Clay loam with fine sand. Porous. Plentiful roots.

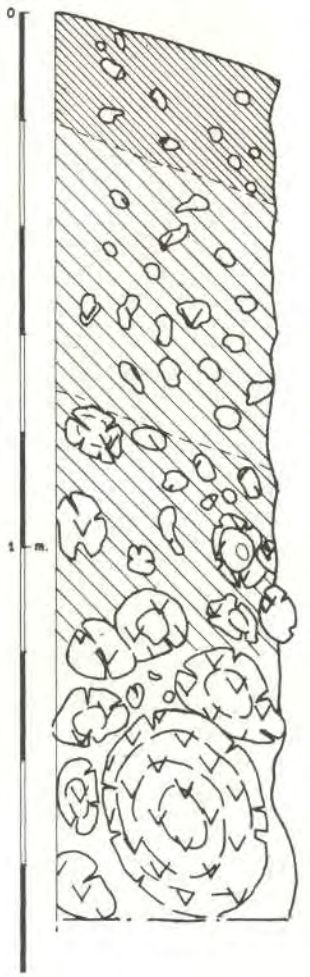


Profile KHAN 2

Sample N°		529	530	531
Depth in cm		0-15	30-40	80-100
Coarse elements	%	2	21	3
pH				
Water		6.48	5.63	5.63
KC1		5.93	5.09	4.95
ΔpH		0.55	0.54	0.68
Particle-size analysis				
Coarse sand	%	9.2	9.0	10.7
Fine sand	%	15.3	13.2	13.1
Coarse silt	%	15.0	15.8	14.2
Fine silt	%	29.4	29.9	30.7
Clay	%	31.1	32.0	31.3
Organic matter				
Carbon	%	8.92	1.66	1.26
Nitrogen	‰	3.54	1.20	0.73
Org. matter	%	15.34	2.85	2.16
Carbonates : **CaCO3** %				
Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	18.0	11.2	9.8
Mg	meq/l00g	4.8	3.2	2.5
Na	meq/l00g	0.0	0.0	0.3
K	meq/l00g	0.6	0.2	0.2
S=**Σ**	meq/l00g	23.4	14.6	12.8
Exch. cap.	**meq/l00g**	24.3	17.4	13.1
Base saturation	%	96	84	98
Exch. acid el. by KC1 N				
Al	meq/l00g	0.0	0.0	0.0
Mn	meq/l00g	0.1	0.1	0.1
ECEC	meq/l00g	23.5	14.7	12.9
Al sat % (Exch.Al/ECEC)		0	0	0
Triacid analysis				
Fire loss	%	12.7	7.8	6.7
Quartz+insol.	%	46.0	48.5	43.4
SiO2	%	17.3	17.1	21.5
A12O3	%	12.7	14.4	14.9
Fe2O3	%	7.6	9.5	9.5
TiO2	%	1.3	0.8	0.8
MnO	%	0.2	0.3	0.2
MgO	%	0.7	0.7	0.7
CaO	%	0.7	0.4	0.2
K2O	%			
Na2O	%			
P2O5	%	0.2	0.1	0.0
Total	%	99.4	99.6	97.9
Ki = SiO2/A12O3 (molec.)		2.32	2.02	2.45
CEC me / l00g of clay		78.1	54.4	41.9

XXXII RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile **:** BELG 2
Village / Location : Majra Devarvadi
Coordinates : Long.: 74° 22' 45" E; Lat: 15° 53' 35" N; Alt.: 850 m.
Vegetation : Degraded dry deciduous forest,
Geology : Deccan basalts,
Landscape unit : 14b, dissection relief on Deccan traps, irregular slopes,
Classification : Soil Taxonomy: Vertic Haplustoll, French Classification: Tropical brown Vertic soil.



From 0 to 20 cm. Dry. Dark reddish brown (5YR 3/2) moist. Humus. No effervescence. 15% of coarse elements, gravels of highly weathered basalt. Strong blocky structure, 5 mm size. Coherent, very plastic, slightly fragile. Clay with fine sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 20 to 70 cm. Dry. Dark reddish brown (5YR 3/4) moist. Little organic matter. No effervescence. 50% of coarse elements, gravels of highly weathered basalt. Strong blocky structure, 5 mm size. Coherent, plastic, slightly fragile. Loam with fine sand. Very porous. Plentiful roots. Smooth transition in 10 cm.

From 70 to 120 cm. Dry. Dark reddish brown (5YR 3/4) moist. Little organic matter. No effervescence. 60% of coarse elements, gravels and cobbles of highly weathered basalt. Strong blocky structure, 7 mm size. Coherent, plastic, slightly fragile. Clay loam with fine sand. Very porous. Plentiful roots. Wavy transition in 10 cm.

From 120 to 160 cm and more. Dry. Dark reddish brown (5YR 3/4) moist. Non organic. No effervescence. Boulders of highly weathered basalt. Plentiful roots.

< 2µm fraction mineralogy.

Sample n°522:

- (10-14)Sm +++
- Kaolinite +

Sample n°523:

- (10-14)Sm +++
- Kaolinite +

Profile BELG 2

Sample N°		521	522	523	524
Depth in cm		0-20	-50-	-100-	-160-
Coarse elements	%	15	47	34	-
pH					
Water		5.91	5.47	5.62	
KC1		4.90	4.52	4.39	
ΔpH		1.01	0.95	1.23	
Particle-size analysis					
Coarse sand	%	1.9	36.5	19.5	
Fine sand	%	8.9	17.2	11.2	
Coarse silt	%	8.4	9.9	10.2	
Fine silt	%	30.4	14.6	22.1	
Clay	%	50.4	21.7	37.0	
Organic matter					
Carbon	%	3.51	0.71	0.98	
Nitrogen	‰	2.18			
Org. matter	%	6.04	1.22	1.69	
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	29.6	28.0	14.0	
Mg	meq/l00g	12.2	12.5	12.5	
Na	meq/l00g	0.4	0.7	0.3	
K	meq/l00g	0.8	0.2	0.3	
S=Σ	meq/l00g	43.0	41.4	27.1	
Exch. cap.	**meq/l00g**	51.2	47.0	48.9	
Base saturation	%	84	88	55	
Exch. acid el. by KC1 N					
Al	meq/l00g	0.0	0.0	0.1	
Mn	meq/l00g	0.2	0.1	0.2	
ECEC	meq/l00g	43.2	41.5	27.4	
Al sat % (Exch.Al/ECEC)		0	0	0	
Triacid analysis					
Fire loss	%	14.1	10.6	11.1	9.5
Quartz+insol.	%	3.2	0.4	0.9	0.8
SiO2	%	37.8	41.9	41.9	42.0
A12O3	%	22.3	24.0	23.1	22.1
Fe2O3	%	20.0	20.0	21.9	23.8
TiO2	%	2.7	2.7	2.8	2.8
MnO	%	0.3	0.4	0.3	0.2
MgO	%	0.3	0.4	0.4	0.4
CaO	%	0.9	0.9	0.8	0.8
K2O	%				
Na2O	%				
P2O5	%	0.1	0.1	0.0	0.2
Total	%	101.7	101.4	103.2	102.6
Ki = SiO2/A12O3 (molec.)		2.88	2.97	3.08	3.23
CEC me / l00g of clay		101.6	216.6	132.2	

XXXIV RECONNAISSANCE SOIL MAP OF FOREST AREA

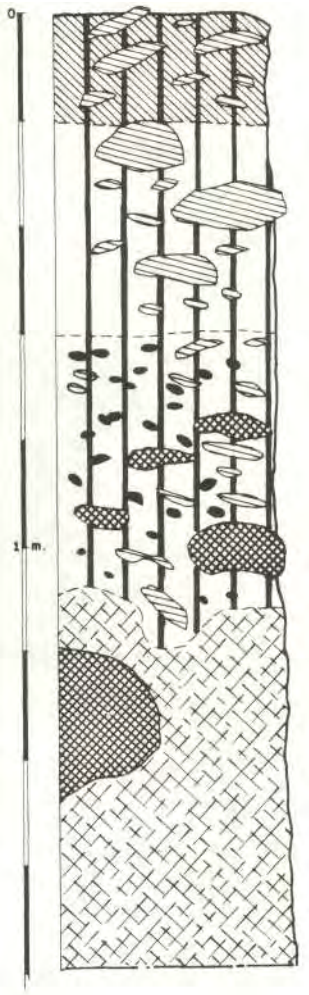
Profile : NAGUR 2
Village / Location **:** Santegadde
Coordinates : Long.: 74° 26' 20" E; Lat: 14° 32' 25" N; Alt**.:** 80 m.
Vegetation : Secondary moist-deciduous forest,
Geology : Dharwar schists,
Landscape unit : 2b, coastal area, dissected hilly hinterland,
Classification : Soil Taxonomy: (Kanhaplic) Plinthustalf, French Classification: Ferrallitic soil, moderately desaturated in B, reworked, indurated.

From 0 to 20 cm. Moist. Dark red (2.5YR 3/6) moist. Humus. No effervescence. 50% of coarse elements, gravels of highly weathered metamorphic schist. Weak subangular blocky structure, 5 mm size. Coherent, plastic, very friable. Clay loam with coarse sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 20 to 60 cm. Moist. Dark red (2.5YR 3/6) moist. Non organic. No effervescence. 40% of coarse elements, gravels of highly weathered metamorphic schist. Massive structure with angular chippings. Coherent, plastic, very friable. Clay with medium sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 60 to 110 cm. Moist. Red (2.5YR 4/6) moist. Non organic. No effervescence. 70% of coarse elements, gravels and cobbles of highly weathered metamorphic schist and ironstone. Massive structure with angular chippings. Coherent, plastic, very friable. Clay with medium sand. Very porous. Plentiful roots. Wavy transition in 2 cm.

From 110 to 180 cm and more. Moist. Red (2.5YR 4/6) moist. Non organic. No effervescence. Oxy-hydroxides of iron as a vesicular crust



Profile NAGUR 2

Sample N°		74	75	76
Depth in cm		0-20	20-50	50-100
Coarse elements	%	47	40	62
pH				
Water		5.79	5.44	5.53
KC1		5.20	5.18	5.33
ΔpH		0.59	0.26	0.20
Particle-size analysis				
Coarse sand	%	30.9	15.2	12.2
Fine sand	%	7.3	6.3	7.9
Coarse silt	%	4.2	4.2	3.2
Fine silt	%	20.8	19.3	14.4
Clay	%	36.6	54.9	62.3
Organic matter				
Carbon	%	4.07	1.61	0.98
Nitrogen	‰	3.36	1.47	0.78
Org. matter	%	7.00	2.77	1.69
Carbonates : **CaCO3** %				
Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	9.5	2.5	2.0
Mg	meq/l00g	2.3	1.1	1.6
Na	meq/l00g	0.0	0.0	0.0
K	meq/l00g	0.3	0.3	0.1
S=**Σ**	meq/l00g	12.1	3.9	3.7
Exch. cap.	**meq/l00g**	17.0	10.0	9.6
Base saturation	%	71	39	39
Exch. acid el. by KC1 N				
Al	meq/l00g			
Mn	meq/l00g			
ECEC	meq/l00g			
Al sat % (Exch.Al/ECEC)				
Triacid analysis				
Fire loss	%	15.6	11.9	11.8
Quartz+insol.	%	5.9	4.7	5.0
SiO2	%	18.7	24.8	25.6
A12O3	%	17.8	22.3	23.6
Fe2O3	%	39.1	30.5	30.5
TiO2	%	3.9	2.7	2.1
MnO	%	0.3	0.2	0.1
MgO	%	0.5	0.5	0.4
CaO	%	0.3	0.1	0.1
K2O	%			
Na2O	%			
P2O5	%	0.2	0.1	0.1
Total	%	102.3	97.8	99.3
Ki = SiO2/A12O3 (molec.)		1.79	1.89	1.84
CEC me / l00g of clay		46.4	18.2	15.4

XXXVI RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile : T.CAV 01
Village / Location : Brahmagiri
Coordinates : Long.: 75° 29' 43" E; Lat.: 12° 23' 04" N; Alt.: 1280 m
Vegetation : Grassland,
Geology : Gneissic complex,
Landscape unit : 4a, strongly dissected high level, rounded crests,
Classification : Soil Taxonomy: Typic Kanhaplustalf, French Classification: Ferrallitic soil moderately desaturated in B, reworked.

From 0 to 30 cm. Moist. Yellowish red (5YR 4/6) moist. Humus. No effervescence. 75% of coarse elements, gravels and cobbles of highly weathered gneiss. Weak subangular blocky structure, 3 mm size. Slightly coherent, plastic, very friable. Sandy clay loam with coarse sand. Porous. Smooth transition in 5 cm.

From 30 to 100 cm. Moist. Yellowish red (5YR 5/8) moist. Non organic. No effervescence. 20% of coarse elements, gravels and cobbles of highly weathered gneiss. Weak subangular blocky structure, 3 mm size. Coherent, plastic, very friable. Sandy clay loam with coarse sand. Porous. Irregular transition in 2 cm.

From 100 to 130 cm and more. Moist. Reddish yellow (7.5YR 6/8) moist. Non organic. No effervescence. No coarse element. Massive structure with angular chippings. Coherent, slightly plastic, friable. Loam with coarse sand. Slightly porous.

Pofile T.CAV 01

Sample N° **Depth in cm**		617 0-30	618 -70-	619 -120-	620 -60-
Coarse elements	%	52	11	1	cobble
pH					
Water		5.30	5.45	5.20	
KC1		4.45	4.60	4.05	
ΔpH		0.85	0.85	1.15	
Particle-size analysis					
Coarse sand	%	43.4	31.7	38.1	
Fine sand	%	16.9	15.1	12.1	
Coarse silt	%	5.0	5.7	4.6	
Fine silt	%	13.5	19.7	26.4	
Clay	%	21.2	27.8	18.7	
Organic matter					
Carbon	%	1.38	0.64	0.31	
Nitrogen	‰	1.16	0.31	0.21	
Org. matter	%	2.37	1.10	0.53	
Carbonates : **CaCO3** % Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	0.9	1.0	0.9	
Mg	meq/l00g	0.2	0.3	0.3	
Na	meq/l00g	0.8	0.7	0.7	
K	meq/l00g	0.4	0.2	0.1	
S=**Σ**	meq/l00g	2.3	2.2	2.0	
Exch. cap.	**meq/l00g**	5.2	3.7	3.6	
Base saturation	%	44	59	56	
Exch. acid el. by KC1 N					
Al	meq/l00g	0.2	0.1	1.1	
Mn	meq/l00g	0.1	0.0	0.0	
ECEC	meq/l00g	2.6	2.3	3.1	
Al sat % (Exch.Al/ECEC)		8	4	35	
Triacid analysis					
Fire loss	%	10.0	10.6	11.1	13.4
Quartz+insol.	%	49.5	41.1	41.7	45.6
SiO2	%	7.9	15.1	18.5	7.9
A12O3	%	16.3	21,2	24.6	26.5
Fe2O3	%	10.6	7.1	1.8	3.5
TiO2	%	1.8	1.3	0.2	0.3
MnO	%	0.1	0.1	0.0	0.0
MgO	%	0.4	0.3	0.2	0.1
CaO	%	0.0	0.0	0.0	0.0
K2O	%				
Na2O	%				
P2O5	%	0.2	0.2	0.0	0.1
Total	%	96.8	97.0	98.1	97.4
Ki = SiO2/A12O3 (molec.)		0.82	1.21	1.28	0.51
CEC me / l00g of clay		24.5	13.3	19.3	

XXXVIII RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile : SMSG 1
Village / Location : Samasgi
Coordinates : Long.: 75° 03' 00" E; Lat.: 14° 41' 15" N; Alt.: 600 m.
Vegetation : Secondary moist-deciduous forest,
Geology : Dharwar schists,
Landscape unit :11a, degraded intermediate levels with convexo-concave smooth relief,
Classification : Soil Taxonomy: Typic Kanhaplustalf, French Classification: Ferrallitic soil, Weakly desaturated in B, reworked.

From 0 to 10 cm. Dry. Dark yellowish brown (10YR 3/4) moist. Humus. No effervescence. 10% of coarse elements, gravels of ironstone. Weak subangular blocky structure, 5 mm size, associated with massive structure with blunt chippings. Coherent, plastic, fragile. Loam with fine sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

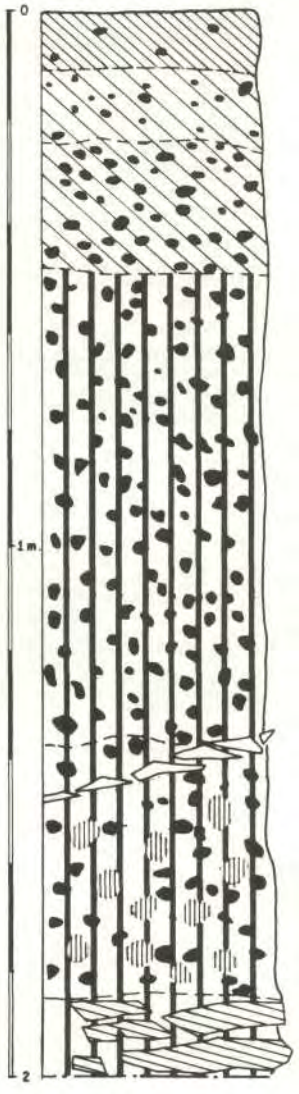
From 10 to 25 cm. Dry. Dark yellowish brown (10YR 4/6) moist. Humus. No effervescence. 35% of coarse elements, gravels of ironstone. Weak subangular blocky structure, 10 mm size, associated with massive structure with blunt chippings. Coherent, plastic, slightly fragile. Clay loam with fine sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 25 to 50 cm. Dry. Dark yellowish brown (10YR 4/4) moist. Humus. No effervescence. 80% of coarse elements, gravels of ironstone. Massive structure with blunt chippings. Coherent, very plastic, fragile. Clay with fine sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 50 to 140 cm. Dry. Yellowish red (5YR 5/8) moist. Non organic. No effervescence. 80% of coarse elements, gravels of ironstone. Massive structure with blunt chippings. Coherent, very plastic, fragile. Clay with fine sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 140 to 190 cm. Dry. Yellowish red (5YR 5/8) moist. Common mottles dark red (2.5YR 3/6). Non organic. No effervescence. 80% of coarse elements, gravels of ironstone and cobbles of quartz. Massive structure with blunt chippings. Coherent, very plastic, fragile. Clay loam with fine sand. Slightly porous. Many roots. Smooth transition in 10 cm.

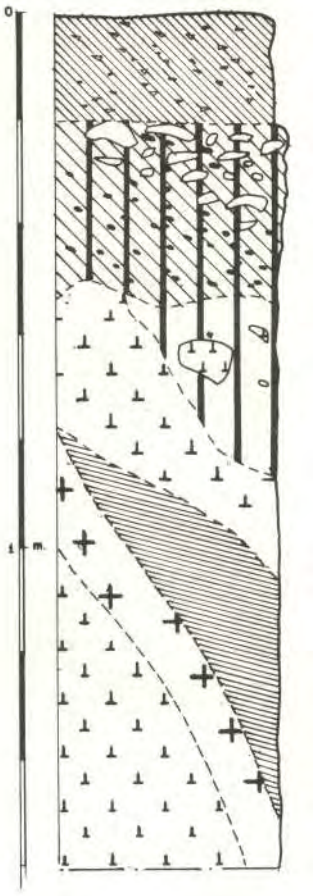
From 190 to 230 cm and more. Moist. Weathered variegated schist.



Profile SMSG 1

Sample N° **Depth in cm**		260 0-10	261 10-25	262 25-50	263 50-140	264 150-190
Coarse elements	%	9	33	74	77	69
pH						
Water		5.43	5.11	5.38	5.95	5.46
KC1		4.74	4.31	4.60	5.38	5.17
ΔpH		0.69	0.80	0.78	0.57	0.29
Particle-size analysis						
Coarse sand	%	14.6	16.1	15.4	14.6	8.4
Fine sand	%	24.5	24.4	15.6	8.0	18.8
Coarse silt	%	18.6	18.3	14.2	6.3	16.5
Fine silt	%	15.2	12.3	11.8	9.0	21.0
Clay	%	27.1	28.9	42.9	62.0	35.2
Organic matter						
Carbon	%	3.69	1.54	1.14	0.61	
Nitrogen	‰	2.14	1.10	0.95	0.63	
Org. matter	%	6.35	2.65	1.96	1.05	
Carbonates : **CaCO3** % Exch. Ca for calcareous soils						
Exchangeable bases						
Ca	meq/l00g	8.2	4.5	5.7	6.2	4.1
Mg	meq/l00g	2.7	1.5	1.9	2.0	2.7
Na	meq/l00g	0.0	0.0	0.0	0.0	0.0
K	meq/l00g	0.5	0.3	0.4	0.2	0.2
S=Σ	meq/l00g	11.4	6.3	8.0	8.4	7.0
Exch. cap.	**meq/l00g**	15.2	10.1	9.1	9.4	6.0
Base saturation	%	75	62	88	89	>100
Exch. acid el. by KC1 N						
Al	meq/l00g					
Mn	meq/l00g					
ECEC	meq/l00g					
Al sat % (Exch.Al/ECEC)						
Triacid analysis						
Fire loss	%	10.3	6.9	8.4	10.6	6.9
Quartz+insol.	%	51.0	50.3	34.3	12.9	33.9
SiO2	%	15.2	17.7	22.0	30.6	26.0
A12O3	%	11.3	10.4	18.1	23.6	17.4
Fe2O3	%	13.4	10.5	17.2	20.1	12.4
TiO2	%	0.5	0.6	1.0	0.9	0.6
MnO	%	0.1	0.2	0.2	0.4	0.1
MgO	%	0.4	0.3	0.5	0.5	0.4
CaO	%	0.3	0.1	0.2	0.1	0.1
K2O	%					
Na2O	%					
P2O5	%	0.1	0.0	0.1	0.0	0.0
Total	%	102.6	97.0	102.0	99.7	97.8
Ki = SiO2/A12O3 (molec.)		2.29	2.89	2.07	2.20	2.54
CEC me / l00g of clay		56.1	34.9	21.2	15.2	17.0

Profile : T 01
Village / Location : Maddur
Coordinates : Long.: 76° 33' 00" E; Lat: 11° 46' 25" N; Alt.: 910 m.
Vegetation : Dry deciduous forest,
Geology : Gneissic complex,
Landscape unit : 15, glacis,
Classification : Soil Taxonomy: Typic Paleustalf, French Classification: Fersiallitic soil.



