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

NAKHON PATHOM SERIES **Field Symbol: Np**

Distribution: Occupies large extent in the southwestern parts of the Central Plain.

Setting: Nakhon Pathom soils are formed from alluvium and occur on alluvial plains or terraces. Relief is flat to nearly flat with a micro-relief caused by the presence of abundant termite mounds. Slopes are about 1%. Elevation ranges from 5-20 m above sea level in the areas of the Central Plain region. 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: Somewhat poorly drained to poorly drained. Permeability and runoff are slow. These soils are flooded by impounded rainwater or river to depths of up to 50 cm for three to four months during the rainy season. Sometimes this area flooded by irrigation. Groundwater level falls below 2 m from the soil surface during the peak of the dry season,

Vegetation and Land Use: Mainly used for broadcast rice cultivation. In places, sesame, beans and groundnuts are grown, together with sugar cane in the dry season.

Characteristic Profile Features: Nakhon Pathom series is a member of the Fine, mixed, active, isohyperthermic Aeric Endoaqualfs.They are deep, slightly acid to medium acid over neutral to moderately alkaline soils. They are characterized by a very dark grayish brown, dark grayish brown or dark brown A horizon and a dark grayish brown B horizon, with loam, silty clay loam or clay loam textures in the A horizon and clay loam to clay in the B horizon. These soils are mottled throughout with strong brown and yellowish brown coatings along root channels in the A horizon and common strong brown, yellowish brown, dark yellowish brown mottles in the B horizon. Scattered iron/manganese nodules occur in the subsoil, Secondary lime nodules may also occur in the deeper B horizon below approximately 80 cm from the soil surface.

Typifying Pedon: Profile code number is SW-53/8

Location: Near Lam Hubi, Amphoe Mueang Changwat Nakhon Pathom.

Sheet Name: Changwat Nakhon Pathom **SheetNo.:** 5036 IV
Coordinate: 181326 **Elevation:** 5 m MSL.
Relief: level **Slope:** 1%
Physiography: alluvial plains
Parent material: alluvium
Drainage: somewhat poorly drained to poorly drained **Permeability:** slow
Runoff: slow **Ground water depth:** >2 m
Flooding depth: - **Duration:** - month **Frequency:**-
Annual rainfall: 1,112.8 mm **Mean temp:** 28.2 °C **Climate type:** Tropical Savannah
Natural vegetation and/or land use: paddy field
Other:
Described by: Kevie and Banchong **Date:** 21 May, 1971
Revised by: S. Udomsri

Horizon	Depth (cm)	Description
Apg1	0-15	Very dark grayish brown (10YR 3/2) many, fine and medium yellowish red mottles; clay loam; moderate fine subangular blocky structure; slightly sticky, nonplastic, friable moist; many very fine interstitial and common Very fine tubular pores; many very fine roots; clear, smooth boundary; medium acid (field pH 6.0).

Apg2	15-31	Very dark grayish brown (10YR 3/2) few, fine brown to dark brown mottles; clay loam to light clay; weak to moderate medium subangular blocky structure; many very fine interstitial and tubular pores; few pieces of brick; common very fine roots; gradual, smooth boundary; neutral (field pH 7.0)
Btg1	31-50	Dark grayish brown (10YR 4/2) many, fine and medium dark yellowish brown mottles; clay; moderate to strong, medium subangular blocky, breaking to small blocks; sticky, slightly plastic; friable moist; patchy thin clay coatings; many very fine interstitial and tubular pores; few, small, soft manganese nodules; common very fine roots; gradual, smooth boundary; neutral (field pH 7.0).
Btg2	51-85	Dark grayish brown (10YR 4/2) to brown (10YR 4/3) many, fine and medium dark yellowish brown and yellowish brown mottles; clay; moderate to strong, medium subangular blocky, breaking to small blocks; sticky, slightly plastic, friable moist; thin broken clay coatings on ped faces and in pores; many very fine interstitial and tubular pores; few, small, soft manganese nodules; common very fine roots; gradual, smooth boundary; moderately alkaline (field pH 8.0).
Btg3	85-105+	Brown to dark brown (7.5YR 4/2) very many, medium yellowish brown mottles; light clay; moderate to strong, medium subangular blocky structure; sticky, slightly plastic; thin broken clay coatings; many very fine interstitial and tubular pores; few, very small, soft manganese nodules; few very fine roots; moderately alkaline (field pH 8.0) (slightly calcareous).

Type Location: Name of Changwat, Changwat Nakhon Pathom.

Range of Profile Features:

The A horizon is from 10 to 30 cm thick, has 10YR hue, values of 3 or 5 and chromas of 2 or less. Structure is weak coarse blocky and field pH values range from 5.0 to 6.5.

The B horizon has predominantly 10YR or 7.5YR hue, values of 4 to 5 and chromas of 1-2 coated on peds faces and 3-4 in peds. Few yellowish red mottles may occur in the subsoils. Structure is moderate or strong, medium blocky and field pH values range from 6.5 to 8.0.

Similar Soil Series:

Saraburi series (Sb): has clay textures throughout and a cambic B horizon.

Doem Bang series (Db): has higher values in the argillic B horizon (5 to 7), contains more medium and coarse sand and member of kaolinitic family.

Manorom series (Mn) contain red mottles and plinthite in B horizon.

Khamphaeng Saen series (Ks): has a fine-silty family and well drained soils.

Phetchaburi series (Pb): has a member of fine-silty family and has an inverted gley in the upper A.

Principal Associated Soils: These include Manorom series, having a similar position, Khamphaeng Saen and Phetchaburi series on alluvial fans or old levees; and Saraburi series occupying transitional positions between the terrace and flood plain.

ANALYSIS RESULTS **Profile code No. SW-53/8**

(oven dry basis) **Soil series: Nakorn Pathom (Np)**

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			
Pb-715	0-15	Apg1	24.0	50.0	26.0						l	cl	5.8	5.2	0.6	42.2	140
Pb-716	15-31	Apg2	18.0	48.5	33.5						sicl	cl-c	6.5	5.8	0.5	44.1	117
Pb-717	31-50	Btg1	10.0	49.5	40.5						sic	c	6.7	5.9	0.5	31.0	117
Pb-718	50-85	Btg2	4.0	54.0	42.0						sic	c	7.4	6.6	0.9	31.0	93
Pb-719	85-105+	Btg3	6.0	56.0	38.0						sicl	c	8.0	7.5	4.2	31.9	93

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)			
0-15	1.8	1.62		13.10	6.50	0.30	2.80	22.70	6.90	29.60	17.80	68.5	100	77			0.42
15-31	2.5	1.02		10.90	6.70	0.30	1.90	19.80	5.30	25.10	18.60	55.5	100	79			0.44
31-50	2.8	0.68		10.10	9.10	0.30	2.90	22.40	4.60	27.00	19.80	48.9	100	83			0.41
50-85	2.9	0.36		10.30	10.20	0.20	5.60	26.30	4.50	30.80	20.00	47.6	100	85			0.49
85-105+	2.1	0.30		24.10	9.30	0.20	5.70	39.30	2.30	41.60	19.00	50.0	100	94			0.65