

Proposed by: C. Changprai -1968
Revised by: 1.B. Boonsompopphan,
P. Hemsrichart, 1988
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CHUMPHON BURI SERIES

Field Symbol :Chp

Distribution: Occupies small extent in Northeast, Central Plain, Central Highlands and Northern Thailand.

Setting: Chumphon Buri soils are formed from recent alluvium and occur on the higher parts of stream and river levees. Relief is nearly level to slightly undulating, slopes range from 1 to 2 percent. The climate is Tropical Savanna (Köppen 'Aw'). Mean annual temperature is 26 to 28°C.

Drainage, Permeability and Runoff: Moderately well drained. Permeability is moderate and runoff is medium, due to micro-relief. These soils subject to short periods of flash flooding by river water. Water level is above 2 m from the surface during the wet season but falls below 3 m during the dry season. At any rate, the ground water table level is dependent on the fluctuation of water level in the river or stream course.

Vegetation and Land Use: The soils are under secondary dipterocarp and/or spiny shrubs, with a small proportion used for rice cultivation.

Characteristic Profile Features: Chumphon Buri series is a member of the coarse-loamy, mixed, active, isohyperthermic Typic Dystrustepts. They are very deep stratified soils which are characterized by a dark brown or brown loam, sandy loam or silt loam A horizon overlying a light brown, brown or pale brown stratified loam, sandy loam and loamy sand of the cambic B horizons. The 2Bt and 2C horizons may occur at a depth below 100 cm which are characterized by a brown or light brown sandy clay loam and sandy loam respectively. These soils are mottled throughout the profile with strong brown, yellowish red and/or yellowish brown. Reaction is very strongly acid to strongly acid over medium acid. Visible of mica flakes may occur throughout the profile.

Typifying Pedon: Profile code no. is NE-S-22 / 53. (colors are for moist soil unless otherwise noted).

Location: . Location is 800 m eastern part of Ban Ta Yang Amphoe Chumphon Buri, Changwat Surin.

Sheet Name: -

Sheet No. 5756 IV

Coordinate: 562965

Elevation: 120 m

Relief: nearly level

Slope: 1%

Physiography: stream and river levee

Parent material: recent alluvium

Drainage: moderately well drained

Permeability: moderate

Runoff: medium

Ground water depth: >2 m

Flooding depth: -

Duration: -

Frequency: -

Annual rainfall: 1,100-1,300 mm

Mean temp: : 26-28 °C

Climate type: Tropical Savannah

Natural vegetation and/or land use: secondary dipterocarp forest and some spiny shrubs

Other:

Described by: D. Mooklai

Date: 19 May 1980

Revised by:

Horizon	Depth (cm)	Description
A	0-20	Dark brown (7.5YR4/2) loam; common fine faint strong brown (7.5YR4/6) mottles; moderate fine and medium subangular blocky structure; friable, slightly sticky, slightly plastic; many very fine and fine roots; very strongly acid (field pH 5.0); clear, smooth boundary.
Bw1	20-42	Brown (10YR5/3) loam, common fine distinct yellowish red (5YR5/8) mottles; moderate fine and medium subangular blocky structure; friable,

		sticky, plastic; common very fine, fine and medium roots; strongly acid (field pH 5.5); clear, smooth boundary.
Bw2	42-74	Brown (7.5YR5/4) sandy loam; common fine faint yellowish brown (10YR5/4) and common fine prominent red (2.5YR4/6) mottles; moderate fine and medium subangular blocky structure; friable, slightly sticky, slightly plastic; few very fine and fine roots; very strongly acid (field pH 4.5); clear, smooth boundary.
Bw3	74-94	Brown (7.5YR5/4) sandy loam, common fine faint strong brown (7.5YR5/8) and few fine prominent red (2.5YR4/8) mottles; moderate fine and medium subangular blocky structure; friable, slightly sticky, slightly plastic; very few fine and medium roots; very strongly acid (field pH 5.0); clear, smooth boundary.
Bw4	94-128	Light brown (7.5YR4/6) loamy sand; weak fine and medium subangular blocky structure; loose, nonsticky, nonplastic; strongly acid (field pH 5.5) abrupt, smooth boundary.
2Bt1	128-170	Brown (7.5YR5/4) sandy clay loam, many fine and medium faint strong brown (7.5YR5/8) mottles; strong medium coarse and very coarse subangular blocky structure; firm, sticky, plastic; patchy thin clay coating on ped faces and in pores; strongly acid (field pH 5.5); gradual, smooth boundary.
2Bt2	170-204	Brown (7.5YR5/2) sandy clay loam; common fine and medium distinct yellowish red (5YR5/8) mottles; strong medium coarse and very coarse subangular blocky structure; firm to very firm, sticky, plastic; patchy thin clay coating on ped faces and in pores; strongly acid (field pH 5.5); gradual, smooth boundary.
2C	204-224	Light brown (7.5YR6/4) sandy loam; many medium and coarse distinct strong brown (7.5YR5/8) and few medium distinct yellowish red (5YR5/8) mottles; weak fine and medium subangular blocky structure and single grains; very friable, nonsticky, nonplastic; medium acid (field pH 6.0).