From 0 to 20 cm. Slightly moist. Dark reddish brown (5YR 3/3) moist. Humus. No effervescence. 50% of coarse elements, gravels of quartz. Massive structure with blunt chippings. Very coherent, plastic, friable. Sandy clay loam with coarse sand. Porous. Many roots. Wavy transition in 2 cm.

From 20 to 50 cm. Slightly moist. Yellowish red (5YR 4/6) moist. Humus. No effervescence. 70% of coarse elements, gravels and cobbles of quartz and weathered gneiss. Massive structure with angular chippings. Coherent, very plastic, friable. Clay with coarse sand. Sesquioxidic cutans on coarse elements. Porous. Many roots. Wavy transition in 2 cm.

From 50 to 80 cm. Slightly moist. Dark reddish brown (2.5YR 3/4) moist. Non organic. No effervescence. 10% of coarse elements, cobbles of weathered gneiss. Massive structure with angular chippings associated with weak blocky structure, 12 mm size. Coherent, very plastic, friable. Clay with medium sand. Few clay cutans. Very porous. Many roots. Broken transition in 2 cm.

From 50 or 80 to 160 cm and more. Slightly moist. Reddish brown (5YR 4/3) moist Non organic. No effervescence. Weathered gneiss. Massive structure with angular chippings. Coherent, non plastic, slightly triable. Sandy loam with medium sand. Slightly porous. Few roots.

< 2 µm fraction mineralogy.

Sample n° 155:

- (10-14)Sm ++
- Kaolinite ++
- Illite +

Sample n°156:

- (10-14)Sm +++
- Kaolinite +

Profile T 01

Sample N°		153	154	155	156
Depth in cm		0-20	20-50	50-80	80-100
Coarse elements	%	44	69	6	1
pH					
Water		5.61	5.76	6.04	6.17
KC1		4.54	4.39	4.31	3.82
ΔpH		1.07	1.37	1.73	2.35
Particle-size analysis					
Coarse sand	%	40.5	19.6	16.7	21.7
Fine sand	%	22.8	7.7	15.4	29.0
Coarse silt	%	6.4	3.2	7.4	10.6
Fine silt	%	6.4	6.2	13.7	20.7
Clay	%	23.8	63.3	46.7	17.9
Organic matter					
Carbon	%	1.51	1.26	0.55	0.43
Nitrogen	‰	1.16	1.09	0.59	0.32
Org. matter	%	2.60	2.17	0.95	0.74
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	9.1	13.0	18.6	34.0
Mg	meq/l00g	2.6	6.4	7.1	12.9
Na	meq/l00g	0.0	0.3	0.6	0.5
K	meq/l00g	0.3	0.3	0.3	0.3
S=Σ	meq/l00g	12.0	20.0	26.6	47.7
Exch. cap.	**meq/l00g**	13.3	24.4	25.3	32.1
Base saturation	%	90	82	>100	>100
Exch. acid el. by KC1 N					
Al	meq/l00g	0.0	0.0	0.0	0.1
Mn	meq/l00g	0.0	0.0	0.1	0.1
ECEC	meq/l00g	12.0	20.0	26.7	47.9
Al sat % (Exch.Al/ECEC)		0	0	0	0
Triacid analysis					
Fire loss	%	5.9		8.4	8.4
Quartz+insol.	%	63.0		33.8	31.9
SiO2	%	13.3		28.2	27.0
A12O3	%	9.3		15.6	14.9
Fe2O3	%	8.1		10.5	11.9
TiO2	%	0.7		1.2	1.4
MnO	%	0.1		0.1	0.1
MgO	%	0.5		0.8	2.5
CaO	%	0.6		0.6	1.6
K2O	%				
Na2O	%				
P2O5	%	0.0		0.0	0.1
Total	%	101.5		99.2	99.8
Ki = SiO2/A12O3 (molec.)		2.43		3.07	3.08
CEC me / l00g of clay		55.9	38.5	54.2	179.3

XLII RECONNAISSANCE SOIL MAP OF FOREST AREA

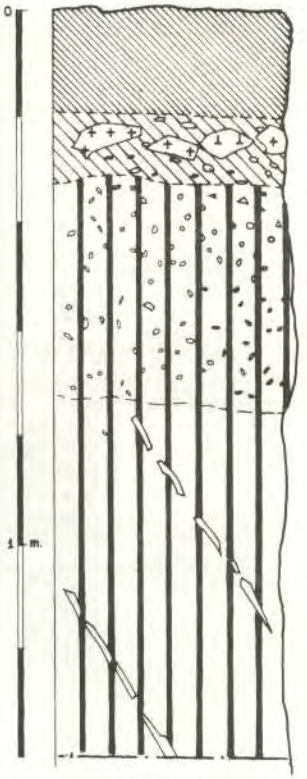
Profile **:** C 11
Village / Location : Mulehole
Coordinates : Long.: 76° 25' 25" E; Lat.: 11 ° 42' 55" N; Alt.: 860 m.
Vegetation : Moist deciduous forest,
Geology : Gneissic complex,
Landscape unit : 12, rejuvenated intermediate levels with Well developed convexo-concave relief,
Classification : Soil Taxonomy: Kandic Rhodustalf, French Classification: Soil intergraded between Fersiallitic and Ferrallitic soils.

From 0 to 20 cm. Slightly moist. Very dark grayish brown (10YR 3/2) moist. Humus. No effervescence. 15% of coarse elements, gravels of quartz. Crumb structure, 10 mm size, associated with massive structure with blunt chippings. Coherent, plastic, friable. Sandy clay loam with coarse sand. Porous. Many roots. Smooth transition in 2 cm.

From 20 to 30 cm. Slightly moist. Dark brown (7.5YR 4/4) moist. Humus. No effervescence. 70% of coarse elements, gravels and cobbles of quartz and weathered gneiss. Massive structure with blunt chippings. Coherent, plastic, friable. Sandy clay loam with coarse sand. Very porous. Many roots. Smooth transition in 4 cm.

From 30 to 70 cm. Slightly moist. Red (2.5YR 4/6) moist. Non organic. No effervescence. 70% of coarse elements, gravels and cobbles of quartz. Massive structure with angular chippings with very fine granular substructure less than 1 mm size. Coherent, very plastic, very friable. Clay with medium sand. Few clay cutans. Very porous. Many roots. Smooth transition in 10 cm.

From 70 to 140 cm. Slightly moist. Dark red (2.5YR 3/6) moist. Non organic. No effervescence. 5% of coarse elements, gravels of quartz. Massive structure with angular chippings. Coherent, very plastic, very friable. Clay with medium sand. Few clay cutans. Porous. Few roots.

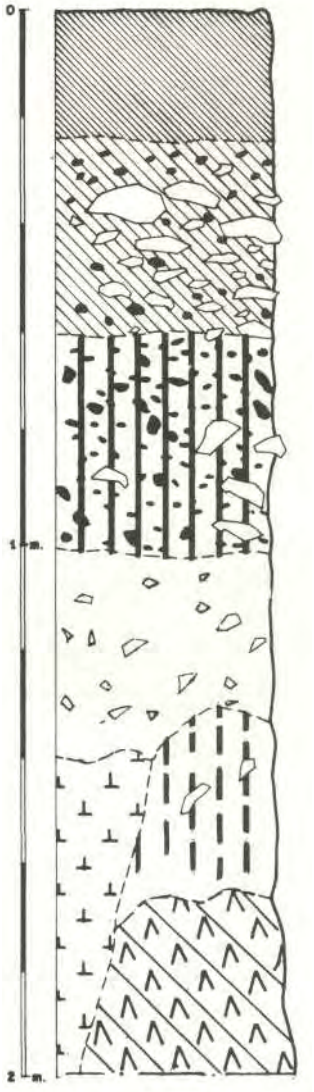


Profile C 11

Sample N° **Depth in cm**		645 0-20	646 40-60	647 120-135
Coarse elements	%	13	65	5
pH				
Water		6.08	5.52	5.40
KC1		5.46	4.84	4.79
ΔpH		0.62	0.68	0.61
Particle-size analysis				
Coarse sand	%	32.2	20.1	25.3
Fine sand	%	24.1	10.8	11.8
Coarse silt	%	6.1	2.9	4.7
Fine silt	%	9.5	8.0	17.3
Clay	%	28.2	58.1	41.0
Organic matter				
Carbon	%	2.15	0.86	0.55
Nitrogen	‰	1.12	0.63	0.28
Org. matter	%	3.70	1.48	0.95
Carbonates : **CaCO3** % Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	10.3	6.0	5.5
Mg	meq/l00g	1.8	2.0	1.5
Na	meq/l00g	0.7	0.7	0.8
K	meq/l00g	0.3	0.3	0.2
S=**Σ**	meq/l00g	13.1	9.0	8.0
Exch. cap.	**meq/l00g**	13.7	11.4	9.0
Base saturation	%	96	79	89
Exch. acid el. by KC1 N				
Al	meq/l00g			
Mn	meq/l00g			
ECEC	meq/l00g			
Al sat % (Exch.Al/ECEC)				
Triacid analysis				
Fire loss	%	8.8	9.9	8.4
Quartz+insol.	%	59.9	32.3	37.9
SiO2	%	14.2	27.3	24.9
A12O3	%	10.2	20.8	20.4
Fe2O3	%	4.4	6.8	5.6
TiO2	%	0.5	0.5	0.5
MnO	%	0.1	0.1	0.0
MgO	%	0.3	0.4	0.4
CaO	%	0.4	0.2	0.2
K2O	%	0.1	0.3	0.1
Na2O	%	0.1	0.0	0.2
P2O5	%	0.0	0.0	0.0
Total	%	99,0	98.6	98.6
Ki = SiO2/A12O3 (molec.)		2.37	2.23	2.08
CEC me / l00g of clay		48.6	19.6	22.0

XLIV RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile **:** BEL 3
Village / Location : Chikka Byadagere
Coordinates : Long.: 75° 52' 12" E; Lat.: 13° 10' 41" N; Alt.: 960 m.
Vegetation : Field,
Geology : Gneissic complex,
Landscape unit : 11b, degraded intermediate levels with convexo-concave smooth relief,
Classification : Soil Taxonomy: Typic Haplustalf, French Classification: Polyphased soil.



From 0 to 25 cm. Dry. Dark brown (7.5YR 4/4) moist. Humus. No effervescence. No coarse element. Massive structure with angular chippings. Very coherent, slightly plastic, slightly fragile. Sandy loam with coarse sand. Porous. Many roots. Smooth transition in 3 cm (horizon not analyzed).

From 25 to 60 cm. Dry. Dark brown (7.5YR 4/4) moist. Humus. No effervescence. 70% of coarse elements, pebbles of quartz and gravels of ironstone. Massive structure with blunt chippings. Coherent, slightly plastic, slightly fragile. Sandy loam with coarse sand. Porous. Few roots. Smooth transition in 5 cm (not analyzed).

From 60 to 100 cm. Dry. Yellowish red (5YR 4/6) moist. Non organic. No effervescence. 70% of coarse elements, pebbles of quartz and gravels of ironstone. Massive structure with blunt chippings. Coherent, plastic, slightly fragile. Clay with coarse sand. Porous. Few roots. Smooth transition in 1 cm.

From 100 to 140 cm. Dry. Reddish yellow (5YR 6/6) moist. Common oxidation mottles red (2.5YR 4/6). Non organic. No effervescence. 40% of coarse elements, pebbles and gravels of quartz. Strong blocky structure, 15 mm size with prismatic compound structure, 40 mm size. Coherent, very plastic, non fragile. Clay with medium sand. Very porous. No roots. Wavy transition in 10 cm.

From 140 to 170 cm (on amphibolite). Dry. Yellow (5Y 7/6) moist. Many oxidation mottles, red (10R 4/6). Non organic. No effervescence. 40% of coarse elements, pebbles and gravels of quartz. Strong blocky structure 10 mm size, associated with massive structure with blunt chippings. Coherent, very plastic, non fragile. Clay with medium sand. Porous. No roots. Smooth transition in 15 cm.

From 170 to 250 cm and more (on amphibolite). Dry. Yellow (5Y 7/6) moist. Highly weathered amphibolite. Coherent, very plastic, slightly fragile. Slightly porous. No roots.

From 170 to 300 cm and more (on gneiss). Dry. Very pale brown (10YR 7/4) moist. . Highly weathered gneiss. Coherent, non plastic, fragile. Slightly porous. No roots.

Profile BEL 3

Sample N° **Depth in cm**		777 -130-	778 -180-	779 -250-	780 -250-
Coarse elements	%	38	42	16	0
pH					
Water		6.60	6.55	6.50	6.25
KC1		5.40	4.50	5.03	4.58
ΔpH		1.20	2.05	1.47	1.67
Particle-size analysis			*	*	
Coarse sand	%	16.9	11.4	3.6	30.4
Fine sand	%	11.8	5.3	10.1	46.8
Coarse silt	%	4.8	1.5	5.1	8.2
Fine silt	%	12.9	23.1	28.7	8.7
Clay	%	53.6	58.7	52.5	5.8
Organic matter					
Carbon	%	0.43	0.22	0.15	0.21
Nitrogen	‰	0.5	0.36	0.21	0.22
Org. matter	%	0.74	0.38	0.26	0.36
Carbonates : **CaCO3** % Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	14.5	50.0	45.0	5.8
Mg	meq/l00g	5.9	23.3	32.5	2.2
Na	meq/l00g	0.1	0.3	0.0	0.0
K	meq/l00g	21.1	74.2	78.3	8.0
S=**Σ**	meq/l00g	41.6	147.8	155.8	16.0
Exch. cap.	**meq/l00g**	22.6	65.5	61.4	7.8
Base saturation	%	>100	>100	>100	>100
Exch. acid el. by KC1 N					
Al	meq/l00g				
Mn	meq/l00g				
ECEC	meq/l00g				
Al sat % (Exch.Al/ECEC)					
Triacid analysis					
Fire loss	%	9.1	9.8	10.2	3.6
Quartz+insol.	%	30.2	15.5	14.3	66.0
SiO2	%	28.9	38.1	41.3	13.7
A12O3	%	19.3	12.1	16.6	8.7
Fe2O3	%	8.9	20.0	12.4	3.3
TiO2	%	0.5	0.7	0.5	0.1
MnO	%	0.1	0.0	0.0	0.0
MgO	%	0.6	0.9	2.1	1.6
CaO	%	0.5	1.6	1.3	0.2
K2O	%	0.4	0.2	0.1	0.8
Na2O	%	0.0	0.0	0.0	0.0
P2O5	%	0.0	0.0	0.1	0.0
Total	%	98.5	98.9	98.9	98.0
Ki = SiO2/A12O3 (molec.)		2.55	5.35	4.23	2.68
CEC me / l00g of clay		42.2	111.6	117.0	134.5

* Particle-size analysis after deferrification

XLVI RECONNAISSANCE SOIL MAP OF FOREST AREA

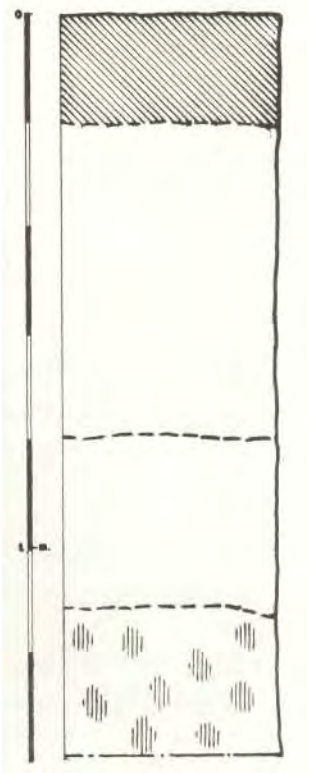
Proflte : KHAN 1
Village / Location : Karambal
Coordinates : Long.: 74° 31' 15" E; Lat.: 15° 37' 05" **N;** Alt.: 670 m.
Vegetation : Grassland,
Geology : Gneissic complex,
Landscape unit : 7, partially dissected intermediate levels on gneiss,
Classification : Soil Taxonomy: Kanhaplic Haplustalf, French Classification: Ferrallitic soil, weakly desaturated in B, impoverished.

From 0 to 20 cm. Dry. Yellowish red (5YR 4/6) moist. Humus. No effervescence. No coarse element. Massive structure with angular chippings. Very coherent, plastic, slightly fragile. Sandy clay loam with coarse sand. Slightly porous. Many roots. Smooth transition in 5 cm.

From 20 to 80 cm. Dry. Reddish brown (2.5YR 4/4) moist. Non organic. No effervescence. No coarse element. Massive structure with angular chippings. Very coherent, slightly plastic, slightly fragile. Sandy loam with coarse sand. Slightly porous. Few roots. Smooth transition in 5 cm.

From 80 to 110 cm. Dry. Reddish brown (2.5YR 4/4) moist. Non organic. No effervescence. No coarse element. Weak subangular blocky structure, 10 mm size. Coherent, plastic, slightly fragile. Sandy clay loam with coarse sand. Clay cutans. Porous. Few roots. Smooth transition in 2 cm.

From 110 to 140 cm and more. Dry. Yellowish brown (10YR 5/6) moist. Few oxidation mottles, red (2.5YR 4/6). Non organic. No effervescence. No coarse element. Massive structure with blunt chippings. Coherent, very plastic, slightly fragile. Sandy clay with coarse sand. Porous. Few roots.

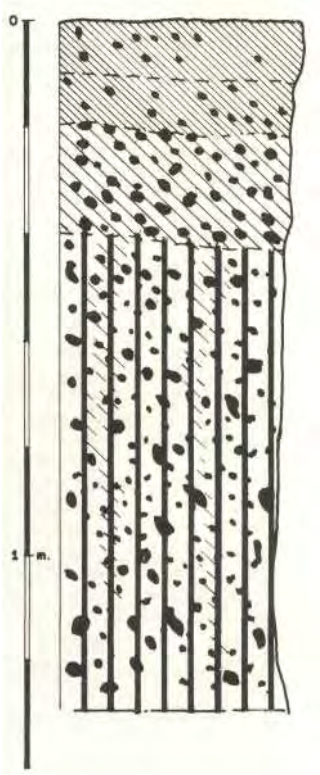


Profile KHAN 1

Sample N°		526	527	528
Depth in cm		0-10	20-40	110-120
Coarse elements	%	1	3	3
pH				
Water		4.76	5.57	5.12
KC1		4.06	4.92	4.47
ΔpH		0.70	0.65	0.65
Particle-size analysis				
Coarse sand	%	41.1	45.5	35.7
Fine sand	%	17.3	22.2	13.7
Coarse silt	%	5.7	6.2	4.6
Fine silt	%	7.6	6.3	7.4
Clay	%	28.2	19.7	38.6
Organic matter				
Carbon	%	2.58	1.54	0.55
Nitrogen	‰	1.06	0.84	0.62
Org. matter	%	4.44	2.65	0.95
Carbonates : **CaCO3** %				
Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	2.2	3.0	3.8
Mg	meq/l00g	0.9	0.5	1.0
Na	meq/l00g	0.2	0.2	0.3
K	meq/l00g	0.2	0.2	0.2
S=**Σ**	meq/l00g	3.5	3.9	5.3
Exch. cap.	**meq/l00g**	6.6	5.0	8.1
Base saturation	%	53	78	65
Exch. acid el. by KC1 N				
Al	meq/l00g			
Mn	meq/l00g			
ECEC	meq/l00g			
Al sat % (Exch.Al/ECEC)				
Triacid analysis				
Fire loss	%	5.0	3.9	5.9
Quartz+insol.	%	63.2	73.7	52.9
SiO2	%	14.2	9.9	20.2
A12O3	%	10.8	7.6	15.9
Fe2O3	%	4.3	1.9	7.2
TiO2	%	0.3	0.0	0.3
MnO	%	0.1	0.1	0.0
MgO	%	0.2	0.2	0.3
CaO	%	0.1	0.1	0.1
K2O	%			
Na2O	%			
P2O5	%	0.0	0.1	0.1
Total	%	98.2	97.5	102.9
Ki = SiO2/A12O3 (molec.)		2.24	2.21	2.16
CEC me / l00g of clay		23.4	25.4	21.0

XLVIII RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile **:** HLL 1
Village / Location : Halagalale
Coordinates : Long.: 75° 06' 00" E; Lat.: 14° 21' 00" N; Alt.: 610 m.
Vegetation : "Kan forest",
Geology : Dharwar schists,
Landscape unit : 10a, degraded intermediate levels, convexo-concave relief with large extension of the upper convexities,
Classification : Soil Taxonomy: Kanhaplic Haplustalf, French Classification: Ferrallitic soil, weakly desaturated in B, reworked.



From 0 to 10 cm. Dry. Dark yellowish brown (10YR 3/4) moist. Humus. No effervescence. 10% of coarse elements, gravels of ironstone. Weak subangular blocky structure, 8 mm size, associated with massive structure with blunt chippings. Coherent, plastic, fragile. Clay loam with medium sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 10 to 20 cm. Dry. Dark yellowish brown (10YR 3/6) moist. Humus. No effervescence. 20% of coarse elements, gravels of ironstone. Weak subangular blocky structure, 10 mm size, associated with massive structure with blunt chippings. Coherent, plastic, slightly fragile. Clay loam with medium sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 20 to 40 cm. Dry. Dark reddish brown (5YR 3/4) moist. Humus. No effervescence. 60% of coarse elements, gravels and cobbles of ironstone. Massive Structure with blunt chippings. Coherent, very plastic, fragile. Clay loam with medium sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 40 to 130 cm and more. Dry. Yellowish red (5YR 4/6) moist. Common organic mottles, dark reddish brown (5YR 3/4). Non organic. No effervescence. 70% of coarse elements, gravels and cobbles of ironstone. Massive structure with blunt chippings. Coherent, very plastic, fragile. Clay with medium sand. Very porous. Plentiful roots.

< 2 µm fraction mineralogy.

Sample n° 272:

- Kaolinite +++
- Illite tr.
- Gibbsite tr.

