

Proposed by:
 S. Thongplaeu and M. Chuertongdee, 1975
 Revised by:
 1. N. Chorphaka, 1987
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DOI PUI SERIES

Field Symbol: Dp

Distribution: Occupies moderate extent in northern Thailand.

Setting: Doi Pui soils are residual and colluvial soils derived from schist and/or mica schist. They occur on an undulating to mountainous topography which elevation is over 500 m above sea level. Slopes range from 3 to 85 percent. The climate is Tropical Savanna (Koppen 'Aw'). The average annual precipitation is expected to be about 1,900 mm.

Drainage, Permeability and Runoff: Well drained. Runoff is slow to rapid. Permeability is estimated to be moderate.

Vegetation and Land Use: Evergreen, pine and mixed deciduous forest are found to cover these soils. Some areas, however, have been cleared for upland crops, fruit trees and shifting cultivation.

Characteristic Profile Features: Doi Pui series is a member of the fine, kaolinitic, hyperthermic (isohyperthermic or thermic) Kandic Palehumults. They are very deep soils and are characterized by a dark brown to dark reddish brown loam or sandy loam A horizon overlying a dark reddish brown, reddish brown to dark red or red clay loam to clay argillic B horizon. Reaction is medium to slightly acid.

Typifying Pedon: Profile code no. is N-35/90 (moist colors unless otherwise stated).

Location: 300 m south west of Ban Maew Nong Hoi, Amphoe Mae Rim Changwat Chiang Mai.

Sheet Name: Changwat Chiang Mai

Sheet No.: 4746 I

Coordinate: 816932

Elevation: 1240 m (MSL)

Relief: hilly

Slope: 20 % to S

Physiography: dissected erosion surface

Parent material: colluvium over residuum derived from schist associated with gneissic granite

Drainage: well drained

Permeability: moderate

Runoff: moderate to rapid

Ground water depth: >2 m

Flooding depth: -

Duration: -

Frequency: -

Annual rainfall: 1,183.5 mm

Mean temp.: 25.4 °C

Climate type: Tropical Savannah (Aw)

Natural vegetation or land use: secondary forest, formerly hill evergreen forest

Described by: Sophon Thongplew

Date: 29 July, 1973

Revised by: Aniruth Potichan

Date: 24 May, 2004

Horizon	Depth (cm)	Description
A	0-7/15	Very dark brown (10YR2/2) loam; moderate fine and medium subangular blocky structure; friable, nonsticky and nonplastic; many fine and common medium roots; few rock fragments of 1.5-3 cm in diameter; slightly acid (field pH 6.5); clear and wavy boundary.
BA	7/15-22	Dark reddish brown (5YR5/3) clay loam; moderate fine and medium subangular blocky structure; firm, slightly sticky and slightly plastic; fine and medium roots; some inclusion of the A material brought down by biological activities; slightly acid (field pH 6.5); clear and smooth boundary.
Bt1	22-50	Dark reddish brown (2.5YR3/4) clay; moderate fine and medium subangular blocky structure; firm, slightly sticky and slightly plastic; patchy thin clay coatings on ped faces; common fine and medium roots; slightly acid (field pH 6.5); gradual and smooth boundary.

Bt2	50-79	Dark red (2.5YR3/6) clay; moderate medium breaking to fine subangular blocky structure; firm, slightly sticky and slightly plastic; patchy thin clay coatings on ped faces and continuous moderately thick in pores; common very fine and fine roots; some inclusion of the material brought down by biological activities; few weathering rock fragments of about 0.5 cm in diameter; moderately acid (field pH 6.0); diffuse and smooth boundary.
Bt3	79-115+	Red (2.5YR4/8) clay; moderate fine and medium breaking to fine subangular blocky structure; firm, slightly sticky and slightly plastic; patchy thin clay coatings on aggregate faces and continuous moderately thick in pores; few fine roots; weathering rock fragments of about 3-10 cm in diameter; moderately acid (field pH 6.0).

Type Location:

The Doi Pui series was named for a well known peak of the mountain range in which the typifying pedon was first observed and described.

Range of Profile Features:

The A horizon is usually 10 to 15 cm in thickness. They have 7.5YR or 5YR hues, values and chromas of 2 to 4. The color of 10YR hue and higher values, with loamy sand or clay loam texture may occur as very thin layer at the topmost. The structure is weak to moderate blocky and some granular.

The B horizon has 5YR, 2.5YR or 10R hues, values of 3 to 5, chromas of 4 to 8. The color of redder than 10R may occur. Texture of gritty feeling with some stone line may occur in the profile. The field estimated texture, however, are usually lighter than the result from mechanical analysis. The structure is moderate blocky.

The pH values range from 5.5 to 6.5 in both A and B horizon.

Similar Soil Series:

Chiang Saen series (Ce): is a residual soils derived from granite and has lower pH values in the subsoils (4.5 to 5.5).

Chiang Khong series (Cg): is a residual soils derived from intermediate and basic igneous rocks and has less organic in the first 15 cm of the argillic horizon.

Principle Associated Soils:

These soils include Nakhon Sawan series and their related soils that mostly derived from the same kind of parent rocks.

ANALYSIS RESULTS
(oven dry basis)

Profile code no.: N-35/90
Soil series: Doi Pui (Dp)

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
	0-7/15	A	51.5	36.0	12.5						l	l	5.6	4.8	2.0	2.8	281
	7/15-22	BA	35.5	30.0	34.5						cl	cl	5.5	4.7	1.7	1.9	210
	22-50	BT1	26.5	19.5	54.0						c	c	5.5	4.8	1.7	2.2	175
	50-79	BT2	21.0	21.5	57.5						c	c	5.7	4.2	1.5	3.6	196
	79-115+	BT3	24.0	19.5	56.5						c	c	5.9	4.3	1.4	1.1	234

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
				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)			
0-7/15	5.0	3.48		9.80	3.20	1.00	0.30	14.30	26.10	40.40	31.8	254.4	45	35			0.12
7/15-22	6.1	2.08		5.40	1.60	0.60	0.20	7.80	21.80	29.60	22.8	66.1	34	26			0.10
22-50	6.2	1.1		3.30	1.80	0.40	0.20	5.70	18.20	23.90	17.6	32.6	32	24			0.06
50-79	2.7	0.73		1.50	0.70	0.40	0.30	2.90	15.80	18.70	12.7	22.1	23	16			0.01
79-115+	4.0	0.38		0.70	0.40	0.60	0.20	1.90	14.30	16.20	12.4	21.9	15	12			0.01

Surveyor: Sophon Thongplew

Date: 29 July, 1973