

Palm Research in 2001

COMPILED BY

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Betrock's cultivated palms of the world. D. & A. Ellison. 2001. Betrock Information Systems. ISBN 0-9629761-5-6. 257 pages. Price US\$59.99.

Insects on palms. F. W. Howard, D. Moore, R. M. Giblin-Davis & R. G. Abad. 2001. CABI Publishing. ISBN 0-85199-326-5. 400 pages. Price US\$65.00.

A field guide to the rattans of Lao PDR. T. Evans, K. Sengdala, O. Viengkham & B. Thammavong. 2001. (published in English and Lao versions) Royal Botanic Gardens, Kew. ISBN 1-84246-009-9. 96 pages. Price £15.00.

The insect fauna of rattan. H. Steiner. 2001. GTZ, Eschborn. ISBN 3-933984-99-8. 92 pages. Price 5 Euros (also available on line at <http://www.gtz.de/toeb>)

Field guide to palms in Papua New Guinea. A. Barfod, R. Banka & J. Dowe. 2001. AAU Reports 40. ISBN 87-87600-55-2. Price US\$15.00

CD-ROM

Rattans and Bamboos. J. Dransfield & N. Manokaran (eds for Rattans), S. Dransfield & E.A. Widjaja (eds for Bamboos). 2001. Plant Resources of South-East Asia. World Biodiversity Database CD-ROM Series. ETI, Amsterdam. Price unknown.

Articles

Anten, N. & D. Ackerly. 2001. Canopy level photosynthetic compensation after defoliation in a tropical understorey palm. *Functional Ecology* 15: 252–262.

Asmussen, C. & M. Chase. 2001. Coding and noncoding plastid DNA in palm systematics. *American Journal of Botany* 88: 1103–1117.

Baker, W.J. 2001. The Palms of New Guinea Project. *New Guinea Tropical Ecology and Biodiversity Digest*. 11: 6–7.

Barfod, A. & N. Uhl. 2001. Floral development in *Aphandra* (Arecaceae). *American Journal of Botany* 88: 185–195.

Bernal, R. 2001. Una nueva especie de *Aiphanes* (Palmae) de los Andes de Colombia. *Caldasia* 23: 163–167.

Borchsenius, F., H. Balslev & J.-C. Svenning. 2001. Two new species of *Geonoma* sect. *Taenianthera* (Arecaceae) from the western Amazon. *Nordic Journal of Botany* 21: 341–347.

Borgtoft Pedersen, H. & F. Skov. 2001. Mapping palm extractivism in Ecuador using pair-wise comparisons and bioclimatic modeling. *Economic Botany* 55: 63–71.

Brewer, S. 2001. Predation and dispersal of large and small seeds of a tropical palm. *Oikos* 92: 245–255.

Brewer, S. & M. Webb. 2001. Ignorant seed predators and factors affecting the survival of a tropical palm. *Oikos* 93: 32–41.

Byg, A. & H. Balslev. 2001. Traditional knowledge of *Dypsis fibrosa* (Arecaceae) in eastern Madagascar. *Economic Botany* 55: 263–275.

Byg, A. & H. Balslev. 2001. Diversity and use of palms in Zahamena, eastern Madagascar. *Biodiversity and Conservation* 10: 951–970.

Chapin, M., F. Essig & J.-C. Pintaud. 2001. The morphology and histology of the fruits of *Pelagodoxa* (Arecaceae): taxonomic and biogeographic implications. *Systematic Botany* 26: 779–785.

Charles-Dominique, J. Chave, C. Vezzoli, M.-A. Dubois & B. Riera. 2001. Growth strategy of the understorey palm *Astrocaryum sciophilum* in the rainforest of French Guiana. *Dissertationes Botanicae* 346: 153–163.

Clement, C. & M. Bovi. 2000. Padronização de medidas de crescimento e produção em experimentos com pupunheira para palmito. *Acta Amazonica* 30: 349–362.

Clement, C. & R. Manshardt. 2000. A review of the importance of spines for pejibaye heart-of-palm production. *Scientia Horticulturae* 83:11–23.

