

The role of the soil monoliths collection of the Williams Soil-Agronomic Museum for a better understanding of the essential diversity of Russian soils

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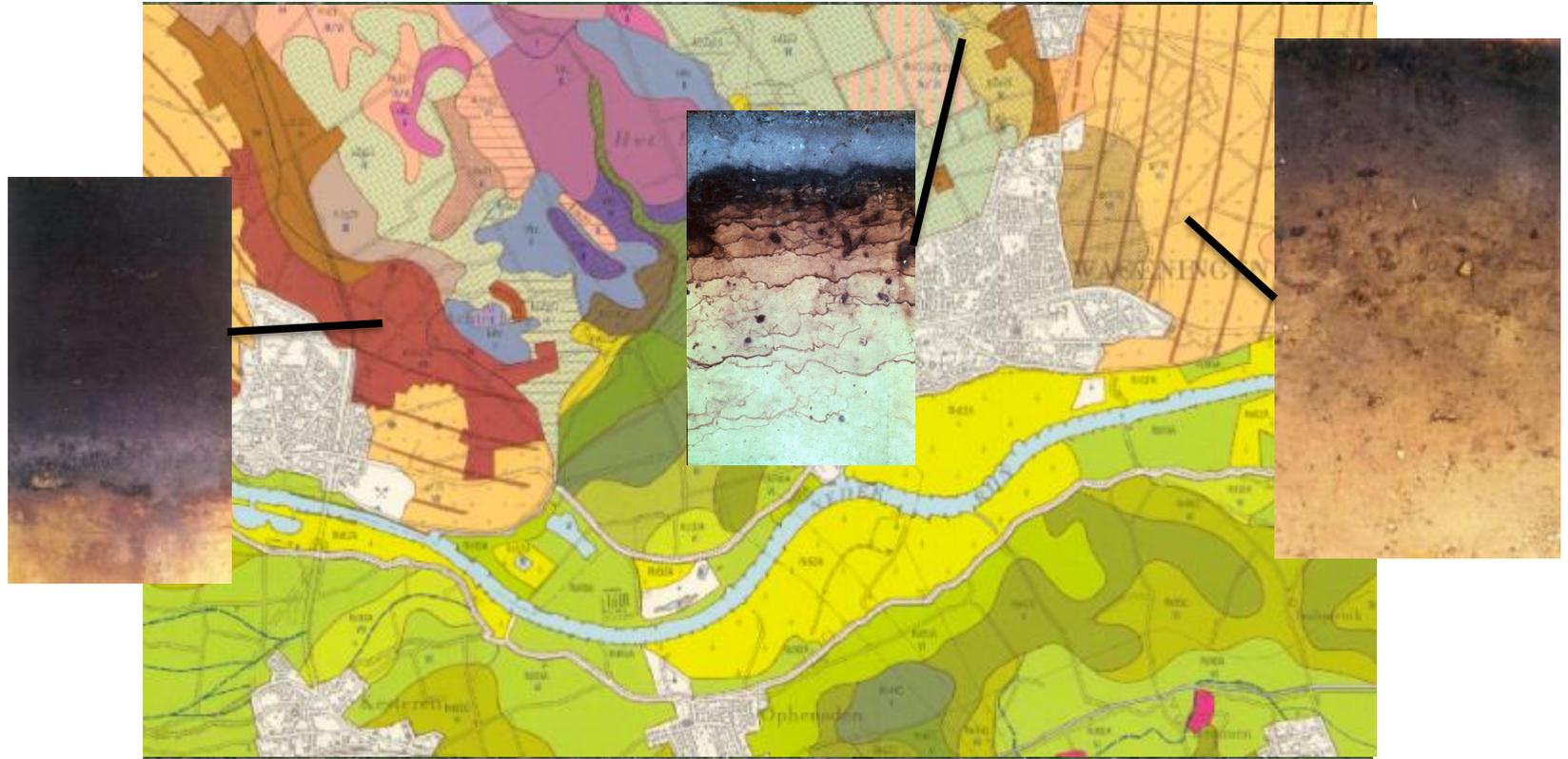


