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HELICONIA SOCIETY OF PUERTO RICO, INC.

The HSPR Newsletter

# Variation in Bornean *Musa campestris* Beccari

## *By Markku Häkkinen, Contributor*

Borneo, the third largest island in the world, is comprised of three countries: Malaysia (Sarawak and Sabah), Indonesia (Kalimantan) and Brunei. It is located on the equator, and has a hot, rainy climate. In prehistoric times, Borneo had a land connection to the Asian continent. Due to the large variety of plant species that has developed as a result of isolation from the continent, Borneo is considered to be a center of biodiversity in Tropical Asia.

Borneo is also part of the center of diversity for bananas (*Musa* sp.), and has a large number of wild bananas. Before the end of the 19th century, the island was covered with dense rain forests. Since bananas are pioneer plants and need light gaps to grow, they were confined to many small, isolated areas, and have developed very large genetic variation among populations. Since that time, human activities, such as agriculture and logging, have permitted bananas to expand their growing area tremendously.

Wild *Musa* species are usually grouped into four sections: Australimusa (n = 10 chromosomes), Callimusa (n = 10 chromosomes), Eumusa (n = 11 chromosomes), and Rhodochlamys (n = 11 chromosomes). *Musa campestris* is in the Callimusa section (Cheesman, 1947). *Campestris* is a Latin word which refers to plains or flat areas.

Italian botanist Odoardo Beccari worked in Borneo from 1865-1868, and was the first to describe *Musa campestris* and three other wild bananas in his book "Nelle Foreste di Borneo" (Beccari, 1902). After Beccari's explorations in Sarawak, the study of wild bananas in Borneo was neglected until the Japanese botanist Mitsuru Hotta made a series of Bornean expeditions in 1963-1964, 1968-1969, and 1976, concentrating on Brunei and western Sabah (Hotta, 1967, 1987). Both of these botanists worked in limited areas, and did not observe the entire diversity of the species.

***Musa campestris* var. *campestris***

During 2002 and 2004, the author conducted an exhaustive study of the section Callimusa in Sarawak, Brunei and Sabah. *Musa campestris* is found in at least six separate areas of Borneo. The northern

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**Dates to Remember**

- *HSPR Meeting, 10:00 am, Sunday, December 12, 2004. Home of Raymond and Migdalia Jerome, Canóvanas, PR.*

population is in the western region of Sabah, where it grows in large areas. There are three partially overlapping populations in northern Sarawak and Brunei. The most isolated population is south of Kuching in southern Sarawak, and this has spread to form small isolated populations in West Kalimantan also.

Six distinct varieties of *Musa campestris* were identified, and are described as follows:

***Musa campestris* var. *campestris***
Clump small (3-4 stems) to big (10 to 12 stems), pseudostem 0.8-2 m high, green to ivory colored, with blackish purple blotches. Leaf blade 1.4-2.4 m long, 30-50 cm wide, with or without wax. Inflorescence erect, peduncle pubescent or glabrous and green, bracts pink-purple. Fruits 8-14 cm long and 2-2.5 cm in diameter. Peel light green, with abundant red-purple blotches. Fruits persistent when ripe.

***Musa campestris* var. *lawasensis***
Big clump up to 5 stems, pseudostem short, slender, less than 1 m high, shiny, with purple-brown blotching on a light green background. Leaf blade 160 cm long, 30 cm wide, lamina shiny on both faces. Inflorescence erect, peduncle hairless and pale green, bracts pink-purple. Fruit bunch with 4 hands and 2-3 fruits per hand, fruits 11 cm long and 2 cm in diameter. Peel light green, becoming cream yellow with brown spots at maturity. Fruits deciduous when ripe.

***Musa campestris* var. *lawasensis***

***Musa campestris* var. *limbangensis***
Big clump up to 12 stems, pseudostem 1 m high, dull and waxy, with very little purple-brown blotching on a light green background. Leaf blade 180 cm long, 45 cm wide, lamina dull on both faces. Inflorescence erect, peduncle slightly pubescent and pale green, bracts pink-purple. Fruit bunch with 4 hands and 2-3 fruits per hand, fruits 11 cm long and 2 cm in diameter. Peel light green, heavily blotched with red-purple. Fruits deciduous when ripe.

***Musa campestris* var. *limbangensisis***

***Musa campestris* var. *miriensis***
Small clump up to 4 stems, pseudostem 1.5 m high, shiny, with black-purple blotching on a light green background. Leaf blade 180 cm long, 40 cm wide, lamina shiny on both faces. Inflorescence erect, peduncle very pubescent and rusty green, bracts pink-red. Fruit bunch with 8 hands and 3-4 fruits per hand, fruits 10 cm long and 2 cm in diameter. Peel light green, becoming cream yellow. Fruits deciduous when ripe.

