

Annotated List of Seed Plants in Singapore (XI)*

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Index to Families

	<i>Page</i>		<i>Page</i>
<i>Agavaceae</i>	117	<i>Iridaceae</i>	123
<i>Alismataceae</i>	113	<i>Liliaceae</i>	115
<i>Amaryllidaceae</i>	119	<i>Najadaceae</i>	115
<i>Bromeliaceae</i>	126	<i>Palmae</i>	126
<i>Burmanniaceae</i>	123	<i>Philydraceae</i>	123
<i>Butomaceae</i>	113	<i>Pontederiaceae</i>	122
<i>Commelinaceae</i>	124	<i>Smilacaceae</i>	118
<i>Dioscoreaceae</i>	121	<i>Taccaceae</i>	121
<i>Eriocaulaceae</i>	126	<i>Triuridaceae</i>	115
<i>Flagellariaceae</i>	125	<i>Xyridaceae</i>	126
<i>Hydrocharitaceae</i>	114	<i>Zannichelliaceae</i>	115
<i>Hypoxidaceae</i>	120		

II. Angiospermae-Monocotyledons

143. ALISMATACEAE

Sagittaria sagittifolia L.

Aquatic herb; to 50 cm tall; leaves basal, with petiolate sheath and arrow-shaped blade (15–30 cm long); flowers white, in panicles. Underground tubers globose, 4–5.5 cm across, edible; mostly imported from S. China especially during the Chinese New Year Season, sometimes cultivated as an ornamental. Vern. Ubi Keladi, Chinese arrowhead, 慈姑.

144. BUTOMACEAE

Limnocharis flava (L.) Buch.

Aquatic herb, 50–70 cm tall; leaves petiolate, the blade ovate or suborbiculate, 6–28 cm long; flowers yellow, 2–8 or more in a stalked umbel. Native to S. America, sometimes spreading along ditches or in pools.

*Continued from *Gard. Bull. Sing.* 39 (1): 67–95. 1986.

The author is indebted to Dr. Richard T. Corlett for going through the manuscript and for his suggestions.

145. HYDROCHARITACEAE

Key to the genera

- A. Fresh water plants
 - B. Leaves spirally arranged or radical *Blyxa*
 - B. Leaves in whorls of 3-8 *Hydrilla*
- A. Marine plants
 - C. Plants very delicate; leaves opposite, in spaced pairs on slender stems, ovate to lanceolate *Halophila*
 - C. Plants coarse; leaves arranged in 2 rows, ribbon-like
 - D. Rhizome covered with soft black fibres; leaves 30-150 cm long *Enhalus*
 - D. Rhizome nearly naked; leaves 10-30 cm long *Thalassia*

***Blyxa auberti* Rich.**

Formerly called *Blyxa malayana* Ridl. Freshwater plant, leaves radical, narrow (less than 1 cm broad), 10-50 cm long; flowers bisexual, small, on a long stalk surrounded by a tubular spathe. In ponds and ditches, Nee Soon, Serangoon Road (Ridley 8413).

***Blyxa alternifolia* (Miq.) Hartog**

Formerly called *Enhydrias angustipetala* Ridl. Leaves linear, 2-5 cm long, arranged along the stems. In muddy ponds and ditches, Chua Chu Kang, (Ridley s. n. in 1905).

***Enhalus acrocoides* Royle**

Formerly called *Enhalus koenigii* Rich. Marine plant; rhizome thick, covered with stiff black fibres; leaves 2-3, strap-shaped, 0.5-1 m long; flowers small, unisexual, dioecious, the female in coiled, long-stalked inflorescence. In shallow sea water, Bajau (Goodenough 3952), Teluk Paku, Pulau Senang, Tanah Merah Besar, Changi.

***Halophila minor* (Zoll.) Hartog**

Small marine plant; stem slender, lateral shoots short, usually with one pair of petiolate leaves; leaf-blades oblong-ovate, 0.7-1.4 cm long, with 3-8 pairs of side veins; flowers small, dioecious, solitary, axillary. Below tidal level on muddy bottom, Ponggol, (Holttum s.n. in 1924), Pasir Laba, Sentosa, Pulau Pawai, Labrador.

***Hal. ovalis* (R. Br.) Hook. f.**

Like the above, but the leaf-blades ovate, larger (1-4 cm long), with more pairs (12-25 pairs) of side veins. Changi (Ridley s.n. in 1890), Woodlands, Pulau Senang.

***Hal. spinulosa* (R. Br.) Aschers.**

Lateral shoots with 10-20 pairs of sessile distichous leaves; leaf-blades spatulate-oblong, serrulate, 1-2.3 cm long. Pulau Tekong (Henderson & Corner, s.n. June 16, 1929), Beting Kusa, Tanah Merah Besar.

***Hydrilla verticillata* (Roxb.) Royle**

Fresh water plant; stems slender, much branched; internodes 0.3-5 cm long; leaves sessile, in whorls of 3-8, linear, 0.8-4 cm long, green with brown spots; flowers very small, unisexual. In ditches and pools, Tanjong Pasir Laba Road (Sinclair 10836).

***Thalassia hemprichii* (Ehrenb.) Aschers.**

Marine plant; rhizome creeping, conspicuously noded; leaves 2-6, in 2 ranks; blades strap-shaped, 10-40 cm long; flowers dioecious, in few-flowered terminal inflorescence. In mud at low tide, Pulau Samulun (Sinclair SFN 38581).

146. NAJADACEAE

Najas graminea Delile

Fresh water submerged herb; stems slender, branched; leaves opposite or nearly so, linear lanceolate, 1.5–2.5 cm long, with 3 or more minute teeth on each side; flowers very small, green, unisexual. In ditches and ponds, Gardens' Lake (*Ridley* 8946, Type of *N. graminea* var. *angustifolia* Rendle).

Najas Kingii Rendle

Like the above, but leaves larger (2–4 cm long) and with more (6–19) teeth on each side. In streams, Tanglin (*Ridley* s.n. in 1889).

147. ZANNICHELLIACEAE

Key to the genera

- A. Leaves 7–13 nerved; style 2-fid; anthers inserted at the same level *Cymodocea*
 A. Leaves with a main vein and 2 thin marginal veins; style entire; anthers inserted at different levels
 *Halodule*

Cymodocea rotundata Aschers. & Schweinf.

Marine herb, submerged; stems distant, erect, with few leaves at the top, in 2 series; leaves linear or filiform, with a rounded top, 7–15 cm long and 7–13 nerved. Telok Paku, (*Sinclair* SFN 40527).

Cym. isoetifolia Aschers.

Tanah Merah Besar (*Sinclair* SFN 39509). In sandy, muddy, substratum near low water.

Cym. serrulata Aschers. & Magnus

Tanah Merah Besar (*Sinclair* SFN 39508).

Halodule tridentata (Steinh.) F.v.M.

Also called *Diplanthera uninervis* Aschers. Submerged marine herb; stems distant, erect, with few leaves at the top, in 2 series; leaves linear, 7–10 cm long, 3-toothed, the median tooth as long as or slightly longer than the lateral teeth; flowers solitary, unisexual, naked. In sandy coast, Pulau Senang (*Burkill* 547), Pulau Pawai.

148. TRIURIDACEAE

Sciaphila maculata Miers.

Slender saprophytic herb, 10–15 cm tall, purplish grey, usually not branched; leaves minute; flowers unisexual; perianth 6-lobed; stamens 6 in a staminate flower, and carpels numerous in a carpellate flower. In dense forests, living in decaying vegetable matter, very rare, Selitar (*Ridley* s.n. in 1880s). Formerly called *S. affinis* Becc.

