The Alice Information Pack

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Contacting Alice Software

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Answers to your questions about Alice

What is the Alice System?

Alice is a mature database system designed for biologists and others who store, or need access to, information about biological organisms. The System is a set of programs, each with a particular purpose, which operate upon databases with a common internal structure.

What does Alice do?

Alice is designed to handle data about taxa: species, genera, varieties and cultivars. Using simple menus you can capture, edit and search information about the scientific and common names, descriptive information, geographical distribution, habitats, uses, vernacular names and text. Any fact in an Alice database can be referenced to any number of sources. Lists can be published of the scientific names of taxa with their synonyms (homonyms, and misapplied names), and all other data types supported by Alice. Data can be imported into Alice databases from other sources, and exported for use with other widely available programs. A tool kit is available for merging Alice databases. The powerful Alice Query Engine makes it easy to work with, and manipulate, sub-sets of taxa.

Who uses Alice?

Alice is equally suitable for individuals, institutions and large collaborative projects. Experience of working with databases is not a prerequisite to using Alice.

There are Alice users in many disciplines including economic botany, horticulture, conservation, ethnobiology, plant breeding, ecology, reserve management, forestry, phyto-chemistry and taxonomy.

How can Alice be useful to such diverse projects?

The Alice System can be used for many different kinds of biodiversity database because it is highly configurable. The user defines what suitable descriptive categories, character lists and terminology are suitable for their particular project.

Should I use Alice?

To answer this question you must first be clear whether or not you manage data about taxa.

- If you primarily manage information about genera, species or varieties or cultivated plants then Alice has important benefits, described below, over any alternative.
- If you are primarily interested in specimens, building GIS's or in anything else that does not require descriptions of taxa to be linked to synonymised checklists, Alice will not be your primary data management tool. However, you may still have a use for it in some secondary role.

The benefits of using Alice

Ease of use.

- Terms and concepts are used that are familiar to biologists.
- Alice is designed for the convenience of users not computer experts.
- Complex tasks are accomplished through simple menus
- Alice is available in several languages.

Security

- Alice is tried and tested. It is the product of considerable team effort over twelve years and is used by many projects.
- Alice works straight out of the box. This eliminates the risk of failure run by projects dependent upon software they commission and fail to build.
- Alice ensures your data is consistent and reliable as it is entered. This is vital to a project's credibility, particularly in the long term.
- Alice's internal data structures were designed with great care to ensure the most flexible possible data use. Data management using simple systems can be arduous and inflexible, even with moderately sized data sets, restricting how your data can be used.

Your investment in data is protected.

- You are not 'locked' into Alice. Alice exports data into a range of standard formats for passing to other programs and databases.
- Alice includes tools for converting your data to more recent versions of the system.
- Because you do not have to invent abbreviations or internal coding schemes your data are understandable and easily available to colleagues.

Computer resources are used efficiently.

- Good design means that program performance remains relatively constant as your database grows in size.
- Data is stored compactly.
- Memory requirements (RAM) are constant.

See our specification sheet for the System requirements.

Who owns the data stored in an Alice database?

You do, because Alice Software distinguishes rigorously between software and data.

It is not a condition of the use of Alice that you submit your data to a single central database or institution. You own and control the information in your Alice database.

Alice is also supplied with very few pre-defined data categories. The user defines these. You have the flexibility to define the terminology appropriate for your own project or to adopt established data standards for a specific data type, for example, a gazetteer. The choice is yours. This flexibility means, for example, that two databases: an ornithological Alice database built in France and an Indian medicinal plants database have nothing in common.

Does Alice work with other programs?

Yes! The scope of the Alice system was a considered decision. Alice does not attempt to do everything: it does one job well. We recognise that biologists work with data for many purposes: the curation of collections, identification of specimens, compilation of checklists, ethnobiological studies, cladistic analysis, ecological surveys for example. Typically, you will be involved in several such activities.

Other programs meet these requirements. ***Delta*** generates keys, ***PAUP*** is used for classificatory analyses, ***Brahms*** manages herbarium collections. Alice complements, and works with, many such programs. Alice databases can be a central repository for the descriptions of taxa. Alice can pass subsets of your data to these programs through standard data exchange formats. To write keys, for example, you would use the Alice System program ***Alex*** to export the morphological descriptions from your Alice database into the Delta data for use with key generation programs. The descriptions, meanwhile, remain with your nomenclatural, distribution and bibliographic records.

What does a user licence cost?

The cost depends upon the version of the system, the edition and the number of licences you wish to purchase. Please refer to our price list. We offer discounts for multiple user-licences and maintenance agreements.

What if I cannot afford to buy Alice?

It can be difficult for colleagues in some parts of the world to raise funds. We offer help in preparing grant programs to fund projects: software, hardware and staff. Once convinced of the suitability of Alice for a project, of a professional approach to data management and of genuine efforts to raise funds, we offer discounts. We may supply Alice at cost. Write to us if you wish to explore these options.

Why not design and write my own database system?

The simple answer is that is expensive and risky.

To write your own system you must learn how to design, program, document and maintain software. Poor design and inexperienced programming result in lost or “dirty” data, inflexible queries or reports and high maintenance costs. Ultimately, your data becomes unusable and inaccessible.

Although easy to use, Alice is a sophisticated system. The cost of development and maintenance are high but are spread among all Alice users. Each user benefits through

receiving a powerful system for a fraction of the cost of developing their own, less sophisticated system.

Why are there different Versions of the Alice System?

The Alice System and the underlying data structures have been developed over twelve years. This development has been carefully managed to ensure compatibility between programs and databases. Different versions of the system reflect improvements in functionality and the underlying data structure. Refer to the Alice Systems sheet for further details about the availability and differences between systems.

