

XIV. KEY TO THE SUMATRAN SPECIES OF RED MERANTI (SHOREA SUBGEN. RUBROSHOREA)  
BASED ON VEGETATIVE CHARACTERS

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Red merantis (Shorea subgen. Rubroshorea) are the most important commercial trees of the Dipterocarpaceae. In Sumatra at least 23 of the 55 species of Shorea belong to this group. Other groups are the Yellow merantis, White merantis, and the Meranti balau. We here give a key to the Red merantis based on characters of bark, twigs, and leaves. Some information on the distribution of the species in and outside the island has been added. We have found it difficult with the data available in the published record to make distributions as detailed as possible.

Desch (1936, 1941) and Symington (1943) have divided Shorea Gaertn. into four groups based on timber and field characters, respectively. These groups were treated as subgenera by Meijer (1963), who gave the name Rubroshorea to the most well-known group of the Red Meranti. Anatomical studies by Gottwald and Parameswaran (1966) have confirmed the soundness of this classification.

Before we can use these keys we have to be sure of course that we are dealing with a species of Shorea. In general we will find damar on the boles of the trees and in a small cross-section of a piece of timber we can see the tangential lines of the resin canals. Trees are never stilt-rooted or provided with flying buttresses, as in some species of Hopea.

In some cases the fruits will be needed to distinguish between Hopea or Shorea, but after some familiarity with the species this will not be a great problem.

All we need in the field to figure out to which subgenus a specimen belongs in the field is a bushknife and some training in the well-established field key characters.

1. Sapwood very hard and dense, bark cracked or scaly. — Balau of Malaya.  
     . . . . . Shorea subgenus Shorea
- . Sapwood less hard and dense, bark fissured or scaly. . . . . 2
  
2. Damar in general darkbrown or blackish. Sapwood pale greenish yellow. Wings of the fruits twisted. — Yellow Meranti.  
     . . . . . Shorea subgenus Richetia (Heim) Meijer
- . Combination of characters otherwise. . . . . 3

- 3. Damar clear, pale yellow, or colorless. Bark laminated. Bole irregularly fissured. Heartwood white, with silica. — Meranti Pa'ang of Malaya.  
 . . . . . Shorea subgenus Anthoshorea (Heim) Meijer
- Damar yellow or reddish. Bark fissured or more or less scaly, rarely laminated. Inner bark fibrous red or purple, rarely yellow. Sapwood reddish, moderately coarse in texture, without silica. — Fruit wings not twisted. Red Meranti. . . . . Shorea subgenus Rubroshorea

Red Meranti (Shorea Rubroshorea)

- 1. Tertiary nerves prominent or slender. . . . . 2
- Tertiary nerves obscure. . . . . 16
- 2. Leaves beneath brown chocolate scabrid tomentose or pubescent, at least on nerves. . . . . 3
- Leaves beneath with a different combination of characters. . . . . 8
- 3. Stipules broadly ovate or oblong, obtuse. . . . . 4
- Stipules ovate, elliptic or lanceolate, acute or sub-acute. . . . . 5
- 4. Leaves obovate or elliptic, 5-9 cm long, 3-5 cm broad, nerves 8-11 pairs, tertiary nerves diagonal to the midrib. . . . . S. scabrida Sym.
- Leaves ovate to elliptic, 7-14 cm long, 3-6 cm broad, nerves 11-15 pairs, tertiary nerves at a right angle to the midrib. . . . . S. dasyphylla Foxw.
- 5. Leaves coriaceous. . . . . 6
- Leaves chartaceous or thinly coriaceous. . . . . 7
- 6. Stipules lanceolate, subacute. Base of the leaves cordate, nerves 13-17 pairs. . . . . S. macrantha Brandis
- Stipules ovate, acute. Base of the leaves obtuse, nerves (20-)22-25 pairs. . . . . S. ovalis (Korth.) Bl.
- 7. Stipules ovate, acute. Petiole slender, 0.9-1.4 cm long. Nerves 14-17 pairs. . . . . S. furfuracea Miq.
- Stipules elliptic, subacute. Petiole stout, 2.2-3.2 cm long. Nerves 16-21 pairs. . . . . S. uliginosa Foxw.
- 8. Twigs compressed. Stipules hastate, acute. . . . . S. platyclados Slooten
- Twigs terete. Stipules with a different combination of characters. . . . . 9
- 9. Stipule scars obscure. . . . . 10
- Stipule scars prominent. . . . . 12
- 10. Bark closely or coarsely fissured. . . . . 11
- Bark deeply fissured. . . . . S. teysmanniana Brandis