149. LILIACEAE

Key to the genera

- A. Leaves thick and succulent, often spiny-edged *Aloë*
 A. Leaves thin and flexible
 B. Leaves ovate or ovate-lanceolate
 C. Leaves, especially the upper ones, always with a long tendril-bearing tip; slender stemmed climber with underground tuber *Gloriosa*
 C. Leaves long-petiolated, erect; underground stem very short *Peliosanthes*

- B. Leaves long and narrow or sometimes scale-like
 - D. Leaves scale-like, the function replaced by needle-like cladophylls; drooping or climbing *Asparagus*
 - D. Leaves long and narrow, grass-like; erect
 - E. Stems leafy, in two rows *Dianella*
 - E. Leaves tufted, foliage plants
 - F. Plants with prominent runners *Chlorophytum*
 - F. Plants crowded, with short and thick rhizomes *Liriope*

Aloë barbadensis Mill.

Also called *A. vera* (L.) Webb. A short-stemmed, succulent plant; leaves pale green, sword-shaped, 30–60 cm long, crowded along the top of the stem, with marginal, dark-coloured spines; flowers yellow, orange or red, in lax panicles. Native of Cape Verde and Canary Island. This is the true aloe, a well-known medicinal plant; several other species and cultivated varieties are also introduced. 蘆薈

Asparagus plumosus Baker

Slender herbaceous climber, up to 1–2 m long; true leaves minute, dry, scale-like, replaced by fine, green, needle-like flattened branches (or cladophylls), 0.3–1 cm long; flowers small, axillary, solitary or in pairs, greenish or white. Native to S. Africa, often cultivated as an ornamental.

Asp. sprengeri Regel

Roots tuberous; stems climbing or drooping; flattened branches (or cladophylls) 1–2.5 cm long; flowers white, in short racemes. Native to S. Africa, sometimes planted. The tender shoots of another species, the garden asparagus (*Asp. officinalis* L.), a native of the Mediterranean, are sold in markets as vegetables.

Chlorophytum comosum (Thunb.) Baker

Herb; leaves radical, sessile, linear, 15–35 cm long, sometimes with white or pale yellow margins or median band; flowers white, in branched racemes. Native to S. Africa, often cultivated for its foliage, sometimes hanging from pendulous runners. 吊蘭

Dianella ensifolia (L.) DC.

Rhizomatous tufted herb, 60 cm to 1 m tall; leaves grass-like, in 2 rows, 20–60 cm long, sheathed below; flowers bluish or white, in a terminal panicle; filaments thickened; berry globose, deep blue, 0.7–1 cm across. In open or slightly shady places, often near the sea, Sungei Buloh (*Ridley s.n.* in 1891).

Gloriosa superba L.

Climbing plant with underground tubers; stems slender; leaves spirally arranged, narrowly lanceolate, sessile, 8–25 cm long, with a long-tapering tip, the tip of higher leaves forming a short, coiled tendril; flowers solitary, long-stalked, placed beside the leaves; perianth lobes at first pale yellowish green, then partly red with yellow margins, finally dark red, strongly bent backwards. Native to tropical Africa and Asia (but not wild in Malaya and Singapore), cultivated as an ornamental. All parts, especially the tubers, are poisonous to eat.

Liriope spicata Lour.

Herb, with semi-transparent rhizomes; leaves grass-like, linear-lanceolate, tufted, 25–50 cm long, 1–1.8 cm wide, often with white margins; flowers small, pale lilac or white, in short spikes 10–15 cm long (pot-plants usually producing shorter leaves and inflorescences). Native to S. China and Japan, commonly cultivated as a pot plant; the rhizomes are of medicinal value, 麥門冬. Another broader-leaved (1–2.5 cm wide) species, *L. muscari* Bailey, with violet flowers, is less commonly cultivated.

Peliosanthes teta Andr. ssp. **humilis** (Andr.) Jessp.

Herb; leaves crowded on a horizontal rhizome, erect, ovate-lanceolate, 15–20 cm long, 5–6 cm wide; with strong longitudinal veins; petioles 12–15 cm long; flowers globose, violet or purple, in racemes about 10 cm long. Bukit Timah, Reservoir woods. (Ridley s.n. 1908), Selitar. Formerly called *P. violacea* Wall, and *P. viridis* Ridl.

150. AGAVACEAE*Key to the genera*

- A. Ovary superior
 - B. Perianth-segments free *Yucca*
 - B. Perianth-segments united at the base
 - C. Ovules 4-many per ovary-locule *Cordyline*
 - C. Ovule solitary
 - D. Shrubs or trees; stems present, woody *Dracaena* (incl. *Pleomele*)
 - D. Herbs; stems very short, fibrous *Sansevieria*
- A. Ovary inferior
 - E. Flowers regular; inflorescence paniculate *Agave*
 - E. Flowers zygomorphic; inflorescence racemose *Polygonatum*

Agave americana L.

A large, stemless plant with a rosette of 50–60 thick, sword-shaped leaves; the blades 0.8–1.5 m long, the marginal spines often recurved; flowers pale yellow, in large panicles on a culm of 4–8 m tall. Vern. Century plant 龍舌蘭. A native of Mexico, sometimes planted. Several other species (e.g. *A. sisalana* Perr., *A. germiniflora* Ker-Gawl.) are also occasionally planted.

Cordyline terminalis (L.) Kunth

Shrubby, 3–4 m tall; stems slender; leaves narrowly oblong, 30–50 cm long, arranged in close spirals at the tip of branches; petioles 5–15 cm long; flowers lilac, in terminal panicles. Native of temperate Asia and Australia and the Pacific Islands, planted in gardens. The leaves are in a wide range of colours. 朱蕉. Several other Australian species, e.g. *C. stricta* Endl., *C. fruticosa* A. Chev., are also occasionally cultivated.

Dracaena aurantiaca Wall.

Shrub, 2–3 m tall; little or not branched; leaves varying from lanceolate to ovate, 0.3–1 m long, green or purple with circular lighter patches, crowded on the ends of branches; petioles winged; flowers greenish white or purple, in terminal panicles, 0.5 m long. In forests, Bukit Timah, Kranji, Changi, Selitar (Ridley 1650).

Drac. brachystachys Hook. f.

Little branched shrub, 5–6 m tall; leaves crowded at the ends of branches; leaves sword-shaped, acuminate, to 1 m long. Pulau Serapu (Ridley 10128).

Drac. elliptica Thunb.

Slender shrub, 1–2 m tall; branches drooping; leaves lanceolate or broadly oblong, 12–15 cm long. Gardens' Jungle (Ridley 4412), Chua Chu Kang.

Drac. fragrans Ker. (= *Pleomele fragrans* N. E. Br.)

Tall shrub, to 6–8 m high; leaves oblong-lanceolate, 0.5–1 m long, 5–10 cm wide, green or with light longitudinal bands, crowded on the ends of branches, without a petiole; flowers yellowish, clustered on branches of a panicle, fragrant especially at night. Native of tropical Africa, sometimes planted. Several other African species

are also commonly planted, these include: *D. godseffiana* Sand. (leaves oblong-ovate, green marked with light dots) *D. sanderiana* Sand, ex Masters (leaves long-lanceolate, white-margined), etc.

Drac. granulata Hook. f.

Tall tree, 15–20 m high, branched above; branches densely leafy; leaves linear, acuminate, 15–25 cm long. In forests, Bukit Timah, Bukit Mandai (*Ridley 3800*).

Drac. maingayi Hook. f.

Large tree, 15–20 m tall, with many branches forming a dense crown; leaves oblong-lanceolate, acuminate, 25–30 cm long. Common in sandy and rocky woods near the sea, Changi (*Ridley 4413*), Bukit Timah, Labrador.

Drac. porteri Bak.

Low, little branched shrub, 1–1.5 m tall; leaves linear or linear lanceolate, 30–40 cm long. In lowland woods, Singapore (*Wallich 5148B*), Gardens' Jungle.

Drac. singaporensis Ridl.

Shrub with slender stems, less than 40 cm tall; leaves lanceolate or elliptic, acute, 15–18 cm long. Bukit Timah, Chua Chu Kang (*Ridley 6235*).

Drac. umbratica Ridl.

Erroneously called *D. terniflora* Roxb. in earlier literature. Low shrub, little branched, to 1 m high; leaves lanceolate to elliptic, 3–5 cm long. Gardens' Jungle, Changi (*Ridley 4758*).

