

Iguanura tenuis Hodel sp. nov. Fig. 7-8.

Iguanura polymorphae Becc. affinis sed inflorescentiis interfolia, rachillis tenuis; *I. wallichianae* (Wall. Ex Mart.) Hook. f. affinis sed pinnis lateribus et nervis divergens differt. Typus: Thailand, between Takuapa and Phanom, 600 m elev., D.R. Hodel, P. & R. Vatcharakorn 1727 (Holotypus BK).

Clustered understory palm to 1.5 m tall. Stems 2 cm diam., ringed, brownish. Leaves 7, pinnate, spreading; sheaths 10 cm long, tubular, persistent, marescent, not forming a crownshaft, covered with dense, reddish brown, felt-like tomentum; petiole 7 cm long, rachis 45 cm long, with reddish brown hairs above; pinnae 4-5 on each side of rachis, +/- trapezoid, sides not parallel, 19 cm long, 3.5-7 cm wide at apex, narrowing to 3-5.5 cm wide at base, 6-7-nerved, end pair 10 cm long, 7 cm wide at apex, 6 cm wide at base, 10-nerved, small basal pinnae 3-nerved, all pinnae with apical margins praemorse and nerves diverging toward tip. Inflorescences 1-2, interfoliar, 65-90 cm long; peduncle 26-30 cm long, ascending; prophyll and peduncular bracts not seen; rachis 8-22 cm long; rachillae 9-15, these 17-35 cm long, 0.5 mm diam., slender, spreading, wiry, flexuous; rachis and rachillae finely pebbled; peduncle, rachis, and rachillae with dense, whitish to light brown, +/- deciduous tomentum. Flowers in triads of a center, later-opening pistillate flanked on each of 2 sides by earlier-opening staminate, triads 13 mm distant at base of rachillae, 3 mm distant at tip, slightly sunken, subtended proximally by a thin, shelf-like bracteole 0.5 mm high and deeply cleft into 2 acute lobes, distal bracteole thicker, lip-like, 0.25 mm high, 2 bracteoles subtending pistillate flower, larger one sheathing, +/- cylindrical, 0.5 mm high, smaller one only partially sheathing, one small bracteole subtending one of staminate flowers. Staminate flowers 2.25 x 1.75 mm, ovoid, white; calyx 0.75 x 1.5 mm, cupular, sepals imbricate to apex, broadly rounded to truncate apically; petals 2 x 1 mm, ovate, valvate, boat-like, acute, prominently nerved when dry; stamens 6, 1.5 mm high, filaments 1.25 mm long, anthers 1 mm long, dorsifixed; pistillode 1.25 mm high, columnar, truncate and expanded at apex. Pistillate flowers seen just prior to anthesis, 2.5 x 1.75 mm, ovoid; calyx 1.25 x 1.5-1.75 mm, cupular, sepals bowl-

like, imbricate nearly to apex, broadly rounded apically; petals 2.5 x 1.5 mm, imbricate in basal 2 mm, mucronate with a tip 0.5 mm high, prominently nerved when dry; pistil 1.74 x 0.75 mm, ovoid, stigma with 3, short lobes. Fruits 11-12 x 6 mm, narrowly ovoid, white with pink blush, nearly ripe.

Iguanura tenuis occurs in wet mountain forest on the west side of middle peninsular Thailand. It has the smaller habit and trapezoid pinnae of *I. polymorpha* but the persistent, disintegrating leaf sheaths which do not form a crownshaft of *I. wallichiana*. It differs from both in the very slender, nearly wiry rachillae. The epithet means slender, and refers here to the rachillae.

Licuala delicata Hodel sp. nov. Fig 9-10.

*Licuala kingiana*e Becc. affinis sed petiolis non armatis, laminis segmenti paucioribus, inflorescentiis patens, bracteis pilis ferrugineis, rachillis multo brevioribus, floribus solitariis differt. Typus: Thailand, Betong, 800 m elev., D.R. Hodel, P. & R. Vatcharakorn 1740 (Holotypus BK).

