

UC SANTA BARBARA

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x000B RESEARCHER SEEKS TO PUT HISTORIC BOTANICAL COLLECTION ON THE INTERNET

Open a jar and discover a plant specimen from pre-revolutionary Cuba, part of a plant that is now inaccessible to scientists outside of Cuba. On another shelf find a plant specimen from a 1950s African rain forest -- a plant that may now be extinct.

In a collection that surpasses the breadth of the Smithsonian in its class, pickled plants from Cuba, New Zealand, Australia, Africa and the United States, some dating back to the 1930s and all carefully collected and documented by the late Vernon Cheadle, botanist and former chancellor of the University of California, Santa Barbara, reside in the university's Museum of Systematics and Ecology as part of the permanent collections.

Unfortunately, the entire collection could quietly recede into history, that is, unless a certain tenacious researcher attains her goal of raising funds to preserve the collection and publishing documents from it on the Internet, making it accessible to researchers worldwide.

Jennifer A. Thorsch -- a University of California research scientist with one foot in the past, one foot in the future and her heart wrapped around this outstanding plant collection -- is determined to bring the historic collection into the 21st century. She wants to provide greater accessibility to valuable scientific resources that were

privately held until 1996, unavailable to the research and teaching community.

The plants are considered one of the world's best collections of monocots or monocotyledons, the large subclass of seed plants which includes palms, orchids and lilies. It contains 6,000 bottles of fluid-preserved plant specimens and over 52,000 slides.

Yet in spite of its breadth and top billing, the collection could fade away without the special containers that are required to keep the specimens from drying out and a computer database that would document all the material in the collection.

Until now money for the general care and maintenance of the collections has come from an endowment from the Vernon I. Cheadle Memorial Fund. But it isn't enough to keep the collection going indefinitely, to organize it according to current standards, or to make it available worldwide, via the Internet, as Thorsch would like to do.

Thorsch, associate curator of botany at the museum who supervises the holdings, has an even more personal link to the collections accumulated by Cheadle and his longtime collaborator, the late UCSB botanist Katherine Esau.

Thorsch began her work with the Cheadle-Esau team nearly 20 years ago in 1979, when she became Esau's last graduate student (Esau was 80 at the time), and her first student since 1962. Then, in 1981 when Thorsch finished her Ph.D., Esau and Cheadle asked her to stay on as Cheadle's lab director.

Because of her long-term work with the collection, Thorsch can navigate easily through it. But without more work to organize the collection

it remains, to anyone else, a "million-piece puzzle in black," she says.

Thorsch not only wants to make the collection easily accessible in the lab, she wants to put images from the microscope slides, lab and field notes on the Internet, making the collection known and accessible to scientists all over the world. She says that in many cases the images from the slides along with supporting written material may be enough to complete a given research project -- a far away scientist may be able to answer important questions via pictures of cross-sections of a plant, with no need to see or touch the plant.

And, Thorsch wants to "grow" the collection, by requiring that scientists who send for specimens donate the resulting slides and information from their studies to the collection, making the Esau-Cheadle collection active once again.

The collection will also increase further in breadth as soon as Thorsch's project is funded. There will be donations by botanists from other institutions who have promised to add their collections to the Cheadle collection as part of UCSB's Museum of Systematics and Ecology, headed by Stephen Rothstein, director and Wayne Ferren, executive director, a museum which also houses extensive collections of other plants and animals.

Thorsch (and her collaborators John Damuth and Susan Mazer) recently received major encouragement on the merit of the project, but unfortunately not the money they were hoping for. Their major grant proposal, submitted to the National Science Foundation asking for approximately \$110,000, was highly ranked but didn't bring in funds. Three out of five reviewers gave her a rating of "excellent," which in most cases would practically guarantee funding, according to Thorsch.

One reviewer said, "Not to preserve this collection and not to make it readily accessible to the academic community would be an enormous loss for present and future plant biologists."

In the proposal, Thorsch requested funds for the "proper organization and curation of the specimen, slide and data collections, preparation of a computerized database and, the establishment of a web site on the Internet to provide an efficient and effective means of disseminating basic catalog information, but especially to provide users remote access to digital images of the extensive microscope slides and photographs directly associated with the specimens."

With new resolve, Thorsch is back to the drawing board, searching for that donor or agency that will see the importance of saving the collection.

Thorsch is certain that the work of these two great scientists will be preserved, that it's just a matter of getting the word out to the right people. In an article in the American Journal of Botany, Thorsch discusses Esau's reputation and credentials and cites her book Plant Anatomy, published in 1953 which "became a classic almost immediately and is still called the 'bible' for structural botanists." In acknowledgment of her remarkable career, Esau, an immigrant who fled the Bolshevik revolution, was elected to the National Academy of Sciences in 1957 and

was awarded the President's National Medal of Science in 1989.

In the last years, Cheadle, Esau and Thorsch were like a family, working together on a cherished project. Now, as the heir to that project Thorsch isn't about to give up on it.

Note to editors: Photographs are available.

About UC Santa Barbara

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