11. Leaves broadly ovate, 5-9 cm long, 2.5-5 cm broad, nerves 10-13 pairs.  
 ..... S. parvifolia Dyer  
 -. Leaves oblong-elliptic or broadly ovate, 9-17 cm long, 5.5-10 cm broad,  
 nerves 16-20 pairs. .... S. platycarpa Heim
12. Leaves coriaceous. .... 13  
 -. Leaves chartaceous or thinly coriaceous. .... 14
13. Stipules lanceolate, subacute. Leaves oblong, nerves 14-17 pairs.  
 ..... S. hemsleyana (King) Foxw.  
 -. Stipules deltoid-lanceolate, falcate, acute. Leaves oblong-lanceolate, nerves  
 7-12 pairs. .... S. singkawang (Miq.) Miq.
14. Stipules lanceolate, acute. Leaves equal-sided. .... 15  
 -. Stipules hastate, acute. Leaves unequal-sided. .... S. pauciflora King
15. Leaves ovate, 9-14 cm long, 4.2-7.5 cm broad, nerves 10-12 pairs; usually  
 with scale-like domatia on the first 3-6 pairs. .... S. johorensis Foxw.  
 -. Leaves ovate-oblong, 8-25 cm long, 4-10 cm broad, undulating, nerves 12-16  
 pairs, no domatia. .... S. palembanica Miq.
16. Leaves unequal-sided. .... 17  
 -. Leaves equal-sided. .... 18
17. Stipules ovate, subacute, 1.3 by 0.5 cm, fugaceous. Leaves with small axilla-  
 ry domatia. .... S. ovata Dyer  
 -. Stipules elliptic, large, rounded, 2.5 by 1.2 cm, subpersistent. Leaves with-  
 out domatia. .... S. acuminata Dyer
18. Stipules obtuse. .... 19  
 -. Stipules acute or subacute. .... 20
19. Leaves coriaceous, ovate-lanceolate, pale pink to grey lepidote beneath,  
 nerves 9-11 pairs. .... S. curtisii King  
 -. Leaves thinly coriaceous, elliptic to ovate, cream below in mature trees,  
 nerves 12-15 pairs. .... S. leprosula Miq.
20. Stipules oblong or lanceolate. Leaves beneath not creamy lepidote. .... 21  
 -. Stipules ovate. Leaves beneath creamy lepidote. . S. balangeran (Korth.) Buck
21. Petiole less than 2 cm long. Leaves elliptic, oblong or obovate, nerves more  
 than 12-18 pairs. .... 22  
 -. Petiole 2-3.5 cm long. Leaves broadly ovate, nerves 6-8 pairs.  
 ..... S. kunstleri King
22. Stipules lanceolate, 20 by 4 mm, more or less persistent.  
 ..... S. lepidota (Korth.) Bl.  
 -. Stipules oblong, 8 by 3 mm, fugaceous. .... S. macroptera Dyer

### Enumeration of the species

Note: This enumeration is mainly based on literature and arranged by Province and District (Kebupaten) as much as possible in a geographic order from North to South. The data for this were culled from all the original papers by Van Slooten and others as cited by Ashton (1982) including tree name lists of the Forest Research Institute. The result was a much clearer picture of the distribution of the species in Sumatra than could be given in the Flora Malesiana revision. However, it should be understood that all the older records need checking in the field. Many collections no doubt now have a historical value only as the actual sites have disappeared due to land 'development' schemes.