Profile HLL 1

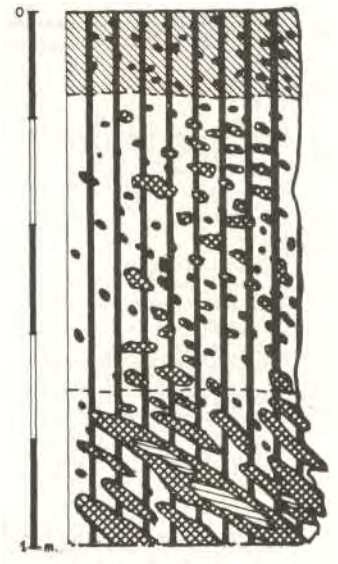
Sample N°		270	271	272	273	274
Depth in cm		0-10	10-20	20-40	-70-	-110-
Coarse elements	%	8	21	59	75	71
pH						
Water		6.22	6.10	5.90	5.82	5.82
KC1		5.78	5.65	5.39	5.34	5.49
ΔpH		0.44	0.45	0.51	0.48	0.33
Particle-size analysis						
Coarse sand	%	15.2	20.2	21.9	16.3	15.1
Fine sand	%	21.2	21.0	21.5	11.1	11.1
Coarse silt	%	15.7	16.1	14.3	8.0	8.9
Fine silt	%	14.6	11.9	10.5	7.7	9.1
Clay	%	33.3	30.7	31.7	56.9	55.8
Organic matter						
Carbon	%	4.73	3.14	1.72	0.92	0.61
Nitrogen	‰	3.53	2.57	1.61	1.19	1.12
Org. matter	%	8.14	5.40	2.96	1.58	1.05
Carbonates : **CaCO3** %						
Exch. Ca for calcareous soils						
Exchangeable bases						
Ca	meq/l00g	14.7	10.2	5.9	2.7	2.5
Mg	meq/l00g	3.6	2.4	2.1	1.0	1.2
Na	meq/l00g	0.0	0.0	0.0	0.0	0.0
K	meq/l00g	0.5	0.3	0.3	0.4	0.4
S=Σ	meq/l00g	18.8	12.9	8.3	4.1	4.1
Exch. cap.	**meq/l00g**	17.9	15.3	11.0	10.3	9.0
Base saturation	%	>100	84	75	40	46
Exch. acid el. by KC1 N						
Al	meq/l00g					
Mn	meq/l00g					
ECEC	meq/l00g					
Al sat % (Exch.Al/ECEC)						
Triacid analysis						
Fire loss	%	13.2	9.9	8.0	9.1	9.8
Quartz+insol.	%	47.7	49.4	48.8	25.6	25.6
SiO2	%	12.6	12.6	13.2	24.2	23.4
A12O3	%	10.3	10.9	12.7	21.5	18.9
Fe2O3	%	12.9	15.3	16.7	20.0	21.0
TiO2	%	1.4	1.2	1.1	0.9	1.2
MnO	%	0.3	0.3	0.3	0.1	0.2
MgO	%	0.4	0.3	0.3	0.5	0.4
CaO	%	0.5	0.3	0.2	0.2	0.1
K2O	%					
Na2O	%					
P2O5	%	0.1	0.1	0.1	0.1	0.1
Total	%	99.4	100.3	101.4	102.2	100.7
Ki = SiO2/A12O3 (molec.)		2.08	1.97	1.77	1.91	2.10
CEC me / l00g of clay		53.8	49.8	34.7	18.1	16.1

Profile **:** SIDD 1
Village / Location : Kavachur
Coordinates : Long.: 74° 54' 00" E; Lat.: 14° 16' 00" N; Alt.: 580 m.
Vegetation : Thicket,
Geology : Dharwar schists,
Landscape unit : 10b, degraded intermediate levels, convexo-concave relief with large extension of the lower concavities,
Classification : Soil Taxonomy: Kanhaplic Haplustalf, French Classification: Ferrallitic soil, weakly desaturated in B, reworked.

From 0 to 15 cm. Dry. Yellowish red (5YR 4/6) moist. Humus. No effervescence. 70% of coarse elements, gravels of ironstone. Moderate subangular blocky structure, 10 mm size. Coherent, plastic, fragile. Sandy clay loam with coarse sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 15 to 70 cm. Dry. Yellowish red (5YR 4/6) moist. Non organic. No effervescence. 80% of coarse elements, gravels and cobbles of ironstone. Massive structure with blunt chippings. Coherent, very plastic, fragile. Clay with coarse sand. Porous. Many roots. Smooth transition in 5 cm.

From 70 to 100 cm and more. Dry. Red (2.5YR 4/8) moist. Non organic. No effervescence. 80% of coarse elements, gravels and cobbles of ironstone and highly weathered schist. Massive structure with blunt chippings. Coherent, very plastic, fragile. Clay with coarse sand. Porous. Few roots.



Profile SIDD 1

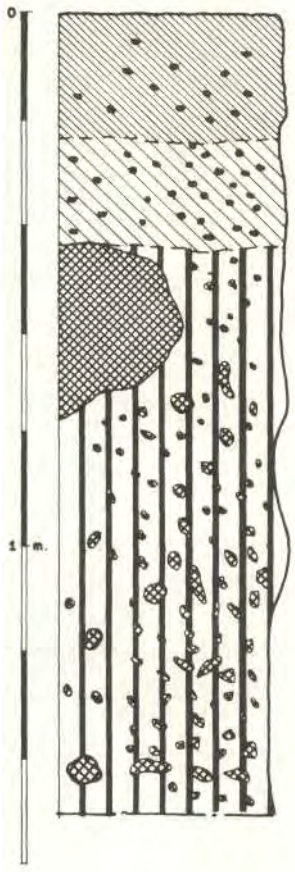
Sample N°		463	464	465
Depth in cm		0-15	-40-	-90-
Coarse elements	%	72	78	81
pH				
Water		5.20	5.20	5.30
KC1		5.35	4.50	5.00
ΔpH		-0.15	0.70	0.30
Particle-size analysis				
Coarse sand	%	37.6	23.3	16.3
Fine sand	%	13.8	9.0	7.5
Coarse silt	%	6.8	6.0	6.0
Fine silt	%	11.7	13.3	16.9
Clay	%	30.1	48.4	53.3
Organic matter				
Carbon	%	2.52	1.45	0.71
Nitrogen	‰	1.68	1.19	0.63
Org. matter	%	4.33	2.49	1.22
Carbonates : **CaCO3** %				
Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	2.9	3.6	2.8
Mg	meq/l00g	0.5	0.7	0.9
Na	meq/l00g	0.0	0.0	0.0
K	meq/l00g	0.2	0.1	0.0
S=**Σ**	meq/l00g	3.6	4.4	3.7
Exch. cap.	**meq/l00g**	10.1	10.0	7.2
Base saturation	%	36	44	51
Exch. acid el. by KC1 N				
Al	meq/l00g	0.2	0.1	0.0
Mn	meq/l00g	0.1	0.0	0.0
ECEC	meq/l00g	3.9	4.5	3.7
Al sat % (Exch.Al/ECEC)		5	2	0
Triacid analysis				
Fire loss	%	10.5	10.4	10.8
Quartz+insol.	%	28.3	18.6	11.4
SiO2	%	20.2	25.1	27.7
A12O3	%	15.1	22.1	26.5
Fe2O3	%	22.4	20.5	21.5
TiO2	%	1.4	1.5	1.4
MnO	%	0.1	0.1	0.0
MgO	%	0.5	0.6	0.5
CaO	%	0.2	0.3	0.2
K2O	%			
Na2O	%			
P2O5	%	0.1	0.1	0.1
Total	%	98.8	99.3	100.1
Ki = SiO2/A12O3 (molec.)		2.27	1.93	1.78
CEC me / l00g of clay		33.6	20.7	13.5

Profile : KDKP
Village / Location : Patrisal
Coordinates : Long.: 75° 08' 00" E; Lat.: 14° 17' 00" N; Alt.: 610 m.
Vegetation : Secondary moist deciduous forest,
Geology : Dharwar schists,
Landscape unit : 10a, degraded intermediate levels, convexo-concave relief with large extension of the upper convexities,
Classification : Soil Taxonomy: Kanhaplic Haplustalf, French Classification: Ferrallitic soil, weakly desaturated in B, reworked.

From 0 to 20 cm. Dry. Dark brown (7.5YR 4/2) moist. Humus. No effervescence. 10% of coarse elements, gravels of ironstone. Weak subangular blocky structure, 10 mm size, associated with massive structure with blunt chippings. Coherent, plastic, fragile. Clay loam with fine sand. Very porous. Plentiful roots. Smooth transition in
2 cm.

From 20 to 40 cm. Dry. Dark brown (7.5YR 4/4) moist. Humus. No effervescence. 65% of coarse elements, gravels of ironstone. Massive structure with blunt chippings. Coherent, plastic, fragile. Clay loam with medium sand. Very porous. Plentiful roots. Smooth transition in
3 cm.

From 40 to 130 cm and more. Dry. Yellowish red (5YR 4/6) moist. Non organic. No effervescence. 70% of coarse elements, gravels, cobbles and boulders of ironstone. Massive structure with blunt chippings. Coherent, very plastic, fragile. Clay with medium sand. Very porous. Plentiful roots.



Profile KDKP

Sample N°		265	266	267	268	269
Depth in cm		0-10	10-20	20-40	-70-	-120-
Coarse elements	%	3	13	64	76	72
pH						
Water		5.69	5.78	5.93	5.95	5.46
KC1		5.08	5.09	5.25	5.19	5.08
ΔpH		0.61	0.69	0.68	0.76	0.38
Particle-size analysis						
Coarse sand	%	14.8	13.2	14.8	13.9	14.4
Fine sand	%	22.3	19.5	15.6	9.8	13.7
Coarse silt	%	12.8	12.2	11.8	6.4	9.0
Fine silt	%	16.9	15.9	14.9	9.0	13.1
Clay	%	33.1	39.1	42.9	60.8	49.8
Organic matter						
Carbon	%	3.14	2.40	1.66	0.98	0.71
Nitrogen	‰	2.44	2.20	1.78	0.91	0.90
Org. matter	%	5.40	4.13	2.86	1.69	1.22
Carbonates : **CaCO3** %						
Exch. Ca for calcareous soils						
Exchangeable bases						
Ca	meq/l00g	10.3	10.0	9.4	8.1	5.9
Mg	meq/l00g	3.2	3.0	2.8	2.9	2.5
Na	meq/l00g	0.0	0.0	0.0	0.0	0.0
K	meq/l00g	0.3	0.2	0.2	0.2	0.2
S=Σ	meq/l00g	13.8	13.2	12.4	11.2	8.6
Exch. cap.	**meq/l00g**	14.4	14.1	14.7	13.5	8.4
Base saturation	%	96	94	84	83	>100
Exch. acid el. by KC1 N						
Al	meq/l00g					
Mn	meq/l00g					
ECEC	meq/l00g					
Al sat % (Exch.Al/ECEC)						
Triacid analysis						
Fire loss	%	10.6	9.8	9.4	10.0	10.2
Quartz+insol.	%	46.6	43.0	39.5	19.2	21.0
SiO2	%	16.3	17.0	19.2	29.3	25.7
A12O3	%	13.0	15.3	16.3	20.8	22.3
Fe2O3	%	11.9	13.4	14.3	17.6	20.0
TiO2	%	1.1	1.1	1.4	0.9	1.1
MnO	%	0.2	0.2	0.2	0.2	0.2
MgO	%	0.3	0.4	0.4	0.5	0.4
CaO	%	0.4	0.4	0.3	0.2	0.2
K2O	%					
Na2O	%					
P2O5	%	0.1	0.1	0.1	0.1	0.1
Total	%	100.5	100.7	101.1	98.8	101.2
Ki = SiO2/A12O3 (molec.)		2.13	1.89	2.00	2.39	1.96
CEC me / l00g of clay		43.5	36.1	34.3	22.2	16.9

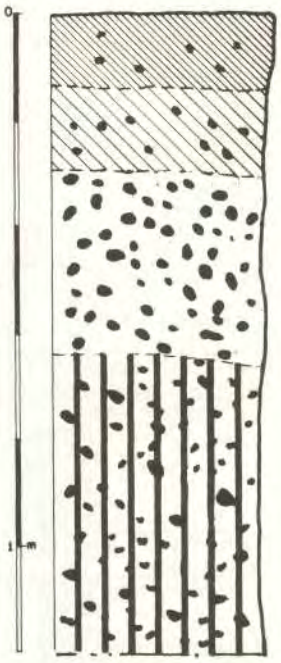
Profile : SONDA 4
Village / Location : Bidralli
Coordinates : Long.: 74° 55' 30" E; Lat: 14° 34' 00" N; Alt.: 580 m.
Vegetation : Secondary moist deciduous forest,
Geology : Dharwar schists,
Landscape unit : 10a, degraded intermediate levels, convexo-concave relief with large extension of the upper convexities,
Classification : Soil Taxonomy: Kanhaplic Haplustalf, French Classification: Ferrallitic soil, weakly desaturated in B, reworked.

From 0 to 15 cm. Dry. Dark reddish brown (5YR 2.5/2) moist. Humus. No effervescence. 5% of coarse elements, gravels of ironstone. Massive structure with blunt chippings. Coherent, plastic, fragile. Clay loam with medium sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 15 to 30 cm. Dry. Dark reddish brown (5YR 3/3) moist. Humus. No effervescence. 20% of coarse elements, gravels of ironstone. Massive structure with blunt chippings. Coherent, plastic, slightly fragile. Clay with medium sand. Very porous. Plentiful roots. Smooth transition in 4 cm.

From 30 to 65 cm. Dry. Reddish brown (5YR 4/4) moist. Non organic. No effervescence. 50% of coarse elements, gravels of ironstone. Massive structure with blunt chippings. Coherent, very plastic, fragile. Clay with medium sand. Very porous. Plentiful roots. Smooth transition in 8 cm.

From 65 to 120 cm and more. Dry. Red (2.5YR 4/6) moist. Non organic. No effervescence. 60% of coarse elements, gravels and cobbles of ironstone. Massive structure with blunt chippings. Coherent, plastic, fragile. Clay with medium sand. Very porous. Plentiful roots.

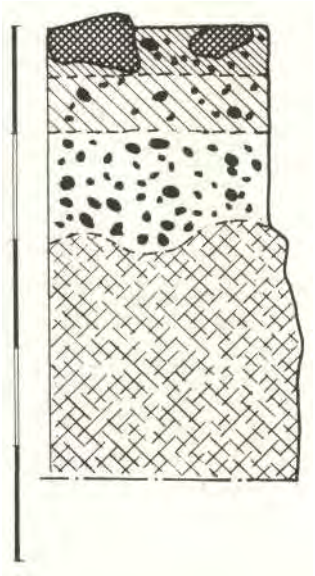


Profile SONDA 4

Sample N°		65	66	67	68
Depth in cm		0-15	15-30	30-65	65-120
Coarse elements	%	4	17	49	57
pH					
Water		5.40	5.63	6.03	6.10
KC1		4.67	4.91	5.11	5.23
ΔpH		0.73	0.72	0.92	0.87
Particle-size analysis					
Coarse sand	%	13.3	14.1	18.2	18.7
Fine sand	%	28.3	22.9	16.9	15.3
Coarse silt	%	10.9	9.7	6.7	6.3
Fine silt	%	18.6	10.2	7.9	8.7
Clay	%	28.8	43.0	50.2	50.9
Organic matter					
Carbon	%	3.41	1.97	1.25	1.08
Nitrogen	‰	2.00	1.46	1.10	0.63
Org. matter	%	5.87	3.39	2.15	1.86
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	9.6	7.5	5.0	3.9
Mg	meq/l00g	1.9	1.9	1.8	2.2
Na	meq/l00g	0.0	0.0	0.0	0.0
K	meq/l00g	0.1	0.2	0.1	0.1
S=**Σ**	meq/l00g	11.6	9.6	6.9	6.2
Exch. cap.	**meq/l00g**	19.6	14.3	10.4	10.5
Base saturation	%	59	. 67	66	59
Exch. acid el. by KC1 N					
Al	meq/l00g				
Mn	meq/l00g				
ECEC	meq/l00g				
Al sat % (Exch.Al/ECEC)					
Triacid analysis					
Fire loss	%	11.3	9.7	9.4	9.1
Quartz+insol.	%	44.9	39.9	30.1	25.8
SiO2	%	19.2	21.1	25.8	26.0
A12O3	%	13.2	16.1	19.6	19.8
Fe2O3	%	11.4	10.5	11.4	19.0
TiO2	%	1.1	1.0	1.0	1.0
MnO	%	0.2	0.2	0.2	0.1
MgO	%	0.3	0.4	0.4	0.4
CaO	%	0.3	0.2	0.2	0.1
K2O	%				
Na2O	%				
P2O5	%	0.1	0.1	0.1	0.1
Total	%	102.0	99.2	98.2	101.4
Ki = SiO2/A12O3 (molec.)		2.47	2.23	2.24	2.23
CEC me / l00g of clay		68.1	33.3	20.7	20.6

LVI RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile : SIGGA
Village / Location : Hosur
Coordinates : Long.: 75° 11' 05" E; Lat.: 14° 18' 10" N; Alt: 670 m.
Vegetation : Dry deciduous forest,
Geology : Dharwar schists,
Landscape unit : 10a, degraded intermediate levels, convexo-concave relief with large extension of the upper convexities,
Classification : Soil Taxonomy: Lithic Haplustalf, French Classification: Ferrallitic soil, weakly desaturated in B, reworked, indurated.



From 0 to 10 cm. Dry. Dark yellowish brown (10YR 3/4) moist. Humus. No effervescence. 80% of coarse elements, gravels and boulders of ironstone. Moderate subangular blocky structure, 10 mm size, associated with massive structure with blunt chippings. Coherent, plastic, fragile. Sandy clay loam with coarse sand. Very porous. Plentiful roots. Smooth transition in 4 cm.

From 10 to 20 cm. Dry. Dark brown (7.5YR 4/4) moist. Humus. No effervescence. 30% of coarse elements, gravels and cobbles of ironstone. Massive structure with blunt chippings. Coherent, plastic, fragile. Clay loam with coarse sand. Porous. Many roots. Smooth transition in 2 cm.

From 20 to 40 cm. Dry. Dark brown (7.5YR 4/4) moist. Non organic. No effervescence. 80% of coarse elements, gravels and boulders of ironstone. Massive structure with blunt chippings. Coherent, plastic, fragile. Clay loam with coarse sand. Porous. Few roots. Irregular transition in 1 cm.

From 40 to 90 cm and more. Dry. Yellowish red (5YR 4/6) moist. Vesicular ironstone.

Profile SIGGA

Sample N°		256	257	258	259
Depth in cm		0-10	10-20	20-40	>40
Coarse elements	%	55	21	62	laterite
pH					
Water		6.03	5.82	5.81	
KC1		5.43	5.15	5.06	
ΔpH		0.60	0.67	0.75	
Particle-size analysis					
Coarse sand	%	26.0	18.2	18.6	
Fine sand	%	19.7	21.0	16.2	
Coarse silt	%	11.5	12.7	10.6	
Fine silt	%	19.4	18.4	16.4	
Clay	%	23.3	29.6	38.2	
Organic matter					
Carbon	%	2.27	2.21	1.40	
Nitrogen	‰	1.50	1.48	0.91	
Org. matter	%	3.90	3.80	2.41	
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	8.9	9.0	8.0	
Mg	meq/l00g	2.4	2.1	2.3	
Na	meq/l00g	0.1	0.0	0.1	
K	meq/l00g	0.7	0.4	0.4	
S=Σ	meq/l00g	12.1	11.5	10.8	
Exch. cap.	**meq/l00g**	13.9	13.5	13.2	
Base saturation	%	87	85	82	
Exch. acid el. by KC1 N					
Al	meq/l00g				
Mn	meq/l00g				
ECEC	meq/l00g				
Al sat % (Exch.Al/ECEC)					
Triacid analysis					
Fire loss	%	12.1	8.2	9.2	11.1
Quartz+insol.	%	42.1	52.0	38.7	7.5
SiO2	%	14.9	13.1	18.6	12.4
A12O3	%	13.6	11.9	15.3	15.1
Fe2O3	%	17.6	11.4	15.7	48.6
TiO2	%	1.1	1.1	1.0	0.4
MnO	%	0.4	0.1	0.1	0.4
MgO	%	0.3	0.3	0.4	0.3
CaO	%	0.3	0.3	0.3	0.1
K2O	%				
Na2O	%				
P2O5	%	0.1	0.1	0.1	0.1
Total	%	102.5	98.5	99.4	96.0
Ki = SiO2/A12O3 (molec.)		1.86	1.87	2.07	1.40
CEC me / l00g of clay		59.7	45.6	34.6	

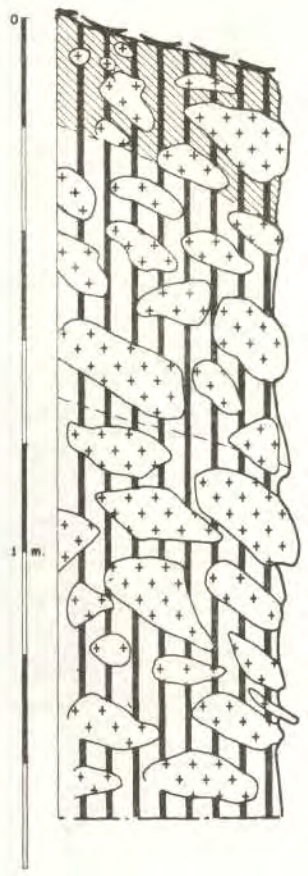
LVIII RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile : MERC 2
Village / Location : Patti
Coordinates : Long.: 75° 28' 27" E; Lat.: 12° 25' 57" N; Alt**.:** 650 m.
Vegetation : Evergreen forest,
Geology : Charnockite,
Landscape unit : 3, Ghats,
Classification : Soil Taxonomy: Typic Kandiudalf, French Classification: Ferrallitic soil, moderately desaturated in B, rejuvenated, reworked.

From 0 to 20 cm. Slightly moist. Yellowish red (5YR 4/6) moist. Humus. No effervescence. 70% of coarse elements, cobbles and gravels of weathered charnockite. Moderate subangular blocky structure, 10 mm size with granular substructure less than 1 mm size. Coherent, plastic, very friable. Clay loam with coarse sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 20 to 70 cm. Moist. Yellowish red (5YR 4/6) moist. Non organic. No effervescence. 80% of coarse elements, stones, cobbles and gravels of weathered charnockite. Massive structure with blunt chippings. Coherent, very plastic, very friable. Clay with coarse sand. Porous. Many roots. Smooth transition in 10 cm.

