

Proposed by S. Charoenpong, 1971  
Revised by :  
P. Vijarnsorn and staffs, 1988  
W. Sirichuaychoo, 2004

## SONGKHLA SERIES

Field Symbol: Sng

**Distribution:** Occupies a small extent in Peninsular Thailand and some areas in Southeast Coast of Thailand.

**Setting:** Songkhla soils are formed from alluvium of granite or gneissic granite and occurred on alluvial fan. Relief is nearly level to gently undulating. Slope ranges from 1 to 5 percent. Elevation is from 10 to 30 m above mean sea level. The climate is Tropical Monsoon (Koppen 'Am') or Tropical Rain Forest (Koppen 'Af'). Average annual precipitation is above 2,000 mm Average annual air temperature is from 26 °C to 28°C.

**Drainage, Permeability and Surface Runoff:** Drainage is somewhat poorly drained, permeability is estimated to be moderate and surface runoff is slow. Ground water level is below 1 meter almost throughout the year. Flooding may occur for short period after heavy rain.

**Vegetation and Land Use:** On flat or nearly flat terrain commonly used for paddy rice but on higher terrain used for para rubber and fruit tree.

**Characteristic Profile Features:** The Songkhla series is a member of the fine-loamy, siliceous, subactive, isohyperthermic Aquic Paleudults (soil taxonomy, 2003). They are very deep soils and are characterized by a dark grayish brown loamy sand surface or A horizon overlying brown or very pale brown sandy loam or medium sandy clay loam upper argillic B horizon which underlain by a gray or light gray medium or coarse sandy clay loam lower argillic B horizon. Mottles of brownish and yellowish are present throughout subsoil in common. Very strongly acid to strongly acid, reaction values range from 4.5 to 5.5 throughout the profile.

**Typifying Pedon:** Songkhla loamy sand - paddy field, from Ban Na Si Thong, Amphoe Rattaphum, Changwat Songkhla, 30 m above mean sea level, 1 to 2 percent slopes (sheet name Ban Na Si Thong, sheet number 5032 III).

**Profile Code Number:** S-68/51, described by Udom Samrongkit, 16 July 1971 (moist colors unless otherwise stated).

Horizon Depth (cm)	Description
Ap 0-12	Very dark gray (10YR3/1) loamy sand; crumb and weak fine subangular blocky structure; friable, nonsticky and nonplastic; many very fine and few fine tubular pores and few fine interstitial pores; many very fine roots; strongly acid (field pH 5.5); clear smooth boundary.
AB1 12-23	Black to very dark brown (10YR2/1-2) loamy sand; weak fine subangular blocky structure; friable, nonsticky and nonplastic; common very fine and few fine tubular pores and few fine interstitial pores; few very fine roots; strongly acid (field pH 5.5); gradual smooth boundary.
AB2 23-38	Very dark grayish brown (10YR3/2) loamy coarse sand; weak fine subangular blocky structure; friable, nonsticky and nonplastic; common very fine and fine tubular pores and common very fine interstitial pores; few very fine roots; many fine spot of very dark gray (10YR3/1) in the upper part of the horizon and many fine spot of pale brown (10YR6/3) in the lower part; strongly acid (field pH 5.5); gradual smooth boundary.
Bt 38-56	Very pale brown (10YR7/3) coarse sandy clay loamy; common fine and medium distinct strong brown (7.5YR5/8) mottles; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; patchy thin cutan on some ped faces; many very fine, common fine and medium tubular pores and common medium interstitial pores; very few very fine roots; very strongly acid (field pH 4.5-5.0); diffuse smooth boundary.

Btg 56-100 Light brownish gray (10YR6/2) coarse sandy clay loamy; many medium and coarse distinct strong brown (7.5YR5/6-8) and few fine prominent yellowish red (5YR5/8) mottles; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; patchy thin cutan on some ped faces; many very fine, fine and few coarse tubular pores and few coarse interstitial pores; very few very fine roots; very strongly acid (field pH 4.5-5.0).

**Type location:**

Name of province, Changwat Song Khla.

**Range of Profile Features:**

The surface or A horizon sandy loam, is from 10 to 15 cm in thickness and has 10YR hues, values 2 to 4 and chromas 1 or 2. Texture of loamy sand or sandy clay loam may occurred. Structure is moderate fine subangular blocky. Very strongly acid to strongly acid, reaction values range from 5.0 to 5.5.

The upper argillic B horizon sandy loam or sandy clay loam, has 10YR or 7.5YR hues, values 5 to 7 and chromas 3 or 4. Structure is moderate medium subangular blocky. The lower argillic B horizon sandy clay loam (sandy clay may occurred in deeper subsoil) has 10YR, 7.5YR hues, values 6 or 7 and chromas less than 2. Structure is moderate medium subangular blocky. Mottles of 10YR or 7.5YR hues, values 5 to 7 and chromas 6 or 8 occur throughout subsoil, but reddish mottles (5YR or 2.5YR 4-5/6-8) may also present in deeper subsoil. Very strongly acid, reaction values range from 4.5 to 5.0.

**Similar Soil Series:**

Khok Khain series (Ko): fine-loamy, kaolinitic, isohyperthermic Typic Kandiaquults, occurred in lower position.

**Principal Associate Soils:**

These include Khok Khain series.

## ANALYSIS RESULTS

Profile code No.: S-68/51

(oven dry basis)

Soil series: Songkhla series (Sng)

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 water	1:1 KCl				
			sand	silt	clay	vc	c	m	f	vf	result	estim <sup>n</sup>						
Pb-1038	0-12	Ap	80.5	16.5	3.0							ls	ls	4.7	4.0	0.0	4.2	15
Pb-1039	12-23	AB1	78.5	17.0	4.5							ls	ls	4.6	3.9	0.0	5.2	15
Pb-1040	23-38	AB2	79.0	14.0	7.0							ls	lco.s	4.8	4.1	0.0	2.8	9
Pb-1041	38-56	Bt	68.5	7.5	24.0							scl	co.scl	5.2	3.9	0.2	1.2	21
Pb-1042	56-100	Btg	61.0	3.0	36.0							scl	co.scl	5.3	3.7	0.5	1.6	35

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 cations (B)	Extr. acidity (A)	SUM (B+A)	CEC NH <sub>4</sub> OAc (C)	CEC 100g Clay	B/Cx100	(Bx100)/(B+A)				
0-12	0.5	1.12		0.80	0.05	0.03	0.10	0.98	3.80	4.78	2.3	76.7	43	21			0.09	
12-23	1.3	1.52		0.20	0.10	0.03	0.10	0.43	6.00	6.43	3.5	77.8	12	7			0.03	
23-38	0.7	1.24		0.20	0.10	0.02	0.10	0.42	5.50	5.92	3.1	44.3	14	7			0.02	
38-56	0.8	0.23		0.20	0.10	0.04	0.10	0.44	5.10	5.54	3.4	14.2	13	8			0.01	
56-100	1.1	0.08		0.20	0.20	0.10	0.10	0.60	5.60	6.20	6.6	18.3	9	10			0.01	

Surveyor: U. Samrongkit

Reported by: W. Sirichuaychoo

Date: July 6, 1971

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