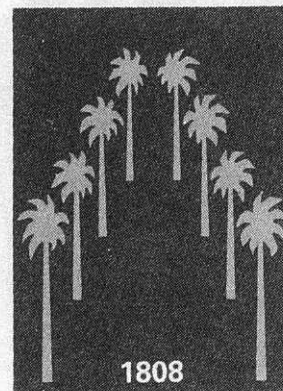


Berlin-Dahlem and local flora conservation
Cluj Napoca Botanic Garden, Romania
Cloning of tropical trees
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CITES and Botanic Gardens
Eurobodalla Native Botanic Gardens, Australia

The Arbor System: a plant recording system in Brazil

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ARBOR is a storage and retrieval database system, with relational capacity, designed for the management of information related to collections of living plants, especially woody species. The system was conceived to become a tool able to store, save and analyse data on a particular arboretum by monitoring its specimens and providing fundamental information for the maintenance, handling and management of the arboretum and its components.

The system has 3 basic blocks for the storage and saving of data on:

1. Information on the species (or taxonomic data on the species)
2. Information on the specimens in the collection
3. Information on the locality or area in the arboretum

1. Data on the species

ARBOR, contains nine data tables on a particular species that make up a database on the cultivated trees:

- a) taxonomy - taxonomic information like family, genera, species, and author
- b) flowering season and fruiting characteristics
- c) pests and diseases - these tables correspond to a true database on the main pests and diseases of the cultivated trees; these data can also be related to each individual tree on a specific local inside the arboretum
- d) synonyms
- e) vernacular or regional names
- f) economic and landscape usages; medicinal, etc.
- g) habitats (ecological descriptors) and geographical distribution

As well as these, the species module has a routine developed by this author to estimate the value of the species (Vs) and a module capable of generating several types of check lists and reports on such subjects as taxonomy, landscape characteristics, phytopathology and a sheet containing all the known data on a particular species.

2. Data on the specimens

In this block the system stores, saves and analyses data that will fundamentally help those who are entrusted with the management and maintenance of urban arboreta and other living plant collections.

This module is divided into three data tables as follows:

a) specimens

registers and locates the specimens, as well as its origin, collector and other relevant data on accessions.

b) evaluation

state of health of a specimen; as well as its basic maintenance needs and measures performed on it (dbh, size etc).

c) performed maintenances

records all the maintenance performed on a particular specimen, helping the evaluation of the methodology and keeping track of the resources used.

This block of information on the specimens also contains a module able to generate appropriate reports on needs for maintenance or attention based upon taxonomy, area or location as well as maintenance operations performed.

3. Data on the Arboretum

The block of information concerning the arboretum allows the storage of basic data about the location of the specimens inside the arboretum, and environmental variables such as air temperature, precipitation, potential evapotranspiration, relative humidity of the air and insulation. These data are important, to allow the monitoring of the physiological conditions of the specimens.

The system also contains a module of utilities which is able to generate floristic and phytopathological reports, to run a routine which estimates an Index of importance (Ii) (developed by the present author) and, in the botanic garden specific version, it contains a module especially designed for tropical botanic gardens involved in *ex situ* plant conservation.

This module, still under development, assists the specific tasks and special needs of botanic gardens that are maintaining a germplasm bank and nurseries. The system is able to monitor their seed productivity and phenology as well help in the propagation, maintenance, cultivation and the destination of young plants raised at the nursery. As well as that, this module will be capable of generating and receiving files from other botanic gardens worldwide in the International Transfer Format for Botanic Gardens Records (ITF).

4. System requirements

In its present version, ARBOR is written in CLIPPER version Summer '87 from the Nantucket Corporation and is able to read and write standard DBASE (*.DBF) binary files. For future versions, high-level languages, such as Turbo Pascal and Turbo C (from Borland International), or a more sophisticated database management system, such as Advanced Revelation (from Revelation Technologies) are being investigated.

The system runs on any IBM PC microcomputer (or one that is fully compatible), with hard disk (40 MB recommended) and at least 640 K RAM, under MS-DOS version 3.1 or higher. The general documentation for using the system (a basic user's guide) is being prepared.

The ARBOR system has been developed by us to monitor the specimens located at several arboreta in the city of Rio de Janeiro, where the preliminary version of the system has already been tested. However, it has a more general aim, to help standardize information management for cultivated trees and to serve as a tool for the effective management of living collections in tropical botanic gardens, public and private as well as in universities and other institutions involved in the production, cultivation, management and conservation of plant species.

Finally, this project still counts on the invaluable collaboration of Prof. Mauro Cavalcanti and Prof. Haroldo C. de Lima who have contributed greatly to the development and improvement of the system.