From 70 to 150 cm and more. Moist. Yellowish red (5YR 4/6) moist. Non organic. No effervescence. 80% of coarse elements, stones, cobbles and gravels of weathered charnockite. Massive structure with blunt chippings. Coherent, very plastic, very friable. Clay with coarse sand. Very porous. Many roots.



Profile MERC 2

Sample N°		792	793	794
Depth in cm		0-20	50-60	90-100
Coarse elements	%	43	44	49
pH				
Water		5.92	5.65	5.50
KC1		5.14	5.26	5.44
ΔpH		0.78	0.39	0.06
Particle-size analysis				
Coarse sand	%	22.3	19.5	24.2
Fine sand	%	113	8.9	9.2
Coarse silt	%	6.6	4.1	4.3
Fine silt	%	24.2	16.2	14.2
Clay	%	35.6	51.3	48.1
Organic matter				
Carbon	%	2.95	0.86	0.49
Nitrogen	‰	2.88	1.26	
Org. matter	%	5.07	1.48	0.84
Carbonates : **CaCO3** %				
Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	6.0	1.9	1.4
Mg	meq/l00g	1.6	0.7	0.6
Na	meq/l00g	0.0	0.0	0.0
K	meq/l00g	0.3	0.2	0.1
S=**Σ**	meq/l00g	7.9	2.8	2.1
Exch. cap.	**meq/l00g**	16.5	7.3	5.5
Base saturation	%	48	38	38
Exch. acid el. by KC1 N				
Al	meq/l00g			
Mn	meq/l00g			
ECEC	meq/l00g			
Al sat % (Exch.Al/ECEC)				
Triacid analysis				
Fire loss	%	14.9	12.3	13.2
Quartz+insol.	%	33.6	31.6	22.3
SiO2	%	16.8	19.6	17.2
A12O3	%	13.6	16.6	24.2
Fe2O3	%	17.2	17.2	19.4
TiO2	%	0.9	0.8	0.9
MnO	%	0.3	0.2	0.2
MgO	%	0.6	0.4	0.3
CaO	%	0.2	0.0	0.4
K2O	%	0.4	0.4	0.4
Na2O	%	0.0	0.1	0.1
P2O5	%	0.1	0.1	0.1
Total	%	98.6	99.3	98.7
Ki = SiO2/A12O3 (molec.)		2.10	2.01	1.21
CEC me / l00g of clay		46.3	14.2	11.4

Profile **:** NRD 1
Village / Location : Niragod
Coordinates : Long.: 74° 38' 20" E; Lat.: 14° 20' 25" N; Alt.: 440 m.
Vegetation : Evergreen forest,
Geology : Dharwar schists,
Landscape unit : 8**,** strongly dissected intermediate levels,
Classification : Soil Taxonomy: Mollic Kandiudalf, French Classification: Ferrallitic soil, Weakly desaturated in B, rejuvenated, reworked.

From 0 to 10 cm. Moist. Dark yellowish brown (10YR 3/4) moist. Humus. No effervescence. 50% of coarse elements, gravels of highly weathered schist. Moderate subangular blocky structure, 8 mm size. Coherent, plastic, friable. Clay loam with fine sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 10 to 30 cm. Moist. Dark yellowish brown (10YR 4/6) moist. Humus. No effervescence. 50% of coarse elements, cobbles and gravels of highly weathered schist. Massive structure with blunt chippings. Coherent, plastic, friable. Clay loam with fine sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

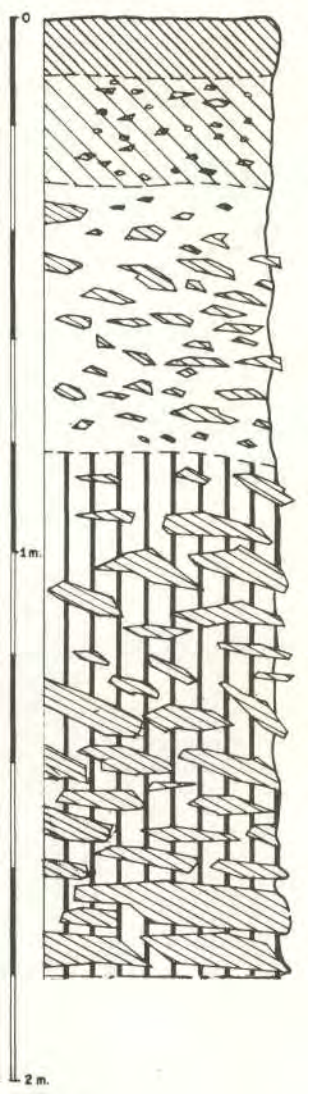
From 30 to 80 cm. Moist. Strong brown (7.5YR 5/6) moist. Non organic. No effervescence. 80% of coarse elements, stones, cobbles and gravels of highly weathered schist. Massive structure with blunt chippings. Coherent, plastic, very friable. Clay loam with fine sand. Very porous. Many roots. Smooth transition in 10 cm.

From 80 to 180 cm and more. Moist Yellowish red (5YR 5/8) moist. Non organic. No effervescence. 80% of coarse elements, stones, cobbles and gravels of highly weathered schist. Massive structure with blunt chippings. Coherent, plastic, very friable. Clay loam with fine sand. Very porous. Many roots.

< 2 µm fraction mineralogy.

Sample n° 282:

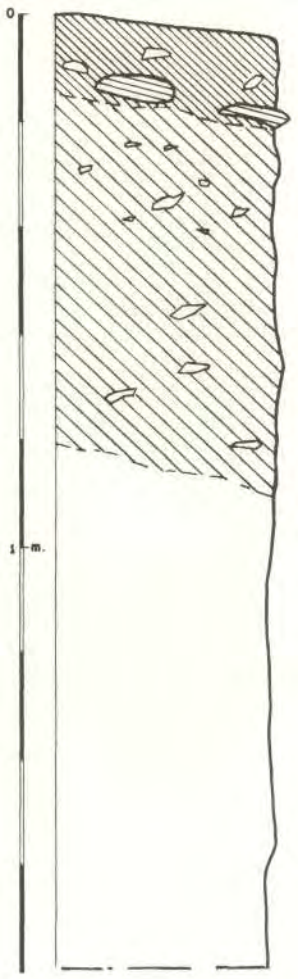
- Kaolinite +++
- Gibbsite +



Profile NRD 1

Sample N°		279	280	281	282
Depth in cm		0-10	10-30	30-80	150
Coarse elements	%	48	46	67	64
pH					
Water		5.77	5.63	5.21	5.18
KC1		5.37	5.05	4.79	4.97
ΔpH		0.40	0.58	0.42	0.21
Particle-size analysis					
Coarse sand	%	13.9	12.5	10.5	12.1
Fine sand	%	26.5	26.9	20.9	21.5
Coarse silt	%	10.9	11.6	12.9	13.2
Fine silt	%	19.6	20.5	18.4	19.6
Clay	%	29.1	28.5	37.3	33.5
Organic matter					
Carbon	%	5.29	2.64	1.17	
Nitrogen	‰	3.21	1.58	0.71	
Org. matter	%	9.10	4.54	2.01	
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	11.1	3.5	2.0	2.1
Mg	meq/l00g	2.6	1.2	0.7	0.6
Na	meq/l00g	0.2	0.2	0.0	0.3
K	meq/l00g	0.3	0.2	0.2	0.2
S=Σ	meq/l00g	14.2	5.1	2.9	3.2
Exch. cap.	**meq/l00g**	15.4	8.4	6.2	4.8
Base saturation	%	92	61	47	67
Exch. acid el. by KC1 N					
Al	meq/l00g				
Mn	meq/l00g				
ECEC	meq/l00g				
Al sat % (Exch.Al/ECEC)					
Triacid analysis					
Fire loss	%	14.9	10.0	8.7	8.5
Quartz+insol.	%	46.9	45.4	38.2	32.8
SiO2	%	12.1	15.3	18.7	21.3
A12O3	%	12.7	13.2	16.5	18.6
Fe2O3	%	11.0	10.5	13.3	14.8
TiO2	%	1.1	1.2	1.2	1.1
MnO	%	0.1	0.1	0.1	0.1
MgO	%	0.6	0.6	0.5	0.5
CaO	%	0.4	0.1	0.1	0.1
K2O	%				
Na2O	%				
P2O5	%	0.1	0.1	0.0	0.0
Total	%	99.9	96.5	97.3	97.8
Ki = SiO2/A12O3 (molec.)		1.62	1.97	1.93	1.95
CEC me / l00g of clay		52.9	29.5	16.6	14.3

Profile : BHAT 4
Village / Location : Valur
Coordinates : Long.: 74° 51' 00" E; Lat.: 13° 53' 20" N; Alt.: 590 m.
Vegetation : Evergreen forest,
Geology : Dharwar schists,
Landscape unit : 3, Ghats,
Classification : Soil Taxonomy: Typic Kanhapludalf, French Classification: Ferrallitic soil moderately desaturated in B, typic.



From 0 to 15 cm. Dry. Reddish brown (5YR 4/4) moist. Humus. No effervescence. 40% of coarse elements, cobbles of weathered schist. Strong subangular blocky structure 12 mm size, associated with crumb structure 3 mm size. Coherent, plastic, fragile. Clay with fine sand. Very porous. Plentiful roots. Smooth transition in 3 cm.

From 15 to 80 cm. Dry. Yellowish brown (5YR 4/6) moist. Humus. No effervescence. 30% of coarse elements, cobbles and gravels of weathered schist. Strong subangular blocky structure 12 mm size. Coherent, plastic, fragile. Clay with fine sand. Very porous. Many roots. Smooth transition in 10 cm.

From 80 to 180 cm and more. Dry. Yellowish brown (5YR 5/6) moist. Non organic. No effervescence. No coarse element. Strong blocky structure 6 mm size. Coherent, plastic, fragile. Silty clay with fine sand. Very porous. Many roots.

< 2 µm fraction mineralogy.

Sample n°478:
- Kaolinite +++
- Vermiculite +
- (10-14)C +

Sample n°479:
- Kaolinite +++
- Vermiculite +
- Gibbsite +
- (10-14)C tr.

Profile BHAT 4

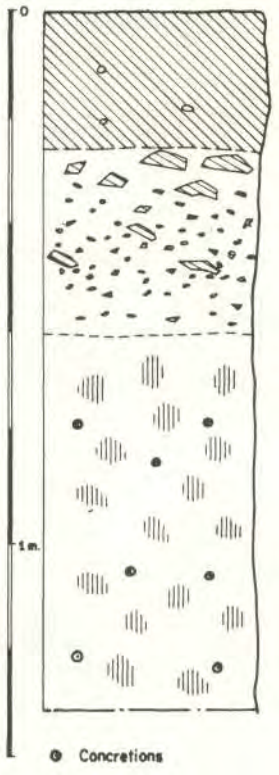
Sample N°		477	478	479
Depth in cm		0-15	-60-	-120-
Coarse elements	%	37	17	0
pH				
Water		5.90	5.41	6.30
KC1		5.40	5.86	6.00
ΔpH		0.50	-0.45	0.30
Particle-size analysis				
Coarse sand	%	8.2	4.9	4.6
Fine sand	%	5.2	4.8	5.9
Coarse silt	%	4.8	4.9	7.9
Fine silt	%	30.2	25.5	39.8
Clay	%	51.6	59.8	41.7
Organic matter				
Carbon	%	4.43	1.01	0.43
Nitrogen	‰	3.39	1.06	0.28
Org. matter	%	7.61	1.73	0.73
Carbonates : **CaCO3** %				
Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	7.4	2.5	2.7
Mg	meq/l00g	2.0	1.1	0.8
Na	meq/l00g	0.1	0.0	0.4
K	meq/l00g	0.5	0.2	0.2
S=**Σ**	meq/l00g	10.0	3.8	4.1
Exch. cap.	**meq/l00g**	14.9	7.4	10.2
Base saturation	%	67	51	40
Exch. acid el. by KC1 N				
Al	meq/l00g			
Mn	meq/l00g			
ECEC	meq/l00g			
Al sat % (Exch.Al/ECEC)				
Triacid analysis				
Fire loss	%	19.7	15.2	15.8
Quartz+insol.	%	10.7	8.8	5.7
SiO2	%	19.1	16.1	14.5
A12O3	%	29.1	30.6	33.1
Fe2O3	%	21.0	28.6	28.6
TiO2	%	0.7	0.9	1.9
MnO	%	0.2	0.2	0.2
MgO	%	0.6	0.5	0.2
CaO	%	0.3	0.4	0.2
K2O	%			
Na2O	%			
P2O5	%	0.2	0.1	0.1
Total	%	101.6	101.4	100.3
Ki = SiO2/A12O3 (molec.)		1.12	0.89	0.74
CEC me / l00g of clay		28.9	12.4	24.5

Profile : MAGOD
Village / Location : Magod
Coordinates : Long.: 74° 44' 55" E; Lat.: 14° 51' 10" N; Alt.: 480 m.
Vegetation : Evergreen forest,
Geology : Dharwar schists,
Landscape unit : 8, strongly dissected intermediate levels,
Classification : Soil Taxonomy: Kanhaplic Hapludalf, French Classification: Ferrallitic soil, weakly desaturated in B, reworked, impoverished.

From 0 to 30 cm. Slightly moist. Dark brown (7.5YR 3/2) moist. Humus. No effervescence. No coarse element. Massive structure with angular chippings. Coherent, plastic, very friable. Clay loam with fine sand. Slightly porous. Many roots. Smooth transition in 1 cm.

From 30 to 60 cm. Slightly moist. Strong brown (7.5YR 5/6) moist. Non organic. No effervescence. 80% of coarse elements, gravels and cobbles of highly weathered schist. Massive structure with angular chippings. Coherent, plastic, very friable. Clay with fine sand. Porous. Many roots. Smooth transition in 10 cm.

From 60 to 130 cm and more. Moist. Strong brown (7.5YR 5/6) moist. Common oxidation mottles, red (2.5YR 4/8). Non organic. No effervescence. Oxy-hydroxides of iron as concretions. No coarse element. Massive structure with angular chippings associated with weak subangular blocky structure, 10 mm size. Coherent, plastic, very friable. Clay loam with fine sand. Porous. Few roots.



Profile MAGOD

Sample N° **Depth in cm**		410 0-30	411 -50-	412 -110-
Coarse elements	%	5	71	3
pH				
Water		5.35	5.80	5.38
KC1		4.42	5.22	4.10
ΔpH		0.93	0.58	1.28
Particle-size analysis				
Coarse sand	%	11.6	10.0	9.0
Fine sand	%	27.2	16.3	21.2
Coarse silt	%	13.2	11.3	13.1
Fine silt	%	15.2	15.1	26.7
Clay	%	32.7	47.2	30.0
Organic matter				
Carbon	%	2.28	0.62	0.31
Nitrogen	‰	1.55	0.49	0.14
Org. matter	%	3.92	1.07	0.53
Carbonates : **CaCO3** % Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	5.0	4.3	2.8
Mg	meq/l00g	1.0	1.6	1.4
Na	meq/l00g	0.0	0.0	0.0
K	meq/l00g	0.1	0.0	0.1
S=**Σ**	meq/l00g	6.1	5.9	4.3
Exch. cap.	**meq/l00g**	12.2	9.6	8.2
Base saturation	%	50	61	52
Exch. acid el. by KC1 N				
Al	meq/l00g	0.2	0.0	0.5
Mn	meq/l00g	0.0	0.0	0.1
ECEC	meq/l00g	6.3	5.9	4.9
Al sat % (Exch.Al/ECEC)		3	0	10
Triacid analysis				
Fire loss	%	9.4	8.4	7.3
Quartz+insol.	%	50.2	32.7	36.3
SiO2	%	16.7	23.5	23.9
A12O3	%	10.8	17.0	18.1
Fe2O3	%	7.6	12.4	8.6
TiO2	%	0.9	0.6	0.6
MnO	%	0.2	0.1	0.1
MgO	%	0.6	0.7	0.7
CaO	%	0.2	0.1	0.1
K2O	%			
Na2O	%			
P2O5	%	0.0	0.0	0.0
Total	%	96.6	95.5	95.7
Ki = SiO2/A12O3 (molec.)		2.63	2.35	2.24
CEC me / l00g of clay		37.3	20.3	27.3

Profile **:** KANK 2
Village / Location : Mani
Coordinates **:** Long.: 74° 09' 30" E; Lat.: 15° 41' 10" N; Alt.: 790 m.
Vegetation : Grassland,
Geology : Deccan basalts,
Landscape unit : 5b, moderately dissected intermediate levels on basalts,
Classification : Soil Taxonomy: Typic Ustropept, French Classification: Ferrallitic soil, Weakly desaturated in B, rejuvenated.

From 0 to 10 cm. Dry. Yellowish red (5YR 4/6) moist. Humus. No effervescence. 60% of coarse elements, stones and cobbles of highly weathered basalt. Weak subangular blocky structure, 15 mm size. Coherent, plastic, fragile. Loam with medium sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

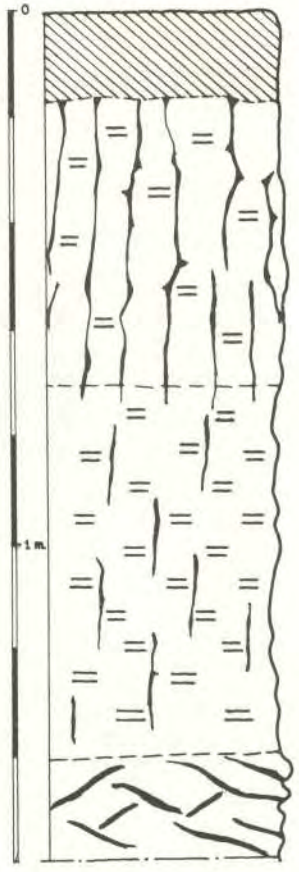
From 10 to 60 cm. Dry. Yellowish red (5YR 4/6) moist. Humus. No effervescence. 80% of coarse elements, cobbles of highly weathered basalt. Weak subangular blocky structure, 15 mm size, associated with massive structure with angular chippings. Coherent, plastic, fragile. Clay loam with fine sand. Very porous. Plentiful roots. Smooth transition in 10 cm.

From 60 to 100 cm and more. Dry. Yellowish red (5YR 4/6) moist. Non organic. No effervescence. 80% of coarse elements, boulders and stones of highly weathered basalt. Massive structure with angular chippings. Coherent, plastic, fragile. Clay loam with fine sand. Very porous. Many roots.

Profile KANK 2

Sample N° **Depth in cm**		455 0-10	456 -50-	457 -80-
Coarse elements	%	8	19	30
pH				
Water		5.20	5.45	5.95
KC1		4.65	5,00	5.10
ΔpH		0.55	0.45	0.85
Particle-size analysis				
Coarse sand	%	21.8	10.8	14.6
Fine sand	%	27.1	21.1	22.0
Coarse silt	%	15.4	13.3	12.8
Fine silt	%	18.0	22.3	20.8
Clay	%	17.7	32.5	29.7
Organic matter				
Carbon	%	1.72	0.80	0.43
Nitrogen	‰	1.19	0.53	0.42
Org. matter	%	2.96	1.38	0.74
Carbonates : **CaCO3** % Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	2.0	9.2	8.0
Mg	meq/l00g	3.0	4.6	4.7
Na	meq/l00g	0.0	0.0	0.1
K	meq/l00g	0.2	0.1	0.1
S=**Σ**	meq/l00g	5.2	13.9	12.9
Exch. cap.	**meq/l00g**	23.1	20.0	21.5
Base saturation	%	23	70	60
Exch. acid el. by KC1 N				
Al	meq/l00g	0.2	0.0	0.0
Mn	meq/l00g	0.1	0.1	0.0
ECEC	meq/l00g	5.5	14.0	12.9
Al sat % (Exch.Al/ECEC)		4	0	0
Triacid analysis				
Fire loss	%	13.3	12.1	11.4
Quartz+insol.	%	2.2	0.9	0.7
SiO2	%	23.7	30.0	27.7
A12O3	%	23.8	25.3	26.5
Fe2O3	%	32.0	28.6	30.6
TiO2	%	4.1	2.9	3.0
MnO	%	0.3	0.2	0.4
MgO	%	0.6	0.6	0.5
CaO	%	0.3	0.3	0.2
K2O	%			
Na2O	%			
P2O5	%	0.4	0.3	0.3
Total	%	100.7	101.2	101.3
Ki = SiO2/A12O3 (molec.)		1.69	2.02	1.78
CEC me / l00g of clay		130.5	61.5	72.4

Profile : GU 06
Village / Location : Mukahalli
Coordinates : Long.: 76° 36' 30" E; Lat.: 11° 49' 20" N; Alt.: 845 m.
Vegetation : Field,
Geology : Gneissic complex,
Landscape unit : Glacis,
Classification : Soil Taxonomy: Typic Ustropept, French Classification: Poorly developed Soil on recent material.



From 0 to 15 cm. Slightly moist. Very dark grayish brown (10YR 3/2) moist. Humus. Strong, generalized effervescence. No coarse element. Moderate subangular blocky structure, 10 mm size. Coherent, plastic, very friable. Loam with fine sand. Very porous. Many roots. Smooth transition in 5 cm.

From 15 to 70 cm. Dry. Very dark grayish brown (10YR 3/2) moist. Non organic. Strong, generalized effervescence. Some calci-magnesic elements as nodules. No coarse element. Prismatic structure, 50 mm size with cubic substructure, 10 mm size. Coherent, plastic, non fragile. Sandy loam with coarse sand. Very porous. Many roots. Smooth transition in 10 cm.

From 70 to 140 cm. Dry. Very dark grayish brown (10YR 3/2) moist. Non organic. Strong, generalized effervescence. Some calci-magnesic elements as nodules. No coarse element. Blocky structure, 50 mm size. Coherent, plastic, non fragile. Sandy loam with coarse sand. Cracks, 5 mm width, spaced of 5 cm. Porous. Very few roots. Smooth transition in 2 cm.

From 140 to 160 cm and more. Slightly moist. Very dark grayish brown (2.5Y 3/2) moist. Non organic. Moderate, generalized effervescence. No coarse element. Platy oblique structure, 30 mm size. Coherent, plastic, non friable. Loam with fine sand.Cracks, 5 mm width, spaced of 5 cm. Slickensides. Slightly porous. Very few roots.

