Cross pollination is effected by the male flowering phase being separated by a few days from the female phase on a single inflorescence. Pollen and nectar of the male flowers are only available early in the morning, after which the female flowers secrete nectar. This effects the movement of bees from male flowers on one inflorescence to the female flowers on another inflorescence, which results in pollination.

## LITERATURE CITED

- BURKILL, I. H. 1919. Some notes on the pollination of flowers in the Botanic Gardens, Singapore, and in other places of the Malay Peninsula. Gdns.' Bull. Str. Settl. 2: 165-176.
- CHE TEK KAMARIAH, K. 1985. Nilai gula dan struktur nektari bagi beberapa tumbuhan utama lebah Malaysia. Honours project thesis (unpublished), Dept. Biology, Universiti Pertanian Malaysia.
- DRANSFIELD, J. 1970. Studies in the Malayan palms *Eugeissona* and *Johannesteijsmannia*. Ph.D. Thesis (unpublished), University of Cambridge (cited by Henderson, 1986).

- DRANSFIELD, J. 1979. A manual of the rattans of the Malay Peninsula. Forest Department, Malaysia.
- FONG, F. W. 1987. Insect visitors to the nipa inflorescence in Kuala Selangor. Nature Malaysiana 12(1): 10-13.
- HENDERSON, A. 1986. A review of pollination studies in the Palmae. Bot. Rev. 52: 222-259.
- LEE, C. K. 1980. Honey bees in Malaysia. Nature Malaysiana 5(3): 26-33.
- MAISHIHAH, H. A. 1987a. Atlas debunga tumbuhan lebah Malaysia dan analisis spektrum debunga madu Malaysia oleh Apis cerana indica. Honours project thesis (unpublished), Dept. Biology, Universiti Pertanian Malaysia.
- MAISHIHAH, H. A. 1987b. Kajian permulaan perlakuan lebah madu (Apis cerana) dalam pemilihan tumbuhan debunga dan nektar di stesyen hidroponik Universiti Pertanian Malaysia. Honours project thesis (unpublished), Dept. Biology, Universiti Pertanian Malaysia.
- MARDAN, M. AND R. KIEW. 1985. Flowering periods of plants visited by honeybees in two areas of Malaysia. Proc. 3 Int. Conf. Apic. Trop. Climates, Nairobi, 1984: 209–216.
- WONGSIRI, S. 1987. Regulation of *Apis cerana* absconding during a dearth period. Publications of Bee Biology Research Unit, Chulalongkorn University, Thailand.

Principes, 33(2), 1989, pp. 77-78

## Seed of Trithrinax campestris

## RON HARRIS

965 Terrace 49, Los Angeles, CA 90042

The palm *Trithrinax campestris* is both very rare and unique. The upper surfaces of the leaves on its multiple trunks are covered with a white woolly fuzz which makes the palm look white rather than green. And because it is a native of Argentina, it is far more cold tolerant than most palms.

When I first came to work as curator of the palm and jungle gardens at the Huntington Gardens, San Marino, California, Inge Hoffmann of the International Palm Society's Seed Bank, and John Tallman of Ventura College, asked me for seed of *Trithrinax campestris*. I went into the garden to check on our mature specimen of this species, and found six green seeds on one old inflorescence, plus at least twelve new flower heads forming.

A few people warned me to protect the seeds from rodents, but I didn't move fast enough. One by one the new flower heads were eaten, after which the seeds disappeared. Since then requests have come from all over the world for seeds of this palm—together with suggestions on how to protect the seeds from rodents by placing some type of wire mesh around the inflorescence. That procedure works well for most palms, but not for *Trithrinax*  *campestris*—for the reason that the inflorescence of *T. campestris* is practically inaccessible. Not only are the leaves very stiff and very sharply pointed, but in addition the leaf base consists of many sharply pointed spines the size of knitting needles. The inflorescence is quite small and is neatly packed inside this formidable defense.

Another idea was to place a wire cage completely around one of the heads of the palm. I decided against that because it would require cutting away the skirt of the palm to permit sealing the wire against the trunk, and I think that the skirt is a very beautiful aspect of the palm.

The third alternative is to cage the entire tree as a protection from rodents. With a generous donation of \$250 from the International Palm Society's Seed Bank, and with a matching amount from a Special Project fund, we are now erecting a rodentproof cage around the entire tree. We hope that possibly within a year, the Seed Bank will have seeds of the very rare and beautiful palm *Trithrinax campestris* to distribute to members of the International Palm Society who request them.

To request a packet of seeds of *Trithrinax campestris*, members of the International Palm Society should *NOW* address a request for them to the IPS Seed Bank, 695 Joaquin Avenue, San Leandro, CA 94577. Packets will be distributed in sequence of orders received, as seeds are received, at the standard billed price of \$2 per packet.

Principes, 33(2), 1989, p. 78

## **Coconuts: An Appeal for Information**

The coconut palm is the most widely distributed crop plant in the tropics but its one time supremacy as a source of vegetable oil has been superseded by soybean and oil palm. These have relegated the coconut to a less important position than it deserves.

The first edition of Longman's COCONUTS was written by Reginald Child in 1964 and a second edition in 1974. The opportunity to write a new edition for Longman comes at a time when the competition from other vegetable oils makes it necessary to reassess the coconut palm as a source of energy as well as food. Subjects which were only mentioned in the earlier editions can be dealt with in greater detail; for example, the commercial performance of F1 hybrids can be evaluated, the progress in embryo and tissue culture can be compared with the successes and failures in other crops and the economics of processing and marketing of copra can be examined in terms of the renewable resource requirements of the tropical countries in which coconuts grow.

The book is intended to be used at both the practical and the academic level. In addition to obvious chapters on breeding, agronomy, pests, diseases and processing, there will be a whole chapter devoted to extension and another to economics and marketing. Any scientists, extension officers, economists or planters who have worked with the coconut palm over the last 20 years are invited to tell the author what, in their opinion, should be included in the new book. In particular, lists of publications and recent reprints are requested. All letters will be answered and no work will be quoted without attribution.

Please write to:

HUGH C. HARRIES 17 Alexandra Road Lodmoor Hill Weymouth Dorset DT4 7QQ England