Solitary, if clustered then only after many years and then with 1 dominant stem and 1 small sucker, dainty understory palmet, 1 m tall. Stem to 1.5 m long, 2 cm diam., decumbent or erect, brown, obscurely ringed. Leaves 13, palmately divided, spreading; sheaths 5 cm long, margins fibrous netted, brown, apex with slender, brown ocrea 5-8 cm long; petioles 16-30 cm long, slender, margins mostly unarmed, sometimes near the base with a few recurved spines 1 mm long; blade 18 x 30 cm, semi-orbicular, divided to the base into 4-5 segments, middle one 17 x 13.5-14 cm, 13-14-nerved, apex slightly rounded, lateral segments 15-16 x 2.5-5 cm, 5-nerved, basal ones 15-15 x 3-3.5, 3-4-nerved, 30 nerves total per blade, apical segment truncately praemorse, lobes 4 mm high, basal ones obliquely praemorse, lobes to 12 mm high.; thick reddish tomentum abaxially at base of blade. Inflorescences 1-2, interfoliar, 30 cm long, slender, nodding, furcate; peduncle 25-27 cm long; prophyll 17-20 cm long, tubular basally, inflated and long-open apically for 6 cm along one side, acute, peduncular bract 5 cm long, similar to prophyll, inserted 3 cm above apex of prophyll and

terminating at rachillae; peduncle and bracts with reddish brown, +/- deciduous hairs; rachillae 2, 3-4 cm long, densely covered with whitish to golden brown hairs. Flowers solitary, 1-3 mm distant, placed on a 0.75 mm pedicel with a subtending, tooth-like bracteole 0.5 mm high proximally, flowers 4 x 3 mm, broadly ovoid; calyx 1.5 x 2.25 mm, cylindrical, truncate apically, constricted basally, scarcely lobed, hairy; corolla 3.5 mm high, petals connate in basal 2/3, lobes triangular, valvate, acute-acuminate, lobes hairy; stamens and pistil not seen. Fruits immature, 5 mm diam., globose, green.

Licuala delicata occurs in wet mountain forest in south peninsular Thailand very near to the Malaysian border. It is similar to *L. kingiana* but the latter differs in its armed petioles, leaf blade with more segments, erect inflorescences, bracts with silky white hairs, longer rachillae, and flowers in groups of 2s and 3s. The epithet is from the Latin *delicatus*, meaning dainty, and refers here to the habit.

***Licuala hirta* Hodel sp. nov.** Fig. 11-13.

Licuala cameronensi L. G. Saw affinis sed inflorescentiis erectis ramosis duobus ordinibus; *L. modestae* Becc. affinis sed rachillis lanatis, bracteolis prominentibus anguste triangularis, calyce cupulato, antheris brevioribus oblongis differt; *L. lanuginosae* Ridl. affinis sed ovario glabris differt. Typus: Thailand, Phangnga, 400 m elev., D.R. Hodel, P. & R. Vatcharakorn 1717 (Holotypus BK).

Solitary or clustered, acaulescent or trunked, to 4 m tall. Stem to 2 m tall, 7 cm diam., brown, obscurely ringed. Leaves 8-14, palmately divided, ascending to spreading; sheaths 15-25 cm long, long-open, margins with coarse, ascending, tannish fibers, ocrea 8 cm long; petiole 1.5-3 m long, margins near base armed with close-set, narrowly triangular, reflexed thorns 5 mm long; blade to 1 x 1 m, 3/4 orbicular, green to nearly bluish green, divided to base into 10-11 segments broadest toward apex, middle largest, 40-70 x 20-40 cm, 10-22 nerved, sometimes with its own subpetiole 5-10 cm long, lateral segments 38-68 x 8-15 cm, 3-5 nerved, 48-60 nerves total per blade, basal ones

smaller, lateral and apical segments truncately praemorse and only slightly lobed apically, basal segments obliquely praemorse. Inflorescences 2-4, interfoliar, 40-50 cm long, erect, with 5-7 branched partial inflorescences to 13 cm long; peduncle 18 cm long, flattened, 6 mm wide; prophyll not seen, bracts subtending and concealing basal portions of each partial inflorescence 1.5-15 cm long, tubular basally, inflated and flared apically, obliquely open on one side, becoming tattered and shredded apically, densely covered with reddish brown hairs; partial inflorescences with up to 6 rachillae, these to 11 cm long, ascending to spreading, rachis and peduncle with dense, scurfy, reddish brown tomentum, rachillae with dense, shaggy, whitish to reddish brown hairs 1-1.5 mm long obscuring bracteoles and base of flowers. Flowers in moderate to close-set pairs apically, more laxly spaced basally, rarely solitary, placed on a pedicel 0.5 mm high, subtended proximally by conspicuous, narrowly triangular to tooth-like bracteole 1.25-2.25 mm high with same indument as rachillae. Flowers 3.75 x 2.25-2.5 mm, ovoid, yellow; calyx 2.75 x 2 mm, cupular, irregularly lobed, sepals connate in basal 2/3, acute to rounded apically, densely covered with long, shaggy, whitish to reddish brown hairs; corolla 3.25 mm high, exserted 0.75 mm above calyx, petals connate in basal 2/3 and adnate to staminal ring, valvate apically, ovate, acute, apical lobes densely clothed in short, whitish hairs apically; stamens 6, 2.5-2.75 mm high, filaments 0.4 mm, bases connate in a conspicuous ring, anthers 0.4 mm, dorsifixed near middle; pistil 2.25 mm high, ovary 0.75 x 1 mm, narrowed apically, truncate basally and set on a stalk 0.5 mm high, style 1 mm long, filiform. Fruits 1 x 1 cm, globose, reddish.

