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Phil. Trans. R. Soc. Lond. B 1969 **255**, 589-593

doi: 10.1098/rstb.1969.0031

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A preliminary analysis of the palm flora of the Solomon Islands

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The following observations on representation and relationships of palms in the Solomon Islands (including Bougainville) have been extracted from notes and manuscripts on palms of the region. They are based on literature and limited material (chiefly collections of B.S.I.P., Brass, Kajewski), hence are distinctly preliminary in nature. The list will surely change in time—there are, for example, unidentified species of *Physokentia* on Santa Isabel, of *Rehderophoenix* on Guadalcanal, perhaps another *Calamus*, and it seems likely that the number of described genera (see *Rehderophoenix*, *Strongylocaryum* below) and species (as in *Areca*) may be reduced eventually.

The genera and species are arranged by subfamilies with notes as to number of genera in subfamilies, of species in genera in parentheses following appropriate categories. Distribution outside the Solomon Islands is indicated in brackets and is intended to indicate general rather than detailed patterns. Preliminary as the information is, it may contribute to a better understanding of the flora of the Solomon Islands.

The subfamilies Borassoideae, Phoenicoideae, Coccoideae (except the cultivated *Cocos nucifera*), Phytelephantoideae are not represented in the Solomons. The remaining five subfamilies are represented by 17 or 18 genera of which six—*Licuala*, *Livistona*, *Caryota*, *Nypa*, *Calamus*, *Areca*—have a wide distribution from the Solomons through Malaysia to the Asiatic mainland. Of these, only *Licuala* (New Hebrides) and *Calamus* (to Fiji) extend eastward from the Solomons; the others find their eastern limit there.

Eight or nine genera—*Ptychococcus*, *Ptychosperma*, *Rehderophoenix*, *Strongylocaryum*, *Gulubia*, *Cyrtostachys*, *Actinorhytis*, *Heterospathe* and *Rhopalobaste*—are essentially genera of New Guinea with outliers in Australia, the Moluccas, rarely (*Heterospathe*) in the Philippines and Micronesia or (*Cyrtostachys*) in Sumatra, Borneo, Malaya or (*Drymophloeus*?, cf. *Rehderophoenix* below) in Samoa. The remaining three—*Metroxylon*, *Clinostigma*, *Physokentia*—appear to be basically Melanesian genera which reach their western limits (below the Equator) in the Solomons except *Metroxylon* which extends westward in New Guinea and Ceram, but questionably farther except as a cultivated plant.

One may say with some confidence that the palm flora of the Solomons is essentially an attenuated New Guinean flora. Even when genera extend beyond New Guinea, the species in the Solomons are either direct extensions of the New Guinea flora (*Licuala*, *Caryota*, *Calamus*) or have their closest relatives in New Guinea (*Cyrtostachys*, *Areca*). *Metroxylon* has a somewhat odd distribution with what would appear to be its most primitive species in the Caroline Islands. But *Clinostigma* and *Physokentia* are clear exceptions to the New Guinea pattern. Both are newly reported for the Solomons and are extensions from Fiji and Samoa with generic relatives in New Caledonia.

Subfamily CORYPHOIDEAE (2 of *ca.* 34 genera represented)

Licuala (*ca.* 75 species) [New Hebrides, Bismarck Archipelago, New Guinea, Australia, Moluccas, Indonesia, Borneo, Philippine Islands, Malay Peninsula, Southeast Asia, southern China].

L. lauterbachii Damm. & K. Schum.—Bougainville, New Georgia Group, Santa Isabel, Guadalcanal, San Cristobal [Bismarck Archipelago, New Guinea].

Livistona (*ca.* 20 species) [Lousiades, New Guinea, Bismarck Archipelago, Moluccas, Australia, Indonesia, Borneo, Philippine Islands, Bonin Islands, Japan, Ryukyu Islands, Formosa, southern China, Malay Peninsula, Southeast Asia, India].

