Proposed by R.L. Pendleton, 1953
Revised by:
1. C. Changprai, 1987
2. S. Udomsri, 2004

LOP BURI SERIES — Field Symbol: Lb

Distribution: Occupies moderate extent along the borders of the Central Plain and in the Central Highlands, mainly in Changwat Lop Buri, Saraburi and Amphoe Pak Chong, Changwat Nakhon Ratchasima.

Setting: Lop Buri soils are formed from alluvium which is rich in montmorillonitic clay, underlying marl layer and occur on terraces adjacent to limestone hills. Relief is nearly flat to slightly undulating. Slopes are 1-5%. They have a 'gilgai' micro-relief. The climate is Tropical Savannah (Köppen 'Aw'). Mean annual precipitation is approximately 1,400 mm. Mean annual temperature is 27^{o} C.

Drainage and Permeability and Surface Runoff: well drained. Permeability is slow and runoff is slow to moderate. The soil dries and cracks deeply during the dry season.

Vegetation and Land Use: Originally mixed deciduous forest, now mainly cleared for upland crops, such as, maize, sorghum, beans and rice.

Characteristic Profile Features: Lop Buri series is a member of the Very-fine, smectitic, isohyperthermic Typic Haplusterts.They are deep neutral to moderately alkaline soils and are characterized by a very thick black or very dark gray clay A horizon overlying a black or very dark gray coloured B horizon. Slickensides and pressure faces are characteristic of the dark coloured B horizon. The marl layer has its upper boundary at some depth below 80 cm from the soil surface and scattered secondary lime nodules occur throughout. Cracks 1 cm or more wide at 50 cm depth open for long periods during the dry season.

Typifying Pedon: Profile code number is C-4/16

Location: Ban Wang Mueang, Amphoe Wang Mueang Changwat Saraburi.

Sheet Name: King Amphoe Wang Mueang **Sheet No.:** 5238 IV
Coordinate:293423 **Elevation:** 82 m (MSL)
Relief: nearly level **Slope:** 1-2%
Physiography: terrace underlain by marl layer
Parent material: alluvium
Drainage: well drained **Permeability:** slow
Runoff: slow **Ground water depth:** >2 m
Flooding depth: - cm **Duration:** - month **Frequency:** -
Annual rainfall: 1,211.9 mm **Mean temp:** 28.1 °C **Climate type:** Tropical Savannah
Natural vegetation and/or land use: upland crops; maize, sorghum, beans
Other:
Described by: V. Thanduan and Chaidech **Date:** 12 January 1969
Revised by: S. Udomsri

Horizon	Depth (cm)	Description
Ap	0-23	Black (10YR2/1) clay; moderate medium and coarse subangular blocky with granular structure on the upper surface; very hard, firm, sticky, plastic; common very fine and fine roots; few fine lime concretions and slightly calcareous; moderately alkaline (field pH 8.0); clear, smooth boundary.
Bss1	23-49	Black (10YR2/1) clay; moderate medium and coarse subangular blocky structure; firm, sticky, plastic; few very fine roots; few fine lime concretions and slightly calcareous; some slickensides; moderately alkaline (field pH 8.0); gradual, smooth boundary.

Bss2	49-85	Black (10YR2/1) clay; moderate medium and coarse subangular blocky structure; firm, sticky, plastic; few fine roots; clear slickensides; few fine lime concretions and calcareous; moderately alkaline (field pH 8.0); clear, smooth boundary.
Bss3	85-135	Black (10YR2/1) to very dark gray (10YR3/1) clay; moderate fine and medium subangular blocky structure; friable, sticky, plastic; few fine roots; clear slickensides; about 3% fine lime concretions and calcareous; moderately alkaline (field pH 8.0); clear, smooth boundary.
BCk	135-180^{+}	Grayish brown (10YR5/2) clay loam; about 30% of soft and hard lime concretions or marl and strongly calcareous; moderately alkaline (field pH 8.0).

Type Location: Name of Changwat, Changwat Lop Buri.

Range of Profile Features:

The A horizon has 10YR hue, values of 2 or 3 and chroma of 1 in the upper part. Structure is granular in the upper layers becoming strong or moderate, fine and medium blocky below. Field pH values are 6.5 to 8.0.

The B horizon has 10YR hue, values of 2 or 3 and chroma of 1 grading to dark gray 10YR 4/1 or 2.5Y 4/0 at the transition between B and C horizons. Structure is strong or moderate, fine and medium blocky below. Field pH values are 8.0 to 8.5.

The C horizon is composed of marl and has textures of clay, clay loam or loam. Colours are variable, gray, light gray, white or grayish brown. Field pH values are 8.0 or more.

Similar Soil Series:

Takhli series (Tk): has a gravelly of marl within 50 cm of the soil surface.

Buri Ram series (Br): is basalt derived and used for paddy rice.

Ban Mi series (Bm): poorly drained with used for paddy. Values about 4 and distinct mottles throughout profile

Principal Associated Soils: These include Takhli series which occupies slightly higher positions close to the limestone hills, and Ban Mi series which occurs on the lower parts of the terrace.

ANALYSIS RESULTS **Profile code No.: C-4/16**

(oven dry basis) **Soil series : Lop Buri (Lb)**

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			
Pc-938	0.23	Ap	5.0	33.0	62.0						c	c	7.7	6.7	9.9	30.9	216
Pc-939	23-49	Bss1	4.5	27.5	68.0						c	c	7.4	6.5	5.2	15.6	126
Pc-940	49-85	Bss2	4.5	29.0	66.5						c	c	7.8	6.6	13.2	30.2	117
Pc-941	85-135	Bss3	5.0	31.0	64.0						c	c	8.0	6.8	19.3	14.4	73
Pc-942	135-180	BC	17.5	46.0	36.5						sicl	cl	8.0	6.8	40.8	29.7	123

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 condut[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	2.2	4.73		75.50	5.80	0.50	0.70	82.50	11.70	94.20	80.10	129.2	100	88			0.13
23-49	3.9	3.37		76.90	5.70	0.30	0.80	83.70	13.00	96.70	81.10	119.3	100	87			0.12
49-85	2.1	2.53		75.50	5.60	0.20	0.70	82.00	11.20	93.20	69.70	104.8	100	88			0.13
85-135	3.2	2.63		65.50	6.40	0.10	0.40	72.40	10.40	82.80	69.70	108.9	100	87			0.12
135-180	7.8	1.22		53.50	9.30	0.20	0.40	63.40	5.90	69.30	49.40	135.3	100	91			0.12