

PLANT TAXONOMY

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Pollination Biology of the Blue Mahoe, *Hibiscus elatus* Swartz (Malvaceae), in Jamaica. ANDREAS R. RICHTER and ORLAND J. BLANCHARD, JR., Department of Biology, Earlham College, Richmond, Indiana 47374. —No detailed description of the pollination biology of *Hibiscus elatus* Swartz is known from the literature. In this study it was found that in *H. elatus* 1) flowers open just before sunset, 2) nectar flow is highest before 2000 hr., and ends by mid-morning the next day, 3) nectar sugar concentration levels drop from 12% at sunset to 5% at sunrise during the first night, 4) pollinated as well as unpollinated flowers are open for two days before dropping, but produce no nectar the second night or day, and 5) *Monophyllus redmani* (Chiroptera) is the effective pollinating agent. The original range of *H. elatus* in Jamaica and Cuba is wholly within the range of *M. redmani*.

The closely related *Hibiscus tiliaceus* Linnaeus, considered conspecific with *H. elatus* by some authors, is pollinated by insects (entomophily). The difference in pollination biology between *H. elatus* and *H. tiliaceus* may help to solve the taxonomic question of whether they are separate species or not. Moreover the few suspected cases of hybridization between the two *Hibiscus* may now be considered accidental, and not a regular occurrence.

Computerized Comparison of Parts of Fifty Herbaria. THEODORE J. CROVELLO, Biology Department, University of Notre Dame, Notre Dame, Indiana 46556.—A valuable byproduct of the use of computers in a monographic study of *Cardamine* (including *Dentaria*) and *Streptanthus* (Brassicaceae) is information about the collections of the more than fifty herbaria and museums from which 45,000 specimens were borrowed. At least for these genera, involving close to 100 species, accurate estimates of their representation in herbaria now can be made. These genera were particularly suitable for such an analysis because they include both widespread species and very confined endemics; because they include xeric and mesic taxa; and because they include weeds and nonweeds. Questions of particular interest that are now answered include: How regional are the holdings of a given herbarium? If I study specimens from the largest five or ten herbaria, how many additional county records, over time, will I find by studying the next largest five or ten? This study is believed to be the first large monograph to capture data from many herbaria by computer.

Cytology, Hybridization and Evolution in *Kosteletzkya* (Malvaceae). ORLAND J. BLANCHARD JR., Department of Biology, Earlham College, Richmond, Indiana 47374.—*Kosteletzkya* is a genus of about fourteen

species centered mainly in Africa and the circum-Caribbean region. Seven species, *K. buettneri* and *K. adoensis* from Africa, and *K. virginica*, *K. paniculata*, *K. pentasperma*, *K. coulteri* and *K. sp. nov.* from the New World, have been grown in the greenhouse. All have haploid chromosome numbers of $n = 19$. Experimental cross pollinations have produced fifteen of the 21 possible hybrid combinations among these seven species. Pollen stainability and fertility of hybrids suggest a strong affinity among the New World species and a less strong an affinity of these species with the African *K. buettneri*. The two African species fail to cross with one another, and *K. adoensis* only crosses with *K. pentasperma*. All New World hybrids show nearly normal meiotic metaphase I (average number of bivalents is 18.2-19.0), and all crosses with *K. buettneri* likewise have near normal meiosis (18.9-19.0). The *K. adoensis*-*K. pentasperma* hybrid, on the other hand, shows very poor pairing (1.1 bivalents). The existence of two clearly differentiated genomes in Africa, one of which is shared with the New World species, suggests that the African species have experienced a longer evolutionary history. This interpretation is supported by the fact that these and other major African species are largely sympatric while the New World ones are almost entirely allopatric.

Changes in Indiana's Vascular Flora Since 1940. CLIFTON KELLER, University of Notre Dame, Notre Dame, Indiana 46556, and Andrews University, Berrien Springs, Michigan 49104.—Charles Deam summarized the known distribution of each of the 2243 vascular plant species in his 1940 *Flora of Indiana*. Since then, 8000 new county records have been added. Deam's data base was compared with the additions. It appears that: 1) the new records conform to previously established floristic patterns; 2) collection intensity over the state has not been uniform; 3) a considerable amount of collection still needs to be done in Indiana if administrators are to make intelligent environmental decisions. Mark sense cards designed to accumulate information from herbarium specimens or from personal collections were described. These would provide an economical way to bring new specimens of potential importance to the attention of the scientific community.