***Musa campestris* var. *sabahensis***
Big clump to 8 stems, pseudostem 1.5 m high, shiny, with purple blotching on a pink-purple background. Leaf blade 170 cm long, 50 cm wide, lamina moderately waxy on both faces. Inflorescence erect, peduncle slightly pubescent and light green, bracts purple. Fruit bunch with 4-5 hands and 2-3 fruits per hand, fruits 10 cm long and 3 cm in diameter. Peel light green with large black-purplish blotches. Fruits persistent when ripe.

***Musa campestris* var. *sarawakensis***
Big clump to 8 stems, pseudostem 1.2 m high, shiny, with

purple-brown stripes on a yellow-red-purple background. Leaf blade 240 cm long, 50 cm wide, lamina dull on both faces. Inflorescence erect, peduncle very pubescent and light green, bracts purple. Fruit bunch with 9-10 hands and 5-7 fruits per hand, fruits 11 cm long and 3 cm in diameter. Peel light green, turning yellow. Fruits persistent when ripe.

***Musa campestris* var. *miriensis***

***Musa campestris* var. *sabahensis***

***Musa campestris* var. *sarawakensis***

This study has revealed that *Musa campestris* is a lowland species which has evolved into several different varieties due to isolation of relatively small populations. It does not occur in most lowland areas of northern Borneo, being replaced by another small Callimusa species, *Musa hirta*. The reason for the mutually exclusive regions of growth of these two banana species, as well as the intermediate area where neither species grows, are topics which merit further research. Eventually, it is expected that all six varieties of *Musa campestris* will hybridize into one homogeneous population due to their fast expansion. When that happens, the genetic variation that has developed since prehistoric times will be lost forever, unless they are stored in a gene bank.

**References**

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Markku Häkkinen is a researcher at Helsinki University Botanic Garden, P.O. Box 44, Fin-00014 University of Helsinki, Finland. He travels extensively in Southeast Asia, and has published many scientific and popular articles on bananas. He may be contacted at markku.hakkinen@kymp.net. All photos by the author.

**HELICONIA SOCIETY OF PUERTO RICO, INC.**

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P.O. Box 3295
Carolina, Puerto Rico 00984-3295
Phone: 787-886-3147
Fax: 1-240-238-7366
Email: brbrunner@yahoo.com

# HSPR

***Promoting Zingiberales in Puerto Rico since 1996.***

*The Heliconia Society of Puerto Rico, Inc. was founded in 1996. The objectives of the society are to stimulate and promote the enjoyment and understanding of* Heliconia *and related plants of the order Zingiberales through education, research and communication, and to interact with the Heliconia Society International and other institutions which share similar interests, purposes or objectives.*

## Classified Ads

Please remember that HSPR members may publish one free classified ad per newsletter, to announce or sell goods and services related to heliconias or other Zingiberales, gardening, and similar areas. Ads should be 30 words or less. Additional ads for members or advertisements by non-members of HSPR are $10 each. Please contact the Editor for more information. Ads must be submitted by email or fax to the Editor by the 15th of February, May, August or November to be included in the following issue of the HSPR Newsletter.

**Chipper/Shredder** — For sale: $250 OBO. Convert your garden debris into precious mulch or compost. Your plants will pay you back with gorgeous flowers. Contact Gilberto for more details: 787-775-7034, gsantanario@hotmail.com.

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**Vivero Anones** — Tropical fruit trees, heliconias, ornamental gingers, and palms for sale. Excellent prices. Send email to viveroanones@hotmail.com or call 787-827-3121.

## President's Corner

We all want to express our gratitude to Germán Charrón for hosting our last enjoyable meeting. At this meeting we discussed the possibility of HSPR members combining their farms as a cooperative HSI Zingiberales Conservation Repository of Puerto Rico. There is no obligation to join this group. Only those who desire to do so, and are willing to follow the requirements set forth by HSI for such conservation centers, will be included. Eight application forms have been sent out so far to those of our members who have expressed a desire to join. Application forms will be available at our next meeting for any others who wish to join.

Our next meeting will be held on Sunday, December 12, 2004, at 10:00 am, at the home of Ray and Migdalia Jerome. A map and written directions are included in this newsletter. This will be our big annual Christmas Fiesta sponsored by HSPR. Food will be catered and soft drinks will be provided. If you desire other beverages, please bring your own. Also, we would appreciate it if you could bring a dessert, if possible. Please note that parking space is limited, so if any of you are able to carpool, it will be deeply appreciated.

Please bring your raffle donations, any plants that you wish to sell, and any interesting "show and tell" items that may be of interest. Please also remember that, if you bring plants to sell, we request that you also make a donation to the raffle.

Our guest speaker for the meeting will be Mr. Osvaldo Cotte López, Consultant Entomologist and Certified Arborist, who will speak to us about horticultural products of interest to heliconia growers.

The hurricane season left some of us with considerable damage to our collections. We hope that time and nature will regenerate our damaged plants and that your losses were not too significant. See you at our Christmas Fiesta!