

Proposed by U. Pulsawath, 1972  
Revised by :  
P. Vijarnsorn, 1988  
W. Sirichuaychoo, 2004

**PADANG BESAR SERIES**

**Field Symbol: Pad**

**Distribution:** Occupies a small extent in Peninsular Thailand.

**Setting:** Padang Besar soils are developed from alluvium of granite or equivalent rocks and occurred on alluvial fan (granitic terrain). Relief is gently undulating to undulating. Slope ranges from 3 to 8 percent. Elevation ranges from 15 to 40 m above mean sea level. The climate is Tropical Monsoon (Koppen 'Am'). Average annual air temperature is from 26 °C to 28°C. Average annual precipitation is from 1,800 to 3,000 mm.

**Drainage, Permeability and Surface Runoff:** Drainage is well drained, permeability is estimated to be rapid over moderate and surface runoff is rapid.

**Vegetation and Land Use:** Originally under Tropical Evergreen Forest, but now most areas have been cleared of climax forest and used for para rubber growing. When abandoned, revert to low secondary shrubs.

**Characteristic Profile Features:** Padang Besar series is a member of coarse-loamy over clayey-skeletal, siliceous over kaolinitic, subactive, isohyperthermic Typic Paleudults (soil taxonomy, 2003). They are moderately deep soils to ironstone and rocks fragments and are characterized by a very dark grayish brown to brown loamy sand surface or A horizon overlying a strong brown grading to yellowish red sandy loam upper argillic B horizon. These inturn overly a yellowish red very gravelly sandy clay which occur below 50 cm but within 1 meter from the soil surface. The coarse fraction composed mainly of loose ironstones and rounded or subrounded sandstone and quartzite (some cobble sizes are also found). Strongly acid to moderately acid, reaction values range from 5.5 to 6.0.

**Typifying Pedon:** Padang Besar loamy sand - low secondary shrub area near Hat Yai airport, Amphoe Hat Yai, Changwat Songkhla, 15 m above mean sea level, 1 to 2 percent slopes (sheet number 5022 I).

**Profile Code Number:** S-68/135, described by C. Pintip, 2 June 1972 (moist colors unless otherwise stated).

<b>Horizon Depth (cm)</b>	<b>Description</b>
A1 0-12	Brown (7.5YR5/4) loamy sand; weak fine and medium subangular blocky structure; friable, nonsticky and nonplastic; many medium interstitial pores; abundant fine and few medium roots; moderately acid (field pH 6.0); gradual smooth boundary.
A2 12-25	Brown (7.5YR5/4) loamy sand; weak fine and medium subangular blocky structure; friable, nonsticky and nonplastic; many medium interstitial pores; few fine and medium roots; few pieces of charcoal; strongly acid (field pH 5.5); gradual smooth boundary.
Bw 25-37	Strong brown (7.5YR5/6) sandy loam; moderate medium and fine subangular blocky structure; firm, slightly sticky and nonplastic; common medium and fine interstitial pores; few fine and medium roots; strongly acid (field pH 5.5); gradual smooth boundary.
Bt 37-72/90	Strong brown (7.5YR5/8) sandy loam; moderate medium and fine subangular blocky structure; firm, slightly sticky and nonplastic; thin cutan on ped faces; common medium and fine interstitial pores and few fine tubular pores; very few very fine roots; very strongly acid (field pH 5.5); clear smooth boundary.
Btc 72/90-100	Yellowish red (5YR5/8) very gravelly sandy clay; moderate medium and fine subangular blocky structure; firm, sticky and plastic; moderately thick cutan on ped faces; common medium interstitial pores; gravels composed mostly of

rounded and subrounded quartzite, sandstone and ironstone; very strongly acid (field pH 5.5).

**Type Location:**

Name of district, Amphoe Padang Besar, Changwat Narathiwat.

