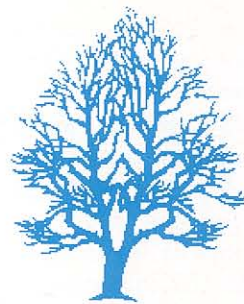


ALICE

software news



FIVE

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introduction

Welcome to issue 5 of Alice Software News. This is a bumper issue thanks to contributions from Alice users and collaborators and because of the significant development of the Alice System during the past year.

We have tried to strike a balance between articles describing the software and articles describing how Alice is being used. Our preference is to minimise the technical content, but, inevitably, with the release of a new Alice System this has been difficult to avoid. We hope to reduce this 'techno-glut' in future issues with greater discussion of the use of Alice by projects and organisations.

So, what's in this issue?

With considerable pride and some relief we announce the formal release of Alice System 2.1. We describe a few key features of the new system. System 2.1 applications are bundled into 'editions'. We explain what this means and provide some guidance to help you decide which edition best meets your needs. We also announce reductions in the price of Alice System 2.0!

We summarise progress with software development and documenta-

tion, keep you up-to-date with the version numbers of System 2 programs and take a peek at some underlying improvements to the Alice System.

In the first of what we hope will be a regular feature focussing on new functionality, we describe improvements in the way in which Alice databases can be queried.

Publication of data on the world-wide web is a hot topic of general public interest. Richard White and Eduardo Dalcin describe and contrast

alternative ways of making Alice databases available on the web.

Three contributions look at the use of Alice. Kerry Taylor and Peter Boyce describe the "Economic uses of *Araceae*" project, David Astley and Niall Green describe the use of Alice to create an *Allium* genetic resources database and Yuri Roskov describes the creation of a Legumes of Eurasia database.

On the technical side, Michael Soloviev, who works on the Legumes of Eurasia project describes programs for displaying, editing and printing distribution maps from Alice databases.

As an antidote to an over dose of technology and to prove we are indeed human, we devote a column to some of the people who have made all of this possible.

We hope you find Alice Software News interesting and approve of the new look!

The Editors

"Surfing" your data with AliceWeb: a new program for Alice users

Since 1989, the "Programa Mata Atlântica" (PMA) in the Rio de Janeiro Botanical Garden has undertaken phytosociological inventories of areas of "Mata Atlântica" - remnants of the forests once found along much of the Atlantic coast of Brazil. In 1993 we converted our species databases to use Alice (see Alice News No. 4) and currently have a central database of about 1,800 taxa.

More recently we needed to make our data available on our local network and our solution was to create AliceWeb. This program is a general tool for creating HTML pages directly from Alice databases which I hope will be useful to many Alice users. I developed the program during 1996, with the knowledge and collaboration of Alice Software, and describe here my approach and its significance to our own project.

The 'Programa Mata Atlântica' has:

1. many research staff who contribute to or use, our central species databases.
2. staff in different buildings all linked via a local area network.
3. an Information Services Centre with qualified staff that is dedicated to the administration and curation of the project's databases.
4. a regular influx of new information from our field surveys. Some data is passed into our species database directly from a collections database but where taxa are entered for the first time we need to encourage research staff to collate and enter morphological, ecological, phenological and other data about these taxa.

THE NEED

To date we have been using Alice System 2.0 which does not permit simultaneous access by more than one user to our central database (see articles in this issue describing the benefits to data sharing of Systems 2.1 and 3.0 - Ed.). This has complicated data entry by research staff and led to some

duplication of effort. Our goal was to provide an interface between the research staff in their offices and the centrally held databases. Research staff needed to be able to

1. query the data easily.
2. access the data simultaneously throughout the Garden, limited only by the access restrictions imposed centrally.
3. update, edit or add to the data in the database via the PMA database administrator. We did NOT wish to allow all research staff to be able to make changes to the database itself without the prior knowledge or control of the DBA.

ALICEWEB

We wanted a system capable of mirroring the data within our Alice database in a format that would be available within our multi-user environment whilst ensuring that the database administrator has control of data. HTML pages were an obvious medium. Programs to display them were already available cheaply (Web browsers) and we wouldn't have to train our scientists (most are already familiar with use of the WWW). All that was needed was a tool to migrate data from our Alice databases into this new format.

I developed AliceWeb, using Foxpro Version 2.6. It translates Alice data sets into a suite of interlinked HTML pages. Rather than read data directly from the Alice database itself, AliceWeb, reads data from ATF (Alice Transfer Format). This gave us several important advantages:

1. ATF format is well documented

and relatively stable - as the developer of AliceWeb I wanted to be protected from changes to the internal file structure of Alice databases as the system evolves.

