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PROCEEDINGS

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Contributions

DAPROPHECO: A specialized database system for integrated studies in Plant-Hemiptera communities.

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Although ecological communities possess an enormously multifarious structure and expressed through an infinity of phenomena not readily perceptible, ecologists have developed efficient methods to retrieve data and store them up for subsequent analyses. Usually they construct their own «model» of this data set by arranging it in a single matrix. A subdivision of this single matrix into smaller submatrices is usually necessary if we are aiming to reduce the zero entries and simplify the original structure into more compact portions. But this operation has hidden disadvantages emerging when we try elementary works such as searching for a species on a certain topographic posistion, deleting records of a certain time period, declaring new variables and storing data to their domain. Especially on integrated monitoring projects these operations are extremely time consuming even in the case of computerized manipulations by the most efficient retrieval algorithms operating on a single file level (Estabrook & Brill 1969). But in this type of projects we face a much more difficult problem, that of the maintenance of a complex set of directly or indirectly interrelated files the management of which will be done by an appropriate system efficient in integrating all files in a database. Additionally this set of files has to be flexible and serve several different purposes when viewed by more than one persons who have distinctly allocated interests.

The philosophical background of this approach is based on the viewpoint that, what is usually called «sampling», is merely the application of a set of algebraic like operations on a natural database, namely the ecosystem. In the sequel data gathered through this procedure are stored for subsequent analyses. After these analyses a reduced but highly informative form of these data bodies has to be stored again in order to be involved in the process of hypotheses generation and testing, and the construction of theories.

While this procedural scheme is generally accepted, it contains severe difficulties for various reasons, such as very large computer memory capacities of the computers involved, time consuming retrieval works and well experienced researcher to carry out these works. All these reasons are rarely simultaneously fulfiled and the investigator very often decides to process his/her data by hand.

DAPROPHECO's innovation is that it renders easy the handling of multifiled data bodies even by an unexperienced user, and this is achieved for the provisions listed below.

1. The system is designed for use in personal computers provided that they are extented to 256 kb RAM and 5 Mb peripheral memory capacity (minimum requirements).

2. All the jobs are carried out through a completely menu driven mode. The user simply selects the works he intends to do with the system from a table of options.

3. A simple compact set of formalized algebraic operations renders the planning of the jobs very easy and clear, and some simple graphics facilitate any quick inspection of the data stored.

4. All subroutines of the system are very fast and very rarely retrieval works of any complexity exceed 2 seconds.

5. Communication between the design center and various users facilitates the

development of new programmes and resolves all the possible problems associated with the implementation of the package on different machines.

6. The overall structure of the files is already designed, in the context of relational model of databases and the user avoids the tedious work of file definition. In other words the system works in real world, immediately after the implementation of the package.

7. Provision has been made to interface the system with other procedural packages (e.g. Orloci & Wildi statistical package) and store various graphics in user specified graphic files, although these works have not yet been completed.

A disadvantage (or advantage) of the system may be its orientation to a certain type of community ecology research, but it is expected that the communication with the users is a promising innovation towards a more definite solution of the problem.