Type Location: The series name originated from Amphoe Chumphon Buri, Changwat Surin, in which soils of this series were first described. The above profile has taken as type location.

Range of Profile Features:

The A horizon varies in thickness from 15 to 30 cm has 10YR or 7.5YR hues, values of 3 to 5 and chromas of 2 to 4. Structure is moderate, fine to medium blocky. Field pH values range from 5.0 to 5.5.

The B horizon has 10YR or 7.5YR hues, values of 4 to 6 and chromas of 3 to 6. Structure is weak or moderate medium and coarse blocky. Field pH values range from 4.5 to 6.5. The pH range must be less than 5.5 throughout the control section (25 cm to 1 m).

The 2B or 2C horizon has 7.5YR or 10YR hues, values of 4 to 6 and chromas of 3 to 6. Structure of moderate to strong medium and or coarse blocky. Field pH values range from 5.5 to 6.5.

Similar Soil Series:

Tha Muang series. (Tm): has a similar profile but pH in some part of the control section is 5.5 or more (fall in nonacid family) and well drained soil.

Chiang Mai series. (Cm): is a well drained soil and fall in nonacid family.

Sapphaya series (Sa): is mottled throughout and contain gray mottled due to its use for wetland rice cultivation.

Principal Associated Soils: These include Sapphaya and Tha Muang series but Sapphaya series are more flooded.

ANALYSIS RESULTS

Profile code no.: NE-S-22/53

(oven dry basis)

Soil series : Chumpon Buri (Chp)

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 ¹	water	KCl			
	0-20	A	47.9	41.4	10.7	0.0	0.1	5.0	27.4	15.4	l	sl	4.3	3.3		7.3	41
	20-42	Bw1	47.6	31.3	21.1	0.2	0.0	3.7	27.4	16.3	l	scl	4.6	3.3		2.5	18
	42-74	Bw2	60.5	26.3	13.2	0.0	0.1	3.5	36.7	20.2	sl	scl	4.6	3.3		3.1	13
	74-94	Bw3	74.1	19.4	605.0	0.0	0.0	4.5	42.8	26.8	sl	sl	4.8	3.5		3.4	10
	94-128	Bw4	84.9	13.7	1.4	0.0	0.0	3.0	56.6	26.4	ls	ls	5.6	3.6		2.2	8
	128-170	2B11	70.9	12.4	16.7	0.0	0.1	3.4	44.0	22.3	sl	scl	4.7	3.1		1.1	23
	170-204	2B12	48.9	27.0	24.1	0.0	0.1	2.3	14.4	32.1	scl	scl	4.3	3.0		0.9	30
	204-224	2C	77.6	12.4	10.0	0.0	0.2	13.5	30.1	38.8	sl	sl	4.7	3.1		2.0	23

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol ₍₊₎ kg ⁻¹)								Base satur ¹ (%)		ECEC cmol ₍₊₎ kg ⁻¹ (B+D)	Al KCl extr. cmol ₍₊₎ kg ⁻¹ (D)	Electrical conduct ¹ (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)
0-23	1.4	1.08		1.20	0.40	0.10	0.40	2.10	8.40	10.50	7.40	69.2	28	20		0.16	
20-42	2.9	0.43		0.60	0.10	0.04	0.20	0.94	10.50	11.44	8.20	38.9	11	8		0.02	
42-47	1.7	0.24		0.20	0.10	0.03	0.40	0.73	6.70	7.43	6.00	45.5	12	10		0.06	
74-94	1.4	0.08		0.20	0.05	0.02	0.40	0.67	3.00	3.67	2.70	41.5	25	18		0.09	
94-128	0.4	0.04		0.20	0.05	0.10	0.50	0.85	1.10	1.95	1.40	100.0	61	44		0.03	
128-170	1.6	0.08		0.40	0.10	0.06	0.90	4.46	5.60	10.06	7.40	44.3	60	44		0.54	
170-204	2.8	0.16		0.50	0.20	0.10	7.90	8.70	7.60	16.30	12.00	49.8	73	53		1.13	
204-224	0.4	0.14		0.20	0.10	0.05	3.40	3.75	3.00	6.75	4.80	48.0	78	56		0.98	