Polianthes tuberosa L.

Herb, 1 m tall, tuberous beneath; basal leaves narrow, red-spotted on the under surface, 15–50 cm long; upper leaves gradually shorter and then passing into bracts; flowers white, fragrant, in pairs on terminal spikes. Native to Mexico, sometimes cultivated. 晚香玉 .

Sansevieria trifasciata Prian

Herb, leaves 2–6 arising from the underground rhizome, the blades erect, sword-shaped, leathery, cross-banded dark and light green, 0.3–1 m long; flowers greenish white or greyish, in fascicles on a raceme 40–75 cm long. Native to tropical Africa, sometimes cultivated. Vern. Bowstring hemp, 虎尾蘭 . Another introduced species is *S. cylindrica* Bojer which has erect cylindric leaves 0.5–1 m long. Their strong fibres are made into mats, bowstrings, etc.

Yucca aloifolia L.

Stems simple or branched, 1–3 m tall; leaves sword-shaped, 20–50 cm long, hard and spiny; flowers white, in panicles of 30–60 cm long. Native to the West Indies and eastern N. America. A form with white-streaked leaves is cultivated. Another species with smooth leaf-margins, *Y. gloriosa* L. is also introduced.

151. SMILACACEAE

Key to the genera

- A. Perianth-segments free; stamens 6, free *Smilax*
 A. Perianth-segments united; stamens 3, fused *Heterosmilax*

Heterosmilax indica A. DC.

Climber, with stipular-tendrils; stems slender, unarmed; leaves ovate-lanceolate, with a round base, 10–20 cm long, 3–8 cm wide; flowers in umbels. Once collected from Tanjong Katong (*Hullett s.n.*), now extinct.

Smilax bracteata Presl var. **barbata** (Wall. ex DC) Koyama

Woody climber, climbing by stipular-tendrils; stems stout, covered with red and whitish bristles and conic prickles; leaves thick leathery, ovate, with a round base, 15–20 cm long, 7–15 cm wide, glaucous beneath; petioles thick, 3–4 cm long; flowers unisexual, in compound umbels. In open country and forest edges, Tanglin, Bukit Timah (*Ridley 4811, 8043*).

Smil. calophylla Wall. ex DC

Wiry shrub, erect, unarmed; leaves lanceolate, acuminate, 3-nerved, glaucous beneath, 10–15 cm long; flowers yellow, unisexual, in small, sessile umbels; fruit globose, reddish brown. In forests, Bukit Timah, Jurong, Chua Chu Kang (*Ridley s.n.* in 1892).

Smil. leucophylla Bl.

Woody climber, stout, sparsely prickly; leaves leathery, ovate-oblong, acuminate, 3-nerved, 15–25 cm long; petioles 1–1.5 cm long, with a large dilated sheath. In forests, Bukit Timah, Tanglin, Bukit Mandai (*Ridley 10403*). Vern. Ubi danan.

Smil. megacarpa DC.

Stout woody climber, prickly, with strong stipular-tendrils; leaves leathery, dark green, oblong to elliptic, 3-nerved, 8–20 cm long; petioles 1.5–4 cm long; thick, twisted, sheathed below; fruit globose, 1.5 cm across, yellow or dark purple. In woods, Tanglin (*Ridley 4815, 5106*), Bukit Mandai.

Smil. myosotiflora DC.

A slender climber; leaves herbaceous, lanceolate or ovate-oblong, caudate, 3-nerved, 10–15 cm long. In forests, Gardens' Jungle (*Ridley 6250*). Sinclair recorded another species, *S. woodii* Merr. without certainty as occurring in Singapore based on *Sinclair SFN 38570* collected from Jurong Road in 1949.

152. AMARYLLIDACEAE

Key to the genera

- A. Ovary superior *Allium*
- A. Ovary inferior
 - B. Flowers solitary, erect *Zephyranthes*
 - B. Flowers in umbels or globose-heads, erect or pendulous
 - C. Flowers without a crown or cup
 - D. Flower-stem hollow (leaves long and narrow; flowers large, trumpet-shaped) *Hippeastrum*
 - D. Flower-stem solid
 - E. Flowers 50–100 in a globose head; leaves oblong, petiolate *Haemanthus*
 - E. Flowers 6–12 in a congested umbel; leaves long and narrow, without a petiole *Crinum*
 - C. Flowers with a crown or cup inside the perianth-tube, consisting of joined filaments of stamens
 - F. Leaves board, narrowed to a petiole
 - G. Flower-segments spreading, fragrant *Eucharis*
 - G. Flower-segments ascending, odourless *Eurycles*
 - F. Leaves sword-shaped, without a petiole *Hymenocallis*

Allium fistulosum L.

Bulbous herb; leaves radical, long-tubular, hollow, 30–50 cm long; flowers whitish, small, in dense, terminal umbellate-heads; flowering stem 40–60 cm long. Native of temperate Asia, cultivated for the edible leaves. Vern. Spring onion, Welsh onion, 大葱. Several other species are used as vegetables or for cooking, these

include *A. cepa* L. (the onion, 洋葱), *A. sativum* L. (the garlic, 蒜), *A. tuberosum* Rottl. ex Spreng. (or as *A. ramosum* L., the Chinese leek, 蕹菜), etc.

Crinum asiaticum L.

Bulbous herb; leaves narrowly lanceolate, acuminate, 0.5–1.5 m long; flowering stem 1–1.2 m, with 6 or more flowers on a congested umbel; flowers white, 12–18 cm long, the segments narrow; filaments reddish; fruit irregularly globose, 4–5 cm across, with one or few large green seeds inside. On sandy shores, Changi, Sungei Buluh, Sungei Tengah (*Ridley s.n.* in 1891), Kranji; sometimes also cultivated. Vern. Bakung, 文殊蘭.

Crinum giganteum Andr.

Flowers larger (about 25 cm long) and with broader segments than the above species. Introduced from Java, thus called 'Java Lily'.

Eucharis grandiflora Planch. & Link

Bulbous herb, with 2–4 leaves; leaf-blades oblong or ovate, 20–25 cm long; petioles as long as the blades; flower stems 50–80 cm long, with 2–5 flowers at the tip; flowers white, 6–8 cm across, widened part of the perianth-tube pale yellow inside. Native of Colombia ("Amazon Lily"), sometimes cultivated. 白鶴花.

Eurycles amboinensis Loud.

Bulbous herb; leaves broadly heart-shaped, 20–30 cm long; petioles stout, 15–40 cm long; flowering stem 10–50 cm long. Native of N. Malaya, the Philippines to E. Australia, occasionally cultivated. Also called *E. sylvestris* Salisb.

Haemanthus multiflorus Martyn

Bulbous herb; leaves 4–7, oblong, with a stout midrib, 20–30 cm long; scape solid, flattened; flowers bright or pale red, numerous in a globose head 12–16 cm across ("Blood Lily" or "Powder puff"). Native to tropical Africa, sometimes cultivated. 孤挺花.

Hippeastrum puniceum Urb.

Bulbous herb; leaves 6–8, strap-shaped, 30–45 cm long, usually not fully grown before flowering; flowering stem 30–50 cm long, with 2–4 or more flowers at the top; flowers trumpet-shaped, 9–12 cm long, red, orange-red or in other colours. Native to tropical America ("Barbados Lily"), sometimes cultivated; also called *H. equestre* Herb. 火球花.

Hymenocallis littoralis Salisb.

Bulbous herb; leaves radical, strap-shaped, acute, with a narrow base, 40–70 cm long; scape flattened, 2-edged, 30–70 cm long; staminal cup (or crown) 2.5–3 cm long. Native to tropical America, sometimes cultivated ("Spider Lily"). Also called *Pancratium littorale* Jacq.

Zephyranthes candida Herb.