- Consiglio, T. & G. Bourne. 2001. Pollination and breeding system of a neotropical palm *Astrocaryum vulgare* in Guyana: a test of the predictability of syndromes. *Journal of Tropical Ecology* 17: 577–592.
- Copley, M., P. Rose, A. Clapham, D. Edwards, M. Horton & P. Evershed. 2001. Detection of palm fruit lipids in archaeological pottery from Qasr Ibrim, Egyptian Nubia. *Proceedings of the Royal Society of London B* 268: 593–597.
- Dos Reis, M., A. Fantini, R. Nodari, A. Reis, M. Guerra & A. Mantovani. 2000. Management and conservation of natural populations in Atlantic Rain Forest: the case study of palm heart (*Euterpe edulis* Martius). *Biotropica* 32: 894–902.
- Dowe, J. & A. Barfod. 2001. New species of *Livistona* R. Br. (Arecaceae) from north Queensland and Papua New Guinea. *Austrobaileya* 6: 165–174.
- Dowe, J. & M. Ferrero. 2001. Revision of *Calyptrocalyx* and the New Guinea species of *Linospadix*. *Blumea* 46: 207–251.
- Dransfield, J. 2001. Two new species of *Daemonorops* (Arecaceae) from Vietnam. *Kew Bulletin* 56: 661–667.
- Dransfield, J. 2001. *Calamus griseus* (Arecaceae), a new species of rattan from peninsular Thailand, Malaysia and Sumatra. *Thai Forest Bulletin* 28: 157–159.
- Dransfield, J. 2001. E.J.H. Corner and his contribution to the study of palms. Pp 11–18. In L.G. Saw, L.S.L. Chua & K.C. Khoo (Eds). *Taxonomy: the cornerstone of biodiversity. Proceedings of the Fourth Flora Malesiana Symposium 1998*. Forest Research Institute Malaysia.
- Ehara, H., O. Morita, C. Komada & M. Goto. 2001. Effect of physical treatment and presence of the pericarp and sarcotesta on seed germination in sago palm (*Metroxylon sagu* Rottb.). *Seed Science and Technology* 29: 83–90.
- Essig, F., L. Bussard & N. Hernandez. 2001. A systematic histological study of palm fruits. IV. Subtribe Oncospermatinae (Arecaceae). *Brittonia* 53: 466–471.
- Evans, T. & T. Anh. 2001. A new species of *Calamus* (Arecaceae: Calamoideae) from Vietnam. *Kew Bulletin* 56: 731–735.
- Evans, T. & O.V. Viengkham. 2001. Inventory time-cost and statistical power: a case study of a Lao rattan. *Forest Ecology and Management* 150: 313–322.
- Gee, C. 2001. The mangrove palm *Nypa* in the geologic past of the New World. *Wetlands Ecology and Management* 9: 181–194.
- Guix, J. & X. Ruiz. 2000. Plant-disperser-pest evolutionary triads: how widespread are they? *Orsis* 15: 121–126.
- Harley, M. & W. Baker. 2001. Pollen aperture morphology in Arecaceae: application within phylogenetic analyses, and a summary of the fossil record of palm-like pollen. *Grana* 40: 45–77.
- Henderson, J. & D. Osborne. 2000. The oil palm in all our lives: how this came about. *Endeavour* 24: 63–68.
- Khan, M., A. Hassan & S. Basu. 2001. Rescue of an "extinct" palm in Bangladesh. *Species* 36: 9.
- Knudsen, J., L. Tollsten & F. Ervik. 2001. Flower scent and pollination in selected neotropical palms. *Plant Biology* 3: 642–653.
- Lewis, C. & J. Doyle. 2001. Phylogenetic utility of the nuclear gene malate synthase in the palm family (Arecaceae). *Molecular Phylogenetics and Evolution* 19: 409–420.
- Lim, C.K. 2001. Unravelling *Pinanga* in Peninsular Malaysia. *Folia Malaysiana* 2: 219–276.
- Lim, C.K. & T.C. Whitmore. 2001. A review of *Nenga* (Palmae) in Malaysia. *Folia Malaysiana* 2: 190–202.
- Listabarth, C. 2001. Palm pollination by bees, beetles and flies: why pollinator taxonomy does not matter. The case of *Hyospathe elegans* (Arecaceae, Arecoideae, Areceae, Euterpeinae). *Plant Species Biology* 16: 165–181.
- Loo, A., H. Tan, P. Kumar & L. Saw. 2001. Intraspecific variation in *Licuala glabra* Griff. (Palmae) in Peninsular Malaysia – a morphometric analysis. *Biological Journal of the Linnaean Society* 72: 115–128.
- Marcato, A. & J. Pirani. 2001. Flora da Serra do Cipó, Minas Gerais: Palmae (Arecaceae). *Boletin Bot. Univ. São Paulo* 19: 45–54.
- Marciel, N. 2001. Efectos de las cubiertas de la semilla, el almacenamiento y los métodos de siembra en la emergencia de la palma de Manila [*Adonidia merrillii* (Becc.) Becc.]. *Proc. Interamer. Soc. Trop. Hort.* 44: 111–115.
- Martén, S. & M. Quesada. 2001. Phenology, sexual expression, and reproductive success of the rare neotropical palm *Geonoma epietiolata*. *Biotropica* 33: 596–605.