Overview

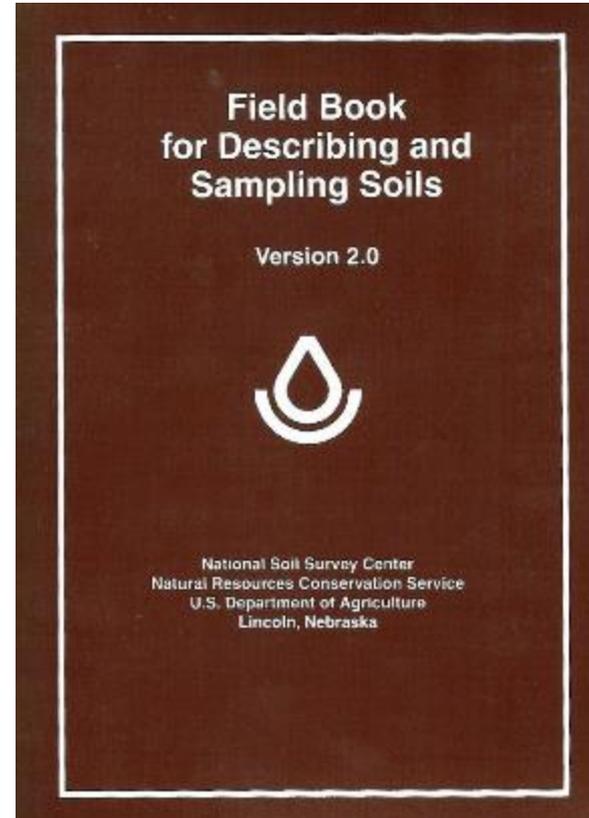
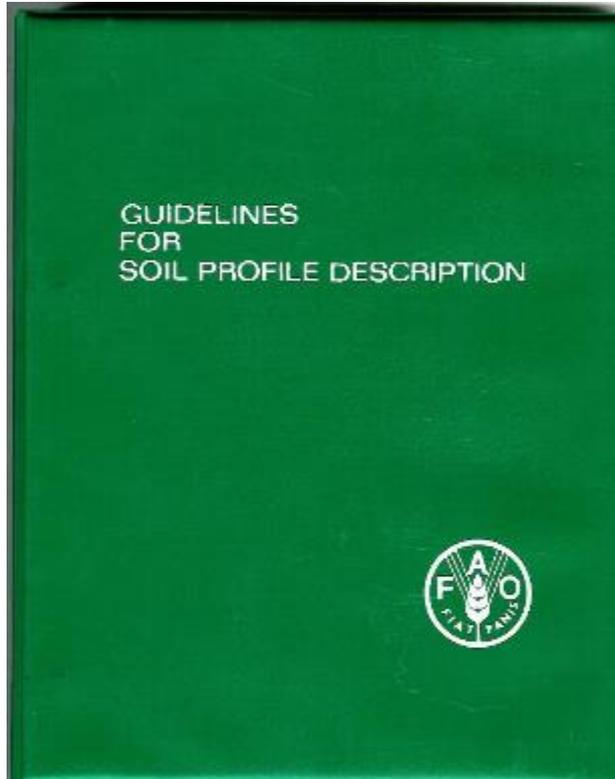


- Concepts in soil geography
- Soil functions
- The role of soil diversity
- Musea functions
- Discussion

Concepts in soil geography



The profile description



Soil profile description

The Olton series consists of very deep, well drained, moderately slowly permeable soils that formed in clayey, calcareous eolian sediments in the Blackwater Draw Formation of Pleistocene age. These soils are on nearly level to gently sloping plains and upper side slopes of playas and draws. Slope ranges from 0 to 5 percent. Mean annual precipitation is 483 mm (19 in), and mean annual temperature is 15 degrees C (59 degrees F).

TAXONOMIC CLASS: Fine, mixed, superactive, thermic Aridic Paleustolls

TYPICAL PEDON: Olton clay loam, on a northeast-facing, convex, 2 percent slope in cropland at an elevation of about 1,120 m (3,675 ft.). (Colors are for dry soil unless otherwise stated.)