Bulbous herb; leaves linear, 12–40 cm long, very thick; scapes with only one flower at the tip; flower white, sometimes rose-tinted outside, 4–5 cm long. Native to S. America. 葱蘭. Several other species are also occasionally cultivated, these include: the light-pink flowered *Z. carinata* Herb, the yellow-flowered *Z. carinata* Herb, the yellow-flowered *Z. flava* Bak. and others.

153. HYPOXIDACEAE

Curculigo orchioides Gaertn.

Rhizomatous herb; leaves narrowly lanceolate, 1–1.2 m long including the petiole, 12–15 cm wide, glabrous; flowers bisexual, several to many in erect, head-like

inflorescence on a short scape (about 10 cm long); bracts lanceolate, 2–3.5 cm long; perianth 1–1.2 cm across, pale outside and bright yellow inside. In sunny or slightly shady places, formerly all over the island. Cluny Road (*Ridley s.n.* in 1895), Bukit Timah, Chua Chu Kang. Called *C. latifolia* Dryand ex W. T. Ait in literature.

Curc. recurvata Dryand. ex W. T. Ait

Differs from the above species in the nodding head-like inflorescences. (also called *Molineria recurvata* Herb. by some authors). Gardens (*Ridley s.n.* in 1896).

Curc. villosa Wall.

Like *C. orchioides*, but the undersurface of leaves and petioles are densely hairy, and bracts are stiff, oblong, 4–5 cm long. Chua Chu Kang (*Ridley s.n.* in 1895), Bukit Timah.

154. TACCACEAE

Tacca integrifolia Ker-Gawl.

Rhizomatous herb; leaves simple, entire, lanceolate, 0.8–1 m long including the petiole; flowers in umbels; involucre bracts leafy, dark purple; scape 45–60 cm long, stout; floral bracts thread-like, 12–15 cm long; perianth 1.5–2 cm across, purple; segments in 2 series, the outer ones thinner, paler and smaller than the inner ones. In forests, Bukit Timah. Chua Chu Kang, (*Ridley s.n.* in 1894). Formerly called *T. cristata* Jack.

Tacca leontopetaloides (L.) O. K.

Leaves tripartite or pinnatifid, 0.5–1 m long; flowers green. On sandy shores, Pulau Semakau, *Sinclair SFN 38925*; Pulau Senang.

155. DIOSCOREACEAE

Dioscorea alata L.

Stem slender, 4-angled or -winged, twining in anti-clockwise direction; leaves opposite, orbiculate-cordate, 5–7-nerved. Native of E. Asia, cultivated for its underground tubers (“the greater Yam”). 大薯 .

Dios. bulbifera L.

Stem twining clockwise, glabrous, often with axillary bulbils; leaves cordate, broadly ovate, 8–40 cm long; 6–30 cm wide, conspicuously cross-veined; petiole 2–13 cm long; flowers sessile or nearly so, white to dark violet; male spikes 2–3.5 cm long, in panicles; female spikes in axillary fascicles, 10–20 cm long. In waste ground and near villages, Tanglin, Changi, Pulau Merambong (*Corner 29960*).

Dios. esculenta (Lour.) Burk.

Stem twining clockwise; leaves alternate; tubers 4 to many, close to the soil surface, anchored by strong thorny roots. Native to Indo-China, cultivated for its edible tubers (“the lesser yam”). 刺薯 .

Dios. glabra Roxb.

Stem rather stout, thorny at base; leaves lanceolate to elliptic-ovate, 4–10 cm long, glabrous; petiole 2–2.5 cm long; male and female spikes 10–30 cm long, in panicles. Common in forest, Gardens’ Jungle, Tanglin, Bukit Mandai.

Dios. hispida Denns.

Stem spiny, twining clockwise; leaves 15–30 cm long, palmately 3-foliolate; Male panicles 30–50 cm long. Several cultivated varieties; tubers mostly globose, usually not lobed. Bukit Timah (*Goodenough s.n.* in 1914).

Dios. laurifolia Wall.

Stem slender, smooth or prickly; leaves lanceolate to oblong, 3-nerved, 5–8 cm long; male and female spikes in panicles. In edges of forests, Tanglin, Gardens' Jungle (*Ridley s.n.* in 1893), Bukit Timah, Changi.

Dios. polyclades Hook. f.

Stem stout, pubescent, thorny near the base; leaves ovate, hairy, 5–7 cm long; petiole as long as the blade, hairy; male and female spikes in panicles. In forest edges, Chua Chu Kang, Sungei Pandan, Bukit Timah.

Dios. prainiana R. Kunth

Stem slender, glabrous, unarmed; leaves alternate or opposite, membranous, elliptic-oblong, 5–7-nerved, 10–15 cm long; petiole 4–6 cm long; male spikes 30–60 cm long. In forests, Bukit Timah, Gardens' Jungle.

Dios. pyrifolia Kunth

Stem pubescent, the base thorny; leaves opposite, leathery, ovate, cordate, 5-nerved, 6–10 cm long, pubescent below; petiole 2–5 cm long; male spikes 30 cm or more long; female spikes 8–10 cm long. Common in thickets, Chua Chu Kang, Changi.

Dios. stenomeriflora Prain & Burk.

Large climber, to 25 m tall; stem purple; leaves leathery, glabrous, elliptic, cordate, 3-nerved, 10–25 cm long; male spikes solitary, axillary; flowers long tubular, about 1 cm long. In forest edges, Changi. Another large climber with large cordate-hastate leaves, *D. sansibarensis* Pax, a native of tropical Africa, was once planted in the Botanic Gardens; now escaped and more or less naturalized in the surrounding areas of the Gardens; propagated by bulbils.

156. PONTEDERIACEAE*Key to the genera*

- A. Flowers zygomorphic; perianth forming a tube at the base; leaves with a short swollen petiole . . . *Eichhornia*
 A. Flowers regular; perianth segments free; leaves with a long slender petiole *Monochoria*

Eichhornia crassipes (Mart.) Solms.

Stoloniferous floating herb; roots dark brown, much branched; leaves nearly rounded, 5–20 cm long and broad; petiole spongy, 10–30 cm long, much swollen near the centre; flowers zygomorphic, lilac blue; segments 6, the median one larger, 3–3.5 cm long, with a yellow blotch near the centre. Native of Brazil, in aquaria and ponds; a serious pest in water catchment areas. Vern. Water hyacinth, 鳳眼蓮 .

Monochoria hastata (L.) Solms.

Aquatic herb; leaves spear-shaped, 6–10 cm long and wide, with 2 pointed lobes at the base; petiole 20–50 cm long, more or less erect; flowers light blue-violet, 2–2.5 cm across, in head-like inflorescence arising from the axil of a sheath in leaf-stalk. In ditches and wet places, Changi (*Goodenough s.n.* in 1890), Gelang.

Monoch. vaginalis (Burm. f.) Presl.

Leaves narrower than the above species, the base rounded or heart-shaped, not pointed. In ditches and ponds, Ang Mo Kio (*Ridley* 4598), Chua Chu Kang, Gelam. 鴨舌草 .

157. IRIDACEAE

Trimezia martinicensis Herb.

Bulbous herb; leaves grass-like, 50–60 cm long, in 2 rows; flowering scape 60–70 cm long with 6 or more flowers in succession; flowers bright yellow, the inner segments oblong, 2–2.5 cm long, with a dark brown blotch at the base inside. Native to Mexico, cultivated and more or less naturalized. (Several species of *Belamcanda*, *Moraea* etc. are occasionally planted in gardens.)

158. BURMANNIACEAE

Key to the genera

- A. Stamens 3
 B. Ovary 3-loculate; autotrophic or saprophytic *Burmannia*
 B. Ovary 1-loculate; saprophytic *Gymnosiphon*
 A. Stamens 6 *Thismia*

Burmannia championii Thw.

Saprophytic herb; stem swollen below and buried in decaying debris, slender above ground, whitish, 8–20 cm long; leaves scale-like; flowers 3 or more in small clusters, yellowish white; perianth tube 3-angled, not winged. In forests, Bukit Timah (*Ridley s.n.* in 1890), Changi. Formerly called *B. tuberosa* Becc.

