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

HAT YAI SERIES Field Symbol: Hy

Distribution: Occupies a small to moderate extent in Peninsular Thailand.

Setting: Hat Yai soils are formed from old gravelly alluvium and occurred on the undulating dissected uplift terraces. Slope ranges from 2 to 12 percent. The climate is Tropical Monsoon (Koppen 'Am') at an elevation from 20 to 40 m above mean sea level. Average annual precipitation is from 1,800 to 3,000 mm. Average annual air temperature is from 26 ^{o}C to 28^{o}C.

Drainage, Permeability and Surface Runoff: Drainage is well drained, permeability is estimated to be moderate and surface runoff is medium. Ground water level is below 1.5 meter throughout the year.

Vegetation and Land Use: Originally under Tropical Evergreen Forest. Almost exclusively planted in para rubber and oil palm, when abandoned, reverts to secondary forest.

Characteristic Profile Features: Hat Yai series is a member of the clayey-skeletal, kaolinitic, isohyperthermic Typic Paleudults (soil taxonomy, 2003). They are shallow soils to very gravelly of rock fragments and are characterized by a brownish clay loam surface or A horizon overlying a brownish yellow, strong brown or yellowish red very gravelly clay loam to very gravelly clay argillic B horizon. The gravels, which occur within 50 cm of the soil surface consist of loose subangular, subrounded or rounded quartz and shale. Strongly acid to moderately acid, reaction values range from 5.5 to 6.0.

Typifying Pedon: Hat Yai clay loam - para rubber plantation, from Amphoe Ra-ngae, Changwat Narathiwat, 2 to 3 percent slopes.

Profile Code Number: S-71/6, described by S. Charoenpong, 18 December 1968 (moist colors unless otherwise stated).

Horizon	Depth (cm)	Description
A	0-15	Dark yellowish brown (10YR4/4) clay loam; moderate fine and medium subangular blocky structure; very friable, sticky and slightly plastic; many fine interstitial pores; many fine roots; moderately acid (field pH 6.0); clear smooth boundary.
BA	15-28	Strong brown (7.5YR5/6) gravelly clay; moderate medium subangular blocky structure; friable, sticky and plastic; common fine roots; medium acid (field pH 6.0); clear smooth boundary.
Btc1	28-40	Yellowish red (5YR5/8) gravelly clay; moderate medium subangular blocky structure; friable, sticky and plastic; patchy thin cutan on ped faces; few fine roots; moderately acid (field pH 6.0); gradual smooth boundary.
Btc2	40-100^{+}	Yellowish red (5YR4/6) very gravelly clay; moderate medium subangular blocky structure; friable, sticky and plastic; patchy thin cutan on ped faces; gravels composed of laterite concretion, sandstone and shale more than 80% by volume of the soil matrix; strongly acid (field pH 5.5).

Remark: gravels composed of laterite concretion, subangular, subrounded or rounded quartz, sandstone and shale.

Type Location:

Name of district, Amphoe Hat Yai, Changwat Songkhla.

Range of Profile Features:

The surface or A horizon sandy loam, loam or clay loam ranges from 10 to 30 cm in thickness and has 10YR or 7.5YR hues, values of 3 to 5 and chromas of 2 to 4. The structure is weak and moderate fine and medium blocky. Very strongly acid to moderately acid, reaction values range from 5.0 to 6.0.

The argillic B horizon very gravelly clay and has 7.5YR and 10YR hues, values are 4 to 6 and chromas 6 to 8. Structure is moderate medium and fine blocky. Very strongly acid to moderately acid, reaction values range from 5.0 to 6.0.

Similar Soil Series:

Chumphon series (Cp): clayey-skeletal, kaolinitic, isohyperthermic Typic Paleudults, unconsolidated ironstone nodule layer occurs within 50 cm of the soil surface, has not round of sandstone.

Yala series (Ya): clayey-skeletal, kaolinitic, isohyperthermic Typic Kandiudults, has not ironstones nodule.

Principal Associated Soils:

These include Chumphon and Yala series.

ANALYSIS RESULTS (oven dry basis)

Profile code No.: S-71/6

Soil series: Hat Yai series (Hy)

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_4OAc
			USDA grading			Sand-fraction grading					Lab	Field	1:1	1:1			
			sand	silt	clay	vc	c	m	f	vf	result	estim^{n}	water	KCl			
P-111	0-15	A	44.8	19.3	35.9						cl	cl	4.8	4.0	0.5	6.0	75
P-112	15-28	BA	30.0	11.8	58.2						c	gc	5.0	4.1	0.5	5.3	34
P-113	28-40	Btc1	28.0	12.9	59.1						c	gc	5.2	4.2	0.7	7.7	37
P-114	40-100+	Btc2	21.3	15.2	63.5						c	vgc	5.1	4.2	0.7	7.3	10

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_4OAc (C)	CEC 100g Clay	B/Cx100	(Bx100)/ (B+A)			
0-15	2.1	1.95		0.44	0.66	0.10	0.25	1.45	13.69	15.14	10.3	28.7	14	10			0.00
15-28	2.3	1.26		0.44	0.23	0.05	0.22	0.94	11.92	12.86	9.3	16.0	10	7			0.01
28-40	2.0	0.76		0.44	1.33	0.06	0.25	2.08	10.06	12.14	13.3	22.5	16	17			0.02
40-100+	2.6	0.66		0.33	0.33	0.02	0.22	0.90	10.02	10.92	10.6	16.7	8	8			0.01

Surveyor: S. Charoenpong

Date: Dec. 18, 1968

Reported by: W. Sirichuaychoo

Date: Nov. 19, 1998