FM = P.S. Ashton, Fl. Mal. I, 9, 2 (1982) 237-552.  
Symington, Mal. For. Rec. 16 (1943).

***Shorea acuminata*** Dyer. FM: 535, Symington: 65. Distr.: Malaya, Sumatra: Aceh (Langsa); West Coast (Tapanuli, Pulau Marsala); East Coast (Lower and Upper Langkat); Riouw (Siak, Bengkalis, Indragiri, Kuantan, and Pulau Lingga); West Sumatra (Sijunjung, Bangkinang); Jambi (Muarabungo); South Sumatra (Palembang, Rawas). Key characters: Young branches with long persistent oblong-cordate stipules. Leaves ovate, about 6-12 cm long.

***Shorea balangeran*** (Korth.) Burck. FM: 509. Distr.: South Borneo, Sumatra: South Sumatra (Banka and Billiton). Key characters: Leaves oblong-lanceolate, about 7-18 cm long, lower face cream. A peatswamp forest species.

***Shorea curtisii*** Dyer ex King. FM: 153, Symington: 67. Distr.: Thailand, Malaya, Sarawak, Brunei, S.W. Sabah, Sumatra: Riouw (Singkep and Lingga Island). Key characters: Leaves ovate, grey lepidote, making the crowns recognizable from a distance. Timber dark red. Upper Dipterocarp forests

***Shorea dasyphylla*** Foxw. FM: 546, Symington: 69. Distr.: Malaya, Borneo, Sumatra: North Sumatra from Langkat to Labuhan Batu; South Sumatra. Key characters: Bark closely deeply fissured, inner bark beefy-red, stringy. Leaves ovate-elliptic, up to about 14 cm long, lower face scabrid, golden brown pubescent.

***Shorea furfuracea*** Miq. FM: 551. Distr.: Sumatra: Aceh (exact locality not given in the FM); North Sumatra (Sibolga, Pulau Marsala); West Coast (Mt. Ophir - Talamau). Key characters: Leaves ovate-oblong, up to about 13 cm long, with a shortly acuminate apex and rounded base, lateral nerves densely scalariform (like step ladder), lower face densely persistent pale chocolate-brown scabrid (rough like sand paper). No description of the bark seems to be present, while flowers and fruits have as yet not been collected. At the localities given this species or form appears to have become extinct, but it could be rediscovered at other places. It may then turn out to be actually identical with some other species.

***Shorea hemsleyana*** (King) King ex Foxw. FM: 536, Symington: 70. Distr.: Peninsular Thailand, N.W. Malaya (Perak), Sumatra: Riouw (Indragiri). Key characters: Leaves oblong, 14-35 cm long, lower face persistently yellow brown scabrid tomentose.

Fruits up to 7 cm long with rudimentary wings, as long as or shorter than the nut. Shallow peat swamps.

***Shorea johorensis*** Foxw. FM: 513, Symington: 72, 77. Distr.: Malaya (E.Johor), Borneo (Sarawak, Sabah, S.E. Borneo to Muara Tewe and Pleihari), Sumatra: North Sumatra (Simalungun); Jambi; South Sumatra (Palembang). Key characters: Outer bark with thin papery scales, inner bark slash pink, twigs slender, leaves similar to those of *S. pauciflora* but larger, up to about 14 cm long, ovate, lateral nerves 10-12, slender lateral nerves. Known in the older literature as *S. leptocladus* Sym. A much sought after light red meranti very suitable for veneer, becoming much larger than e.g. *S. leprosula* or *S. parviflora*.

***Shorea kunstleri*** King. FM: 519, Symington: 72. Distr.: Malaya (Perak and E. Coast), Borneo (Lower Kapuas, West Borneo; Sarawak; E.Sabah and S.E.Borneo (to Sampit), Sumatra: Aceh (Langsa). Key characters: Bark closely fissured, with frequent exudation of yellow, crusted damar, inner bark orange-red, fibrous. Leaves long-petioled, smooth, blades ovate, acuminate, up to about 12 cm long, lateral nerves 6-8 pairs, tertiary nerves very slender, hardly visible, axillary domatia present. The inner bark can be given a toothbrush-like appearance on the horizontal part of the parang slash. The timber is well-known in Malaya as the highly valued damar laut merah.