< 2 µm fraction mineralogy.

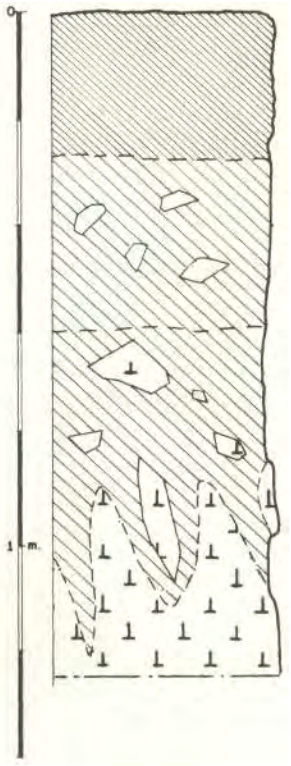
Sample n° 176:

- (10-14)Sm +++
- Kaolinite tr.
- Illite tr.

Profile GU 06

Sample N°		173	174	175	176
Depth in cm		0-15	15-70	70-140	140-160
Coarse elements	%	8	5	4	3
pH					
Water		8.08	8.07	8.23	8.44
KC1		7.20	7.22	7.45	7.40
ΔpH		0.88	0.85	0.78	1.04
Particle-size analysis					
Coarse sand	%	18.2	27.8	32.7	15.2
Fine sand	%	22.4	25.6	27.8	28.8
Coarse silt	%	7.9	6.2	10.0	13.3
Fine silt	%	28.3	18.7	17.7	29.1
Clay	%	23.1	21.7	11.7	13.5
Organic matter					
Carbon	%	1.17	0.57	0.28	0.21
Nitrogen	‰	0.92	0.63	0.46	0.52
Org. matter	%	2.01	0.98	0.48	0.36
Carbonates : **CaCO3** %		4.5	3.5	6.0	2.5
Exch. Ca for calcareous soils		12.1	8.8	4.4	3.9
Exchangeable bases					
Ca	meq/l00g	>30.0	>30.0	16.3	10.7
Mg	meq/l00g	5.1	5.7	13.8	18.7
Na	meq/l00g	0.0	0.0	0.4	0.9
K	meq/l00g	0.6	0.4	0.5	0.4
S=**Σ**	meq/l00g	>40.0	>40.0	31.0	30.7
Exch. cap.	**meq/l00g**	30.4	22.6	22.5	27.1
Base saturation	%	>100	>100	>100	>100
Exch. acid el. by KC1 N					
Al	meq/l00g				
Mn	meq/l00g				
ECEC	meq/l00g				
Al sat % (Exch.Al/ECEC)					
Triacid analysis					
Fire loss	%	6.5	6.5	8.9	4.6
Quartz+insol.	%	48.6	58.1	55.4	86.8
SiO2	%	26.8	19.9	22.3	5.9
A12O3	%	6.4	6.6	7.2	2.1
Fe2O3	%	4.3	3.3	2.9	0.5
TiO2	%	0.4	0.5	0.6	0.2
MnO	%	0.1	0.1	0.1	0.1
MgO	%	2.1	0.8	1.3	0.3
CaO	%	3.9	3.1	1.6	0.4
K2O	%				
Na2O	%				
P2O5	%	0.0	0.0	0.0	0.0
Total	%	99.1	98.9	100.3	100.9
Ki = SiO2/A12O3 (molec.)		7.12	5.13	5.27	4.78
CEC me / l00g of clay		131.6	104.1	192.3	200.7

Profile : GP 02
Village / Location : Gopalapur
Coordinates : Long.: 76° 35' 50" E; Lat: 11° 43' 10" N; Alt.: 1100 m.
Vegetation : Dry deciduous forest,
Geology : Gneissic complex,
Landscape unit : 13, slope,
Classification : Soil Taxonomy: Typic Ustropept, French Classification: Tropical brown eutrophic soil.



From 0 to 30 cm. Dry. Very dark brown (10YR 2/2) moist. Humus. No effervescence. 10% of coarse elements, gravels of quartz. Moderate subangular blocky structure, 5 mm size. Coherent, plastic, fragile. Sandy clay loam with coarse sand. Very porous. Many roots. Smooth transition in 5 cm.

From 30 to 60 cm. Dry. Dark brown (7.5YR 3/2) moist. Little organic matter. No effervescence. 15% of coarse elements, gravels of quartz. Massive structure with blunt chippings. Coherent, plastic, fragile. Sandy clay loam with coarse sand. Very porous. Many roots. Smooth transition in 5 cm.

From 60 to 100 cm. Dry. Dark reddish brown (5YR 3/3) moist. Little organic matter. No effervescence. 40% of coarse elements, gravels of quartz and cobbles of weathered gneiss. Massive structure with blunt chippings. Coherent, plastic, very fragile. Sandy clay loam with coarse sand. Very porous. Many roots. Irregular transition in 1 cm.

From 100 to 160 cm and more. Dry. White (10YR 8/1) moist. Non organic. No effervescence. 10% of coarse elements, gravels of quartz. Massive structure with angular chippings. Coherent, no plastic, very fragile. Coarse sand. Porous. Very few roots.

< 2 µm fraction mineralogy.

Sample n° 151:
- Kaolinite +
- Chlorite +
- (10-14)Sm +
- Illite +

Sample n° 152:
- Kaolinite ++
- Illite +
- Chlorite +
- (10-14)Sm +

Profile GP 02

Sample N° **Depth in cm**		149 0-30	150 30-60	151 60-100	152 100-140
Coarse elements	%	8	14	28	12
pH					
Water		6.58	6.62	6.82	6.80
KC1		5.82	6.26	5.65	5.40
ΔpH		0.76	0.36	1.17	1.40
Particle-size analysis					
Coarse sand	%	40.8	40.2	47.9	74.9
Fine sand	%	21.0	17.0	16.0	14.6
Coarse silt	%	7.3	7.1	6.2	3.0
Fine silt	%	9.0	8.8	8.0	5.4
Clay	%	21.9	26.8	21.9	2.0
Organic matter					
Carbon	%	2.45	1.49	1.17	0.28
Nitrogen	‰	1.79	1.15	0.71	0.06
Org. matter	%	4.21	2.56	2.01	0.48
Carbonates : **CaCO3** % Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	14.6	12.0	10.9	2.7
Mg	meq/l00g	3.0	3.5	2.5	0.6
Na	meq/l00g	0.0	0.1	0.1	0.1
K	meq/l00g	0.1	0.1	0.1	0.0
S=**Σ**	meq/l00g	17.7	15.7	13.6	3.4
Exch. cap.	**meq/l00g**	14.6	15.3	10.9	3.3
Base saturation	%	>100	>100	>100	>100
Exch. acid el. by KC1 N					
Al	meq/l00g				
Mn	meq/l00g				
ECEC	meq/l00g				
Al sat % (Exch.Al/ECEC)					
Triacid analysis					
Fire loss	%		7.5	6.8	
Quartz+insol.	%		62.0	61.9	
SiO2	%		14.2	14.5	
A12O3	%		7.9	7.6	
Fe2O3	%		5.7	5.7	
TiO2	%		1.0	0.9	
MnO	%		0.1	0.1	
MgO	%		0.8	0.5	
CaO	%		0.3	0.3	
K2O	%				
Na2O	%				
P2O5	%		3.06	3.24	
Total	%		102.6	101.5	
Ki = SiO2/A12O3 (molec.)			3.06	3.24	
CEC me / l00g of clay		66.7	57.1	49.8	165.0

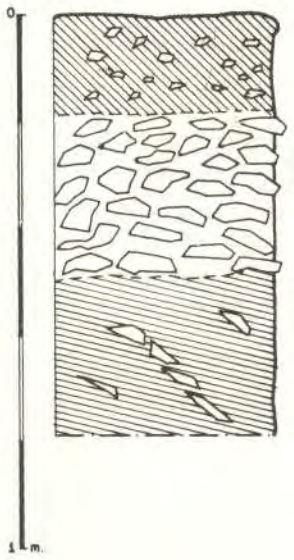
LXXII RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile : SHIGG 1
Village / Location : Govnal
Coordinates : Long.: 75° 25' 50" E; Lat.: 15° 04' 30" N; Alt.: 630 m.
Vegetation : Field,
Geology : Dharwar schists,
Landscape unit : 15, glacis,
Classification : Soil Taxonomy: Typic Ustropept, French Classification: Fersiallitic soil, impoverished.

From 0 to 18 cm. Dry. Reddish brown (5YR 4/4) moist. Humus. No effervescence. 70% of coarse elements, gravels of quartz. Massive structure with blunt chippings. Coherent, non plastic, slightly fragile. Sandy loam with medium sand. Porous. Many roots. Smooth transition in 2 cm.

From 18 to 50 cm. Dry. Dark reddish brown (5YR 3/3) moist. Non organic. No effervescence. 90% of coarse elements, cobbles of quartz. Massive structure with angular chippings. Coherent, plastic, fragile. Clay with coarse sand. Very porous. Many roots. Smooth transition in 2 cm.

From 50 to 80 cm and more. Weathered schist. Dry. Red (2.5YR 4/6) moist. Non organic. No effervescence. 25% of coarse elements, gravels and cobbles of quartz. Massive structure with angular chippings. Coherent, slightly plastic, fragile. Clay with fine sand. Slightly porous. Few roots.



< 2 µm fraction mineralogy.

Sample n° 565:

- Smectite ++
- Kaolinite +
- Chlorite +
- Illite +

Profile SHIGG 1

Sample N° **Depth in cm**		563 0-18	564 25-50	565 50-70
Coarse elements	%	78	63	15
pH				
Water		7.96	7.34	7.88
KC1		7.08	6.90	6.85
ΔpH		0.88	0.44	1.03
Particle-size analysis				
Coarse sand	%	33.1	18.0	6.8
Fine sand	%	27.6	9.6	17.3
Coarse silt	%	11.5	5.8	14.3
Fine silt	%	12.6	24.1	42.7
Clay	%	15.2	42.5	18.8
Organic matter				
Carbon	%	0.86	0.62	0.15
Nitrogen	‰	0.63	0.92	
Org. matter	%	1.48	1.07	0.26
Carbonates : **CaCO3** %				
Exch. Ca for calcareous soils		1.3	4.9	4.7
Exchangeable bases				
Ca	meq/l00g	11.7	29.7	30.3
Mg	meq/l00g	1.3	5.0	5.5
Na	meq/l00g	0.0	1.5	0.0
K	meq/l00g	0.5	0.5	0.2
S=**Σ**	meq/l00g	13.5	36.7	36.0
Exch. cap.	**meq/l00g**	10.1	26.6	24.9
Base saturation	%	>100	>100	>100
Exch. acid el. by KC1 N				
Al	meq/l00g			
Mn	meq/l00g			
ECEC	meq/l00g			
Al sat % (Exch.Al/ECEC)				
Triacid analysis				
Fire loss	%	3.7	8.4	6.6
Quartz+insol.	%	69.0	35.2	46.0
SiO2	%	10.3	23.9	18.3
A12O3	%	6.1	16.8	18.0
Fe2O3	%	9.1	11.9	8.1
TiO2	%	0.1	0.7	0.7
MnO	%	0.1	0.1	0.1
MgO	%	0.5	1.5	2.9
CaO	%	0.4	0.9	1.3
K2O	%			
Na2O	%			
P2O5	%	0.1	0.2	0.1
Total	%	99.4	99.6	102.1
Ki = SiO2/A12O3 (molec.)		2.87	2.42	1.73
CEC me / l00g of clay		66.4	62.6	132.4

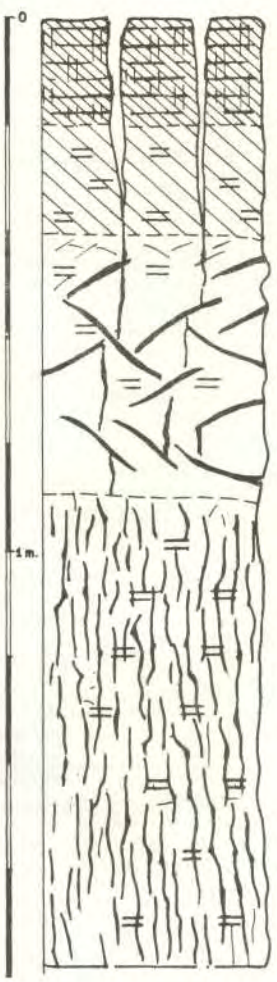
Profile **:** HUBLI 1
Village / Location : Sisvinhalli
Coordinates : Long.: 75° 18' 50" E; Lat.: 15° 25' 45" N; Alt.: 590 m.
Vegetation : Field,
Geology : Dharwar schist,
Landscape unit : 16a, clayey basin,
Classification : Soil Taxonomy: Vertic Ustropept, French Classification: Vertisol.

From 0 to 20 cm. Dry. Dark grayish brown (10YR 4/2) moist. Humus. Moderate, generalized effervescence. Some calci-magnesic elements as nodules. No coarse element. Moderate platy structure, 3 mm size. Coherent, very plastic, slightly fragile. Silt loam with fine sand. Cracks, 20 mm width, spaced of 25 cm. Porous. No roots. Smooth transition in 3 cm.

From 20 to 40 cm. Dry. Dark gray (10YR 4/1) moist. Humus. Moderate, generalized effervescence. Some calci-magnesic elements as nodules. No coarse element. Strong blocky structure, 15 mm size. Very coherent, very plastic, non fragile. Silt loam with fine sand. Slickensides. Cracks, 20 mm width, spaced of 25 cm. Porous. No roots. Smooth transition in 10 cm.

From 40 to 90 cm. Dry. Dark gray (10YR 4/1) moist. Non organic. Moderate, generalized effervescence. Some calci-magnesic elements as nodules. No coarse element. Strong blocky structure, 30 mm size. Very coherent, very plastic, non fragile. Silt loam with fine sand. Slickensides. Cracks, 10 mm width, spaced of 25 cm. Porous. No roots. Smooth transition in 10 cm.

From 90 to 180 cm and more. Dry. Light brownish gray (10YR 6/2) moist. Non organic. Strong, generalized effervescence. Many calci-magnesic elements as accumulations. No coarse element. Prismatic structure, 15 mm size. Very coherent, very plastic, slightly fragile. Silty clay with fine sand. Cracks, 2 mm width, spaced of 2.5 cm. Slightly porous. No roots.



Profile HUBLI 1

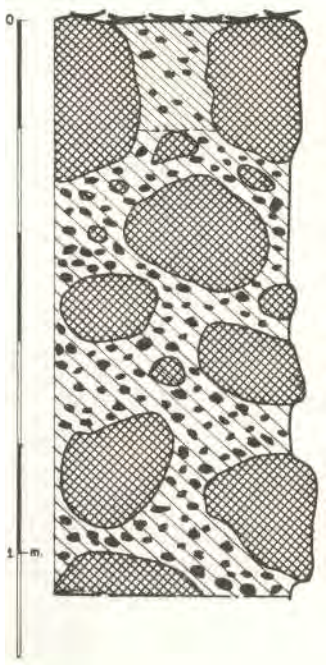
Sample N°		537	538	539
Depth in cm		0-20	40-60	130-140
Coarse elements	%	16	12	68
pH				
Water		8.70	8.72	8.50
KC1		6.97	7.04	7.10
ΔpH		1.73	1.68	1.40
Particle-size analysis				
Coarse sand	%	3.6	2.6	3.6
Fine sand	%	7.4	8.3	5.7
Coarse silt	%	14.3	9.5	3.3
Fine silt	%	48.5	58.8	45.3
Clay	%	26.2	20.7	42.1
Organic matter				
Carbon	%	2.77	1.17	0.46
Nitrogen	‰	0.50	0.95	0.45
Org. matter	%	4.76	2.01	0.79
Carbonates : **CaCO3** %		17.6	15.1	26.7
Exch. Ca for calcareous soils		10.1	8.5	5.8
Exchangeable bases				
Ca	meq/l00g	70.8	62.1	59.2
Mg	meq/l00g	15.1	19.6	19.1
Na	meq/l00g	6.2	11.6	12.0
K	meq/l00g	1.1	0.9	0.9
S=**Σ**	meq/l00g	93.2	94.2	91.2
Exch. cap.	**meq/l00g**	51.2	53.2	47.2
Base saturation	%	>100	>100	>100
Exch. acid el. by KC1 N				
Al	meq/l00g			
Mn	meq/l00g			
ECEC	meq/l00g			
Al sat % (Exch.Al/ECEC)				
Triacid analysis				
Fire loss	%	13.9	12.4	15.8
Quartz+insol.	%	20.1	20.1	16.7
SiO2	%	34.5	34.5	31.6
A12O3	%	12.7	13.0	11.3
Fe2O3	%	6.2	5.7	6.2
TiO2	%	0.6	0.9	0.7
MnO	%	0.0	0.2	0.2
MgO	%	3.6	3.8	3.3
CaO	%	8.0	6.5	13.1
K2O	%			
Na2O	%			
P2O5	%	0.0	0.1	0.2
Total	%	99.6	97.2	99.1
Ki = SiO2/A12O3 (molec.)		4.62	4.51	4.75
CEC me / l00g of clay		195.4	257.0	112.1

LXXVI RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile **:** SHIR 1
Village / Location : Degaon
Coordinates : Long.: 74° 20' 45" E; Lat.: 15° 33' 00" N;
Alt.: 770 m.
Vegetation : Evergreen forest *(Memecylon* type),
Geology : Dharwar schists,
Landscape unit : 6b, partially dissected intermediate levels on greywackes,
Classification : Soil Taxonomy: Typic Eutropept,
French Classification: Ferrallitic soil,
Weakly desaturated in B, humus-rich.

From 0 to 20 cm. Dry. Dark reddish brown (5YR 3/3) moist. Humus. No effervescence. 70% of coarse elements, gravels and boulders of ironstone. Moderate subangular blocky structure, 6 mm size. Coherent, plastic, fragile. Silty clay loam with medium sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 20 to 120 cm and more. Dry. Dark reddish brown (2.5YR 3/4) moist. Fairly rich in organic matter. No effervescence. 90% of coarse elements, gravels and boulders of ironstone. Massive structure with blunt chippings. Coherent, plastic, fragile. Silty clay loam with medium sand. Very porous. Plentiful roots.



< 2 µm fraction mineralogy.

Sample n° 461:
- Kaolinite ++
- Chlorite +
- Illite +
- (10-14)Sm +

Sample n° 462:
- Kaolinite ++
- Chlorite +
- (10-14)Sm +
- Illite +
- Gibbsite +

Profile SHIR 1

Sample N° **Depth in cm**		461 0-20	462 -60-	461 0-20	462 -60-
Coarse elements	%	47	80	gravels	gravels
pH					
Water		6.30	5.60		
KC1		5.35	4.80		
ΔpH		0.95	0.80		
Particle-size analysis					
Coarse sand	%	6.5	7.6		
Fine sand	%	6.7	12.7		
Coarse silt	%	6.7	11.9		
Fine silt	%	42.1	29.3		
Clay	%	37.9	38.4		
Organic matter					
Carbon	%	7.01	2.00		
Nitrogen	‰	6.16	1.99		
Org. matter	%	12.05	3.44		
Carbonates : **CaCO3** % Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	22.8	5.7		
Mg	meq/l00g	3.1	1.1		
Na	meq/l00g	0.0	0.0		
K	meq/l00g	0.9	0.5		
S=**Σ**	meq/l00g	26.8	7.3		
Exch. cap.	**meq/l00g**	31.1	14.0		
Base saturation	%	86	52		
Exch. acid el. by KC1 N					
Al	meq/l00g	0.0	0.0		
Mn	meq/l00g	0.0	0.0		
ECEC	meq/l00g	26.8	7.3		
Al sat % (Exch.Al/ECEC)		0	0		
Triacid analysis					
Fire loss	%	23.6	14.5	12.4	11.6
Quartz+insol.	%	8.6	5.5	0.5	0.1
SiO2	%	28.4	33.6	21.0	21.2
A12O3	%	23.3	30.2	20.8	23.6
Fe2O3	%	12.9	13.8	44.3	41.9
TiO2	%	1.7	2.1	1.2	1.5
MnO	%	0.3	0.3	0.1	0.1
MgO	%	1.4	1.2	0.2	0.6
CaO	%	0.8	0.2	0.0	0.0
K2O	%				
Na2O	%				
P2O5	%	0.3	0.3	0.1	0.1
Total	%	101.3	101.7	100.6	100.7
Ki = SiO2/A12O3 (molec.)		2.07	1.89	1.72	1.53
CEC me / l00g of clay		82.1	36.5		

LXXVIII RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile : NAGUR 1
Village / Location : Santegadde
Coordinates : Long.: 74° 26' 50" E; Lat.: 14° 31' 50" N; Alt.: 100 m.
Vegetation : Evergreen forest,
Geology : Dharwar schists,
Landscape unit : 3, Ghats,
Classification : Soil Taxonomy: Typic Eutropept, French Classification: Ferrallitic soil, weakly desaturated in B, rejuvenated, reworked.

From 0 to 15 cm. Moist. Yellowish red (5YR 4/6) moist. Humus. No effervescence. 50% of coarse elements, cobbles of highly weathered schist and quartz. Massive structure with blunt chippings. Coherent, plastic, very friable. Sandy clay loam with coarse sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 15 to 80 cm. Moist. Red (2.5YR 4/8) moist. Non organic. No effervescence. 50% of coarse elements, stones and gravels of highly weathered schist and quartz. Massive structure with angular chippings. Coherent, plastic, very friable. Clay loam with coarse sand. Very porous. Plentiful roots. Wavy transition in 4 cm.

From 80 to 140 cm and more. Moist. Red (2.5YR 4/8) moist. Non organic. No effervescence. Weathered schist. Many roots.