**Range of Profile Features:**

The surface or A horizon sandy loam vary from 5 to 15 cm in thickness and has 10YR or 7.5YR hues, values 3 to 5, and chromas 2 or 3. The structure is weak fine and medium subangular blocky. The soil texture is loamy sand may occurred. Strongly acid to slightly acid, reaction values range from 5.5 to 6.5.

The upper argillic B horizon sandy loam usually occurs somewhere between 25 to 70 cm from the soil surface and has 7.5YR hues, values 5 or 6 and chromas 6 or 8, which may gradually change to hue 5YR. The structure is weak and moderate medium subangular blocky.

The lower argillic B or BC horizon very gravelly sandy clay occurred within 100 cm from the soil surface, has 5YR hues, values 4 or 5 and chromas 6 or 8. The texture is very gravelly clay may occurred. The structure is hard to describe due to the presence of ironstones, rounded and subrounded quartzite and sandstone. Very strongly acid to moderately acid, reaction values range from 5.0 to 6.0.

**Similar Soil Series:**

Hat Yai series (Hy): clayey-skeletal, kaolinitic, isohyperthermic Typic Paleudults, almost the same profile features except gravelly layer occurs within 50 cm of the soil surface.

**Principal Associated Soils:**

These include Hat Yai series which occurs on higher position.

ANALYSIS RESULTS  
(oven dry basis)

Profile code No.: S-68/135

Soil series: Padang Besar series (Pad)

Lab No.	Depth (cm)	Horizon	Particle size distribution analysis (% by weight)								Texture		pH		CaCO <sub>3</sub> %	P, mg kg <sup>-1</sup> Bray 2	K, mg kg <sup>-1</sup> NH <sub>4</sub> OAc
			USDA grading			Sand-fraction grading					Lab	Field	1:1	1:1			
			sand	silt	clay	vc	c	m	f	vf	result	estim <sup>n</sup>	water	KCl			
Pc-783	0-12	A1	80.0	17.0	3.0						ls	ls	5.7	4.3	0.0	1.9	35
Pc-784	12-25	A2	77.0	17.5	5.5						ls	ls	5.1	4.1	0.3	1.6	29
Pc-785	25-37	Bw	75.5	18.5	6.0						sl	sl	5.2	4.0	0.0	1.6	29
Pc-786	37-72/90	Bt	72.0	20.0	8.0						sl	sl	5.3	4.1	0.0	1.6	21
Pc-787	72/90-100	Btc	49.0	12.0	39.0						sc	vgsc	5.4	3.9	0.3	1.3	32

Depth (cm)	Air dried to oven dried	C %	N %	Exchange capacity and cations (cmol <sub>(+)</sub> kg <sup>-1</sup> )								Base satur <sup>n</sup> (%)		ECEC cmol <sub>(+)</sub> kg <sup>-1</sup> (B+D)	Al KCl extr. cmol <sub>(+)</sub> kg <sup>-1</sup> (D)	Electrical conduct <sup>y</sup> (ECx10 <sup>6</sup> ) dS m <sup>-1</sup>
				Ca Mg K Na				SUM Extr. SUM CEC CEC				B/Cx100	(Bx100)/			
				cations	acidity	(B+A)	NH <sub>4</sub> OAc	100g	Clay		(B+A)					
0-12	0.5	0.78		0.24	0.15	0.10	0.20	0.69	0.50	1.19	2.0	66.7	35	58		0.02
12-25	0.7	0.73		-	-	-	-	-	-	-	-	-	-	-		0.03
25-37	1.3	0.38		0.05	0.04	0.10	0.20	0.39	1.00	1.39	1.9	31.7	21	28		0.02
37-72/90	0.5	0.18		0.15	0.04	0.10	0.20	0.49	0.30	0.79	1.5	18.8	33	62		0.02
72/90-100	1.0	0.37		0.25	0.20	0.10	0.20	0.75	9.00	9.75	9.1	23.3	8	8		0.02

Surveyor: C. Pintip

Reported by: W. Sirichuaychoo

Date: June 2, 1972

Date: Nov. 8, 1998