

Proposed by F.R. Moormann, 1963
Revised by:
1. C. Changprai, 1987
2. S. Udomsri, 2004

PHETCHABURI SERIES

Field Symbol: Pb

Distribution: Occupies moderate extent in the Central Plain.

Setting: Phetchaburi soils are formed from alluvium and occur on the lower part of alluvial fans or transition zones between levees and backswamp of alluvial plains. Relief is flat to nearly flat with a micro-relief caused by the presence of abundant termite mounds. Slopes are 2% or less. The climate is Tropical Savanna (Köppen 'Aw'). Mean annual precipitation ranges from 1,000 to 1,400 mm. Mean annual temperature is 27°C.

Drainage, Permeability and Surface Runoff: moderately well drained to somewhat poorly drained. Permeability is moderate and runoff is slow. These soils are flooded by impounded rainwater or river to depths of about 30 cm for about four months during the rainy season. Sometimes this area flooded by irrigation. Groundwater level falls below 1.5 m from the soil surface during the dry season.

Vegetation and Land Use: Mainly used for broadcast rice cultivation.

Characteristic Profile Features: Phetchaburi series is a member of the Fine-silty, mixed, active, isohyperthermic Aquic Haplustalfs. They are deep, medium acid to neutral soils and are characterized by a brown, dark brown to dark grayish brown with many mottles loam, clay loam or silty clay loam A horizon, overlying a brown or yellowish brown loam, silty clay loam or clay loam, developed argillic B horizon. These soils are mottled throughout, the mottling in the surface layer being 'inverted gley' caused by the impounding of water and puddling of the soil for wetland rice cultivation. The B and lower A horizons have yellowish brown and strong brown mottles. Micas flakes occur throughout the solum.

Typifying Pedon: Profile code number is SW-56/17

Location: Ban Tam ru, Amphoe Ban Lat Changwat Phetchaburi.

Sheet Name: Changwat Phetchaburi

SheetNo.: 4935 II

Coordinate: 970397

Elevation: 8 m MSL.

Relief: nearly level

Slope: 1%

Physiography: alluvial fan

Parent material: alluvium

Drainage: moderately well drained to somewhat poorly drained

Permeability: slow

Runoff: slow

Ground water depth: >2 m

Flooding depth: - cm

Duration: - month

Frequency: -

Annual rainfall: 1,124.7 mm

Mean temp: 27.2 °C

Climate type: Tropical Savannah

Natural vegetation and/or land use: paddy field

Other:

Described by: B. Kaewkasem

Date: 26 March, 1976

Revised by: S. Udomsri

Horizon	Depth (cm)	Description
Ap	0-20	Dark grayish brown to dark brown (10YR 4/2-3) sandy loam; many fine distinct strong brown (7.5YR 5/6) and yellowish brown (10YR 5/6-8) mottles; weak medium subangular blocky structure; friable, non sticky and non plastic; few fine tubular pores; many medium roots; few very fine mica flakes; strongly acid (field pH 5.5); smooth boundary.
Bt1	20-60	Brown (10YR 5/3) sandy clay loam; many fine distinct yellowish brown (10YR 5/6-8) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; slightly sticky, slightly plastic; patchy thin clay coating on ped faces and in pore; many medium

		tubular pores and few fine interstitial pores; few fine roots; common to many mica flakes; slightly acid (field pH 6.5); smooth boundary.
Bt2	60-120+	Light yellowish brown (10YR 6/4) sandy clay loam; many fine distinct yellowish brown (10YR 5/8), dark brown (10YR 4/3) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; slightly sticky, slightly plastic; patchy thin clay coating on ped faces and in pores; many medium tubular pores and few fine interstitial pores; few fine roots; many medium mica flakes; some soft manganese nodules; moderately acid (field pH 6.0).

Type Location: Name of Changwat, Changwat Phetchaburi.

Range of Profile Features:

The A horizon is from 10 to 30 cm thick, has 10YR hue, values of 4 or 3 and chromas of 1-3. Structure is massive to weak, medium blocky due to 'puddling' for rice cultivation. Field pH value range from 5.5 to 6.5.

