

Proposed by: V. Thunduan, 1970
Revised by:
1. N. Chorphaka, 1988
2. P. Wiwatwongwana, 2004

BO THAI SERIES

Field Symbol: Bo

Distribution: Occupies small extent in the Pa Sak Valley of the Central Highlands.

Setting: Bo Thai soils are formed from residuum and colluvium from sandstone which is sometimes calcareous and occur on undulating to hilly erosion surfaces and footslopes. Slopes range from 3 to 35 percent, Rock outcrops and surface boulders are common. The climate is Tropical Savanna (Koppen 'Aw'). Average annual precipitation ranges from 1,100 to 1,600 mm. Mean annual air temperature ranges from 26 to 28 °C.

Drainage, Permeability and Runoff: Moderately well drained to excessively drained. Permeability is moderate to rapid and surface runoff is medium to rapid. Ground water level is below 1 m for most of the year, but a perched water table may develop during the rainy season rising to within 50 cm of the soil surface for short periods.

Vegetation and Land Use: Dipterocarp forest, but some parts are cleared for upland crops such as corn and sorghum.

Characteristic Profile Features: Bo Thai series is a member of coarse-loamy, kaolinitic, isohyperthermic Typic Eutrustox. They are moderately deep soils and are characterized by a dark brown or dark grayish brown loamy sand or sandy loam A horizon, overlying a strong brown to yellowish red argillic B horizon with moderate development of clay coatings in the lower part. Generally this horizon is underlain by a loose laterite gravels at between 50 and 100 cm. Reaction is strongly acid to slightly acid throughout profile. Mottles of strong brown and yellowish red may occur in the lower B horizon.

Typifying Pedon: Profile code no. is NC-47/53 (moist colors unless otherwise stated).

Location: 7 km north-west of Phetchabun, 3 km north of Ban Pa Lao, Amphoe Muang Changwat Phetchabun.

Sheet Name: Changwat Phetchabun

Sheet No.: 5241 IV

Coordinate: 274227

Elevation: 160 m (MSL)

Relief: rolling

Slope: 8 %

Physiography: erosion surface

Parent material: residuum and colluvium derived from sandstone

Drainage: somewhat excessively drained

Permeability: rapid

Runoff: moderate

Ground water depth: >2 m

Flooding depth: -

Duration: -

Frequency: -

Annual rainfall: 1,124.7 mm

Mean temp.: 27.2 °C

Climate type: Tropical Savannah (Aw)

Natural vegetation or land use: secondary dipterocarp forest, sparse grass cover

Described by: Bos and Tanit

Date: 20 February, 1969

Revised by: Phusit Wiwatwongwana

Date: 23 May, 2004

Horizon	Depth (cm)	Description
A1	0-8	Dark brown (7.5YR3/2) loamy sand; weak very fine to medium subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; common very fine to fine and few medium to coarse roots; moderately acid (field pH 6.0); clear, smooth boundary.
A2	8-16	Reddish brown (5YR4/4) loamy sand; weak fine to coarse subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; common very fine to fine and few medium to coarse roots; moderately acid (field pH 6.0); clear, smooth boundary.

BA	16-34	Yellowish red (5YR5/6) loamy sand; weak fine to coarse subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; common fine to very fine and few medium to coarse roots; moderately acid (field pH 6.0); gradual, smooth boundary.
Bt1	34-50	Yellowish red (5YR5/8) sandy loam; weak fine to coarse subangular blocky structure; hard, very friable, nonsticky, nonplastic; broken moderately thick clay coatings along pores; few very fine and medium roots; moderately acid (field pH 6.0); gradual, smooth boundary.
Bt2	50-70/80	Yellowish red (5YR5/8) sandy loam; moderate coarse subangular blocky structure; hard, friable, nonsticky, slightly plastic; continuous moderately thick clay coatings along pores, red clay coatings on sand grains; few very fine and medium roots; strongly acid (field pH 5.5); abrupt, wavy boundary.
Btc	70/80+	Loose laterite gravels with soil materials in between the gravels. In places, the gravels are cemented.

Type Location:

Bo Thai series was named for Ban Bo Thai, Amphoe Nong Phai, Changwat Phetchabun which soils of this series was first described.

Range of Profile Features:

The A horizon ranges from 15 to 30 cm thick and has 7.5YR or 10YR hues, values of 3 to 4, chromas of 2 to 4. Structure is weak blocky. Field pH values range from 5.5 to 6.5.

The argillic B horizon as 5YR or 7.5YR hues, values of 4 to 6, chromas of 4 to 8. Structure is weak to moderate blocky. Field pH values ranges from 5.5 to 6.5.

In places the layer of loose laterite gravels is absent and a mottles clay to clay occurs at from 50 cm from the soil surface. This clay become calcareous with depth. Generally this soil cannot be shown separately in the map, but where it can, it is mapped as Bo Thai mottled clay phase (Bo-mc). In places, the soils are shallow over sandstone and have boulders on the surface. Where possible, these areas are mapped as Bo Thai shallow phase (Bo-sh).

Similar Soil Series:

Phetchabun series (Pe): derived from old alluvium and heavier texture (fine-loamy).

Wichian Buri series (Wb): has a similar profile to Bo Thai mottled clay phase but somewhat poorly drained.

San Pa Tong series (Sp): derived from old alluvium.

Principal Associated Soils:

These include Wichian Buri series on the lower position and Lam Phaya Klang series on the same position.

ANALYSIS RESULTS
(oven dry basis)

Profile code no.: NC-47/53

Soil series: Bo Thai (Bo)

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			
P-530	0-8	A1	76.8	17.1	6.1						ls	ls	6.0	4.8	0.4	22.6	52
P-530	8-16	A2	76.8	17.1	6.1						ls	ls	6.0	4.8	0.4	22.6	52
P-531	16-34	BA	75.9	18.4	5.7						ls	ls	5.9	4.6	0.3	15.2	31
P-532	34-50	Bt1	74.6	15.9	9.5						sl	ls	6.0	4.5	0.4	10.0	25
P-533	50-70/80+	Bt2	70.5	17.3	12.2						sl	sl	6.0	4.4	0.1	6.0	19

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol _(c) kg ⁻¹)										Base satur ⁿ (%)		ECEC cmol _(c) kg ⁻¹ (B+D)	Al KCl extr. cmol _(c) kg ⁻¹ (D)	Electrical conduct ^y (ECx10 ⁶) dS m ⁻¹
								SUM	Extr.	SUM	CEC	CEC	B/Cx100	(Bx100)/				
				Ca	Mg	K	Na	cations (B)	acidity (A)	(B+A)	NH ₄ OAc (C)	100g Clay		(B+A)				
0-8	0.8	0.62		2.30	1.00	0.10	0.10	3.50	3.10	6.60	4.1	67.2	85	53			0.01	
8-16	0.8	0.62		2.30	1.00	0.10	0.10	3.50	3.10	6.60	4.1	67.2	85	53			0.01	
16-34	0.2	0.16		0.80	0.80	0.10	0.10	1.80	1.20	3.00	1.9	33.3	95	60			0.01	
34-50	0.1	0.11		0.70	0.80	0.10	0.10	1.70	0.80	2.50	1.5	15.8	100	68			0.01	
50-70/80+	0.5	0.10		0.90	1.30	0.10	0.10	2.40	1.00	3.40	1.2	9.8	100	71			0.01	

Surveyor: Bos and Tanit

Date: 20 February, 1969