***Shorea lepidota*** (Korth.) Bl. FM: 537, Symington: 73. Distr.: Malaya, Sumatra: North Sumatra (Tapanuli, Sibolga); West Sumatra (Ophir, Pariaman and Padang); Riouw (Kuantan). Key characters: Bark deeply fissured. Twigs downy, glabrescent. Stipules thin, large, ovate-oblong. Leaves oblong or ovate-oblong, drying dull purple-red, about 6-14 cm long, apex acute, about 1 cm long, lateral nerves 14-16 pairs, tertiary nerves densely scalariform. Timber a light red meranti. No collections seen yet. A typical lowland species with rather large fruits.

***Shorea leprosula*** Miq. FM: 540, Symington: 75. Distr. : Thailand, Malaya, Borneo, Sumatra: Aceh (Lho'seumaweh, Langsa); East Coast (Langkat, Padang, Bedagei, Simalungun, Asahan, Labuhan Batu, Tapanuli, Pulau Marsala, Plateau of Toba, Sibolga, Angkola and Sipirok, Natal); West Sumatra (West Coast from Padang to Pariaman and Ophir); Riouw (Kuantan / Upper Indragiri River, Siak, Pulau Singkep); Jambi (Muarabungo, Jambi); Benkulu (Lebong); South Sumatra (Bayung Lincir, Rawas, Musi Ulu, Musi Ilir, Lematang Ilir, Lematang Ulu, Ogan Ulu, Muara Dua, Banka, Billiton); Lampung (Tarabangi, Kotabumi, Sukadana, Teluk Betung). Especially in the latter province many localities given by Van Slooten (1949) are mainly of historical interest. A revision of the present distribution of this very common species in Sumatra would give a good idea of the devastation of Dipterocarp forests there under the influence of logging, shifting cultivation and expansion of estate agriculture. Key characters: Crown yellowish-brown crown. Leaves elliptical, lower surface yellow-tomentose. Young trees have leaves with long rows of domatia along the midrib and base of lateral nerves, they can in general be found among the regeneration around the mother trees.

***Shorea macrantha*** Brandis. FM: 536, Symington: 77. Distr.: Malaya (Perak, E. coast in Pahang and Johor), NW. Borneo (Central and W. Sarawak), Sumatra: Riouw (Indra-

giri). Key characters: Leaves unequal sided at base, elliptic, ovate, 6-17 cm long, lower side yellow brown scabrid tomentose, lateral nerves 13-17. Fruit large, wings up to 2,5 cm (with edible fat). Mixed Peat Swamp Forests and on white sandy soils in coastal regions.

***Shorea macroptera* Dyer.** FM: 532, Symington: 78. Distr.: Peninsular Thailand, Malaya, Singapore, Sumatra: North Sumatra (East coast: Langkat); Riouw (Indragiri / Kuantan, Lingga and Singkep Islands); Jambi (no exact localities). Key characters: Bole little or not fissured. Lenticels in vertical rows. Inner bark with a red layer along the cork cambium. Leaves elliptic oblong, lateral nerves 12-15(-18) pairs, lower surface pale brown pubescent on the midrib and lateral nerves with fringed circular scales (handlens c. 10-15 X). Wings with auricled bases. One of the more common species of light red meranti, apparently undercollected in Sumatra.

***Shorea ovalis* (Korth.) Bl.** FM: 548, Symington: 80. Distr.: Malaya, Penang, East Coast, Singapore, Borneo, Sumatra: North Sumatra (Angkola); Riouw (Indragiri, Bangkinang, SW. of Pakan Baru); Jambi; South Sumatra (Banka, Billiton); Lampung (according to Soewanda, 1972, List of tree species, Report 143, FRI, Bogor and our own observations). Part of the localities belong to ssp. sericea, especially in the Southern half of the island (FM). This is a tetraploid form reproducing apomictically through adventive polyembryony (Ashton, in FM). Key characters: Bark more or less regularly fissured. Twigs hairy. Stipules semi-persistent, triangular. Leaves oblong, boat-shaped, scabrid, in ssp. sericea lower surface concave. Probably one of the most common light red merantis from the lowland forests East of the Barisan Range.