Burm. coelestis D. Don.

Autotrophic herb; stem slender, 10–25 cm tall; leaves small, narrow, to 1.2 cm long, crowded at the base of stem; flowers 1–4 at the tip of stem, the perianth tube about 1 cm long, 3-winged, light blue, with 6 small yellow or white perianth segments. In open grassland or sandy places, locally common. Botanic Gardens, Changi, Kranji, Bedok (*Ridley s.n.* in 1903).

Gymnosiphon aphyllus Bl.

Saprophytic herb, 10–17 mm long; leaves acute, 1–2 mm long; flowers white or lilac, 5–6 mm long, in loose inflorescence. Formerly collected from Bukit Timah (*Ridley s.n.* in 1893), now probably extinct.

Thismia aseroe Becc.

Slender, saprophytic herb; stem erect from creeping rhizome; flowers solitary, on top of the erect branch; perianth-tube obconical, 1–1.2 cm long, the segments triangular, with bright orange, long tails. In dense forests, formerly collected at Woodlands, Bukit Timah (*Ahmad s.n.* in 1932), Kranji, now probably extinct.

Thism. fumida Ridl.

Like the above, but with narrower perianth-segments. Formerly collected from forests at Chua Chu Kang, now extinct.

159. PHILYDRACEAE

Philydrum lanuginosum Banks ex Gaertn.

Grass-like herb; leaves narrow linear, 30–40 cm long, 1–1.2 cm wide; flowering stem to 1 m tall, often branched at the top; flowers yellow, in compact heads, subtended by stiff brown bracts; perianth segments 6, the outer 3 very unequal, the inner three equal. In wet open places, formerly collected from Bedok (*Ridley 5907*), now extinct. 田葱 .

160. COMMELINACEAE

Key to the genera

- A. Cultivated plants
 - B. Short-stemmed; leaves sword-shaped, dark green above, crowded in a rosette.....*Rhoea*
 - B. Stem slender, trailing; leaves oblong, alternate
 - C. Outer and inner perianth-lobes free*Tradescantia*
 - C. Outer and inner perianth-lobes united below*Zebrina*
- A. Native plants (and weeds)
 - D. Inflorescence a compact head, breaking out through the base of the leaf-sheath
.....*Forrestia*
 - D. Inflorescence terminal or axillary, not breaking out through the base of leaf-sheath
 - E. Inflorescences congested, enveloped by a spathe or overlapping bracts
 - F. Inflorescences terminal; stamens 6.....*Cyanotis*
 - F. Inflorescences terminal and axillary; stamens 3*Commelina*
 - E. Inflorescences more or less branched, not enveloped by a spathe or overlapping bracts
 - G. Fruit blue, smooth and shining, not dehiscent*Pollia*
 - G. Fruit whitish, dehiscent
 - H. Inflorescence densely flowered; flowers hairy, 6 stamens all fertile
.....*Floscopa*
 - H. Inflorescence fewer flowered, the branches slender; flowers not hairy, only
2 or 3 stamens are fertile.....*Murdannia*

***Commelina attenuata* Koen.**

Creeping herb, rooting at the nodes, with ascending, upright branches 20–30 cm high; leaves linear-lanceolate, recurved, 1.5–2 cm long; sheath hairy; flowers in cymes, enclosed in a green, folded, funnel-shaped spathe; peduncle 1 cm long; flowers bright blue, stamens 3. In sandy sea-shores, Changi (*Ridley 6003*), Gelang.

***Comm. benghalensis* L.**

Like the above species, but leaves elliptic or ovate, hairy; the leaf-tip blunt. In waste places, Gelang (*Ridley 3856*), Tanglin.

***Comm. diffusa* Burm. f.**

Also called *C. nudiflora* L. Like *C. attenuata*, but leaves ovate-lanceolate, glabrous. Common in waste ground, Changi (*Ridley 3935*).

***Cyanotis cristata* D. Don**

Prostrate herb, up to 30 cm tall, hairy; leaves oblong-lanceolate, 1.5–2.5 cm long; sheathed below; inflorescence short, terminal, enclosed by overlapping bracts; flowers pale blue. In sandy places near the sea, Changi, Gelang (*Ridley s.n.* in 1893). Formerly called *C. barbata* D. Don.

***Floscopa scandens* Lour.**

Slender creeping herb, ascending branches 15–30 cm high; leaves narrowly elliptic, pointed at both ends, 5–8 cm long, shortly petioled; panicle terminal, 3–5 cm long, with many ascending branches; flowers pink. In muddy ditches or damp places, Tanglin (*Daud 6007*).

***Forrestia gracilis* Ridl.**

Stout herb, creeping shortly at base; erect stem slender, 1 m tall, glabrous; leaves lanceolate, 15–20 cm long, the margin red-hairy; petiole winged; flower-heads small, with few sessile, white flowers. In forests, Tanglin, Pulau Ubin (*Ridley 4810*), Bukit Timah. Another species, *F. marginata* Hassk., with stout but creeping stems, was recorded from Bukit Timah by Wallich. (Note: Correct name for the genus is *Amischothyte*).

Murdannia nudiflora (L.) Brenan

Formerly called *Aneilema nudiflorum* Wall. Creeping herb; ascending branches slender, to 30 cm tall, leaves lanceolate, 2–8 cm long, the tip acute; sheath bearded; cymes terminal, 3–5 cm long, branched at the tip; flowers small, violet, perfect stamens 2. In waste ground and dry sandy places.

Murd. vaginata (L.) Brueckn.

Formerly called *Aneilema vaginatum* (L.) R. Br. Leaves linear, fleshy, 5–7 cm long. In sandy places, Telok Kurau, Besut (*Sinclair & Kiah S.F.N. 40785*).

Pollia sorzogonesis Endl.

Stem slender, hairy, erect, 1 m tall; leaves lanceolate, the tip acuminate, 15–20 cm long; panicle terminal, pubescent, 20–30 cm long and wide, the branches spreading; flowers small, white; perfect stamens 3. In forests, Pulau Ubin (*Ridley 4759*).

Rhoeo spathacea (Sw.) Stearn

Formerly called *R. discolor* Hance. Short-stemmed herb; leaves erect or ascending, sword-shaped, 15–25 cm long, green above and purplish beneath; flowers white, small, in axillary clusters, enveloped by 2 boat-shaped bracts (“Oyster plant”). Native of tropical America, cultivated as an ornamental. 紫萬年青 .

Tradescantia fluminensis Vell.

Ascending or creeping herb; leaves oblong, 4–8 cm long, green or white-striped above, purple beneath; flowers white, in clusters. Native of S. America, this and several other species are sometimes cultivated.

Zebrina pendula Schnizl.

The stem trailing along the ground, rooting at the joints; leaves oblong, 5–7.5 cm long, alternate, with silvery green and purple stripes in the middle and around the margin; reddish purple beneath. Native of Mexico, cultivated. 吊竹草 .

161. FLAGELLARIACEAE*Key to the genera*

- A. Climbers; leaves lanceolate, the tip transformed into tendrils; flowers bisexual *Flagellaria*
 A. Large erect herbs; leaves normal; flowers unisexual *Hanguana*

Flagellaria indica L.

Climber; stem slender but strong, 3–10 m long; leaves linear-oblong, 8–25 cm long, usually ending in a short coiled tendril; flowers white, bisexual, in a widely branched terminal panicle, 8–50 cm long. In open thickets near the sea, Kranji, Bajau (*Ridley 3589a*), Changi. 鞭籐 .

Hanguana malayana (Jack) Merr.

Formerly called *Susum malayanum* (Jack) Hook. f. Large erect herb, aquatic or terrestrial, highly variable; leaves grass-like, tapering at both ends, 30–90 cm long, densely nerved, rather thick; flowers unisexual, in a terminal panicle, 40–50 cm long. In forests and in damp places, Bukit Timah, Seletar, Ponggol, Bukit Panjang (*Ridley s.n. 1907*).

