

Proposed by:
 T. Charasaiya and J.D. Cowie, 1969
 Revised by:
 1. N. Chorphaka, 1988
 2. A. Potichan, 2004

NONG MOT SERIES

Field Symbol: Nm

Distribution: Small to moderate extent in North Thailand.

Setting: Nong Mot soils are formed from residuum and colluvium from granite and granite derived rocks on the undulating to hilly terrains. Slopes range from 4 to 35%. The climate is Tropical Savanna (Koppen `Aw'). The average annual precipitation ranges from 1,100 to 2,000 mm.

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

Vegetation and Land Use: The soils are naturally covered with mixed deciduous forest and dry evergreen forest, presently are cleared for upland crops and fruit trees such as upland rice, maize, pine apple, longan, lychee, mango etc.

Characteristic Profile Features: Nong Mot series is a member of the fine, kaolinitic, isohyperthermic Typic Kandiuults. They are very deep soils and characterized by very dark grayish brown or dark brown loam or clay loam A horizon overlying a reddish brown or yellowish red to red clay or sandy clay argillic B horizon. The high sand fraction has a gritty feeling. Reaction is strongly acid to very strongly acid, decreasing with depth.

Typifying Pedon: Profile code no. is N-36/34 (moist colors unless otherwise stated).

Location: Ban Prong Phra Bat Nok, Amphoe Muang Changwat Chiang Rai.

Sheet Name: Changwat Chiang Rai

Sheet No.: 4948 I

Coordinate: 866089

Elevation: 400 m (MSL)

Relief: rolling

Slope: 16 %

Physiography: erosion surfaces

Parent material: residuum and colluvium derived from granite

Drainage: well drained

Permeability: moderate

Runoff: moderate to rapid

Ground water depth: >2 m

Flooding depth: -

Duration: -

Frequency: -

Annual rainfall: 1,733.5 mm

Mean temp.: 24 °C

Climate type: Tropical Savannah (Aw)

Natural vegetation or land use: upland rice

Described by: J.D. Cowie and Thamrong

Date: 14 February, 1970

Revised by: Aniruth Potichan

Date: 25 May, 2004

Horizon	Depth (cm)	Description
Ap	0-5/8	Very dark grayish brown (10YR3/2); loam; weak medium and fine subangular blocky breaking to strong granular structure; soft, very friable, slightly sticky and slightly plastic; very fine and fine roots; moderately acid (field pH 6.0); abrupt and wavy boundary.
BA	5/8-23	Dark reddish brown (5YR3/4); clay loam with discernable sand fraction; moderate medium and fine subangular blocky structure; slightly hard, friable, sticky and slightly plastic; common very fine roots; strongly acid (field pH 5.5); clear and smooth boundary.
Bt1	23-56	Reddish brown (5YR4/4) clay loam with discernable sand fraction; moderate fine and medium subangular blocky structure; hard, friable, sticky and slightly plastic; patchy moderately thick cutans on ped faces, continuous moderately thick cutans in pores; very few very fine roots; moderately acid (field pH 6.0); clear and smooth boundary.

Bt2	56-109	Yellowish red (5YR4/8); clay with discernable sand fraction; moderate medium and fine subangular blocky structure; slightly hard, friable, sticky and slightly plastic; broken moderately thick clay coatings on ped faces and in pores; few very fine roots; strongly acid (field pH 5.5); clear and smooth boundary.
Bt3	109-130+	Red (2.5YR4/6) to yellowish red (5YR4/8); very gravelly clay; massive to weak coarse subangular blocky structure; hard, friable, sticky and nonplastic; patchy to broken moderately thick clay coatings on ped faces and angular quartz gravels; very few very fine roots; strongly acid (field pH 5.5)

Remark: The coarse quartz sand throughout the profile is mainly angular.

Type Location:

Amphoe Muang, Changwat Chiang Rai. The site was on a 8% lower slope in rolling country near Moo Bhan Prong Pra Bat Nok (Sheet No 4970 I, Coord. 966189).

Range of Profile Features:

The A horizon is from 10 to 40 cm thick and has 10YR or 7.5YR hues, value of 3 or 4 and chromas of 2 to 4. The structure is commonly weak to moderate medium and fine blocky breaking to granular and fine subangular blocky structure. Field pH values range from 5.0 to 6.0.

The B horizon has hues of 5YR or 2.5YR, values of 3 or 4 and chromas of 6 or 8. The B horizon is argillic showing evidence of clay illuviation in the form of cutans on ped faces and in pores. The structure is weak to moderate fine and medium blocky. Few strongly weathered rock fragments may occur in the deeper subsoil. Field pH values range from 4.5 to 5.5.

Similar Soil Series:

Pong Tong series (Po): contains more than 35% angular quartz gravels within 50 cm of the soil surface.

Chiang Saen series (Ce): does not contain coarse quartz sand and has a higher organic matter content (Kandiustults).

Loei series (Lo): derived from granite and shale, low in sand content and higher pH.

Principal Associated Soils:

These include Pong Tong and Chiang Saen series.

ANALYSIS RESULTS
(oven dry basis)

Profile code no.: N-36/34
Soil series: Nong Mot (Nm)

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				
Pa-343	0-5/8	Ap	45.5	31.5	23.0							l	l with cos	5.3	4.1		16.4	214
Pa-344	5/8-23	BA	37.0	31.0	32.0							cl	cl with cos	4.8	4.2		3.4	30
Pa-345	23-56	Bt1	31.0	32.0	37.0							cl	cl with cos	4.8	4.0		4.4	24
Pa-346	56-109	Bt2	27.0	29.0	44.0							c	c with cos	5.1	4.2		4.0	21
Pa-347	109-130	Bt3	26.0	28.0	46.0							c	vgc	5.5	4.4		7.1	18

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
								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)				
0-5/8	7.2	2.33	0.24	2.60	1.40	0.30	0.30	4.60	16.60	21.20	19.9	86.5	23	22			0.02	
5/8-23	2.4	1.02	0.08	0.40	0.20	<0.1	0.30	0.90	12.10	13.00	8.4	26.3	11	7			0.02	
23-56	4.0	0.72	0.05	0.20	0.10	0.10	0.30	0.70	10.30	11.00	7.1	19.2	10	6			0.01	
56-109	9.2	0.49	0.02	0.10	<0.1	0.10	0.30	0.50	9.40	9.90	9.1	20.7	5	5			0.01	
109-130	5.7	0.27	0.07	0.10	<0.1	0.10	0.30	0.50	7.70	8.20	7.5	16.3	7	6			0.01	

Surveyor: J.D. Cowie and Thamrong

Date: 14 February, 1970