***Shorea ovata* Dyer ex Brandis.** FM: 545, Symington: 82. Distr.: Malaya, Borneo, the Philippines, Sumatra: North Sumatra (West Coast, Marsala Island, Tapanuli, Sibolga) to Painan in West Sumatra; Riouw (Bangkinang, SW. of Pakan Baru). Key characters: Very closely related to *S. parvifolia*, but in general much smaller, bark deeply, closely fissured, inner bark beefy red. Leaves more ovate, up to about 8 cm long, sometimes with small domatia in the basal axils near the midrib. Sandy soils of coastal hills or podsollic montane soils along ridges.

***Shorea palembanica* Miq.** FM: 513, Symington: 83. Distr.: Malaya, Borneo, Sumatra: South Sumatra (Palembang). Key characters: Leaves ovate-oblong, up to about 25 cm long, drying dark red like those of *S. pauciflora*, lateral nerves 12-16. Fruits almost wingless. Habitat riparian: fruits adapted to distribution by water, containing an edible fat (see Heyne: 1121).

***Shorea parvifolia* Dyer.** FM: 546, Symington: 85. Distr.: Thailand, Malaya, Borneo, Sumatra: North Sumatra (West Coast, P. Marsala). This is the only locality of this common species mentioned in FM. It probably occurs in all provinces. Tree name lists (Laporan 141 and 143) from FRI, Bogor record it from South Sumatra (Kubu, Banyuasin, Lematang Ilir, Musi Ulu, and Rawas); Lampung (Kotabumi, Menggala, Teluk Betung). Key characters: Bark closely fissured, scattering on slash, with a lighter pinkish color under the fissures, outer bark brittle, inner bark stringy, Branches sometimes with leafgalls. Leaves broadly ovate, 3-9 cm long,

base rounded or cordate, with occasionally a pair of scale-like domatia, lateral nerves about 12 pairs. One of the most common species of light red meranti, certainly undercollected in Sumatra.

***Shorea pauciflora*** King. FM: 511, Symington: 87. Distr.: Malaya, Borneo, Sumatra: All provinces except the extreme North and South according FM. Not listed from South Sumatra and Lampung. Key characters: Bole scaly, more or less like *S. johorensis* (= *S. leptoclados*), but inner bark more deeply dark red and more sticky, rich in reddish tannin (therefore called Oba Suluk in Sabah). Leaves ovate, 9-15 cm long, drying rather reddish brown, lateral nerves 8-9 pairs, tertiary nerves rather inconspicuous, densely scalariform. One of the most valuable dark red heavy red merantis, the Nemesu or Oba suluk of Malaya. Bark used for tanning nets by the coastal Suluk in Sabah.

***Shorea platycarpa*** Heim. FM: 541, Symington: 88. Distr.: Malaya, Borneo, Sumatra: Riouw (Siak near Pekan Baru); South Sumatra (Palembang, Banka, Billiton). Key characters: Crown dark coloured. Bark coarsely fissured. Stipules of twigs oblong subacute, up to 1 cm long. Leaves elliptic-oblong or broadly ovate about 9-17 cm long, scabrid or tomentose. Mixed Peat Swamp forests, where it can be common.