Profile NAGUR 1

Sample N°		71	72	73
Depth in cm		0-15	-60-	-(40)-
Coarse elements	%	43	20	Weath. rock
pH				
Water		5.39	5.95	6.05
KC1		4.54	4.94	4.73
ΔpH		0.85	1.01	1.32
Particle-size analysis				
Coarse sand	%	30.6	35.5	
Fine sand	%	19.0	15.2	
Coarse silt	%	9.5	8.2	
Fine silt	%	14.9	15.7	
Clay	%	26.0	25.4	
Organic matter				
Carbon	%	2.52	0.69	
Nitrogen	‰	2.11	0.60	
Org. matter	%	4.33	1.19	
Carbonates : **CaCO3** %				
Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	3.8	2.8	2.8
Mg	meq/l00g	1.2	1.2	1.1
Na	meq/l00g	0.0	0.0	0.0
K	meq/l00g	0.3	0.3	0.3
S=**Σ**	meq/l00g	5.3	4.3	4.2
Exch. cap.	**meq/l00g**	10.4	6.8	6.7
Base saturation	%	51	63	63
Exch. acid el. by KC1 N				
Al	meq/l00g	0.1	0.1	0.1
Mn	meq/l00g	0.2	0.1	0.0
ECEC	meq/l00g	5.6	4.5	4.3
Al sat % (Exch.Al/ECEC)		2	2	2
Triacid analysis				
Fire loss	%	10.2	7.5	6.9
Quartz+insol.	%	47.6	40.7	47.3
SiO2	%	18.3	22.4	20.9
A12O3	%	14.4	17.2	17.8
Fe2O3	%	8.6	8.6	5.7
TiO2	%	0.9	0.1	0.3
MnO	%	0.1	0.1	0.0
MgO	%	0.3	0.3	0.2
CaO	%	0.1	0.1	0.1
K2O	%			
Na2O	%			
P2O5	%	0.1	0.1	0.1
Total	%	100.6	97.1	99.3
Ki = SiO2/A12O3 (molec.)		2.16	2.21	2.00
CEC me / l00g of clay		40.0	26.8	

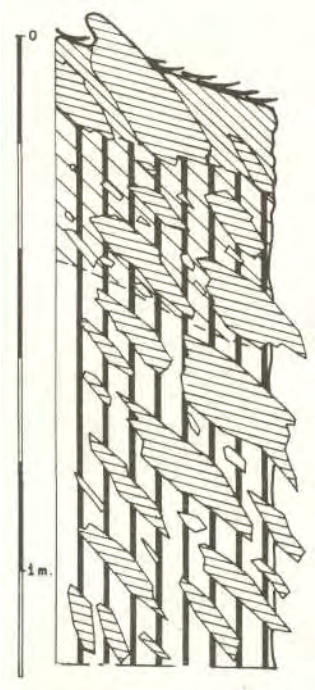
LXXX RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile **:** TSN 1
Village / Location : Tulsani
Coordinates : Long.: 74° 33' 25" E; Lat.: 14° 20' 35" N; Alt.: 110 m.
Vegetation : Evergreen forest,
Geology : Dharwar schists,
Landscape unit : 3, Ghats,
Classification : Soil Taxonomy: (Oxic) Eutropept, French Classification: Ferrallitic soil, weakly desaturated in B, rejuvenated, reworked.

From 0 to 10 cm. Slightly moist. Dark brown (7.5YR 4/4) moist. Humus. No effervescence. 50% of coarse elements, cobbles and gravels of highly weathered schist. Moderate crumb structure, 5 mm size. Coherent, plastic, very friable. Clay with medium sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 10 to 40 cm. Moist. Yellowish red (5YR 5/6) moist. Humus. No effervescence. 80% of coarse elements, cobbles and gravels of highly weathered schist. Moderate subangular blocky structure, 8 mm size. Coherent, plastic, very friable. Clay with medium sand. Very porous. Plentiful roots. Smooth transition in 10 cm.

From 40 to 120 cm and more. Moist. Yellowish red (5YR 5/8) moist. Non organic. No effervescence. 80% of coarse elements, stones, cobbles and gravels of highly weathered schist. Weak subangular blocky structure, 8 mm size. Coherent, plastic, very friable. Clay loam with fine sand. Very porous. Many roots.



Profile TSN 1

Sample N° **Depth in cm**		283 0-10	284 10-40	285 40-120
Coarse elements	%	50	46	48
pH				
Water		5.64	5.27	5.51
KC1		5.28	5.13	5.59
ΔpH		0.36	0.14	-0.08
Particle-size analysis				
Coarse sand	%	19.9	10.5	12.6
Fine sand	%	12.2	9.8	10.9
Coarse silt	%	7.2	7.1	8.0
Fine silt	%	19.8	19.0	32.7
Clay	%	40.8	53.6	35.8
Organic matter				
Carbon	%	4.09	1.72	0.98
Nitrogen	‰	3.54	1.83	1.54
Org. matter	%	7.03	2.96	1.69
Carbonates : **CaCO3** % Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	8.2	3.0	3.1
Mg	meq/l00g	2.2	1.3	1.0
Na	meq/l00g	0.4	0.0	0.0
K	meq/l00g	0.6	0.3	0.3
S=**Σ**	meq/l00g	11.4	4.6	4.4
Exch. cap.	**meq/l00g**	14.0	9.1	7.8
Base saturation	%	81	51	56
Exch. acid el. by KC1 N				
Al	meq/l00g			
Mn	meq/l00g			
ECEC	meq/l00g			
Al sat % (Exch.Al/ECEC)				
Triacid analysis				
Fire loss	%			11.5
Quartz+insol.	%			18.8
SiO2	%			27.3
A12O3	%			18.9
Fe2O3	%			18.1
TiO2	%			0.9
MnO	%			0.1
MgO	%			0.7
CaO	%			0.1
K2O	%			
Na2O	%			
P2O5	%			0.1
Total	%			96.5
Ki = SiO2/A12O3 (molec.)				2.46
CEC me / l00g of clay		34.3	17.0	21.8

LXXXII RECONNAISSANCE SOIL MAP OF FOREST AREA

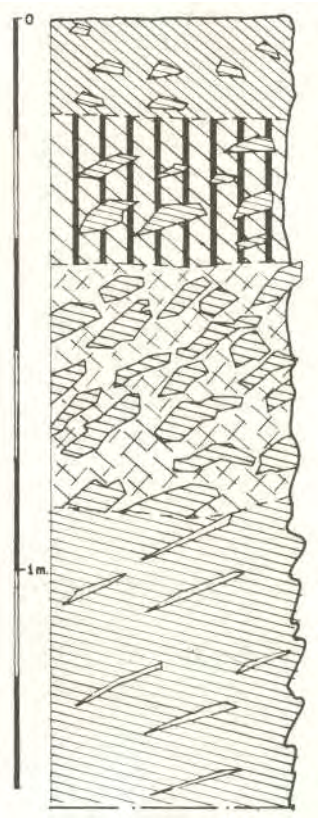
Profile **:** TSN 2
Village / Location : Tulsani
Coordinates : Long.: 74° 33' 00" E; Lat.: 14° 20' 40" N; Alt**:** 110 m.
Vegetation : Secondary moist deciduous forest,
Geology : Dharwar schists,
Landscape unit : 2b**,** coastal area, hilly hinterland,
Classification : Soil Taxonomy: (Oxic) Eutropept, French Classification: Ferrallitic soil, weakly desaturated in B, reworked, indurated.

From 0 to 15 cm. Moist. Dark brown (7.5YR 4/4) moist. Humus. No effervescence. 70% of coarse elements, cobbles and gravels of highly weathered schist. Strong subangular blocky structure, 10 mm size. Coherent, plastic, very friable. Clay with fine sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 15 to 45 cm. Moist. Strong brown (7.5YR 5/6) moist Humus. No effervescence. 80% of coarse elements, cobbles and gravels of highly weathered schist. Massive structure with blunt chippings. Coherent, plastic, very friable. Clay with fine sand. Very porous. Plentiful roots. Wavy transition in 5 cm.

From 45 to 90 cm. Moist Strong brown (7.5YR 5/6) moist. Non organic. No effervescence. Oxy-hydroxides of iron as plinthite. 90 % of coarse elements, stones, cobbles and gravels of highly weathered schist. Massive structure with angular chippings. Very coherent, plastic, slightly friable. Clay with fine sand. Very porous. Few roots. Smooth transition in 15 cm.

From 90 to 140 cm and more. Moist. Weathered schist. Slightly porous. Very few roots.



Profile TSN 2

Sample N°		286	287	288	289
Depth in cm		0-15	15-45	45-90	90-140
Coarse elements	%	62	79	61	laterite
pH					
Water		5.41	5.30	5.12	
KC1		4.96	4.62	5.03	
ΔpH		0.45	0.68	0.09	
Particle-size analysis					
Coarse sand	%	13.3	7.7	12.4	
Fine sand	%	19.0	9.6	12.0	
Coarse silt	%	7.0	6.0	8.8	
Fine silt	%	18.6	20.4	25.2	
Clay	%	42.0	56.3	41.7	
Organic matter					
Carbon	%	4.55	1.84	0.74	
Nitrogen	‰	3.01	1.89	0.98	
Org. matter	%	7.83	3.16	1.27	
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	7.4	3.6	2.4	
Mg	meq/l00g	2.2	1.4	1.3	
Na	meq/l00g	0.1	0.0	0.0	
K	meq/l00g	0.4	0.5	0.4	
S=Σ	meq/l00g	10.1	5.5	4.1	
Exch. cap.	**meq/l00g**	12.2	7.8	8.1	
Base saturation	%	83	71	51	
Exch. acid el. by KC1 N					
Al	meq/l00g				
Mn	meq/l00g				
ECEC	meq/l00g				
Al sat % (Exch.Al/ECEC)					
Triacid analysis					
Fire loss	%	15.4	12.4	11.8	11.4
Quartz+insol.	%	29.6	14.8	11.4	1.0
SiO2	%	21.5	30.4	32.3	18.2
A12O3	%	18.2	23.6	25.3	18.8
Fe2O3	%	11.0	13.7	15.6	47.8
TiO2	%	1.5	1.3	1.7	1.7
MnO	%	0.1	0.1	0.0	0.1
MgO	%	0.4	0.5	0.4	0.5
CaO	%	0.3	0.1	0.1	0,0
K2O	%				
Na2O	%				
P2O5	%	0.1	0.1	0.1	0.1
Total	%	98.1	97.0	98.7	99.6
Ki = SiO2/A12O3 (molec.)		2.01	2.19	2.17	1.65
CEC me / l00g of clay		29.0	13.9	19.4	

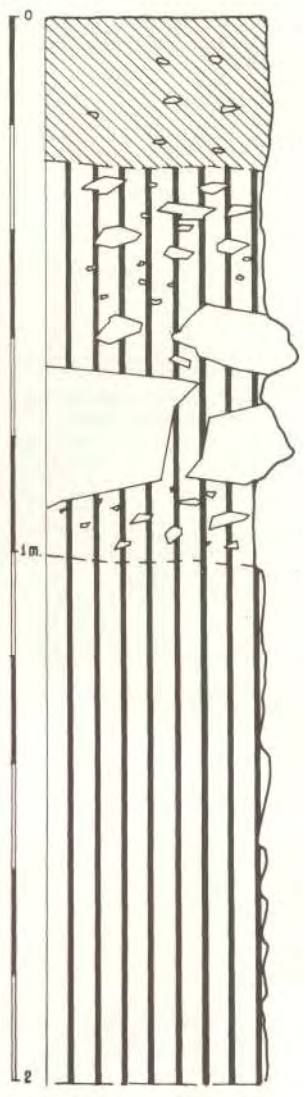
LXXXIV RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile **:** SB 09
Village / Location : Erigapalli
Coordinates : Long.: 76° 10' 20" E; Lat.: 11° 46' 50" N;
Alt.: 780 m.
Vegetation : Rubber plantation,
Geology : Gneissic complex,
Landscape unit : 9a, "meio laranjas",
Classification : Soil Taxonomy: (Oxic) Eutropept,
French Classification: Ferrallitic soil,
Weakly desaturated in B, reworked.

From 0 to 30 cm. Moist. Dark reddish brown (5YR 3/3) moist. Humus. No effervescence. 20% of coarse elements, gravels of quartz. Massive structure with angular chippings. Slightly coherent, plastic, very friable. Clay loam with coarse sand. Very porous. Many roots. Smooth transition in 2 cm.

From 30 to 100 cm. Moist. Dark red (2.5YR 3/6) moist. Non organic. No effervescence. 60% of coarse elements, cobbles and gravels of quartz. Massive structure with angular chippings. Coherent, plastic, very friable. Sandy clay loam with coarse sand. Very porous. Few roots. Smooth transition in 5 cm.

From 100 to 200 cm and more. Moist. Red (2.5YR 4/6) moist. Non organic. No effervescence. Oxy-hydroxides of manganese as mottles. No coarse element. Weak subangular blocky structure, 15 mm size. Coherent, plastic, very friable. Clay loam with medium sand. Very porous. No roots.



Profile SB 09

Sample N°		119	120	121
Depth in cm		0-30	30-100	100-120
Coarse elements	%	17	44	1
pH				
Water		5.38	5.79	5.52
KC1		4.48	5.28	5.16
ΔpH		0.90	0.51	0.36
Particle-size analysis				
Coarse sand	%	29.4	38.1	18.6
Fine sand	%	17.6	10.7	14.7
Coarse silt	%	5.8	4.5	6.7
Fine silt	%	13.1	9.6	29.8
Clay	%	34.1	37.0	30.1
Organic matter				
Carbon	%	2.02	0.43	0.12
Nitrogen	‰	1.23	0.43	0.11
Org. matter	%	3.47	0.74	0.21
Carbonates : **CaCO3** %				
Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	6.0	3.3	2.7
Mg	meq/l00g	1.4	1.6	1.2
Na	meq/l00g	0.0	0.1	0.0
K	meq/l00g	0.1	0.1	0.0
S=**Σ**	meq/l00g	7.5	5.1	3.9
Exch. cap.	**meq/l00g**	12.1	8.1	6.5
Base saturation	%	62	63	60
Exch. acid el. by KC1 N				
Al	meq/l00g	0.0	0.0	0.0
Mn	meq/l00g	0.3	0.1	0.0
ECEC	meq/l00g	7.8	5.2	3.9
Al sat % (Exch.Al/ECEC)		0	0	0
Triacid analysis				
Fire loss	%	8.5	9.8	8.1
Quartz+insol.	%	44.4	30.2	32.4
SiO2	%	17.0	17.8	23.6
A12O3	%	14.2	16.6	21.3
Fe2O3	%	13.3	19.1	11.4
TiO2	%	2.0	1.8	2.2
MnO	%	0.2	0.2	0.1
MgO	%	0.3	0.1	0.2
CaO	%	0.5	0.2	0.1
K2O	%			
Na2O	%			
P2O5	%	0.1	0.1	0.1
Total	%	100.5	95.9	99.5
Ki = SiO2/A12O3 (molec.)		2.04	1.82	1.88
CEC me / l00g of clay		35.5	21.9	21.6

LXXXVI RECONNAISSANCE SOIL MAP OF FOREST AREA

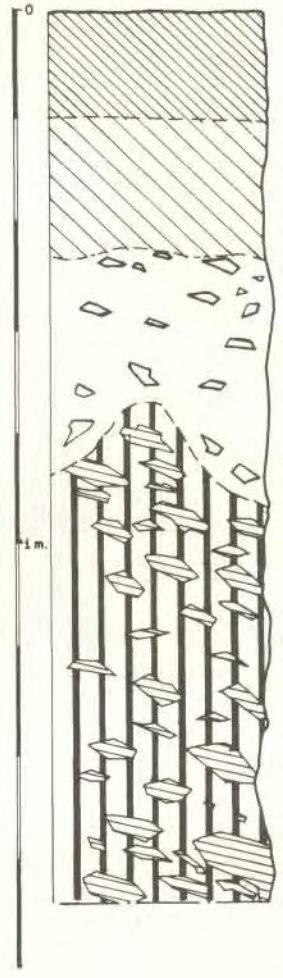
Profile : SONDA 1
Village / Location : Sonda
Coordinates : Long.: 74° 46' 30" E; Lat.: 14° 42' 45" N; Alt.: 500 m.
Vegetation : Secondary moist deciduous forest,
Geology : Dharwar schists,
Landscape unit : 8, strongly dissected intermediate levels,
Classification : Soil Taxonomy: Typic Dystropept, French Classification: Ferrallitic soil, moderately desaturated in B, rejuvenated, reworked.

From 0 to 20 cm. Moist. Dark brown (7.5YR 4/4) moist. Humus. No effervescence. No coarse element. Massive structure with blunt chippings. Coherent, plastic, very friable. Clay loam with fine sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 20 to 50 cm. Moist. Dark brown (7.5YR 4/4) moist. Humus. No effervescence. No coarse element. Massive structure with blunt chippings. Coherent, plastic, very friable. Clay loam with fine sand. Very porous. Many roots. Smooth transition in 5 cm.

From 50 to 80 cm. Moist. Strong brown (7.5YR 5/6) moist. Non organic. No effervescence. 10% of coarse elements, gravels of quartz. Massive structure with angular chippings. Coherent, plastic, very friable. Clay loam with fine sand. Very porous. Many roots. Irregular transition in 2 cm.

From 80 to 140 cm and more. Moist. Yellowish red (5YR 5/8) moist. Non organic. No effervescence. Oxy-hydroxides of manganese as mottles. 50% of coarse elements, stones, cobbles and gravels of highly weathered schist. Massive structure with angular chippings. Coherent, plastic, very friable. Clay loam with fine sand. Very porous. Many roots.



Profile SONDA 1

Sample N°		55	56	57	58
Depth in cm		0-20	20-50	50-80	80-140
Coarse elements	%	2	3	10	43
pH					
Water		4.83	4.76	4.87	5.11
KC1		4.08	4.19	4.27	4.96
ΔpH		0.75	0.57	0.60	0.15
Particle-size analysis					
Coarse sand	%	14.1	12.4	11.1	15.2
Fine sand	%	27.7	26.4	22.3	21.2
Coarse silt	%	15.7	14.0	13.1	12.8
Fine silt	%	12.5	13.2	15.8	17.5
Clay	%	30.0	33.9	37.6	33.3
Organic matter					
Carbon	%	1.78	1.06	0.86	0.46
Nitrogen	‰	1.32	1.15	0.7	0.29
Org. matter	%	3.06	1.82	1.48	0.79
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	1.5	1.7	1.7	2.0
Mg	meq/l00g	0.7	0.7	0.8	1.0
Na	meq/l00g	0.0	0.0	0.0	0.0
K	meq/l00g	0.3	0.3	0.2	0.3
S=**Σ**	meq/l00g	2.5	2.7	2.7	3.3
Exch. cap.	**meq/l00g**	9.1	8.6	8.3	8.7
Base saturation	%	27	31	33	38
Exch. acid el. by KC1 N					
Al	meq/l00g	1.2	0.7	0.5	0.0
Mn	meq/l00g	0.3	0.5	0.4	0.1
ECEC	meq/l00g	4.0	3.9	3.6	3.4
Al sat % (Exch.Al/ECEC)		30	18	14	0
Triacid analysis					
Fire loss	%	7.9	7.2	7.2	6.9
Quartz+insol.	%	54.1	49.6	43.8	38.9
SiO2	%	17.4	20.8	23.5	24.5
A12O3	%	10.4	12.7	14.7	15.7
Fe2O3	%	8.6	9.6	7.6	10.5
TiO2	%	0.7	0.9	0.7	0.7
MnO	%	0.2	0.2	0.1	0.1
MgO	%	0.3	0.3	0.4	0.4
CaO	%	0.1	0.1	0.1	0.1
K2O	%				
Na2O	%				
P2O5	%	0.1	0.1	0.1	0.0
Total	%	99.8	101.5	98.2	97.8
Ki = SiO2/A12O3 (molec.)		2.84	2.78	2.72	2.65
CEC me / l00g of clay		30.3	25.4	22.1	26.1

LXXXVIII RECONNAISSANCE SOIL MAP OF FOREST AREA

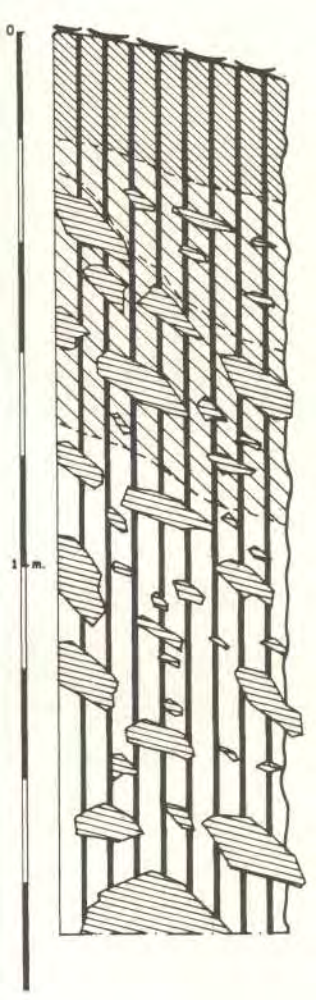
Profile : BHAT 1
Village / Location : Kalanur
Coordinates : Long.: 74° 42' 00" E; Lat.: 14° 03' 30" N; Alt**.:** 200 m.
Vegetation : Evergreen forest,
Geology : Dharwar schists,
Landscape unit : 3, Ghats,
Classification : Soil Taxonomy: Oxic Dystropept, French Classification: Ferrallitic soil, weakly desaturated in B, rejuvenated.

From 0 to 20 cm. Dry, Yellowish red (5YR 4/6) moist. Humus. No effervescence. 30% of coarse elements, gravels of highly weathered schist. Massive structure with angular chippings associated with moderate subangular blocky structure, 15 mm size. Coherent, plastic, slightly fragile. Clay with fine sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 20 to 40 cm. Dry. Yellowish red (5YR 4/6) moist. Humus. No effervescence. 50% of coarse elements, cobbles and gravels of highly weathered schist. Weak crumb structure, 5 mm size, associated with moderate subangular blocky structure, 15 mm size. Coherent, plastic, slightly fragile. Clay with fine sand. Very porous. Many roots. Smooth transition in 2 cm.

From 40 to 70 cm. Slightly moist. Yellowish red (5YR 4/6) moist. Non organic. No effervescence. 50% of coarse elements, cobbles and gravels of highly weathered schist. Moderate blocky structure, 5 mm size. Coherent, plastic, very friable. Clay with fine sand. Porous. Many roots. Smooth transition in 5 cm.