Soil profile description

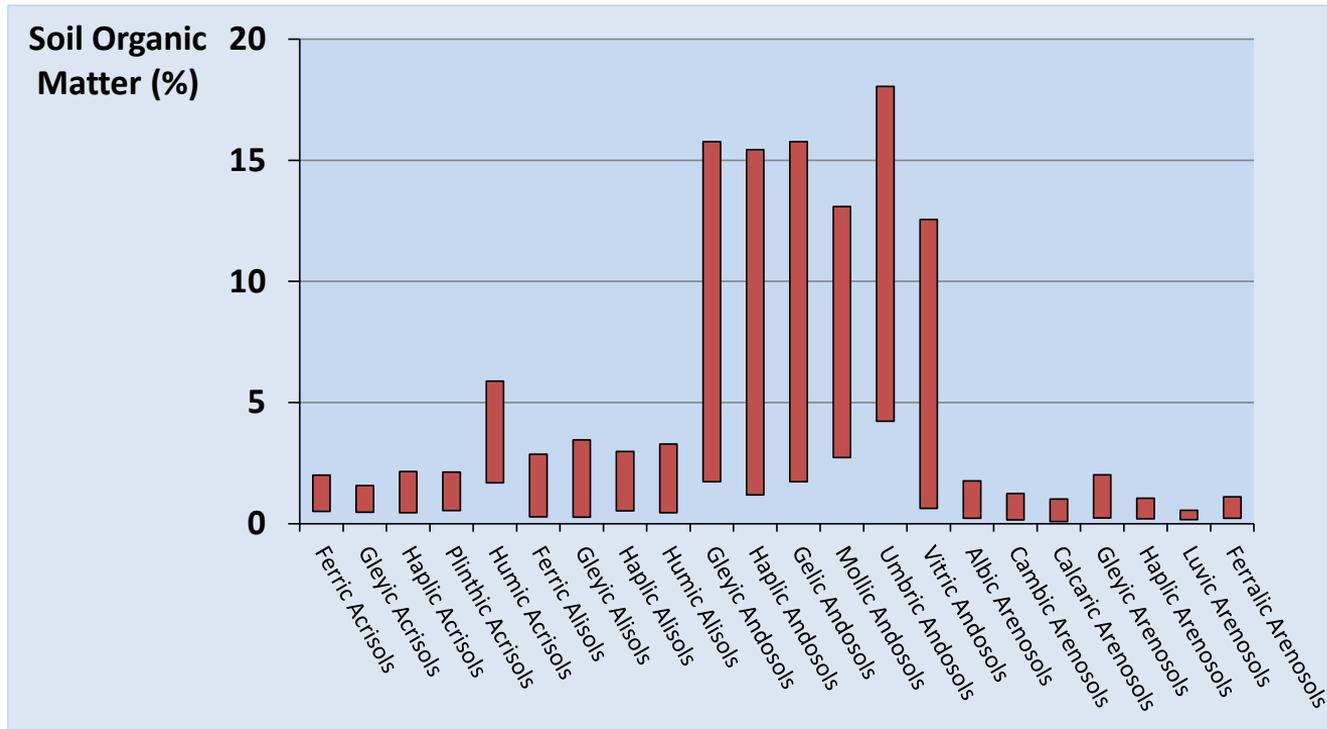
A—0 to 20 cm (0 to 8 in); brown (7.5YR 4/2) clay loam, dark brown (7.5YR 3/2) moist; moderate medium granular and subangular blocky structure; hard, friable; many fine roots; common fine pores; common earthworm channels; common wormcasts; neutral; gradual smooth boundary. (15 to 36 cm [6 to 14 in] thick)

Bt1—20 to 38 cm (8 to 15 in); brown (7.5YR 4/2) clay loam, dark brown (7.5YR 3/2) moist; moderate fine and medium subangular blocky structure; very hard, firm; common fine roots; few fine pores and root channels; few distinct clay films on faces of peds; slightly alkaline; gradual wavy boundary. (10 to 25 cm [4 to 10 in] thick)

Soil profile description

Layer	Depth (cm)	Horz	Prep	Lab Text-ure	Total					Clay		Silt		Sand					Rock Fragments (mm)								
					Clay	Silt	Sand	Fine	CO ₃	Fine	Coarse	VF	F	M	C	VC	2	5	20	.1-	>2 mm						
					<	.002	.05	<	<	.002	.002	-.05	-.2	.0002	.002	-.02	-.05	-.10	-.25	-.50	-1	-2	-5	-20	-.75	75	wt % whole soil
					----- % of <2mm Mineral Soil -----																						
					3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a
06N02986	0-12	Ap	S	cl	31.8	37.9	30.3	22.5			13.9	24.0	16.8	11.2	2.2	0.1	tr	--	--	--	14	--					
06N02987	12-27	Bt1	S	cl	32.7	36.8	30.5	25.1			14.5	22.3	16.8	11.5	2.1	0.1	--	--	--	--	14	--					
06N02988	27-48	Bt2	S	cl	39.0	33.9	27.1	28.8			13.8	20.1	13.8	11.4	1.9	tr	--	--	--	--	13	--					
06N02989	48-99	Btk	S	cl	36.9	33.0	30.1	16.0	1.3		11.9	21.1	14.7	12.3	2.7	0.2	0.2	1	tr	--	16	1					
06N02990	99-125	Btkk1	S	c	41.3	38.1	20.6	9.4	30.7		25.4	12.7	10.4	7.9	2.0	0.2	0.1	2	2	tr	14	4					
06N02991	125-203	Btkk2	S	cl	38.3	40.3	21.4	9.7	24.5		26.7	13.6	10.8	8.4	1.7	0.3	0.2	1	2	--	13	3					