L. woodfordii Ridl.—Tulagi, N'Gela.

Subfamily CARYOTOIDEAE (1 of 3 genera represented)

Caryota (*ca.* 13 species) [New Guinea, Bismarck Archipelago, Australia, Moluccas, Indonesia, Borneo, Malay Peninsula, Philippine Islands, Southeast Asia, southern China, India, Ceylon].

C. rumphiana Mart.—Bougainville, Santa Isabel, Guadalcanal [New Guinea, probably Bismarck Archipelago and elsewhere in the Solomons].

Subfamily NYPOIDEAE (monotypic)

Nypha fruticans Wurmb.—New Georgia Group, Bougainville [New Guinea, Bismarck Archipelago, Australia, Moluccas, Indonesia, Borneo, Philippine Islands, Ryukyu Islands, Micronesia, Marianas, Malay Peninsula, Thailand, Burma, Ganges Delta, Ceylon].

Subfamily LEPIDOCARYOIDEAE (2 of *ca.* 24 genera represented)

Calamus (*ca.* 355 species) [Fiji Islands, New Hebrides, New Guinea, Bismarck Archipelago, Australia, Moluccas, Indonesia, Borneo, ? Formosa, southern China, Southeast Asia, Malay Peninsula, India, Ceylon, Tropical Africa].

C. hollrungii Becc.—Bougainville [New Guinea].

C. stipitatus Burret—San Cristobal.

C. vestitus Becc.—Guadalcanal [New Guinea].

Metroxylon (6 to 8 species) [Ceram, New Guinea, Bismarck Archipelago, New Hebrides, Fiji Islands, Samoa, Caroline Islands—see also *M. sagu* below].

M. bougainvillense Becc.—Bougainville.

M. sagu Rottb.—Guadalcanal [New Guinea to Malaya and elsewhere in cult.].

M. salomonense (Warb.) Becc.—Santa Isabel, Guadalcanal, Santa Cruz Group.

Metroxylon sp.—Santa Cruz Group.

Subfamily ARECOIDEAE (11 to 12 of *ca.* 120 to 130 genera represented)

Tribe Areceae (1 to 2 genera).

Areca (50 to 60 species).

- A. guppyana* Becc.—Shortland & Treasury Islands, cult. in Malaita.
A. macrocalyx Zipp s.l.—Santa Isabel, Guadalcanal, San Cristobal [Bismarck Archipelago, New Guinea].
A. niga-solu Becc.—Treasury Group.
A. novo-hibernica Becc.—Bougainville [Bismarck Archipelago].
A. rechingeriana Becc.—Bougainville.
A. torulo Becc.—Treasury Group.

Tribe Ptychospermateae (8 or fewer genera).

Ptychococcus (*ca.* 8 species) [Bismarck Archipelago, New Guinea].

- P. guppyanus* (Becc.) Burret—Islands of Bougainville Straits.

Ptychosperma (*ca.* 40 species) [New Guinea, Bismarck Archipelago, Australia, Micronesia].

- P. kajewskii* Burret—Bougainville.
P. multiramsum Burret—Bougainville.
P. pachycarpum Burret—Bougainville.
P. salomonense Burret—Bougainville.

Rehderophoenix (3 to 4 species but almost certainly to be united with *Drymophoeus*, a genus of 11 to 12 species in New Guinea, Bismarck Archipelago, Moluccas, ? Samoa).

- R. pachycladus* Burret—San Cristobal.
R. subdistichus H. E. Moore—Santa Isabel.
R. sp.nov. ined.—San Cristobal
R. sp.—Guadalcanal.

Strongylocaryum (4 species, 1 in Louisiades undescribed, but probably to be combined ultimately with *Ptychosperma*).

- S. brassii* Burret—Florida Islands.
S. latius Burret—Santa Isabel.
S. macranthum Burret—Ulawa.

