

Proposed by F.J. Dent, 1966
Revised by :
P. Vijarnsorn and staffs, 1988
W. Sirichuaychoo, 2004

THUNG WA SERIES

Field Symbol: Tg

Distribution: Occupies moderate extent in Peninsular Thailand and in Southeast Coastal Thailand.

Setting: Thung Wa soils derived from granite or equivalent rocks and occurred on granitic terrain. Relief is nearly level to undulating. Slopes range from 2 to 12 percent. Elevation ranges from 20 to 40 m above mean sea level. The climate is Tropical Monsoon (Köppen 'Am'). Average annual air temperature is from 26 °C to 28°C. Average annual precipitation is from 1,800 to 3,000 mm.

Drainage, Permeability and Surface Runoff: Drainage is well drained, permeability is estimated to be moderate to rapid and surface runoff is rapid. The ground water level is below 2 m throughout the year.

Vegetation and Land Use: Mainly used for para rubber plantations, parts for coconuts and fruit trees. When abandoned reverts to low secondary shrubs.

Characteristic Profile Fathers: Thung Wa series is a member of the coarse-loamy, siliceous, subactive, isohyperthermic Typic Paleudults (soil taxonomy, 2003). They are very deep soils and are characterized by a dark grayish brown or dark gray sandy loam surface or A horizon overlying a yellowish brown or brown coarse sandy loam argillic B horizon. The coarse fractions are mainly composed of subangular quartz and increasing in size with depth. Strongly acid to moderately acid, reaction values range from 5.5 to 6.0.

Typifying Pedon: Thung Wa sandy loam, Tropical Evergreen Forest, from Ban Thung Ngai, Tambon Thung Ngai, Amphoe Hat Yai, Changwat Songkhla, 3 to 5 percent slopes.

Profile Code Number: S-68/69, described by C. Pintip and staff, 16 December 1971 (moist colors unless otherwise stated).

Horizon	Depth (cm)	Description
A	0-22	Dark grayish brown (10YR4/2) sandy loam; weak fine to medium subangular blocky structure; very friable, nonsticky and nonplastic; many medium interstitial pores; many fine and common medium roots; slightly acid (field pH 6.5); gradual smooth boundary.
AB	22-33	Dark brown to brown (10YR4/3) sandy loam; weak fine to medium subangular blocky structure; very friable, nonsticky and nonplastic; many medium interstitial pores; many fine roots; moderately acid (field pH 6.0); gradual smooth boundary.
Bt1	33-54	Yellowish brown (10YR5/4) sandy loam; weak fine to medium subangular blocky structure; friable, slightly sticky and nonplastic; discontinuous patchy thin cutan on ped faces; many medium interstitial pores; many fine roots; moderately acid (field pH 6.0); gradual smooth boundary.
Bt2	54-100 ⁺	Yellowish brown (10YR5/4) sandy loam; weak fine to medium subangular blocky structure; friable, slightly sticky and nonplastic; discontinuous patchy thin cutan on ped faces; many medium interstitial pores; few fine roots; moderately acid (field pH 6.0); gradual smooth boundary.

Type Location:

Name of district, Amphoe Thung Wa, Changwat Satun.

Range of Profile Feature:

The surface or A or Ap horizon sandy loam or loamy sand is 5 to 20 cm in thickness and normally has 10YR hues, values 3 or 4 and chromas 1 to 3, but may range toward 7.5YR. Strongly acid to moderately acid, reaction values range from 5.5 to 6.0.

The argillic B horizon sandy loam has 10YR and 7.5YR hues, values 5 or 6 and chromas 3 or 4. Texture of sandy clay loam may occurred in deeper subsoil. The solum has moderate medium blocky structure. Few mica flakes occasionally occur in the profile. Very strongly acid to strongly acid, reaction values range from 4.5 to 5.5.

Similar Soil Series:

La Han series (Lh): fine-loamy, siliceous, subactive, isohyperthermic Typic Paleudults, has gray color and has no gravels in the B horizon, which shows clear evidence of illuviation.

Principal Associated Soils:

These include Sattahip, La Han and Khlong Nok Krathung series.

Sattahip series (Sh): isohyperthermic, coated Typic Quartzipsamments.

Khlong Nok Krathung series (Knk): fine-loamy, kaolinitic, isohyperthermic Typic Kandiodults.

ANALYSIS RESULTS (oven dry basis)

Profile code No.: S-68/69

Soil series: Thung Wa series (Tg)

Lab No.	Depth (cm)	Horizon	Particle size distribution analysis (% by weight)								Texture		pH		CaCO ₃ %	P, mg kg ⁻¹ Bray 2	K, mg kg ⁻¹ NH ₄ OAc
			USDA grading			Sand-fraction grading					Lab	Field	1:1	1:1			
			sand	silt	clay	vc	c	m	f	vf	result	estim ⁿ	water	KCl			
Pc-179	0-22	A	79.0	15.0	6.0					sl	sl	4.4	3.9	0.5	7.7	50	
Pc-180	22-33	AB	78.5	13.5	8.0					ls-sl	sl	4.6	4.0	0.0	3.7	29	
Pc-181	33-54	Bt1	74.5	14.5	11.0					sl	sl	4.8	4.0	0.0	3.1	29	
Pc-182	54-100	Bt2	74.5	13.0	12.5					sl	sl	4.7	4.0	0.3	5.9	35	

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol ₍₊₎ kg ⁻¹)										Base satur ⁿ (%)		ECEC cmol ₍₊₎ kg ⁻¹ (B+D)	Al KCl extr. cmol ₍₊₎ kg ⁻¹ (D)	Electrical conduct ^y (ECx10 ⁶) dS m ⁻¹
				Ca	Mg	K	Na	SUM cations (B)	Extr. acidity (A)	SUM (B+A)	CEC NH ₄ OAc (C)	CEC 100g Clay	B/Cx100	(Bx100)/(B+A)				
0-22	0.1	0.66		0.20	0.04	0.10	0.10	0.44	2.90	3.34	2.3	38.3	19	13			0.02	
22-33	0.2	0.59		0.10	trace	0.10	0.10	0.30	2.40	2.70	2.2	27.5	14	11			0.01	
33-54	0.7	0.52		0.10	0.01	0.10	0.10	0.31	2.90	3.21	2.0	18.2	16	10			0.01	
54-100	0.2	0.37		0.10	0.01	0.10	0.10	0.31	3.10	3.41	2.4	19.2	13	9			0.01	

Surveyor: C. Pintip & staff

Reported by: W. Sirichuaychoo

Date: Dec. 16, 1971

Date: Nov. 4, 1998