From 70 to 170 cm and more. Slightly moist. Yellowish red (5YR 5/6) moist. Non organic. No effervescence. 20% of coarse elements, gravels of highly weathered schist. Moderate blocky structure, 5 mm size, associated with massive structure with angular chippings. Coherent, plastic, very friable. Clay with fine sand. Porous. Many roots.



Profile BHAT 1

Sample N°		466	467	468	469
Depth in cm		0-20	20-40	50-60	-150-
Coarse elements	%	32	57	53	20
pH					
Water		6.20	6.00	5.85	5.20
KC1		5.65	5.55	5.65	5.20
ΔpH		0.55	0.45	0.20	0.00
Particle-size analysis					
Coarse sand	%	7.6	7.0	4.1	4.5
Fine sand	%	6.2	5.6	4.3	4.6
Coarse silt	%	9.3	8.3	7.1	6.5
Fine silt	%	27.6	27.7	24.7	24.4
Clay	%	49.2	51.3	59.7	60.0
Organic matter					
Carbon	%	2.71	2.28	1.54	0.89
Nitrogen	‰	2.18	2.24	1.41	0.80
Org. matter	%	4.66	3.92	2.65	1.53
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	9.0	6.1	3.1	4.5
Mg	meq/l00g	3.1	1.9	1.3	1.2
Na	meq/l00g	0.0	0.0	0.0	0.0
K	meq/l00g	0.6	0.5	0.4	0.5
S=Σ	meq/l00g	12.7	8.5	4.8	6.2
Exch. cap.	**meq/l00g**	16.4	14.8	11.3	14.8
Base saturation	%	77	57	42	42
Exch. acid el. by KC1 N					
Al	meq/l00g				
Mn	meq/l00g				
ECEC	meq/l00g				
Al sat % (Exch.Al/ECEC)					
Triacid analysis					
Fire loss	%	15.9	14.5	13.3	12.2
Quartz+insol.	%	13.1	14.5	11.0	10.9
SiO2	%	21.0	22.7	24.3	23.8
A12O3	%	25.7	24.4	26.5	26.3
Fe2O3	%	21.9	21.9	22.4	24.3
TiO2	%	2.0	1.8	1.8	1.8
MnO	%	0.1	0.2	0.1	0.1
MgO	%	0.7	0.9	0.9	0.7
CaO	%	0.3	0.3	0.2	0.1
K2O	%				
Na2O	%				
P2O5	%	0.2	0.2	0.2	0.1
Total	%	100.9	101.4	100.7	100.3
Ki = SiO2/A12O3 (molec.)		1.39	1.58	1.56	1.54
CEC me / l00g of clay		33.3	28.8	18.9	24.7

Profile **:** KDK 2
Village / Location : Suttinabbi
Coordinates : Long.: 75° 09' 20" E; Lat.: 13° 16' 00" N; Alt.: 910 m.
Vegetation : Evergreen forest *(Poeciloneuron* type),
Geology : Dharwar schists (locally amphibolite),
Landscape unit : 4b, strongly dissected high level, slopes,
Classification : Soil Taxonomy: Oxic Dystropept, French Classification: Ferrallitic soil, strongly desaturated in B, rejuvenated, reworked.

From 0 to 15 cm. Moist. Strong brown (7.5YR 5/6) moist. Humus. No effervescence. 50% of coarse elements, stones and gravels of highly weathered amphibolite. Moderate subangular blocky structure, 10 mm size. Coherent, plastic, very friable. Clay loam with fine sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

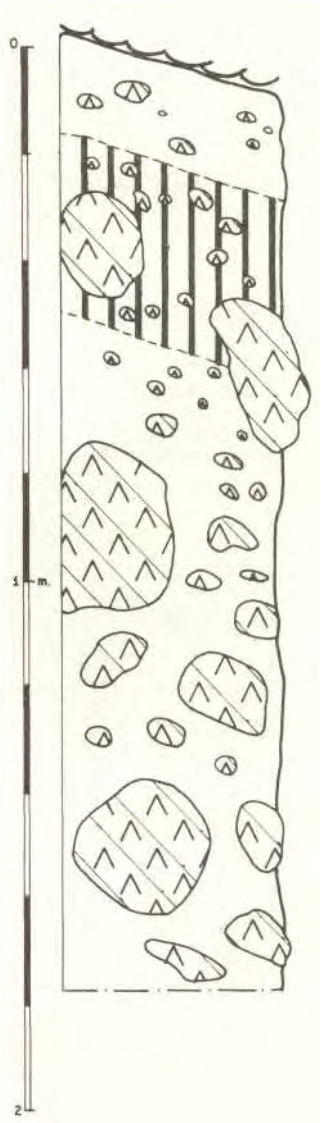
From 15 to 50 cm. Moist. Yellowish red (5YR 5/8) moist. Humus. No effervescence. 40% of coarse elements, boulders and cobbles of highly weathered amphibolite. Massive structure with blunt chippings. Coherent, plastic, very friable. Loam with fine sand. Very porous. Many roots. Smooth transition in 10 cm.

From 50 to 180 cm. Moist. Strong brown (7.5YR 5/8) moist. Non organic. No effervescence. 60% of coarse elements, boulders and cobbles of highly weathered amphibolite. Massive structure with blunt chippings. Coherent, plastic, very friable. Loam with fine sand. Very porous. Many roots.

< 2 µm fraction mineralogy.

Sample n° 304:
- Kaolinite ++
- Chlorite +
- Gibbsite +

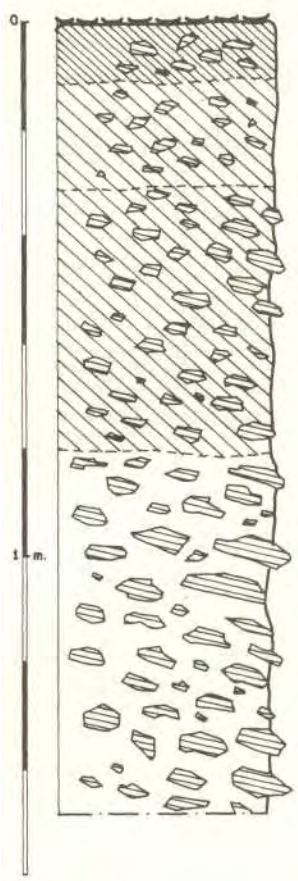
Sample n° 305:
- Kaolinite +++
- Chlorite +
- Illite tr.
- Gibbsite tr.



Profile KDK 2

Sample N°		303	304	305
Depth in cm		0-15	15-50	50-120
Coarse elements	%	46	12	21
pH				
Water		5.28	4.84	4.71
KC1		5.06	5.25	5.44
ΔpH		0.22	-0.41	-0.73
Particle-size analysis				
Coarse sand	%	21.2	21.1	17.6
Fine sand	%	17.0	20.5	18.1
Coarse silt	%	9.4	10.1	10.8
Fine silt	%	22.1	21.2	27.3
Clay	%	30.3	27.0	26.1
Organic matter				
Carbon	%	3.01	1.17	0.55
Nitrogen	‰	3.08	1.72	
Org. matter	%	5.18	2.01	0.95
Carbonates : **CaCO3** %				
Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	4.8	0.4	1.5
Mg	meq/l00g	0.6	0.1	0.0
Na	meq/l00g	0.0	0.0	0.0
K	meq/l00g	0.1	0.0	0.0
S=**Σ**	meq/l00g	5.5	0.5	1.5
Exch. cap.	**meq/l00g**	15.5	7.5	6.0
Base saturation	%	35	7	25
Exch. acid el. by KC1 N				
Al	meq/l00g	0.1	0.1	0,0
Mn	meq/l00g	0.1	0.1	0.0
ECEC	meq/l00g	5.7	0.7	1.5
Al sat % (Exch.Al/ECEC)		2	14	0
Triacid analysis				
Fire loss	%	16.6	14.0	14.0
Quartz+insol.	%	24.8	21.7	18.6
SiO2	%	9.7	8.8	10.8
A12O3	%	18.0	19.4	20.3
Fe2O3	%	24.8	30.5	30.5
TiO2	%	2.5	2.7	2.6
MnO	%	0.2	0.2	0.2
MgO	%	0.5	0.3	0.1
CaO	%	0.2	0.0	0.0
K2O	%			
Na2O	%			
P2O5	%	0.2	0.2	0.1
Total	%	97.5	97.8	97.2
Ki = SiO2/A12O3 (molec.)		0.92	0.77	0.90
CEC me / l00g of clay		51.2	27.8	23.0

Profile **:** DSG 1
Village / Location : Dasanagadde
Coordinates : Long.: 74° 43' 15" E; Lat.: 14° 20' 20" N; Alt**.:** 500 m.
Vegetation : Evergreen forest,
Geology : Dharwar schists,
Landscape unit : 8, strongly dissected intermediate levels,
Classification : Soil Taxonomy: Oxic Dystropept, French Classification: Ferrallitic soil, moderately desaturated in B, rejuvenated, reworked.



From 0 to 10 cm. Slightly moist. Dark yellowish brown (10YR 3/6) moist. Humus. No effervescence. 70% of coarse elements, cobbles and gravels of highly weathered schist. Moderate crumb structure, 4 mm size, associated with massive structure with blunt chippings. Coherent, plastic, very friable. Clay loam with medium sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 10 to 30 cm. Moist. Dark yellowish brown (10YR 3/6) moist. Humus. No effervescence. 70% of coarse elements, cobbles and gravels of highly weathered schist. Moderate subangular blocky structure, 8 mm size, associated with massive structure with blunt chippings. Coherent, plastic, very friable. Clay loam with medium sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 30 to 80 cm. Moist. Strong brown (7.5YR 5/6) moist. Little organic matter. No effervescence. 70% of coarse elements, cobbles and gravels of highly weathered schist. Moderate blocky structure, 8 mm size, associated with massive structure with blunt chippings. Coherent, plastic, very friable. Clay with medium sand. Porous. Plentiful roots. Smooth transition in 10 cm.

From 80 to 150 cm and more. Moist. Strong brown (7.5YR 5/8) moist. Non organic. No effervescence. 80% of coarse elements, stones, cobbles and gravels of highly weathered schist. Massive structure with angular chippings. Coherent, plastic, very friable. Clay loam with fine sand. Porous. Many roots.

Profile DSG 1

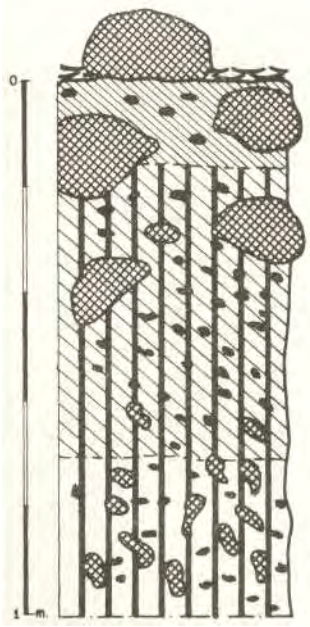
Sample N°		275	276	277	278
Depth in cm		0-10	10-30	30-80	80-150
Coarse elements	%	68	49	68	59
pH					
Water		5.30	4.97	5.37	5.08
KC1		4.81	4.48	5.52	5.72
ΔpH		0.49	0.49	-0.15	-0.64
Particle-size analysis					
Coarse sand	%	18.2	17.8	17.2	16.3
Fine sand	%	22.2	20.8	14.7	15.9
Coarse silt	%	10.1	9.4	9.0	10.1
Fine silt	%	16.2	16.4	17.9	21.0
Clay	%	33.2	35.6	41.2	36.6
Organic matter					
Carbon	%	4.43	2.71	0.77	0.55
Nitrogen	‰	3.18	2.09	0.63	
Org. matter	%	7.62	4.66	1.32	0.95
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	5.4	1.6	1.8	1.6
Mg	meq/l00g	1.8	0.6	0.5	0.3
Na	meq/l00g	0.2	0.1	0.1	0.0
K	meq/l00g	0.6	0.4	0.3	0.2
S=**Σ**	meq/l00g	8.0	2.7	2.7	2.1
Exch. cap.	**meq/l00g**	12.8	8.0	2.9	3.9
Base saturation	%	63	34	93	54
Exch. acid el. by KC1 N					
Al	meq/l00g				
Mn	meq/l00g				
ECEC	meq/l00g				
Al sat % (Exch.Al/ECEC)					
Triacid analysis					
Fire loss	%				
Quartz+insol.	%				
SiO2	%				
A12O3	%				
Fe2O3	%				
TiO2	%				
MnO	%				
MgO	%				
CaO	%				
K2O	%				
Na2O	%				
P2O5	%				
Total	%				
Ki = SiO2/A12O3 (molec.)					
CEC me / l00g of clay		38.6	22.5	7.0	10.7

Profile **:** KANK 3
Village / Location : Varandekarvadi
Coordinates : Long.: 74° 10' 05" E; Lat.: 15° 41' 00" N; Alt.: 790 m.
Vegetation : Evergreen forest *(Memecylon* type),
Geology : Deccan basalts,
Landscape unit : 5b, partially dissected intermediate levels on basalt,
Classification : Soil Taxonomy: Oxic Dystropept, French Classification: Ferrallitic soil, weakly desaturated in B, reworked.

From 0 to 15 cm. Dry. Dark reddish brown (5YR 3/3) moist. Humus. No effervescence. 60% of coarse elements, boulders and gravels of ironstone. Moderate subangular blocky structure, 8 mm size. Coherent, plastic, fragile. Silty clay loam with medium sand. Very porous. Plentiful roots. Smooth transition in 3 cm.

From 15 to 70 cm. Dry. Dark red (2.5YR 3/6) moist. Little organic matter. No effervescence. 80% of coarse elements, gravels and boulders of ironstone. Moderate subangular blocky structure, 8 mm size. Coherent, plastic, fragile. Clay with medium sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

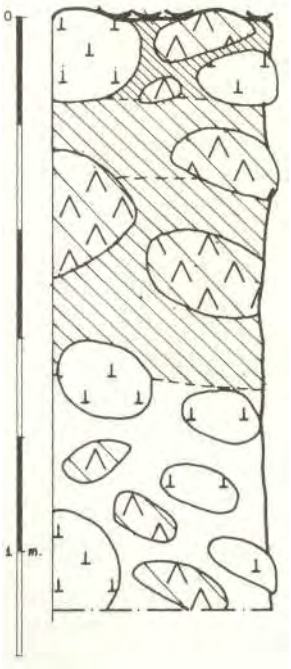
From 70 to 100 cm and more. Dry. Red (2.5YR 4/6) moist. Non organic. No effervescence. 60% of coarse elements, gravels and cobbles of ironstone. Moderate subangular blocky structure, 6 mm size. Coherent, plastic, fragile. Clay with medium sand. Very porous. Many roots.



Profile KANK 3

Sample N°		458	459	460	458(a)	458(b)
Depth in cm		0-10	-50-	-100-	0-10	0-10
Coarse elements	%	43	54	43	gravels	gravels
pH						
Water		5.85	5.75	6.50		
KC1		5.30	5.55	6.00		
ΔpH		0.55	0.20	0.50		
Particle-size analysis						
Coarse sand	%	11.1	6.7	9.4		
Fine sand	%	8.5	5.6	7.8		
Coarse silt	%	7.1	6.1	8.3		
Fine silt	%	35.5	18.6	19.7		
Clay	%	37.8	63.0	54.9		
Organic matter						
Carbon	%	8.12	1.26	0.86		
Nitrogen	‰	5.81	1.05	0.70		
Org. matter	%	13.97	2.17	1.48		
Carbonates : **CaCO3** %						
Exch. Ca for calcareous soils						
Exchangeable bases						
Ca	meq/l00g	20.8	4.9	3.4		
Mg	meq/l00g	3.4	0.9	0.7		
Na	meq/l00g	0.0	0.0	0.0		
K	meq/l00g	0.5	0.2	0.1		
S=**Σ**	meq/l00g	24.7	6.0	4.2		
Exch. cap.	**meq/l00g**	30.9	11.1	9.0		
Base saturation	%	80	54	47		
Exch. acid el. by KC1 N						
Al	meq/l00g					
Mn	meq/l00g					
ECEC	meq/l00g					
Al sat % (Exch.Al/ECEC)						
Triacid analysis						
Fire loss	%	27.1	14.2	15.1	27.5	20.4
Quartz+insol.	%	4.3	1.5	0.7	0.2	2.6
SiO2	%	16.6	20.7	17.8	4.4	19.2
A12O3	%	25.7	30.6	30.2	34.5	23.6
Fe2O3	%	23.8	30.5	34.3	32.4	30.5
TiO2	%	3.2	3.2	3.1	2.4	3.6
MnO	%	0.2	0.2	0.1	0.1	0.2
MgO	%	0.9	0.5	0.4	0.1	0.7
CaO	%	0.7	0.1	0.1	0.0	0.6
K2O	%					
Na2O	%					
P2O5	%	0.3	0.3	0.3	0.2	0.2
Total	%	102.8	101.8	102.1	101.8	101.6
Ki = SiO2/A12O3 (molec.)		1.10	1.15	1.00	0.22	1.38
CEC me / l00g of clay		81.7	17.6	16.4		

Profile : UPP 11
Village / Location : Uppugala
Coordinates : Long.: 75° 40' 22" E; Lat.: 12° 32' 35" N; Alt.: 335 m.
Vegetation : Evergreen forest,
Geology : Gneissic complex,
Landscape unit : 3, Ghats,
Classification : Soil Taxonomy: Oxic Dystropept, French Classification: Poorly developed soil.



From 0 to 15 cm. Dry. Dark brown (10YR 3/3) moist. Humus. No effervescence. 90 % of coarse elements, boulders and cobbles of highly weathered gneiss and amphibolite. Single grain structure. Loose, non plastic. Sandy loam with coarse sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 15 to 30 cm. Dry. Dark yellowish brown (10YR 4/4) moist. Humus. No effervescence. 40% of coarse elements, cobbles of highly weathered amphibolite. Massive structure with blunt chippings. Coherent, non plastic, fragile. Sandy loam with coarse sand. Very porous. Plentiful roots. Smooth transition in 5 cm.

From 30 to 70 cm. Dry. Yellowish brown (10YR 5/8) moist. Humus. No effervescence. 60% of coarse elements, cobbles of highly weathered amphibolite. Massive structure with blunt chippings. Coherent, plastic, fragile. Sandy clay loam with coarse sand. Porous. Many roots. Smooth transition in 15 cm.

From 70 to 110 cm and more. Dry. Dark yellowish brown (10YR 4/6) moist. Non organic: No effervescence. 60% of coarse elements, stones and cobbles of highly weathered amphibolite and gneiss. Massive structure with blunt chippings. Coherent, plastic, fragile. Sandy clay loam with fine sand. Porous. Many roots.

< 2 µm fraction mineralogy.

Sample n° 349:
- Kaolinite +++
- Illite +
- Chlorite +
- Gibbsite +

Sample n° 351:
- Kaolinite +++
- Illite +
- Gibbsite +
- Chlorite +

Profile UPP 11

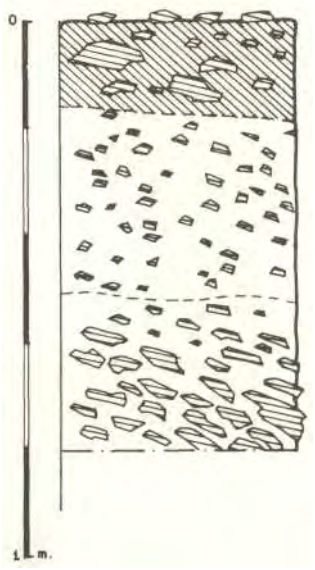
Sample N°		348	349	350	351
Depth in cm		0-15	20-30	-60-	-100-
Coarse elements	%	12	12	19	20
pH					
Water		5.46	5.14	4.88	4.93
KC1		5.03	4.49	4.39	4.80
ΔpH		0.43	0.65	0.49	0.13
Particle-size analysis					
Coarse sand	%	55.8	52.9	38.6	37.9
Fine sand	%	21.4	22.3	16.1	15.2
Coarse silt	%	3.3	4.2	3.8	4.2
Fine silt	%	6.3	6.4	9.6	11.5
Clay	%	13.2	14.1	31.9	31.2
Organic matter					
Carbon	%	2.95	1.34	0.92	0.68
Nitrogen	‰	1.65	1.15	0.67	0.50
Org. matter	%	5.07	2.3	1.58	1.17
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	4.2	1.6	1.2	1.3
Mg	meq/l00g	1.0	0.5	0.4	0.6
Na	meq/l00g	0.0	0.1	0.1	0.1
K	meq/l00g	0.2	0.1	0.1	0.1
S=**Σ**	meq/l00g	5.4	2.3	1.8	2.1
Exch. cap.	**meq/l00g**	7.9	5.4	6.7	6.0
Base saturation	%	68	43	27	35
Exch. acid el. by KC1 N					
Al	meq/l00g	0.0	0.0	0.1	0.0
Mn	meq/l00g	0.1	0.2	0.1	0.0
ECEC	meq/l00g	5.5	2.5	2.0	2.1
Al sat % (Exch.Al/ECEC)		0	0	5	0
Triacid analysis					
Fire loss	%	6.2	4.7	6.9	6.7
Quartz+insol.	%	77.0	73.2	55.9	53.9
SiO2	%	6.0	8.8	14.9	15.4
A12O3	%	3.2	4.7	13.5	14.4
Fe2O3	%	4.8	3.8	8.1	8.6
TiO2	%	0.9	1.0	1.2	1.1
MnO	%	0.1	0.1	0.1	0.1
MgO	%	0.1	0.1	0.4	0.3
CaO	%	0.2	0.1	0.1	0.1
K2O	%				
Na2O	%				
P2O5	%	0.1	0.1	0.1	0.1
Total	%	98.6	96.6	101.2	100.7
Ki = SiO2/A12O3 (molec.)		3.19	3.18	1.88	1.82
CEC me / l00g of clay		59.8	38.3	21.0	19.2

Profile : BHAT 10
Village / Location : Agumbe
Coordinates : Long.: 75° 05' 00" E; Lat.: 13° 31' 05" N; Alt.: 660 m.
Vegetation : Secondary moist deciduous thicket,
Geology : Dharwar schists,
Landscape unit : 6b, partially dissected intermediate levels on greywackes,
Classification : Soil Taxonomy: Ustic Dystropept, French Classification: Ferrallitic soil, moderately desaturated in B, rejuvenated, reworked.

