Proposed by: T. Thongchuta et.al-1965
Revised by: 1. N. Chorphaka-1988
2. A. Suchinai,
S. Sukchan, 2004

LOEI SERIES — Field Symbol: Lo

Distribution: Occupies small extent in the Central Highlands and in the Northeast Plateau.

Setting: Loei soils are formed from residuum and local colluvium from granite and occur on erosion surface. Relief is undulating to gently rolling which slopes range from 4 to 8 percent. Climate is Tropical Savanna (Köppen 'Aw') The average annual precipitation varies from 1100 to 1400 mm The mean temperature is from 26 to 28^{o}C.

Drainage. Permeability and Runoff: Well drained soils. Permeability is moderate. Runoff is rapid.

Vegetation and Land Use: Originally mixed deciduous and dry evergreen forest. Parts are cleared for up land crops such as cotton, corn, upland rice, chili, etc.

Characteristic Profile Features: The Loei series is a member of the very fine, kaolinitic, isohyperthermic Typic Kandiustox. They are very deep soils and are characterized by a dark brown or dark reddish brown clay or clay loam A horizon overlying a reddish brown or dark reddish brown clay upper argillic B horizon which in turn overlies a red clay lower B horizon (Kandic horizon). Reaction is medium acid to slightly acid over strongly acid.

Typifying Pedon: Profile code no. is NE-N-26/8. (colors are for moist soil unless otherwise stated).

Location: at km 249, about 50 m on the left side of the road from Loei to Chiang Khan, Amphoe Chiang Khan Changwat Loei.

Sheet Name: **Sheet No.:**
Coordinate: **Elevation:**
Relief: gently undulating to undulating **Slope:**: 4-8%
Physiography: erosion surfaces upper part of granitic terrain
Parent material: residuum and colluvium from granite.
Drainage: well drained **Permeability:** moderate
Runoff: rapid **Ground water depth:** >2.0 m
Flooding depth: - **Duration: -** **Frequency: -**
Annual rainfall: 1,100-1,400 mm **Mean temp:** 26-28 ^{o}C **Climate type:** Tropical Savannah
Natural vegetation and/or land use: upland crops
Other:
Described by: C. Changprai, et. al. **Date:** 25 November 1970
Revised by:

Horizon	Depth (cm)	Description
Ap	0-30	Dark reddish brown (5YR 3/4) clay with a discernable fine sand fraction composed of angular or subangular quartz grains; moderate coarse subangular blocky breaking to moderate medium subangular blocky structure; hard, firm, slightly sticky, plastic; common fine and medium roots concentrate in lower part of the horizon: considerable termite activity; medium acid (field pH 6.0); clear, smooth boundary.
Bt1	30-60	Dark reddish brown (2.5YR 3/4) clay with some discernable fine subangular quartz grains: moderate coarse subangular blocky breaking to moderate fine to medium subangular blocky structure; hard, slightly friable, slightly sticky, slightly plastic; broken moderately thick cutans on ped faces and in pores; common fine and few medium root; medium acid (field pH 6.0); gradual, smooth boundary.

Bt2	60-210+	Red (2.5YR 4/6) clay with scattered medium subangular quartz grains; moderate medium subangular blocky breaking into moderate fine subangular blocky structure; friable sticky plastic; broken moderate thick cutans on ped faces and in pores; few fine roots; medium acid (field pH 6.0).

Type Location: Loei series was named for Changwat Loei in which soils of this series were first described in Amphoe Chiang Khan, Changwat Loei.

Range of Profile Features:

The thickness of an A or Ap horizon varies from 10 to 30 cm and has 7.5 or 5YR hues, values and chromas of 2 to 4. Texture of silty clay or sandy clay may occur. Structure is weak to moderate blocky and/or moderate fine to medium granular structure at upper most of the layer. Field pH values vary from 6.0 to 7.0.

The upper B horizon has 5YR or 2.5YR hues, values of 3 to 5 and chromas of 4 to 8. The lower B horizon has 2.5YR or 10R hue, values of 4 to 6 and chromas of 4 to 8. Texture of silty clay may occur. Structure is moderate medium to coarse blocky. This horizon may consists of few fine iron-manganese concretions. Field pH values vary from 5.5 to 6.5.

The Loei soils usually contain discernable fine sand and some fine subangular and/or angular quartz grains throughout the profile.

Similar Soil Series:

Nong Mot series (Nm): Derived from granite, rather higher sand fraction and lower pH. It is a Typic Kandiustults.

Chiang Saen series (Ce): Palehumults; contain higher organic carbon throughout.

Principal associated Soils: These include Chiang Khan, Phu Sana.

ANALYSIS RESULTS **Profile code no.:NE-N-26/8**

(oven dry basis) **Soil series : Loei (Lo)**

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			
	0-30	Ap	35.0	18.5	46.5						c	c	6.3	5.1	0.2	5.9	181
	30-60	Bt1	32.0	12.5	55.5						c	c	5.7	4.5	0.3	11.1	79
	60-120+	Bt2	23.0	9.0	68.0						c	c	6.0	5.7	0.6	2.3	117

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations ($cmol_{(+)}$ kg^{-1})									Base satur^{n} (%)		ECEC	Al KCl extr.	Electrical condut^{y} (ECx10^{6})
				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)	$cmol_{(+)}$ kg^{-1} (B+D)	$cmol_{(+)}$ kg^{-1} (D)	dS m^{-1}
0-30	1.9	1.07		3.00	1.40	0.60	0.10	5.10	7.60	12.70	11.60	24.9	44	40			0.07
30-60	1.9	0.79		2.90	1.00	0.20	0.10	4.20	7.80	12.00	11.40	20.5	37	35			0.04
60-210+	1.3	0.26		1.90	0.80	0.30	0.10	3.10	4.80	7.90	8.60	12.6	36	39			0.05