***Shorea platyclados*** Slooten ex Foxw. FM: 515, Symington: 89. Distr.: Malaya, Borneo, Sumatra: Aceh (Gayo Lands, Mt. Agosan, 1800 m alt., Alas Lands, E. of Lau Alas); North Sumatra (East Coast, Karo Lands, Kota Bangun, Sibuatan, Simalungun, Bah Hopal, Raya Dolok, Rayahumala, Tapanuli, Mandailing / Simpang Datar, Angkola and Sipirok: Sayurimatingi, Si Soma, Bargot Tapong and Panobasan); West Sumatra (Ophir: NW. slope of Mt. Talamau, Sawak Mudik, Batas Cubadak; Agam: Sipisang, S. Daras, Tabing; L. Kota: Bukit Tinggi; Padang Panjang: Tambangan, 600 m; Pariaman: Guguh; Solok: Lubuk Sulasih; Padang: Lubuk Perahu, 600 m, Ulu Gadut; Painan: Barung-Barung Balantai, Lubuk Gangga, 600 m); Bengkulu (Lebong: Padang Lemau, 600 m; Bengkulu: Siring, 550 m; Rejang: Curup, Kepahiang, 600 m, Telutmonok, Rinduati, 400 m, Karanganyar); South Sumatra (Mulak Ulu, Pasemah Estate, 600 m); Lampung (Krui: Sukabumi, Sukanegeri; Seputih: Muara Dua, 400 m; Semangka: Kota Agung. Key characters: Bark flaky and fissured. Flattened branchlets. Stipules of young twigs and saplings lanceolate-acuminate, 2-2.5 cm long. Leaves lanceolate, 6-9 cm long, smooth, midrib sharply keeled, lateral nerves 15-18 pairs. Often a tree of the Upper Dipterocarp forests along the whole Bukit Barisan Range, common between 600-1300 meters altitude, but also descending towards lowlands on the poorer soils. Known as Banio in West Sumatra.

***Shorea scabrida*** Sym. FM: 543, Ashton, Man. Dipt. Brun. (1964) 221, Meijer & Wood, Sabah For. Rec. 5 (1964) 146. Distr.: Borneo and East Sumatra: Aceh (Langsa); North Sumatra (East Coast, lower Langkat); Riouw (Lingga Island). Key characters: Bark deeply fissured. Leaves elliptic-ovate, 5-9 cm long, rough to touch, but smooth in appearance, lateral nerves 8-10 pairs, lower face shiny, scabrid-tomentose on the midrib and lateral nerves. Fresh-water swamp forest on shallow peat on sandy soils, kerangas, mixed Dipterocarp forests.

***Shorea singkawang*** (Miq.) Miq. FM: 536, Symington: 92, 95. Distr.: Peninsular Thailand, Malaya, Sumatra: Riouw (Indragiri, Lingga Island); South Sumatra (near

Palembang, Rawas); Lampung (no exact locality given in FM and not listed in tree name list, Laporan 143). Key characters: Stipules early caducous, ovate-lanceolate, about 12 mm long. Leaves oblong-lanceolate, 12-24 cm long, drying purple brown, lateral nerves 7-12 pairs. Large fruits with rudimentary wings, as illustrated by Symington near page 65.

***Shorea teysmanniana*** Dyer ex Brandis. FM: 538, Symington: 94. Distr.: Coastal regions along the West Coast of Malaya, Borneo, Sumatra: North Sumatra (East Coast, Labuhan Batu); Riouw (Bengkalis, Siak, Karimun); South Sumatra (Palembang, Banyuasin, Kubu, Banka). Key characters: Bark deeply fissured, inner bark deep red. Leaves ovate, 7.5-11 cm long, glabrous, lateral nerves 8-11 pairs. Mixed peatswamp forests.

***Shorea uliginosa*** Foxw. FM: 539, Symington: 91 (as *S. rugosa* Foxw. var. *uliginosa* Symington). Distr.: Malaya, Borneo, Sumatra: North Sumatra (East Coast, Asahan, Labuhan Batu); Riouw (Bengkalis, Indragiri); South Sumatra (Palembang, Banyuasin and Kubu, Musi Ilir, Banka, Billiton). Meranti paya would be a good standardized name for this species. Key characters: Swampy habitat. bark coarsely fissured. Leaves boat-shaped, oblong, 12-22 cm long, hairy. Mixed Peatswamp Forest.

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