Soil classification



Soil functions



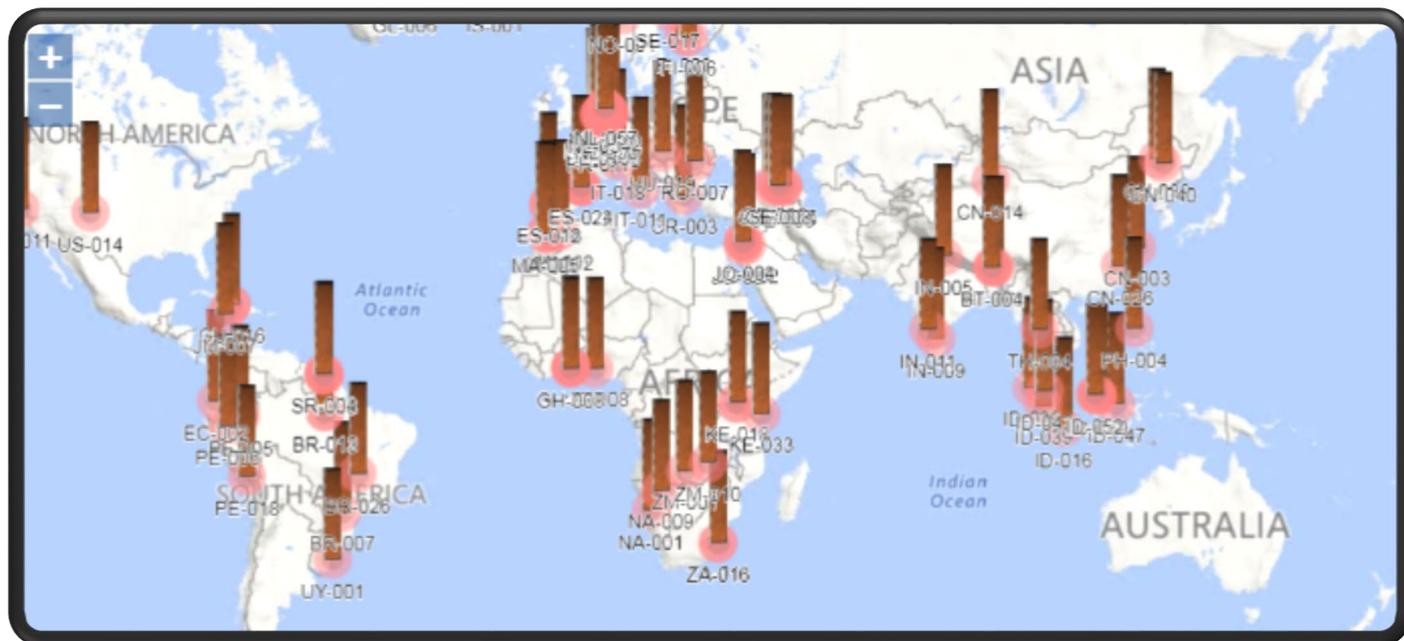
- Direct link to societal issues
- Illustrates the multifaceted nature of soils
- Attracts interest

Soil musea outside Moscow

- V.V. Dokuchaev Central Museum of Soil, Saint Petersburg
- ISRIC Wageningen, The Netherlands
- State Soil Museum & Soil Information Centre, India
- Emirates Soil Museum
- Soil Museum - Bogor



Collections



Differences between musea



Soil musea/collections

- Research
- Education
- Public awareness



The role of soil diversity



Discussion

- The landscape is central
- Key properties that are not directly visible from the profile (e.g. pH)
- Link to the structure of the museum/exhibition (e.g., classification)
- Decide explicitly on what NOT to display!

Soil geography in a museum