Licuala hirta is widespread but relatively uncommon in wet hill forest on the west side of middle peninsular Thailand from 200-600 m elevation. It is easily distinguished by its short, erect, inflorescences branched to two orders, the conspicuous bracteoles, and the thick, dense, shaggy hairs concealing the rachillae and bases of the flowers. The epithet is from the Latin *hirtus*, meaning shaggy, and refers here to the shaggy, woolly hairs covering the rachillae.

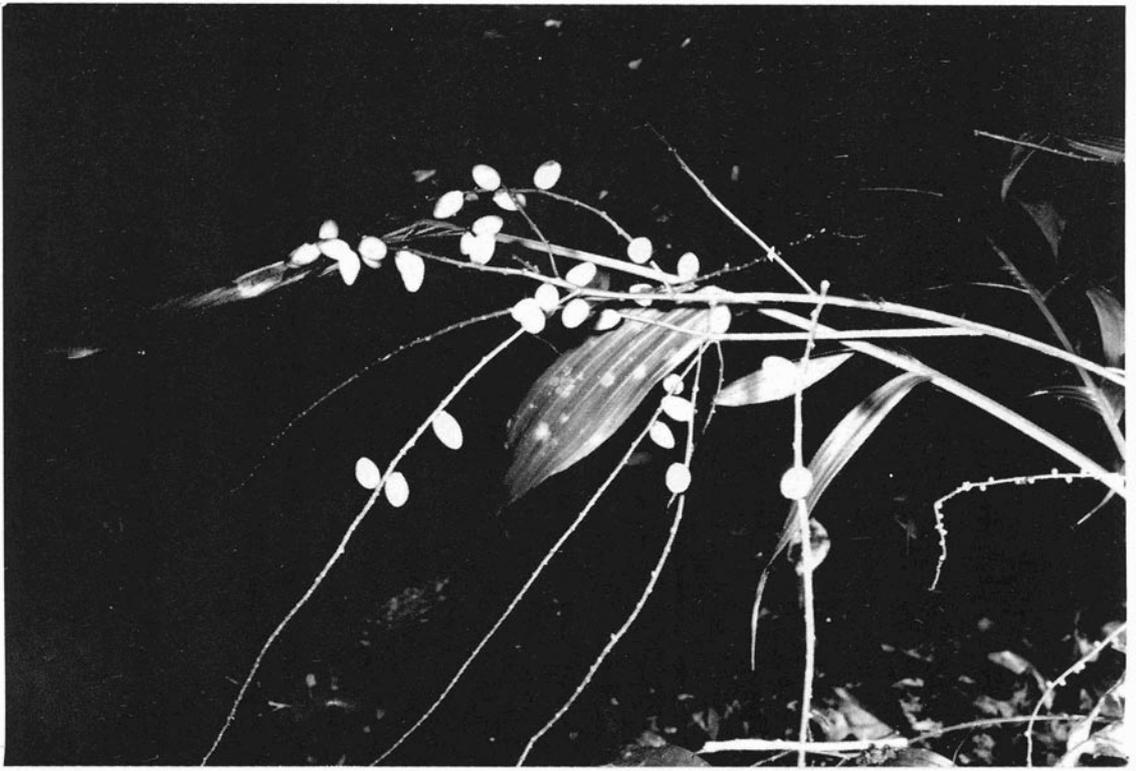


Fig. 8 *Iguanura tenuis*, inflorescence, *Hodel et al. 1727* (holotype).



Fig. 9 *Licuala delicata*, habit, *Betong, Hodel et al. 1740* (holotype).



Fig. 10 *Licuala delicata*, inflorescence, Hodel et al. 1740 (holotype).



Fig. 11 *Licuala hirta*, habit, between Takuapa and Phanom, Hodel et al. 1726.



Fig. 12 *Licuala hirta*, inflorescences, Hodel et al. 1717 (holotype).