2. By making use of the flexibility already provided by the Alex program in generating ATF data sets, users of AliceWeb can select exactly that subset of their database which they wish to make available as HTML pages.
3. Authors of other database systems, desirous of making AliceWeb available to their users may also provide an option to export data into ATF (as the Delta and Brahms systems already do - Ed.)

BENEFITS TO THE "PROGRAMA MATA ATLÂNTICA"

The most important result for us has been a dramatic improvement in data quality. Establishing a direct link and daily use of the databases by our research staff has meant that they criticised the data on view, often energetically, and began to assume an ownership and responsibility for those data which they had previously tended to leave to the staff in the Information centre. This led to an amazing increase in the volume of corrections and additions to our database but everyone is now more motivated as their efforts are recognised and valued by other members of the group.

From this beginning we have generated a hypertext information system for the whole research programme in which our Alice database is but one part. We have bibliographic information, an interactive calendar of collecting trips, a contacts directory and our collections database (including the generation of herbarium labels) all "integrated" and available via one interface using the Web Browser. This has helped bring many more research staff into daily contact with our data and a growing confidence in our data as a result.

LIMITATIONS

The initial creation of the suite of linked HTML pages is relatively slow and involves two steps: use of the Alex program to create an appropriate ATF data set and then use of AliceWeb. The HTML pages for a large database obviously take up a large amount of disk space but this, happily, has not been a limitation in

our case and more than offset by the speed at which the user can access the data as a result.

One limitation of *AliceWeb* is that it is not possible, as it is with *Aquery* or *Awrite*, to generate lists of taxa by building complex queries using more than one question. Our emphasis was on the display and maintenance of the data rather than to duplicate the effective tools for data analysis that the *Alice* system already offers.

THE FUTURE

The HTML format, with its increasing number of extensions, could quickly become an efficient common interface for accessing biological databases (for example, the *Species 2000 project* is planning for this - Ed.). We anticipate that *AliceWeb* will increasingly be useful to many *Alice* users and are developing the program further. Future possible enhancements include:

- automatic incorporation of images within the species HTML pages created (*This has now been*



Eduardo Dalcin (second from right) and other members of the computing support group in the Rio de Janeiro botanical garden

implemented. Ed.).

- organisation of pages into subdirectories to facilitate management of Web sites.
- a single nomenclatural index to include all scientific names rather than separate lists of synonyms and preferred names.
- "Edit" buttons on species pages

that will allow end-users to generate pre-filled data editing sheets to facilitate generation of "data update requests" to be filed, electronically, with the database administrator(s).

- password control to limit access to different levels or types of data.

Eduardo Dalcin

Comparing Araneus with AliceWeb

Araneus, unlike *AliceWeb*, generates and displays an HTML page for a species as the end user asks for it; the page is not stored. *AliceWeb*, on the other hand, is run by the author of a database (in Windows on his local machine) to generate all of the linked pages that might be needed in advance of any user search. The information contained will be all of that which the author selected to export from their *Alice* database in ATF format. You can then transfer this set of linked pages to the Web server computer.

Advantages of AliceWeb are that:

- it creates numerous indexes which permit you to "surf" your data finding those taxa which have a particular attribute or use or occur in a particular country for example. By consulting vernacular names and then clicking on "abobrinha-do-mato", for example, you may discover two species which share this name. Selecting one of them, you can go on to discover, after two more clicks, which other species share the same geographical distribution and from which bibliographical references this information derives. *LegumeWeb* only allows users to search the database by scientific name.
- the species pages load faster when end-users make enquiries than do the pages generated dynamically by *Araneus*,
- proper links are included to bibliographic references or other data sources.
- it is available for *Alice* users now and is not restricted to any particular *Alice* database.

The advantages of Araneus, the first two of which arise from its dynamic generation of pages, are that:

- you do not need lots of disk space to hold the pre-formed HTML pages.
- possibilities exist for future customisation to allow general complex searches
- you can undertake searches of scientific names using "*" wild characters.

Combining the two approaches

Our two approaches are complementary. While *AliceWeb* has no pattern matching capability, it provides indexes to allow searches using any datatype. It is possible that we will be able to combine our approach, using *AliceWeb* to generate all the index pages (for descriptor states, uses etc.) and using *Araneus* to generate species pages from the database when requested. We are currently discussing this.

Eduardo Dalcin and Richard White