

PREDATORY INSECTS BATTLE PESTS

In an experiment in the tropical house, members of the U.C. Botanical Garden staff are carefully monitoring a battle between selected predatory insects and plant-infecting pests. Concerned with such factors as temperature, humidity, and the physical surface of the plant leaf, experimenters fromare trying to determine how to establish a balance between the predators and pests. According to Judith Van der Naillen of the Garden staff, the pest population should ideally be large enough to feed the predators but not so large as to noticeably damage the plants. If the pest population drops too low, however, the predators will die from starvation, eat their young, or abandon the greenhouse—thus opening the way for reinfection.

The predatory insects for the experiment are being raised at the University of California Agriculture Extension Research facility in Albany. Predators introduced to date are Chrysopa carnea (green lacewing) and Hippodamia convergens (ladybeetle) for aphids, Amblyseius chilensis (predatory mite) and Stethorus loxtoni (beetle) for mites, and Cryptolaemus montrouzieri for mealybugs.

CURATOR REPORT: NEW PLANT HIGHLIGHTS

Dr. Bruce Bartholomew reports that the major collection the Garden obtained during winter quarter (Jan.-March) was collected by Dr. Robert Ornduff during a visit to the Hawaiian Islands. When collecting seeds, Dr. Ornduff concentrated on plants growing from 4,500 to 10,000 feet since plants from these elevations will likely survive average Berkeley winters. (However, one Hawaiian plant in the Garden's collection, the rare mint Lepechinia hastata survived the disastrous 1972 freeze.) Among his collections were seeds of Vaccinium (related to huckleberries), Smilax, Coprosma, Wilkesia and Dubautia (both close relatives of the silverswords), Acacia koa, the handsome high altitude Sophora chrysophylla, Rubus, Myoporum and several accessions of Metrosideros polymorpha (a close relative of New Zealand's "Christmas Tree").

Other interesting accessions during the winter included three species of Macadamia obtained from Dr. W.B. Storey of U.C. Riverside. These were the smooth shelled macadamia M. integrifolia which is the main species of commerce, the rough shelled macadamia M. tetraphylla which has a very small nut and is of no economic value. There has been some confusion in the botanical literature concerning the correct names for these three species, and although this confusion was straightened out over twenty years ago, much of the horticultural literature is still not correct. Even the recently published Trees of the Berkeley Campus lists two trees of M. ternifolia on campus although they should have been listed as M. integrifolia.

An important future addition to our tropical house will be cloves, Eugenia caryophyllus, which we obtained as seed from the Lyon Arboretum of the University of Hawaii. Some may not realize that the part of the cloves which is used as a spice is the unopened flower.

NEW MEMBERS WELCOME

Memberships in the Friends of the Botanical Garden were boosted to over 200 by recent mailings. Future mailings are planned to encourage more support of the Garden.

DEFEATING CROWN AND ROOT ROT

The Breadfruit tree in the tropical house has become infected with the fungus Phytophthora, and has developed symptoms of crown and root rot. To cope with the problem, staff members will drench the soil with a solution containing either ethazol or diazoben. Also, the tree will be planted on a mound 4 to 6 inches high to ensure drainage away from the plant.

Crown and root rot is the most destructive woody-plant disease in California's deciduous fruit orchards, and caused considerable damage to landscape plantings every year. Many house plants succumb to this disease as well.

In the October 1976 issue of Growing Points (put out by the Cooperative Extension of the U.S.D.A., and U.C.B.) suggestions are made for detecting and treating this disease. Crown and root rot should be suspected when trees fail to start growing in spring, develop chlorotic leaves, or show dieback of new shoots or branches. Since cure is difficult, preventive measures such as watering less frequently to avoid constantly saturated soil, and using resistant plants are suggested. The article also advises 1) planting on a broad mound to encourage drainage away from the plant, 2) avoiding water contact with bases of susceptible woody plants, and 3) avoiding contamination of noninfested soil by using cleaned equipment and healthy plants.