From 0 to 15 cm. Dry. Dark brown (7.5YR 4/4) moist. Humus. No effervescence. 70% of coarse elements, gravels of quartz and highly weathered schist. Massive structure with blunt chippings. Coherent, plastic, fragile. Clay loam with coarse sand. Porous. Many roots. Smooth transition in 5 cm.

From 15 to 50 cm. Slightly moist. Strong brown (7.5YR 5/6) moist. Non organic. No effervescence. 80% of coarse elements, gravels of highly weathered schist. Massive structure with blunt chippings. Coherent, plastic, friable. Sandy clay loam with coarse sand. Porous. Many roots. Smooth transition in 5 cm.

From 50 to 80 cm and more. Slightly moist. Strong brown (7.5YR 5/6) moist. Non organic. No effervescence. 80% of coarse elements, gravels of highly weathered schist. Massive structure with blunt chippings. Coherent, plastic, friable. Clay loam with coarse sand. Porous. Few roots.



Profile BHAT 10

Sample N°		494	495	496
Depth in cm		0-10	-40-	-70-
Coarse elements	%	74	77	75
pH				
Water		4.94	5.05	5.06
KC1		4.46	4.75	4.97
ΔpH		0.48	0.30	0.09
Particle-size analysis				
Coarse sand	%	34.1	41.6	45.6
Fine sand	%	7.2	5.9	9.4
Coarse silt	%	5.4	6.8	4.8
Fine silt	%	24.4	21.6	11.4
Clay	%	28.9	24.1	28.7
Organic matter				
Carbon	%	2.46	1.29	0.65
Nitrogen	‰	2.14	1.36	0.62
Org. matter	%	4.23	2.22	1.12
Carbonates : CaCO3 %				
Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	2.3	2.3	1.2
Mg	meq/l00g	0.6	0.5	0.4
Na	meq/l00g	0.2	0.4	0.0
K	meq/l00g	0.2	0.2	0.1
S=Σ	meq/l00g	3.3	3.4	1.7
Exch. cap.	**meq/l00g**	12.2	11.0	8.2
Base saturation	%	27	31	21
Exch. acid el. by KC1 N				
Al	meq/l00g	1.0	0.1	0.1
Mn	meq/l00g	0.0	0.0	0.0
ECEC	meq/l00g	4.3	3.5	1.8
Al sat % (Exch.Al/ECEC)		23	3	6
Triacid analysis				
Fire loss	%	12.8	13.0	11.1
Quartz+insol.	%	19.8	16.1	22.4
SiO2	%	21.1	21.6	19.2
A12O3	%	213	23.6	23.2
Fe2O3	%	20.8	23.3	21.2
TiO2	%	1.2	1.5	1.8
MnO	%	0.2	0.1	0.1
MgO	%	1.0	0.7	0.3
CaO	%	0.1	0.1	0.0
K2O	%			
Na2O	%			
P2O5	%	0.2	0.3	0.2
Total	%	98.5	100.3	99.5
Ki = SiO2/A12O3 (molec.)		1.68	1.56	1.41
CEC me / l00g of clay		42.2	45.6	28.6

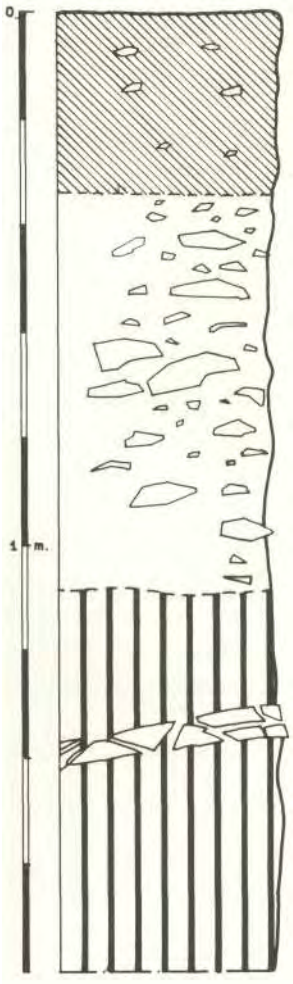
C RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile **:** SRIN 1
Village / Location : Sollebail
Coordinates : Long.: 74° 21' 00" E; Lat.**:** 13° 23' 30" N; Alt.: 675 m.
Vegetation : Secondary moist deciduous forest,
Geology : Gneissic complex,
Landscape unit : 7, partially dissected intermediate levels on gneiss,
Classification : Soil Taxonomy: Ustoxic Dystropept, French Classification: Ferrallitic soil, moderately desaturated in B, reworked, impoverished.

From 0 to 35 cm. Dry. Dark yellowish brown (10YR 4/6) moist. Humus. No effervescence. 10% of coarse elements, gravels of quartz. Massive structure with angular chippings associated with subangular blocky structure, 8 mm size. Coherent, slightly plastic, slightly fragile. Sandy clay loam with coarse sand. Porous. Many roots. Smooth transition in 5 cm.

From 35 to 110 cm. Dry. Strong brown (7.5YR 5/6) moist. Non organic. No effervescence. 80% of coarse elements, cobbles and gravels of quartz. Massive structure with angular chippings. Coherent, plastic, slightly fragile. Sandy clay loam with coarse sand. Very porous. Many roots. Smooth transition in 5 cm.

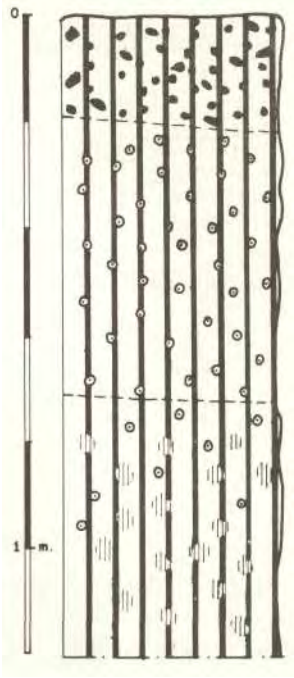
From 110 to 180 cm and more. Dry. Red (2.5YR 5/8) moist. Non organic. No effervescence. No coarse element. Massive structure with angular chippings. Coherent, plastic, slightly fragile. Sandy clay loam with coarse sand. Porous. Few roots.



Profile SRIN 1

Sample N°		560	561	562
Depth in cm		0-30	80-90	-130-
Coarse elements	%	12	73	3
pH				
Water		4.70	4.80	5.12
KC1		4.17	4.33	5.12
ΔpH		0.53	0.47	0.00
Particle-size analysis				
Coarse sand	%	39.1	35.3	33.7
Fine sand	%	26.4	21.3	21.8
Coarse silt	%	6.0	5.3	4.6
Fine silt	%	7.2	9.8	18.7
Clay	%	21.2	28.3	21.2
Organic matter				
Carbon	%	1.05	0.31	
Nitrogen	‰	1.37		
Org. matter	%	1.81	0.53	
Carbonates : **CaCO3** %				
Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	0.8	0.7	1.3
Mg	meq/l00g	0.4	0.4	0.8
Na	meq/l00g	0.1	0.0	0.0
K	meq/l00g	0.1	0.1	0.1
S=**Σ**	meq/l00g	1.4	1.2	2.2
Exch. cap.	**meq/l00g**	6.4	5.9	4.5
Base saturation	%	22	20	49
Exch. acid el. by KC1 N				
Al	meq/l00g	1.1	0.6	0.0
Mn	meq/l00g	0.1	0.1	0.0
ECEC	meq/l00g	2.6	1.9	2.2
Al sat % (Exch.Al/ECEC)		42	32	0
Triacid analysis				
Fire loss	%	5.9	5.4	7.8
Quartz+insol.	%	70.9	58.9	40.8
SiO2	%	10.6	14.8	21.7
A12O3	%	7.2	12.5	20.6
Fe2O3	%	3.8	5.7	6.7
TiO2	%	0.0	0.5	0.5
MnO	%	0.0	0.1	0.0
MgO	%	0.3	0.4	0.6
CaO	%	0.1	0.2	0.0
K2O	%			
Na2O	%			
P2O5	%	0.0	0.0	0.0
Total	%	98.8	98.5	98.7
Ki = SiO2/A12O3 (molec.)		2.50	2.01	1.79
CEC me / l00g of clay		30.2	20.8	21.2

Profile : BHAT 5
Village / Location : Valur
Coordinates : Long.: 74° 51' 20" E; Lat..: 13° 53' 00" N; Alt: 600 m.
Vegetation : Grassland,
Geology : Dharwar schists,
Landscape unit : 6b, partially dissected intermediate levels on greywackes,
Classification : Soil Taxonomy: Ustoxic Dystropept, French Classification: Ferrallitic soil, moderately desaturated in B, typic (indurated in nodules).



From 0 to 20 cm. Dry. Yellowish red (5YR 5/6) moist. Humus. No effervescence. 70% of coarse elements, gravels of ironstone. Weak subangular blocky structure, 5 mm size. Coherent, plastic, slightly fragile. Clay with coarse sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 20 to 70 cm. Dry. Yellowish red (5YR 5/8) moist. Non organic. No effervescence. Many oxy-hydroxides elements as nodules. No coarse element. Moderate subangular blocky structure, 5 mm size. Coherent, plastic, slightly fragile. Clay with coarse sand. Porous. Many roots. Smooth transition in 5 cm.

From 70 to 120 cm and more. Dry. Yellowish red (5YR 5/8) moist. Common mottles, red (2.5YR 4/6). Non organic. Few oxy-hydroxides elements as nodules. No effervescence. No coarse element. Moderate subangular blocky structure, 10 mm size. Coherent, plastic, slightly fragile. Clay loam with coarse sand. Porous. Few roots.

< 2 µm fraction mineralogy.

Sample n° 480:
- Kaolinite +++
- Illite +
- Gibbsite +
- (10-14)Sm tr.

Sample n° 482:
- Kaolinite ++++

Sample n° 483:
- Kaolinite +++
- Chlorite +
- Illite +
- Gibbsite +

Profile BHAT 5

Sample N° **Depth in cm**		480 0-20(grass)	481 -50-	482 -100-	483 0-10(forest)
Coarse elements	%	63	33	8	70
pH					
Water		5.05	5.85	6.10	5.80
KC1		4.87	5.70	5.85	5.40
ΔpH		0.18	0.15	0.25	0.40
Particle-size analysis					
Coarse sand	%	26.7	13.8	14.1	19.9
Fine sand	%	7.1	7.6	9.4	9.6
Coarse silt	%	4.8	6.9	10.1	5.1
Fine silt	%	17.2	28.8	29.8	25.8
Clay	%	44.2	42.9	36.5	39.5
Organic matter					
Carbon	%	3.26	0.89	0.43	8.73
Nitrogen	‰	1.61	0.60	0.20	5.62
Org. matter	%	5.61	1.53	0.74	15.01
Carbonates : **CaCO3** % Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	2.0	1.5	1.8	21.4
Mg	meq/l00g	0.5	0.4	0.5	3.5
Na	meq/l00g	0.1	0.0	0.0	0.0
K	meq/l00g	0.1	0.0	0.0	0.5
S=**Σ**	meq/l00g	2.7	1.9	2.3	25.4
Exch. cap.	**meq/l00g**	6.1	8.5	10.0	25.8
Base saturation	%	44	22	23	98
Exch. acid el. by KC1 N					
Al	meq/l00g	0.1	0.1	0.0	0.1
Mn	meq/l00g	0.0	0.0	0.0	0.0
ECEC	meq/l00g	2.8	2.0	2.3	25.5
Al sat % (Exch.Al/ECEC)		4	5	0	0
Triacid analysis					
Fire loss	%	15.6	13.8	13.7	24.7
Quartz+insol.	%	13.3	7.6	5.9	19.3
SiO2	%	15.2	22.8	23.4	18.1
A12O3	%	30.7	32.1	32.6	22.7
Fe2O3	%	23.3	20.8	21.7	13.1
TiO2	%	1.2	1.4	1.4	0.9
MnO	%	0.0	0.0	0.0	0.1
MgO	%	0.3	0.1	0.1	0.8
CaO	%	0.1	0.1	0.1	0.8
K2O	%				
Na2O	%				
P2O5	%	0.1	0.1	0.1	0.2
Total	%	99.8	98.8	99.0	100.7
Ki = SiO2/A12O3 (molec.)		0.84	1.21	1.22	1.36
CEC me / l00g of clay		13.8	19.8	27.4	65.3

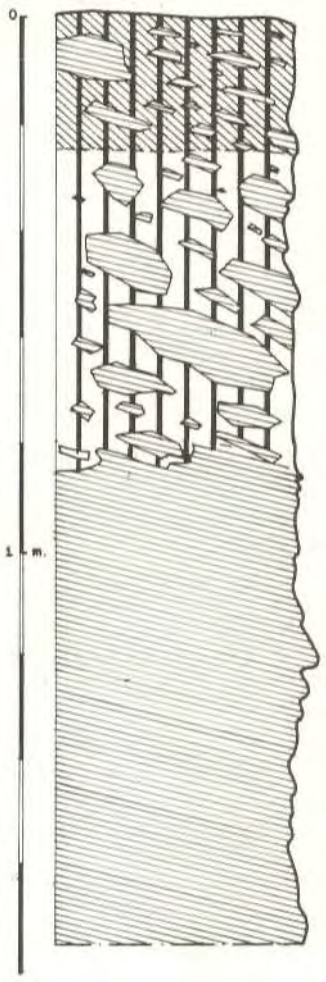
CIV RECONNAISSANCE SOIL MAP OF FOREST AREA

Profile : KDK 4
Village / Location : Malleshwara
Coordinates : Long.: 75° 13' 36" E; Lat.: 13° 12' 42" N; Alt.: 830 m.
Vegetation : Grassland,
Geology : Dharwar schists,
Landscape unit : 4b, strongly dissected high level, slopes,
Classification : Soil Taxonomy: Ustoxic Dystropept, French Classification: Ferrallitic soil, moderately desatuated in B, rejuvenated, reworked.

From 0 to 25 cm. Moist. Yellowish red (5YR 5/8) moist. Humus. No effervescence. 80% of coarse elements, stones, and gravels of highly weathered schist. Moderate subangular blocky structure, 10 mm size, associated with massive structure with blunt chippings. Coherent, plastic, very friable. Clay loam with coarse sand. Very porous. Plentiful roots. Smooth transition in 2 cm.

From 25 to 80 cm. Moist. Yellowish red (5YR 5/8) moist. Non organic. No effervescence. 80% of coarse elements, boulders and cobbles of highly weathered schist. Massive structure with blunt chippings. Coherent, plastic, very friable. Clay loam with coarse sand. Very porous. Many roots. Smooth transition in 10 cm.

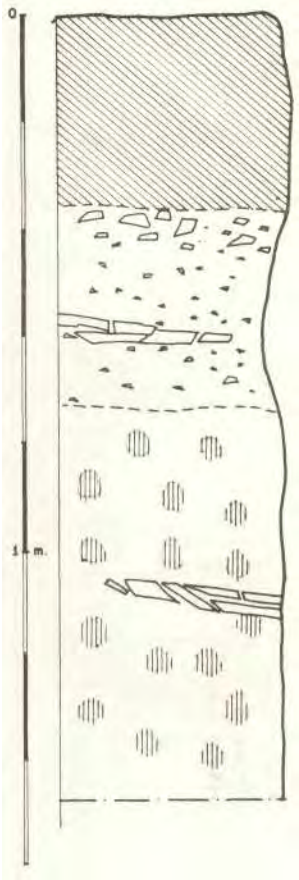
From 80 to 180 cm. Moist. Strong brown (7.5YR 5/8) moist. Non organic. No effervescence. Highly weathered schist. Slightly porous. Few roots.



Profile KDK 4

Sample N°		406	407	408	409
Depth in cm		0-25	-60-	-130-	-150(rock)-
Coarse elements	%	74	70	4	-
pH					
Water		5.40	5.48	5.06	5.33
KC1		4.67	5.09	5.08	4.55
ΔpH		0.73	0.39	-0.02	0.78
Particle-size analysis					
Coarse sand	%	24.3	28.2	16.0	
Fine sand	%	11.1	8.7	12.0	
Coarse silt	%	6.3	6.2	10.9	
Fine silt	%	17.3	18.1	26.5	
Clay	%	41.0	38.7	34.6	
Organic matter					
Carbon	%	1.32	0.46	0.18	
Nitrogen	‰	1.40			
Org. matter	%	2.27	0.79	0.31	
Carbonates : **CaCO3** %					
Exch. Ca for calcareous soils					
Exchangeable bases					
Ca	meq/l00g	1.7	1.0	1.0	1.2
Mg	meq/l00g	0.2	0.2	0.8	0.8
Na	meq/l00g	0.1	0.0	0.3	0.2
K	meq/l00g	0.1	0.1	0.1	0.1
S=**Σ**	meq/l00g	2.1	1.3	2.2	2.3
Exch. cap.	**meq/l00g**	9.2	8.1	7.7	6.3
Base saturation	%	23	16	29	37
Exch. acid el. by KC1 N					
Al	meq/l00g				
Mn	meq/l00g				
ECEC	meq/l00g				
Al sat % (Exch.Al/ECEC)					
Triacid analysis					
Fire loss	%	13.6	13.3	13.7	13.5
Quartz+insol.	%	21.4	14.7	15.5	11.0
SiO2	%	17.1	18.0	19.6	23.9
A12O3	%	18.5	21.7	23.4	24.4
Fe2O3	%	26.2	30.0	25.7	23.8
TiO2	%	1.2	1.2	1.2	1.7
MnO	%	0.2	0.1	0.1	0.2
MgO	%	0.3	0.2	0.2	0.1
CaO	%	0.0	0.0	0.0	0.0
K2O	%				
Na2O	%				
P2O5	%	0.1	0.1	0.1	0.1
Total	%	98.6	99.3	99.5	98.7
Ki = SiO2/A12O3 (molec.)		1.57	1.41	1.42	1.67
CEC me / l00g of clay		22.4	20.9	22.3	

Profile : BEL 1
Village / Location : Bikkodu
Coordinates : Long.: 75° 52' 40" E; Lat.: 13° 03' 50" N; Alt.: 1000 m.
Vegetation : Dry deciduous thicket,
Geology : Gneissic complex,
Landscape unit :11b, degraded intermediate levels with smooth convexo-concave relief,
Classification : Soil Taxonomy: Ustoxic Dystropept
French Classification: Ferrallitic soil, moderately desaturated in B, reworked, impoverished.



From 0 to 40 cm. Dry. Yellowish brown (10YR 5/4) moist. Humus. No effervescence. No coarse element. Massive structure with angular chippings. Coherent, slightly plastic, slightly fragile. Sandy clay loam with coarse sand. Slightly porous. Few roots. Smooth transition in 2 cm.

From 40 to 70 cm. Slightly moist. Light yellowish brown (10YR 6/4) moist. Humus. No effervescence. Oxy-hydroxides of iron as films. Massive structure with angular chippings. 80% of coarse elements, gravels of quartz. Coherent, slightly plastic, friable. Sandy clay loam with coarse sand. Very porous. Few roots. Smooth transition in 8 cm.

From 70 to 150 cm and more. Slightly moist. Reddish yellow (7.5YR 6/6) moist. Common oxidation mottles Red (2.5YR 4/6). Non organic. No effervescence. 10% of coarse elements, pebbles and gravels of quartz. Massive structure with blunt chippings associated with weak blocky structure, 12 mm size. Coherent, plastic, friable. Sandy clay loam with coarse sand. Clay cutans. Porous. Few roots.

< 2 µm fraction mineralogy.

Sample n° 399:
- Kaolinite +++
- Illite +
- Chlorite +
- (10-14)Sm +

Sample n° 400:
- Kaolinite +++
- Illite +
- (10-14)Sm tr.

Profile BEL 1

Sample N° **Depth in cm**		398 0-35	399 40-65	400 -100-
Coarse elements	%	2	75	12
pH				
Water		5.17	5.65	5.43
KC1		4.29	4.39	4.59
ΔpH		0.88	1.26	0.84
Particle-size analysis				
Coarse sand	%	41.6	42.2	36.6
Fine sand	%	24.1	19.9	16.5
Coarse silt	%	5.5	4.8	4.7
Fine silt	%	7.7	8.1	13.3
Clay	%	21.0	24.9	28.9
Organic matter				
Carbon	%	1.01	0.74	0.43
Nitrogen	‰	0.81	0.64	0.49
Org. matter	%	1.74	1.27	0.74
Carbonates : **CaCO3** % Exch. Ca for calcareous soils				
Exchangeable bases				
Ca	meq/l00g	1.0	1.4	1.8
Mg	meq/l00g	0.3	0.4	0.5
Na	meq/l00g	0.0	0.0	0.0
K	meq/l00g	0.1	0.1	0.0
S=**Σ**	meq/l00g	1.4	1.9	2.3
Exch. cap.	**meq/l00g**	3.4	4.1	4.1
Base saturation	%	41	46	56
Exch. acid el. by KC1 N				
Al	meq/l00g	0.2	0.1	0.0
Mn	meq/l00g	0.0	0.0	0.0
ECEC	meq/l00g	1.6	2.0	2.3
Al sat % (Exch.Al/ECEC)		13	5	0
Triacid analysis				
Fire loss	%	4.4	4.9	6.3
Quartz+insol.	%	72.7	67.7	54.7
SiO2	%	10.5	11.7	19.1
A12O3	%	6.8	7.6	13.6
Fe2O3	%	0.0	0.0	0.0
TiO2	%	0.8	0.7	0.3
MnO	%	0.0	0.0	0.0
MgO	%	0.1	0.2	0.1
CaO	%	0.1	0.1	0.1
K2O	%			
Na2O	%			
P2O5	%	0.0	0.0	0.0
Total	%	95.4	92.9	94.2
Ki = SiO2/A12O3 (molec.)		2.63	2.62	2.39
CEC me / l00g of clay		16.2	16.5	14.2

Leaves and debris.

Humus.

Organic horizon.

Calcium carbonate.

Free iron (red horizon)

Moderately hardened ironstone (carapace).

Highly hardened ironstone (cuirasse).

Ironstone gravels.

Ferruginous concretions.

Mottles.

Highly weathered gneiss (desintegrated).

Weathered gneiss (hard).

Weathered pegmatite.

Weathered "banded iron"

Weathered schist or greywackes.

Weathered amphibolite.

Weathered basalt.

Quartz

Cracks.