162. XYRIDACEAE

Xyris complanata R. Br.

Formerly called *X. anceps* Lam. Tufted herb; leaves linear, stiff, grass-like reddish, 10–50 cm long; flower-head with many dark brown imbricate bracts, on a stiff, slender, often twisted scape, 15–60 cm long; flowers yellow. In open sandy places, Balestier Plain, Pulau Tekong, Changi, Geylang (*Ridley 5757*).

Xyris pauciflora Willd.

Like the above, but plants smaller and shorter (leaves 7–25 cm long) and the head with fewer flowers. Balestier Plain (*Ridley 5877*), Water Catchment Areas.

163. ERIOCAULACEAE

Eriocaulon longifolium Nees

Herb with fibrous roots; leaves linear, grass-like, 8–30 cm long; scapes slender, erect, 30–45 cm high, with a globose or ovoid, greyish head at the tip; flowers minute, unisexual. Common in open damp places and ditches, Tanglin, Water Catchment Areas, Jurong (*Ridley s.n.* in 1889). Formerly called *E. sexangulare* L.

Eriocaulon truncatum Buch. Ham. ex Mart.

Smaller than the above species; leaves 3–5 cm long; scapes 4–10 cm high. Along damp paths on sandy ground, Tanglin, Bukit Mandai (*Ridley 3920*), Water Catchment Areas.

164. BROMELIACEAE

Ananas comosus (L.) Merr.

Perennial herb; leaves thick, linear lanceolate, 50–120 cm long, with sharp marginal spines; flowers in a dense, leafy crowned head; scape stout, 0.5–1 m tall; many small juicy fruits forming a spurious, broadly ellipsoid fruit (“pine-apple” 鳳梨), 10–30 cm long. Native to tropical America, many cultivated varieties, some as ornamentals, mostly for the edible fruits. Several others of this family (also from trop. America) are occasionally cultivated as ornamentals. These include: *Aechmea bracteata* Griseb. (rosette-forming herb, with red, ribbon-like bracts on the branched inflorescence), *Pitcairnia integrifolia* Ker-Gawl. (leaves forming crowded rosettes; flowers scarlet, on a panicle arising from the leaf centre), and *Tillandsia usneoides* L. (a rootless plant, with slender greyish hanging stem and narrow, curved leaves 3–6 cm long, commonly known as “Spanish moss”), etc.

165. PALMAE

*Synoptic key to the genera**

- A. Leaves palmate or palmately divided *Licuala*, *Livistona* (native and cult.), *Rhapis* (cult.)
- A. Leaves pinnate or pinnately divided, (twice pinnate in *Caryota*)
 - B. Leaf-divisions folded back in bud, trough-like *Arenga* (cult.) *Caryota*
 - B. Leaf-divisions infolded in bud, roof-like
 - C. Female inflorescence head-like, fruit cluster globose *Nypa*
 - C. Inflorescences spike-like, often forming in panicles
 - D. Fruit covered with scales; leaves usually spiny
 - E. Erect palms *Metroxylon* (cult.), *Raphia* (cult.) *Salacca*

* Only the native and commonly cultivated genera are treated.

- E. Climbing rattans *Calamus*, *Daemonorops*, *Korthalsia*, *Myrialepis* *Plectocomis*
 D. Fruit smooth; leaves usually not spiny
 F. Mostly solitary palms
 *Archontophoenix*, *Areca*, *Cocos*, *Elaeis*, *Roystonea* (all cultivated)
 F. Palms forming clumps *Chrysalidocarpus* (cult.) *Cyrtostachys*,
 Iguanura, *Nenga*, *Oncosperma*, *Pinanga*, *Ptychoraphis*, *Ptychosperma* (cult.)

Archontophoenix alexandrae (F. Muell.) Wendle. & Drude

Stem solitary, straight and slender, to 12 m tall (and less than 25 cm in diameter), ringed; leaves pinnate, 2–3 m long, arched; leaf-divisions whitish beneath; inflorescence 30 cm long, much branched, drooping. Native of E. Australia, sometimes cultivated, known as ‘Alexandra palm’.

Areca catecu L.

Stem solitary, slender and ringed, to 10 m high; leaves pinnate, 1.2–2 m long, the lower ones usually drooping; inflorescence much branched; male flowers in one row, with 6 stamens; females at the base of branches; fruit ovoid, 3–6 cm long, orange or red. Native country uncertain, cultivated in villages. Sliced nut is wrapped in a betel leaf (*Piper betel* L.) with a little dash of lime and chewed. Vern. *Pinang*, betel nut, 檳榔. (Note: the species name often misspelt as ‘catechu’).

Areca triandra Roxb.

Like the above, but male flowers arranged in 2 rows, with 3 stamens in each flower. Native of tropical Asia, occasionally cultivated as ornamental.

Arenga pinnata Merr.

Stem solitary, to 20 m tall, commonly covered with old leaf-bases; leaves pinnate, 5–6 (–10) m long, with black fibres at the base; inflorescence arising among the leaves, pendulous; sugary liquid exuded from the cut of the young inflorescence; fruit round, 4–5 cm across. Probably a native of eastern India, formerly called *Arenga saccharifera* Labill. Vern. *Kabong*, sugar palm, 桫欏.

Calamus densiflorus Becc.

Clustering high climbing rattan with stem reaching 40 m tall; pinnate leaves 1.1 m long, curved; leaflets up to 60 pairs; sheath bright to yellowish green, densely armed with spines; male and female inflorescences axillary, superficially similar, with tubular sheath (or spathe); fruit ovoid, 2 by 1.2 cm, covered in rows of scales. In forests, Gardens’ Jungle, Bukit Mandai (*Ridley* 6280). Vern. *Rotan chichi*.

Calam. diepenhorstii Miq.

Gardens’ Jungle, Bukit Timah (*Ridley s.n.* in 1907).

Calam. erinaceous (Becc.) Dransf.

Formerly called *C. aquatilis* Ridl. Ponggol, Holland Road, Gardens’ Jungle, Changi (*Ridley* 6275). Vern. *Rotan bakau*.

Calam. insignis Griff.

Bukit Timah (*Ridley s.n.* in 1892), Gardens’ Jungle. Vern. *Rotan batu*.

Calam. javensis Bl.

Kranji, Bukit Timah (*Ridley s.n.* in 1896).

Calam. laevigatus Mart.

Formerly called *C. pallidulus* Becc. Jalan Bray (*Ridley* 6281), Bukit Timah, Bukit Mandai.

Calam. lobbianus Becc.

Seletar, Bukit Timah (*Ridley* 8961), Chan Chu Kang, Pulau Damar.

Calam. lucidus Becc.

Formerly called *C. laxiflorus* Becc. Woodlands (*Ridley 12607*).

Calam. ornatus Becc.

Bukit Timah (*Ridley 11581*).

Calam. oxleyanus T. & B.

Bukit Timah (*Ridley 11463*), Tuas.

Calamus ridleyanus Becc.

Mandai (*Ridley 3504*, syntype), Gardens' Jungle.

Caryota mitis Lour.

Clump-forming palm; stems to 4 m tall; leaves twice pinnate, 1–1.75 m long; leaflets flat, all widening outward to a blunt tip, fish-tail like; male and female flowers in same inflorescence; inflorescences both terminal and axillary, developing from top downward, the stem slowly dying after flowering. Common in forests all over the island. Vern. *Tukas*, Fish-tail palm.

Chrysalidocarpus lutescens (Bory) Wendl.

Stems slender, ringed, 5–6 m tall, in clumps; leaves pinnate, 1–1.2 m long, with yellow rachis; inflorescences among the leaves, male and female flowers in small clusters; fruit ovoid, 3–4 cm long, yellow. Native to Madagascar; commonly cultivated in pots or on ground, always remaining in vegetative state. 黄椰子 .

Cocos nucifera L.