INTRODUCTION OF FOSSIL REDWOOD LINKED TO UCB

As late as 1941, the Metasequoia glyptostroboides, or Dawn redwood, was known only from fossils dating back 7 million years to the Pliocene epoch. After Chinese botanists and foresters discovered the living Metasequoia in southwestern China, however, American researchers were eager to bring seedlings and seeds back to this country for cultivation. In late 1947, Dr. Elmer D. Merrill, then director of the Arnold Arboretum at Harvard University, obtained Metasequoia specimens and was responsible for the subsequent extensive distribution of the plant in America.

At the University of California, the Paleontology Department received some of the seeds from Harvard. The chairman of the Paleontology Department, Dr. Ralph W. Chaney, subsequently travelled to China in early 1948 and returned with four seedlings. Two of the trees now growing in the U.C.B. Garden (accession number 49.502) are from Dr. Chaney's original expedition.

Before Dr. Chaney's trip to China, however, the U.C.B. Botanical Garden received seeds and dried herbarium materials in early 1948 directly from Dr. Hu Hsen-hsu, Director of the Fan Memorial Institute of Biology in Peking. This fact was discovered by Dr. Bruce Bartholomew who found a letter in the archives of the Botanical Garden referring to the acquisition. The original dried materials sent to Dr. T.H. Goodspeed, then Director of the U.C.B. Botanical Garden, are still in the U.C.B. Herbarium. For more information on the introduction of Metasequoia, see Edmund H. Fulling's article, "Metasequoia—Fossil and Living" in The Botanical Review, vol.42 no.3, July-Sept., 1976.

DROUGHT AFFECTS GARDEN

With the water shortage becoming increasingly severe, Manager Anton Christ has taken measures to reduce water consumption in the Garden. For example, the lawn is no longer being watered although this is a favorite gathering spot for school groups stopping over at their lunch hours. Also, hand watering is being emphasized since automatic sprinklers are notorious water wasters. And to collect runoff water from Winter Creek, the Garden has acquired two 250-gallon capacity tanks. This collected water will be used primarily for the Mather Redwood Grove.

GARDEN VISITORS

Winter visitors included R.L. Taylor, Director of the University of British Columbia Botanical Garden, who particularly enjoyed thebecause..... Also, Heino Heine of the Natural History Museum in Paris was interested in.....

BOTANY BY THE BAY FOR TEACHERS

This summer, a course entitled Botany by the Bay (Education 372) will be offered by the U.C. School of Education to elementary and secondary teachers. The course will provide an introduction to the Bay Area natural history. It will also guide teachers in applying botanical concepts and resources to enrich instructional programs in elementary and secondary schools. Teachers of all grades and subjects are welcome, and no prior background in science is required.

For an ecological overview of California, the course will focus on plant and animal life from seashore to desert to alpine meadow in the high Sierra. Specific topics of discussion will include plants useful to man, propagation through seeds and cuttings, exotic flowering species, and cacti and succulents.

For ideas on curricular projects, participants in the course will be able to examine some projects developed under the auspices of the Instructional Laboratories. Class members will also be encouraged to create their own projects. Several field trips to Bay Area nature study areas are planned, as well as a herbal and culinary tour of Chinatown.

SCHEDULE: June 20 to July 22, Monday through Friday, 9 a.m. to 12 noon

FACULTY: Dr. Gertrude Machlis and Mrs. Laurianne Hannan from the Garden staff; Miss Paula H. Skene, Coordinator of Instructional Laboratories, and Lecturer in Education; and Dr. Nancy J. Vivrette, Associate Director of the Botanical Garden, and Assistant Professor of Botany at U.C.B.

CREDIT: Credential value is 9 units of upper division life science (botany); also elementary and secondary curriculum and instructional procedures in science and environmental education

FEE: \$225 plus \$10 for basic course materials and all personal expenses on field trips.

For additional information and application, write Summer Program for Teachers, University of California, Berkeley, California 94720, or call (415) 642-0841.