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In November 1999, the *Gulubia* flowered for the first time and set three infructescences with over 500 fruit each. Cream flowers were followed by pale yellow-orange ovoid fruits (Fig. 2) that ripened to a blue-grey background with prominent longitudinal charcoal grey striping (Fig. 3). Within two days of harvesting, the fruits turned black. As if this color change was not dramatic enough, the thin pulp was raspberry-red in color.

Fruits range from 6–10 mm in length and because the pulp, while thin, is difficult to remove by hand, I have simply soaked the fruit in water for two days and sowed them on the surface of a standard nursery mix (peat moss/perlite/silica sand). Two community pots of about 100 seeds each were held in the FTG Nursery at about 30°C from December 1999 until June 2000 when the first seedlings emerged. Within a month, approximately 75% of the seeds had germinated and by September 2000, all had a second leaf. Most of these seedlings were donated to FTG for future planting and distribution to members.

The subsequent fruiting in December 2000 resulted in over a thousand fruit which were distributed to collectors and nurseries in South Florida. At that time I cleaned the fruit by hand by adding some silica sand to a handful of seed and vigorously rubbing my handful of sand and seed to remove the pulp. This process yielded very

clean seeds in less time than any other methods I had tried. These seeds were sown on 8 January 2001, but upon dissection in October 2001 all the ungerminated seeds I sampled were desiccated or showed signs of fungal activity. Despite my hope that depulping the seeds would improve germination, this was not the case. I wonder if the act of removing the endocarp somehow promoted fungal infection or speeded up desiccation before the seeds germinated.

This year, I shall clean some seeds but not the entire batch to see if epicarp removal is the limiting factor in germination.

Of all the pendant leaflet palms that are so graceful and so reminiscent of the tropics, *Gulubia* seems to be the best adapted for cultivation in warm areas outside the tropics. As attractive as they are, I have found *Euterpe oleracea*, *E. precatoria* and *E. edulis* to be even more cold-tender and intolerant of our alkaline soils and dry winter winds. Although *Gulubia costata* has been rarely available to collectors in South Florida, we now know that this species can be raised to maturity in our area with only minimal cold protection when young and can become a welcome addition to the landscape. Once the germination problems are solved, cultivated seedlings of this palm may be available to more palm enthusiasts than ever before.

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Martin, G., J.H. Beaman, R.S. Beaman, J. Dransfield, L. Apin & J. Nais. 2001. Productivity of community-based botanical inventories: the Kinabalu example. *Sabah Parks Nature Journal* 4: 113–124.

Mauder, M., B. Lyte, J. Dransfield & W. Baker. 2001. The conservation value of botanic garden palm collections. *Biological Conservation* 98: 259–271.

Mereles, M. 2000. Estudios cuantitativos en las sabanas de "Karandá-y," *Copernicia alba* Morong, en el Chaco boreal y la sub-cuenca del lago Ypacarai, Paraguay. *Rojasiana* 5: 279–290.

Moraes M., M., J.A. Simonetti, & R.O. Bustamante. 2001. Key for seedlings of common palm species of the "Estacion Biologica del Beni," Bolivia. *Rev. Soc. Boliviana Bot.* 3(1–2): 234–242.

Morcote Rios, G. & R. Bernal. 2001. Remains of palms (Palmae) at archaeological sites in the New World: a review. *Botanical Review* 67: 309–350.

Moreno, L.R. 2001. *Astrocaryum acaule* C. Martius: registro de una nueva palmera para Bolivia. *Rev. Soc. Boliviana Bot.* 3(1–2): 251–255.

Moya, C. 2000. Las palmas cubanas descubiertas por Humboldt: un homenaje en el 200 aniversario de su primera visita en Cuba. *Revista del Jardín Botánico Nacional* 21: 311–312.

Otero-Arniaz, A. & K. Oyama. 2001. Reproductive phenology, seed-set and pollination in *Chamaedorea alternans*, an understorey dioecious palm in a rain forest in Mexico. *Journal of Tropical Ecology* 17: 745–754.

Pacheco, M. 2001. Effects of flooding and herbivores on variation in recruitment of palms between habitats. *Journal of Ecology* 89: 358–366.

Pinheiro, C. 2001. Germination strategies of palms: the case of *Schippia concolor* Burret in Belize. *Brittonia* 53: 519–527.

Pintaud, J.-C., T. Jaffré & H. Puig. 2001. Chorology of New Caledonian palms and possible evidence of Pleistocene rain forest refugia. *C. R. Acad. Sci. Paris, Sciences de la Vie* 324: 1–11.

Pizo, M. & I. Simao. 2001. Seed deposition patterns and the survival of seeds and seedlings of the palm *Euterpe edulis*. *Acta Oecologica* 22: 229–233.