Stem solitary, ringed, often curved and leaning, to 30 m tall; leaves pinnate, 2–6 m long, with numerous pairs of narrow leaflets; flowers in branched spikes among the leaves; female flowers near the base of the branches; fruit ovoid globose, more or less triangular, 20–30 cm across, edible. A very useful plant, widely cultivated all over the tropics; true home uncertain, it has been suggested that it is a native of the Indian Ocean. Vern. *Kelapa*, Coconut tree, 椰子 .

Cyrtostachys renda Bl.

Formerly called *C. lakka* Becc. Clump-forming palm; stem erect, slender to 10 m or more tall, prominently ringed; leaves pinnate, to 1.5 m long; sheath scarlet; one female flower flanked by 2 males, in panicles below the leaves; fruit small, ellipsoid, 8 × 4 mm, with a narrowed top. Formerly found in wet places near the sea, Kranji, Tuas, Chua Chu Kang, now extinct, but commonly cultivated in gardens. Vern. *Pinang raja*, Sealing Wax Palm, 猩紅椰子 .

Daemonorops angustifolia (Griff.) Mart.

Clustering, high climbing rattan, with stem reaching 40 m tall; pinnate leaves 2–3.5 m long; sheath greenish brown, densely covered with triangular, black spines; male and female inflorescences similar, terminal; spathe boat-shaped; fruit globose, to 1.8 cm across, covered in rows of reddish brown scales. In forests, Chua Chu Kang, Chan Chu Kang (*Ridley 4622*), Bukit Timah, Bukit Mandai. Vern. *Rotan sepat*.

Daem. didymophylla Becc.

Mandai, Changi (*Ridley 6273*), Chan Chu Kang, Seletar, Gardens' Jungle. Vern. *Rotan hudang*.

Daem. grandis (Griff.) Mart.

Seletar, Ang Mo Kio, Bukit Mandai, Bukit Timah, Bukit Arang (*Ridley 1660*), Gardens' Jungle, Changi.

Daem. hystrix (Griff.) Mart.

Bukit Mandai (*Ridley 3480*) Jurong, Sungei Murai, Gardens' Jungle, Seletar, Kranji, Tuas, Yio Chu Kang. Vern. *Rotan sabite*.

Daem. leptopus (Griff.) Mart.

Kranji, Bukit Mandai, Bukit Panjang, Jurong, Bukit Arang, Ang Mo Kio (*Ridley s.n.* in 1894). Vern. *Rotan bakau*.

Daem. longipes (Griff.) Mart.

Seletar, Bukit Timah (*Ridley 6902*), Bukit Mandai, Changi, Chan Chu Kang. Vern. *Rotan sepah*, *Rotan chochor*.

Daem. micracantha (Griff.) Becc.

Bukit Timah (*Ridley s.n.* in 1900).

Daem. periacantha Miq.

Bukit Mandai, Tuas, Bukit Timah (*Ridley 3492*).

Elaeis guineensis Jacq.

Short trunk of young trees covered with leaf-bases after the old leaves have been removed; slow-growing old trunk to 3–10 m tall, often dented with leaf-scars; leaves pinnate, arched, 4–5 m long, the lowest leaflets becoming thorns; cylindric male and globose female inflorescences borne on the same plant; fruit orange-red, in globose clusters 30–45 cm across. Oil from the fibrous oily pulp around the seeds is used for cooking and industrial uses. Native to West Africa. Vern. *Kelapa bali*, Oil Palm, 油棕.

Hyophorbe verschaffeltii Wendl.

Also known as *Mascarena verschaffeltii* L. H. Bailey. Trunk solitary, ringed, 3–4 m long, swollen above, not at the base (thus called 'Bottle palm'); leaves pinnate, 1–2 m long; inflorescences below the leaves. Native of the Mascarene Islands.

Iguanura ferruginea Becc.

Small solitary or clustering undergrowth palm; stem very short or nearly absent; leaves pinnate, 1 m long, with a much larger terminal leaflet; male and female flowers crowded in groups on a simple or branched inflorescence. In forests, Gardens' Jungle, Bukit Timah.

Iguan. geonomaeformis Mart.

Stem 1–2 m tall; leaves bifid or 2–9-lobed, very variable. In forests, Bukit Timah, Chan Chu Kang.

Korthalsia echinometra Becc.

Clustering high-climbing rattan; stem often more than 30 m tall; leaves to 1.8 m long, with terminal thorny extension to 70 cm long; leaflets up to 25 pairs, narrowly elongate, greyish white beneath; inflorescences crowded in axils of uppermost leaves, to 60 cm long; fruit ovoid, 2.5 by 1.5 cm, covered by many vertical rows of reddish-brown scales. In forests, Bukit Timah, Chan Chu Kang (*Ridley 3521*). (*Korthalsia* is well-known as a genus of ant-plants. Ants inhabit the inflated ochrea of the leaves).

Korth. grandis Ridl.

Seletar (*Ridley s.n.* in 1894, lectotype), Bukit Panjang.

Korth. rigida Bl.

Also called *K. polystachya* Mart. and *K. wallichiaefolia* Wendl. Bukit Timah (*Ridley 6674*).

Korth. scaphigera Griff. ex Mart.

Seletar, Woodlands, Bukit Timah (*Ridley 6272*). Vern. *Rotan simut*.

Licuala ferruginea Becc.

Small fan palm; stem very short; leaves divided to the centre; leaflets 10–13, the central one the largest, to 1 m long; petioles about 1 m long, thorny at base; panicles 50–60 cm long; spathe brown, pubescent. In forests, Gardens' Jungle. Bukit Timah.

Lic. grandis Wendl.

Slender palm, 1–2 m tall; leaves orbicular, to 1 m across, nearly entire except the edges; petioles 1 m long, spiny. Native of New Hebrides and New Britain, often cultivated.

Lic. spinosa Wurmbr.

Bushy palm, in clumps, 2–5 m tall; leaves orbicular; leaflets 15–18, linear, 30 cm long; petioles 1 m long, thorny the entire length; panicles erect or arching. In open dry places or swampy areas, Pulau Ubin, Pulau Brani.

Lic. triphylla Griff.

Stemless; leaves divided into 3–7 leaflets, 20–22 cm long; petioles slender, 30–40 cm long, sparsely thorny. In forests, Changi.

Livistona chinensis R. Br.

Solitary palm; trunk stout, ringed, to 15 m tall; leaves fan-shaped, nearly rounded, wider than long, 40–50 cm wide, divided to about the middle of the blade; petioles spiny; flowers bisexual, in panicles; fruit ovoid (2 × 1.5 cm). Native of S. China, planted. 蒲葵.

Liv. kingiana Becc.

Leaves 1.5 m across, with a few divisions down to the central rib, mainly in the lower quarter; leaflets widening outwards, wedge-shaped; petioles massive, to 1.5 m long, spiny in lower parts; fruit globose, 5–6 cm across. In swampy forests, Chan Chu Kang, Bukit Mandai. Formerly called *Pholidocarpus kingiana* Ridl.

Liv. rotundifolia (Lamk.) Mart.

Trunk to 20 m tall; leaves 1.2 m long; tips of leaf-divisions forked halfway down; fruit globose, 2 cm across. Native of E. Malesia, cultivated.

Liv. saribus (Lour.) Merr. ex Cheval.

Trunk to 30 m tall; leaves to 1.2 m across, leaf-divisions almost reaching the central rib; fruit globose, 1.5–2 cm across. Native of Indo-China and several parts of Malesia, cultivated.

Metroxylon sagu Rottb.

Stout tree, forming big clumps, to 10 m tall; leaves pinnate, massive, to 5 m long, with about 60 pairs of strap-shaped leaflets; flowers in large terminal, wide-spreading panicle; male and female flowers mixed. Native to Moluccas and W. New Guinea, formerly cultivated for the starch.

Myrialepis scortechinii Becc.