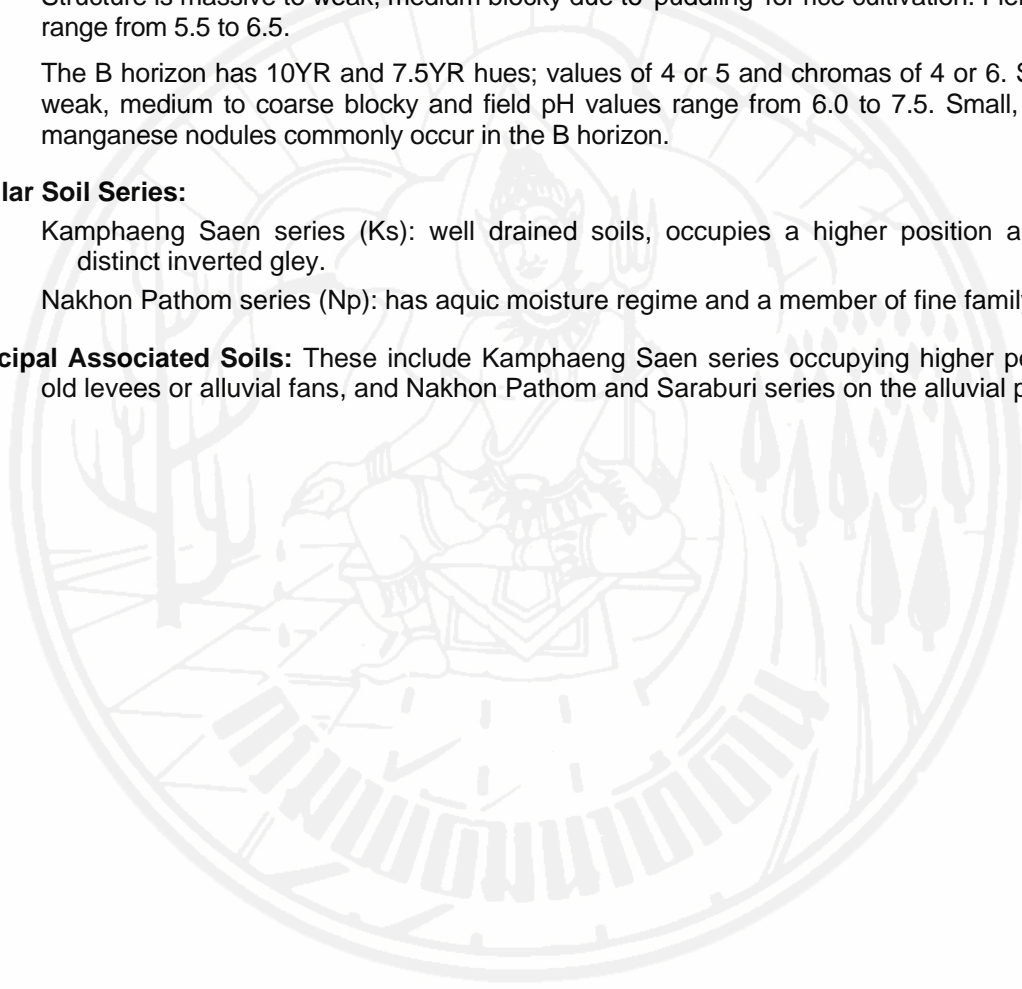
The B horizon has 10YR and 7.5YR hues; values of 4 or 5 and chromas of 4 or 6. Structure is weak, medium to coarse blocky and field pH values range from 6.0 to 7.5. Small, soft, black manganese nodules commonly occur in the B horizon.

Similar Soil Series:

Kamphaeng Saen series (Ks): well drained soils, occupies a higher position and without distinct inverted gley.

Nakhon Pathom series (Np): has aquic moisture regime and a member of fine family.

Principal Associated Soils: These include Kamphaeng Saen series occupying higher positions on old levees or alluvial fans, and Nakhon Pathom and Saraburi series on the alluvial plains.



ANALYSIS RESULTS
(oven dry basis)

Profile code No. SW-56/17
Soil series : Phetchaburi (Pb)

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				
Pg-140	0-20	Ap	21.0	50.5	28.5							cl	sl-scl	5.2	4.3		6.3	116
Pg-141	20-60	Bt1	42.6	37.6	19.8							l	scl	6.0	5.0		2.8	44
Pg-142	60-120	Bt2	63.3	31.8	4.9							sl	scl	6.0	4.3		4.3	24

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)				
0-20	4.6	1.06	0.09	3.20	1.60	0.30	0.40	5.50	5.50	11.00	8.30	29.1	66	50			0.20	
20-60	1.9	0.20	0.03	2.80	2.00	0.10	0.30	5.20	3.30	8.50	6.30	31.8	83	61			0.10	
60-120	6.3	0.12	0.02	1.30	0.90	0.10	0.60	2.90	2.30	5.20	4.20	85.7	69	56			0.03	