

Proposed by: -, 1977
Revised by:
1. N. Chorhaka, 1988
2. P. Wiwatwongwana, 2004

BAN PHOT SERIES

Field Symbol: Bpo

Distribution: Occupies small extent in the Central Highlands, mainly in Changwat Phetchabun.

Setting: Ban Phot soils are formed from recent alluvium on flood plains. Relief in level to nearly level with less than 1% slope. Elevation is 45 to 130 m above sea level. The climate is Tropical Savannah (Koppen 'Aw'). Average annual precipitation is from 1,100 to 1,600 mm. Mean annual air temperature varies from 26 to 28 °C.

Drainage, Permeability and Runoff: Somewhat poorly drained. They are flooded by river overflow water in the rainy season. Ground water table falls below 2 m during the peak of the dry period. Permeability and surface runoff are slow.

Vegetation and Land Use: Mainly used for transplanting and broadcasting rices in the rainy season and partly cultivated to upland crops such as corn and beans in the early rainy season.

Characteristic Profile Features: Ban Phot series is a member of very fine, smectitic, isohyperthermic (Chromic) Ustic Epiaquerts. They are deep soils characterized by a very dark gray to dark grayish brown silty clay or clay A horizon. The B horizon are dark brown to dark yellowish brown clay. Mottles of brown, strong brown, and yellowish brown and gray are throughout profile. Reaction is strongly acid to slightly acid over medium acid to mildly alkaline.

Typifying Pedon: Profile code no. is NC-47/121 (colors are for moist soil unless otherwise stated).

Location: Ban Rai Nua, Tambon Nai Muang, 1 km north of Amphoe Muang Changwat Phetchabun.

Sheet Name: Changwat Phetchabun

Sheet No.: 5241 IV

Coordinate:

Elevation: 110-120 m (MSL)

Relief: level to nearly level

Slope: 0-1%

Physiography: flood plains

Parent material: recent alluvium

Drainage: somewhat poorly drained

Permeability: slow

Runoff: slow

Ground water depth: >2 m

Flooding depth: -

Duration: -

Frequency: -

Annual rainfall: 1,247 mm

Mean temp.: 27.2 °C

Climate type: Tropical Savannah (Aw)

Natural vegetation or land use: transplanting and broadcasting rice

Described by: N. Chorhaka

Date:

Revised by: Phusit Wiwatwongwana

Date: 23 May, 2004

Horizon	Depth (cm)	Description
Apg	0-15	Dark gray to dark grayish brown (10YR4/1-2) silty clay; common fine distinct strong brown (7.5YR4/6) mottles; moderate fine and medium subangular blocky structure; very hard, friable, sticky, plastic; many very fine roots; slightly acid (field pH 6.5); clear, smooth boundary.
BA	15-57	Grayish brown (10YR5/2) clay; common fine and medium distinct dark yellowish brown (10YR4/6) mottles; moderate medium and coarse subangular blocky structure; very hard, friable, sticky, plastic; common very fine roots; slightly acid (field pH 6.5); clear, smooth boundary.
Bssg1	57-94	Dark yellowish brown (10YR4/4) clay; common fine and medium distinct grayish brown (10YR5/2) mottles; moderate coarse subangular blocky structure; firm, sticky, plastic; common very fine roots; few fine soft iron manganese nodules, few slickensides; neutral (field pH 7.0); clear, smooth boundary.

Bssg2	94-147	Brown to dark brown (10YR4/3) clay; few fine distinct strong brown (7.5YR4/8) mottles; moderate coarse angular blocky structure; firm, sticky, plastic; few very fine roots; few fine soft iron-manganese nodules; many slickensides; neutral (field pH 7.0); gradual, smooth boundary.
Bwg	147-185+	Dark brown to dark yellowish brown (10YR4/3) clay; common medium distinct strong brown (7.5YR4/6) mottles; weak coarse angular blocky structure; firm, sticky, plastic; few fine soft iron-manganese nodules; mildly alkaline (field pH 7.5).

Remark: Cracks are opened 70 to 100 cm deep and 1 to 2 cm wide.

Type Location:

The Ban Phot series was named for Tambon Ban Phot, Amphoe Nong Phai, Changwat Phetchabun.

Range of Profile Features:

The thickness of the A horizon varies from 15 to 30 cm and has 10YR hue, values of 3 to 5 and chromas of 1 or 2. Texture of clay loam may occur. Structure is weak to moderate fine and medium subangular blocky. Field pH value is from 5.5 to 6.5.

The B horizon has 7.5YR and values of 3 to 5, chromas of 3 to 6 in 10YR. Structure is weak to moderate coarse blocky. Field pH value is from 6.0 to 7.5.

The soils of Ban Phot series have wide and deep cracks in the dry season and contain distinct slickensides and pressure faces.

Similar Soil Series:

Phimai series (Pm): has grayer color, chroma is 1 or less.

Saraburi series (Sb): occurs on higher position.

Si Songkhram series (Ss): contains red mottles.

Principal Associated Soils:

These include Lom Sak, Ratchaburi and Phimai series.

ANALYSIS RESULTS
(oven dry basis)

Profile code no.: NC-47/121
Soil series: Ban Phot (Bpo)

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			
6-16345	0-15	Apg	3.7	30.6	65.7	0.0	0.2	0.3	0.2	3.0	c	sic	5.9	4.8		22.2	150
6-16346	15-57	BA	6.8	27.3	65.9	0.5	0.7	1.0	0.6	4.0	c	c	5.0	3.6		2.2	136
6-16347	57-94	Bssg1	5.3	34.0	60.7	0.1	0.2	0.4	0.3	4.3	c	c	6.4	5.3		3.5	100
6-16348	94-147	Bssg2	5.6	34.4	60.0	0.1	0.4	0.7	0.4	4.0	c	c	6.3	5.3		5.0	84
6-16349	147-185+	Bwg	4.4	45.7	49.9	0.0	0.3	0.6	0.1	3.4	sic	c	6.7	5.7		13.1	74

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
				Ca	Mg	K	Na cations (B)	SUM Extr. acidity (A)	SUM (B+A)	CEC NH ₄ OAc (C)	CEC 100g Clay	B/Cx100	(Bx100)/(B+A)					
														B/Cx100	(Bx100)/(B+A)			
0-15	6.8	1.65		28.40	7.70	0.40	1.60	38.10	9.80	47.90	39.6	60.3	96	80			0.52	
15-57	8.1	0.68		12.40	8.20	0.40	0.90	21.90	31.70	53.60	43.8	66.5	50	41			0.15	
57-94	6.5	0.57		21.20	7.30	0.20	1.30	30.00	7.90	37.90	35.2	58.0	85	79			0.27	
94-147	6.8	0.48		23.40	7.80	0.20	1.50	32.90	7.30	40.20	34.5	57.5	95	82			0.33	
147-185+	5.3	0.39		22.40	6.80	0.20	1.70	31.10	4.60	35.70	30.7	61.5	100	87			0.45	

Surveyor: N. Chorphaka