MATHER GROVE PLACQUE

A year after the original dedication ceremony, the placque for the Stephen T. Mather Redwood Grove is now in place—imbedded in rock at the entrance to the Grove. The Garden is indebted to the National Park Service and, in particular, to Mr. Howard Chapman, Director of the National Park Service's western region, for the placque. The rock is a gift of the Kaiser Industries Corporation through the efforts of Mr. Eugene E. Trefethen, Jr., director and former president of the Corporation. Mr. Trefethen is also president of the U.C. Berkeley Foundation. Since the opening a year ago, the Mather Grove has proved a popular attraction. Although lack of funds and the water shortage has hampered development of the understory plantings, plans are being made for the eventual completion of the project.

DR. ORNDUFF IN HAWAII

During the middle of January, Director Robert Ornduff visited Hawaii as a guest of the Pacific Tropical Botanical Garden on Kauai. Dr. Ornduff gave an evening lecture to members of the garden and to the Hawaiian Botanical Society as well as a seminar to members of the Department of Botany of the University of Hawaii in Honolulu. Among the gardens he visited were the Foster Garden, Lyon Arboretum, and the Waimea Arboretum on Oahu, the University's collection of economic woody plants at Waimanalo, and the Pacific Tropical Botanical Garden. Members of the faculty and students at the university gave him a tour of the native flora of Tantalus, above Honolulu, and of the cloud forest on Mount Kaala, Oahu. On Kauai, Dr. Ornduff visited the Alakai swamp.

FRIENDS OF THE BOTANICAL GARDEN NOTES

A debt of thanks is owed to the University of California, Berkeley Foundation for guidance, handling our financial accounting, and providing use of their mailing permit.

The Garden is indebted to Mr. Hadley Osborn, Chapter President of the American Rhododendron Society for setting up the Garden's exhibit at the recent Rhododendron Show at Lakeside Park in Oakland on March 27 and 28. Mr. John Domzalski, Garden staff was responsible for selecting the Rhododendron specimens from the Garden for display.

Dr. Haller's multimedia show on California plants was presented to an enthusiastic capacity audience at the Oakland Museum Theatre on February 15. And the tour plus lecture provided by Mr. Hadley Osborn in March was also a success.

PERSONNEL NEWS

Dr. Gertrude Machlis, Education Coordinator, resigned effective April 1, 1977 to devote more time to teaching at the university level.

EVENTS

Meeting: First annual meeting of the Friends of the Botanical Garden, April 30, Saturday, 1:00 p.m. in the Meeting Room at the University Botanical Garden. Jerome E. Carlin, President of the Friends' organization will preside, and Director Robert Ornduff will report on Garden activities and plans. Also, Toni Fauver, Docent Plant Sale Publicity Chairperson, will present an overview of the plants available for sale at the Preview Plant Sale, and Annual Plant Sale.

Preview Plant Sale: To be held for members of the Friends of the Botanical Garden on April 30, Saturday, 2:00 to 4:00 p.m.. Plants sold will be nominally priced and not generally available in nurseries. They include drought resistant plants, natives, tropical exotics, ferns, herbs, unusual perennials, succulents, bulbs and many more. At the Preview Sale, in exchange for the privilege of early choice, 10% extra will be charged. New memberships will be accepted.

Plant Sale: The Third Annual U.C. Botanical Garden Plant Sale will be held May 7, Saturday, 10:00 a.m. to 3:00 p.m. (or until all plants are sold) at the east rim of the U.C. Memorial Stadium. Parking on Rim Road, U.C. Lot #7 near Bowles Hall. The Plant Sale is sponsored by the Docents of the U.C. Botanical Garden. Proceeds benefit the Garden's educational program, plant collections and facilities.

MEMBERSHIP WITH MATCHING GIFT PLAN

Membership in the Friends of the Botanical Garden is in the nature of a restricted gift to the U.C. Berkeley Foundation to be used to benefit the Garden. Memberships are eligible for matching gift plans offered by many companies. If the membership alone is not enough to meet company matching requirements, the membership plus other gifts to the University from the same individual during one calendar year may be added together and considered for matching. Further information may be obtained by contacting the University of California, Berkeley, Foundation.