Tribe Kentieae

Gulubia (11 species) [New Hebrides, New Guinea, Australia, Moluccas, Caroline Islands].

- G. hombronii* Becc.—Choiseul, Santa Isabel, Guadalcanal.
G. macrospadix (Burret) H. E. Moore—Bougainville, Santa Isabel.

Tribe Cyrtostachyeae (monogeneric).

Cyrtostachys (12 or fewer species) [Bismarck Archipelago, New Guinea, Sumatra, Borneo, Malaya].

C. kisu Becc.—Bougainville, Faro.

Tribe Clinostigmateae (*ca.* 24 genera as broadly defined in MSS.).

Actinorhytis (1 to 2 species) [Bismarck Archipelago, New Guinea, widely cult. to Malaya but probably not native there].

A. calapparia (Bl.) H. Wendl.—New Georgia Group [New Guinea, etc.].

A. poamau Becc.—Shortland Islands, Treasury Islands.

Clinostigma (13 or fewer species) [New Hebrides, Fiji, Samoa, Micronesia, Bonin Islands].

Clinostigma sp.nov. ined.—Guadalcanal.

Clinostigma sp.nov. ined.—San Jorge.

Heterospathe (*ca.* 26 species including *Ptychandra*) [New Guinea, Moluccas, Micronesia, Philippine Islands].

H. kajewskii Burret—Bougainville.

H. minor Burret—Santa Isabel, Guadalcanal, Malaita.

H. ramulosa Burret—Bougainville.

H. salomonensis Becc.—San Jorge.

H. sensisi Becc.—Shortland & Treasury Islands.

H. woodfordiana Becc.—Santa Isabel, San Jorge.

Physokentia (6 species) [New Hebrides, Fiji Islands].

P. sp.nov. ined.—Guadalcanal.

P. sp.nov. ined.—San Cristobal.

P. sp.nov. ined.—New Georgia, Kolombangara, Guadalcanal.

Rhopaloblaste (*ca.* 6 species) [New Guinea, Moluccas].

R. elegans H. E. Moore—Guadalcanal, Choiseul.

[NOTE BY E. J. H. CORNER]

Pelagodoxa henryana Becc.

I add this note at the suggestion of Professor Moore because the status of this palm, whether introduced or native, is uncertain. Its existence on San Cristobal, is, however, important to the floristic study of the Solomons. On the evening before I left Honiara, at the close of the Expedition, J. F. Peake gave me a dried fruit that had been collected from a palm on the south coast of San Cristobal by the Agricultural Officer. It was one of two which had grown from fruits washed up after a storm some 15 years previously. The islanders were not familiar with the palm. I arranged for more material to be collected and Professor Moore was able to identify it as *P. henryana*, native to the Marquesas Islands.

Subsequently Mr G. F. C. Dennis of the Forest Department, BSIP, reported that there was a grove of this palm at Makiri Harbour on the south coast, and suggested that it had been introduced to the nearby Catholic Mission from the Marquesas.

If introduced, then it has established itself and is spreading by means of its sea-borne fruits. This means that, so far from being saturated, the vegetation of the Solomons can accommodate a massive new element and, by implication, could accommodate as large a biomass of many species of small plant. The idea of saturation for the flora of these large islands is unreal. Then, if introduced, it is clear that this sea-borne palm has not been able to travel naturally from the Marquesas Islands in contradiction to the facile assumption of island-hopping. Thus this palm of ancient lineage exemplifies with many other pachycaul plants, among which the maritime species of *Pandanus* are comparable, a distribution limited by modern geography which man, by introduction, can overcome.

If, however, *P. henryana* is native to San Cristobal, it will emphasize the nodal importance of this island in phytogeography, and it will throw light on the origin of this problematic, durian-fruited genus. It is to be hoped that positive evidence will be forthcoming and that the progress of the palm in the Solomons will be followed as an experiment into theories of island life.