Climbing thicket-forming rattan, to 40 m tall; young stems with horizontal rows of spines; whole leaf 3–5 m long, with terminal thorny extensions to 1.5 m long; male and female inflorescences on separate plants, arising from the nodes of uppermost reduced leaves; fruit depressed globose (3 × 2.5 cm), tipped with black stigmas and covered with myriads of tiny scales. Bukit Mandai (*Ridley 5860*), Chan Chu Kang, Kranji, Bukit Timah. Vern. *Rotan kertong*. Called *Plectocomiopsis annulatus* Ridl. and *P. scortechinii* (Becc.) Ridl. in *Ridley's Flora*.

Nenga pumila (Mart.) Wendl.

Also called *N. wendlandiana* Scheff. Tufted dwarf palm, 3–5 m tall; leaves pinnate, to 1.5 m long; leaflets linear, petiole 20 cm long, with a purplish sheath;

inflorescence usually 3-branched; fruit ovoid, 2–2.5 cm long, yellow to bright red. In forests; Changi, Seletar. (Note: *Nenga* is very similar to *Pinanga*, but differs from it in : 1) inflorescence with one spathe; 2) flowers always spirally arranged; 3) seeds laterally arranged).

***Nypa fruticans* Wurm.**

Rhizome very stout, creeping in mud; aerial stem very short; leaves pinnate, 5–6 m long, erect; inflorescence subterminal, erect, stalk 1 m long; fruits chestnut brown, in a globose cluster, 20–25 cm across. In tidal river, often forming large colonies. A very useful plant, leaves are used for roofing; sugar and alcohol can be obtained from the flower spikes; and the endosperm of the seed is edible. Vern. *Nipah*, 水椰. (The generic name usually incorrectly spelt as *Nipa*).

***Oncosperma horridum* (Griff.) Scheff.**

Tall slender palm, in clusters, with very dense crowns; stems to 20 m tall, covered with massive downward directed black spines; leaves pinnate; leaflets horizontal or nearly so; inflorescence large, below the leaves; flowers unisexual, spirally arranged; fruit round, ripening black, 1.5 cm across, waxy. In inland forests, Bukit Timah, Water Catchment Areas, Changi. Vern. *Bayas*.

***Oncosp. tigillarum* (Jack) Ridl.**

Formerly called *O. filamentosum* Bl. Like the above species, but (1) leaflets drooping, and (2) often near the coast, standing in or near salt or brackish water. Tanglin, Changi, Kranji, Vern. *Nibong*. (Note: There is relic stand of Nibong palms near the main gate of the Istana).

***Pinanga disticha* Bl. ex Wendl.**

Small forest undergrowth palm, often forming large clumps; stem very slender, to 1.3 m tall; leaves V-shaped, 20–30 cm long, simple or occasionally pinnately divided into broad or narrow leaflets; flowers in threes (with a female and 2 males), on a simple spike, 10 cm long; fruit ellipsoid, about 1 cm long; ripening red. In forests, Seletar.

***Pin. limosa* Ridl.**

Usually solitary, 1–2 m tall; leaves oblong in outline, with deeply forked tip, about 30–40 cm long, entire or divided into irregular broad leaflets with curving sides. In muddy spots in dense forests, Bukit Timah, Seletar.

***Pin. malaiana* (Mart.) Scheff.**

In small clumps; stem 30–50 cm tall; leaves broad, spreading, 30 cm long, pinnate; leaflets with 2 main nerves. In forests, Chan Chu Kang.

***Pin. simplicifrons* (Miq.) Becc.**

Tiny palm, often forming large clumps; stem slender, winding, usually less than 1 m tall; leaves entire, oblong, deeply forked, 20–25 cm long. In forest.

***Pin. singaporensis* Ridl.**

Stem tufted, 2–5 m tall; leaves pinnate, 1 m long; leaflets about 13, sigmoid. Formerly found in Bukit Timah, Bukit Mandai and Seletar, probably extinct sometime ago.

***Pin. subruminata* Becc.**

Slender palm, to 1.3 m tall; leaves simple, V-shaped. In forest, formerly collected in Kranji.

***Plectocomia griffithii* Becc.**

Solitary climbing rattan, to 50 m tall; whole leaf to 7 m long, including a terminal thorny extension to 3 m long; sheath green, armed with combs of brown spines;

leaflets to about 60 on each sides; male and female inflorescences similar, terminal; fruit globose, to 1.5 cm across, covered with rows of red-brown scales. Seletar, Kranji, Bukit Mandai (*Ridley 3470*). Vern. *Rotan dahan*.

***Ptychoraphis singaporensis* Becc.**

Slender palm; stems 2–3.5 m tall; 2–3 in small clumps; leaves pinnate, 1–1.7 m long, with numerous leaflets; inflorescences 1–3, in leaf axils, 30–40 cm long; fruit fleshy, red, ellipsoid, 1–2 cm long. In forests, Tanglin, Sungei Buluh, Tuas. Vern. *Kerintin*, *Rintin*.

***Ptychosperma macarthurii* (Wendl.) Nichols**

Trunks bamboo-like, to 6 m tall; leaves once pinnate, with many rather broad leaflets (7–20 cm long, blunt). Panicles below the leaves, 40–45 cm long; female flowers flanked by the males; fruit ellipsoid, orange, 1.2–1.5 cm long; seeds 5-grooved. Native of New Guinea, commonly cultivated in gardens. Seeds dispersed by birds, naturalized. Another species, *P. sanderianum* Ridl., with much narrower leaflets, is occasionally planted.

***Raphia farinifera* (Gaertn) Hylander**

Stem annulate, unarmed, robust, to 15 m tall; leaves pinnate, very large, up to 15 m long, leaflets of variable sizes, the larger ones 2.4–3.6 m long. Native of Madagascar, formerly called *R. ruffia* (Jacq.) Mart.

***Rhapis excelsa* (Thunb.) Henry (= *R. flabelliformis* L. Hér.)**

Trunks slender, straight, 2–4 m tall, in clumps, usually covered with fibrous leaf-sheaths; leaves fan-shaped, about 30 cm across, dark green, shining; leaflets 5–11, the ends blunt and toothed, rarely flowering under our climate. Native of S. China, planted in gardens or treated as 'dwarf plants' in pots. 棕竹. Another cultivated species, *R. humilis* Bl., is a smaller plant, with smaller leaves of only about 6 leaflets.

***Roystonea oleracea* (Jacq.) Cook (= *Oreodoxa oleracea* Mart.)**

Like *R. regia*, but much taller and the trunk is swollen only at the base, the crown of leaves also spreads in all directions. Less commonly cultivated than *R. regia*. Native of Barbados, called 'Cabbage Palm'.

***Royst. regia* (H.B.K.) Cook (= *Oreodoxa regia* H.B.K.)**

Trunk columnar, greyish, ringed, to 20 m tall, slightly swollen at the base and middle; leaves pinnate, 3 m long, arched; male and female flowers growing along spikes in a large panicle. Native of Cuba, often planted in rows as avenue trees, noted for its stateliness and elegance, thus called 'Royal Palm', 皇椰子.

***Salacca affinis* Griff.**

Stems stout and short, sometimes appearing stemless, in clumps; leaves pinnate, in big, dense rosettes, 3–4 m long; leaflets flat, in one plane, oblong, 30–40 cm long; flowers unisexual, dioecious, in erect spikes subtended by large spathes; fruit globose, about 2.5 cm across, beaked, scaly; seeds 1–3, embedded in a juicy pulp. In wet spots in forests, Bukit Timah, Chan Chu Kang (*Ridley 4421*). Vern. *Salac*. (The generic name sometimes incorrectly spelt as *Zalacca*). Imported fruits from Indonesia of a related species, *S. edulis* Bl., are sometimes sold in markets.

***Sal. conferta* Griff**

Differs from *S. affinis* in having linear leaflets arranged in 2 planes, and male and female flowers on the same inflorescence, forming a massive terminal head. In swampy forests, often forming thickets, Tanglin, Bukit Timah, Changi, Chan Chu Kang (*Ridley 3143*) Jurong. Vern. *Asam payah*, *Salak hutan*. (This plant differs from other species of the genus in having terminal inflorescences thus re-named as *Eleiodoxa conferta* (Griff.) Burret. in some literature.)