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- BRITT, A., A. AXEL AND R. YOUNG. 1999. Brief surveys of two classified forest in Toamasina Province, eastern Madagascar. *Lemur News* 4: 25–27.
- BRITT, A., A. KATZ AND C. WELCH. 2000. Project Betampona: Conservation and Re-stocking of Black and White Ruffed Lemurs (*Varecia variegata variegata*). Pp. 87–94 in T.L. ROTH, W.F. SWANSON AND L.K. BLATTMAN (eds.) *Proceedings of the Seventh World Conference on Breeding Endangered Species*, May 22–26, 1999, Cincinnati, Ohio.
- DRANSFIELD, J. AND H.J. BEENTJE. 1995. *The Palms of Madagascar*. The Royal Botanic Gardens Kew and the International Palm Society.

Palm Research in 2001, cont'd from p. 124

- Quiroga, V. & A. Roldan. 2001. The fate of *Attalea phalerata* (Palmae) seeds dispersed to a tapir latrine. *Biotropica* 33: 472–477.
- Ramos, F., I. Martins, J. Farias, I. Silva, D. Costa & A. Miranda. 2001. Oviposition and predation by *Speciomerus revoli* (Coleoptera, Bruchidae) on seeds of *Acrocomia aculeata* (Arecaceae) in Brasilia, DF, Brazil. *Brazilian Journal of Biology* 61: 449–454.
- Rangel Ch., J.O., R.G. Bogota & L.C. Jimenez B. 2001. Atlas palinológico de la Amazonía Colombiana: 4. Familia Arecaceae. *Caldasia* 23(1): 281–300.
- Read, R., A. Henderson, C. Ulloa & R. Evans. 2001. Arecaceae Schultz. Sch. Pages 192–229. In: W. Stevens, C. Ulloa, A. Pool & O. Montiel. *Flora de Nicaragua. Monographs in Systematic Botany* 85(1): 192–229.
- Sartippour, M.R., C. Liu, Z.M. Shao, V.L. Go, D. Heber, & M. Nguyen. 2001. *Livistona* extract inhibits angiogenesis and cancer growth. *Oncology Reports* 8: 1355–1357.
- Silberbauer-Gottsberger, I., A.C. Webber, H. Küchmeister & G. Gottsberger. 2001. Convergence in beetle-pollinated Central Amazonian Annonaceae, Araceae, Arecaceae, and Cyclanthaceae. *Dissertationes Botanicae* 346: 165–183.
- Svenning, J.-C. 2001. On the role of micro-environmental heterogeneity in the ecology and diversification of neotropical rain-forest palms. *The Botanical Review* 67: 1–54.
- Svenning, J.-C. 2001. Environmental heterogeneity, recruitment limitation and the mesoscale distribution of palms in a tropical montane forest (Maquipucuna, Ecuador). *Journal of Tropical Ecology* 17: 97–113.
- Tabarelli, M. 2001. Seed dispersal, plant recruitment and spatial distribution of *Bactris acanthocarpa* Martius (Arecaceae) in a remnant of Atlantic forest in northeast Brazil. *Acta Oecologica* 22: 259–268.
- Takenaka, A., K. Takahashi & T. Kohyama. 2001. Optimal leaf display and biomass partitioning for efficient light capture in an understorey palm, *Licuala arborea*. *Functional Ecology* 15: 660–668.
- Tandon, R., T.N. Manohara, B.H.M. Nijalingappa & K.R. Shivanna. 2001. Pollination and pollen-pistil interaction in oil palm, *Elaeis guineensis*. *Annals of Botany* 87: 831–838.
- Terborgh, J. & L. Davenport. 2001. Endogenous and exogenous control of leaf morphology in *Iriartea deltoidea* (Palmae). *Journal of Tropical Ecology* 17: 695–703.
- Toledo, M., J. Balcazar & T. Ruiz de Centurion. 2001. La palmera de cusi (*Attalea speciosa* Mart. ex Spreng.) en Ascension de Guarayos, Santa Cruz, Bolivia. *Rev. Soc. Boliviana Bot.* 3(1–2): 243–250.
- Tomlinson, P., J. Fisher, R. Spangler & R. Richer. 2001. Stem vascular architecture in the rattan palm *Calamus* (Arecaceae-Calamoideae-Calaminae). *American Journal of Botany* 88: 797–809.
- Velásquez Runk, J. 2001. Wounaan and Emberá use and management of the fiber palm *Astrocaryum standleyanum* (Arecaceae) for basketry in eastern Panamá. *Economic Botany* 55: 72–82.
- Wright, S. & H. Duber. 2001. Poachers and forest fragmentation alter seed dispersal, seed survival, and seedling recruitment in the palm *Attalea butyracea*, with implications for tropical tree diversity. *Biotropica* 33: 583–595.