
Relational Database Design at the University Arboretum, Davis

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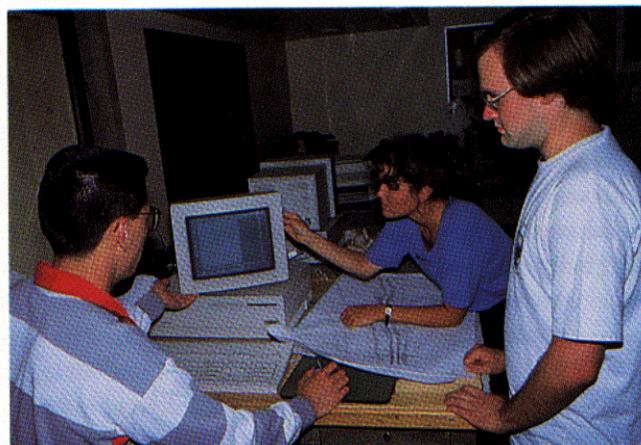
Both as outdoor classrooms and as sources for teaching and research materials, documented plant collections are essential at well-established universities to support academic programs in botany and related biological sciences. In addition to its academic role, a university-affiliated botanic garden or arboretum provides an agreeable connection with the public, benefiting the university in its community relations and extending its educational impact to the surrounding community.

Establishing and maintaining a diverse collection of plants, some with enigmatic cultural requirements, is an expensive proposition, and justification for such an endeavor resides in the active use of its collections. To meet the needs of university researchers, detailed records are kept for all plants within the collection. Precise and up-to-date plant records form the basis for intelligent management decisions, the conservation measures the collection requires, and the ways in which the collection is used by the communities it is designed to serve.

For fifty years, the University Arboretum at the University of California, Davis had depended on an extensive manual system of several categories of plant records. These included accession records, propagation records, nursery records, planting records, inventory records, garden maps, and seed exchange records. In many of those categories entries were initially recorded by date; but then to facilitate finding information on a particular plant, the



Computerized maps of the Arboretum collection will soon provide instant access to records for each plant.



records were retranscribed into companion alphabetical files. Because of the large amount of ensuing duplication, when a plant name changed—as so often happens with botanical names—a great deal of staff time was required to note the change throughout the entire manual system.

Throughout the country, a variety of computerized database systems are in place at botanical gardens. With varying degrees of success, they have attempted to solve some of the difficult problems of database design for botanical gardens. Those range from accommodating international conventions of botanical nomenclature (in which some parts of the plant name are italicized and some are not), to the ways in which to track a single accessioned plant that will be multiplied in the nursery and planted in multiple locations on multiple dates.

The objective of the UC Davis Arboretum Slosson Fund project, was to design and implement a relational database which would easily handle complex data management and curatorial tasks that our garden required. A primary goal was establishment of a system in which information could be entered once and retrieved in a variety of formats with "tables" of information linked to one another. To design our new system, the Arboretum staff worked closely with the curatorial staff at Strybing Arboretum in San Francisco, UC Berkeley Botanical Garden, and with Kerry Walters, the creator of BG - BASE, a relational database system widely used in North America. Building on the work of these people, the Arboretum was able to construct a powerful and practical database in a relatively short time. The inventory has been transferred to the database, and we expect to add the accession records in the near future.

Continuing Work

The maps of The University Arboretum are an integral part of the plant record system. As computerization of the records progressed during the duration of the Slosson Database Project, we applied for and were awarded a

\$20,000 grant from the Instructional Technology Award Program to begin to computerize our collection maps and tie them to the new relational database. We are attempting to electronically convert the digitized maps which the UC Davis Physical Plant has had made for their new Campus Geographic Information System (GIS). These will then form the base maps for our collection maps. Eventually, you will be able to "click" on a mapped plant, and the entire plant record will be retrieved through the database.

In addition to greatly reducing staff time devoted to records maintenance, we are hopeful that this improved system of tracking plant and collection information will make it possible to describe precisely what each species contributes as a component of the collection to the overall goals and objectives of the University Arboretum. Such careful focus is certain to improve the quality of our collections as well as promote intensive use of collections wherever possible within the University program as a whole.

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