What are Editions?

Editions are subsets of Alice programs designed with different users in mind.

- The **Database Author's edition** is for those who build their own databases.
- The **End User's edition** is for read only access to Alice databases. Database authors can thus publish their databases (or subsets of them) electronically by distributing their data with copies of the End user's edition. You can use these to enable colleagues to have easy and controlled access to your data.
- The **Network Manager's edition** is for use by the network administrator at an institute where several users work with more than one Alice database.
- The **Database Administrator's edition** is for use by the data administrator in an institute or collaborative project where several users and databases share data or data standards.

For details of which programs are supplied with each Edition, see the separate information sheet.

What support do users get?

We encourage our users to complain if they have problems since this is how we improve our software. To assess our user support, talk to our users. We will provide a list on request.

Purchase of an Alice user-licence guarantees free user support for 12 months, including documentation and bug fixes. Beyond that 12 months, users can take out a maintenance agreement that offers continued user support, free bug fixes and the right to receive reductions in system upgrades.

Where does Alice go from here?

Alice Software is committed to continued support, maintenance and development of the Alice system. All maintenance of Alice System 2.0 has ceased. Alice Systems 2.1 and 3.0 are now being deployed.

The recent focus of effort has been on enhanced tools for data import and web-publication.

Work has begun on tools, based on client server technology, that offer richer management of images, a graphical user interface, and more fully integrated linkages to the World-Wide-Web.

Alice Software

Who are we?

Peter Winfield and Bob Allkin established Alice Software in 1986. We are biologists with extensive experience of managing biological information, advising biologists how to manage their data effectively and designing and implementing database systems tailored to their needs. All income from the sale of Alice to contributes towards the maintenance, support and development of the Alice System.

We are indebted to the support of others. Since 1986 a number of people have worked for Alice Software contributing significantly to the development of the system, particularly during the last few years. To our satisfaction the team has grown, slowly, to include a diversity of skills and experience: data analysts and programmers, database administrators, systematists, zoologists and those undertaking database research. Les McPhail and Eddie Wymer write our programs. Clive Beale, Sue Hollis, Adriana Menezes and Daniella Zappi have variously prepared and translated documentation, edited and distributed our newsletter and provided support and training for our users. WriteLines Ltd., a software documentation house based in the UK, have produced our user manuals since 1994.]

Alice Software collaborates with people committed to developing software for use by biologists. In particular we would like to mention Eduardo Dalcin and colleagues in Brazil, who have developed the AliceWeb program for publishing Alice databases on the World-wide Web, and Richard White, who has made a number of contributions to the System.

The authors of other well known biological data management systems, Denis Filer author of Brahms and Mike Dallwitz author of the Delta system have written data exchange facilities that enable Alice users to pass their data to and from these systems.

What are our aims?

Our aims are to provide biologists with easy-to-use software for the creation, publication and use of biodiversity databases, to ensure users of Alice control and have confidence in the quality and security of their data.

Paradoxically, much of the information about species collated and stored electronically by biologists today, is less accessible to colleagues or to future generations than the hand written notes of George Bentham and others, written in previous centuries and available for reference in the Library at Kew Gardens. This is because when biologists use commercial database systems like Access they inevitably create databases that do **not** adequately reflect the logical structures or information rules inherent in, and unique to, biological data.

Such information rules, like synonymy, the nomenclatural codes, taxonomic hierarchies, typification, the complexities of logical dependence amongst characters, species variation and multiple citations for morphological descriptions, use and ecology must be coded in any software if it is to be useful. Alice Software builds systems that model these information rules accurately. This helps to ensure Alice databases will be useful to future generations

We aim to provide programs that biologists can use without having to study database design or waste time in trial and error. We were first moved to develop Alice in response to a request. A number of botanists wanted to build a species database in an international collaborative project. Then, as now, we were determined to take a professional approach to software development. This approach was both necessary and desirable if we were to be responsible to our users; to facilitate System maintenance and to develop the System in a planned manner.

Where appropriate we endorse and encourage our users to adopt international data standards and provide mechanisms to support their use.

What is our purpose?

Our purpose is to encourage the effective use of information technology to biology, ecology and conservation, to contribute to the long-term success of data management projects and to help to contribute to an enriched working environment for biologists. We see Alice as a very useful tool for biologists and seek to link it with similar, professionally developed, biological management systems. For this reason Alice has excellent data exchange facilities.

The more widespread use of Alice and similar systems will reduce the current waste of staff resources caused by biologists from institutes around the globe duplicating one another's efforts to create their own databases using commercial programs. "Homegrown" systems may meet your immediate needs if your data requirements are simple. However, for most biological projects such systems provide, at best, only partial solutions and frequently compromise data quality and security.

Can you help?

We are delighted to hear from anyone who shares our vision and would like either to help us or to collaborate with us.

Why use the name “Alice”?

We are often asked why we chose the name “Alice”. The name is taken from the title of the literary classic “Alice in Wonderland”, by the Rev. Charles Dodgson (or Lewis Carroll, to use his pseudonym). The story describes the adventures of a young girl in an imaginary land where she meets a cast of strange beasts and characters who pose disconcerting questions and with whom she has a series of extraordinary adventures. Dodgson was a mathematician and specialised in “Set Theory”: that branch of mathematics concerned with the properties and interrelationships of groups (“sets”). Behind the imagery that has delighted generations of children and adults lies another level of interpretation. In her encounters, Alice grapples with concepts associated with the classification, identification and naming of groups, concepts that lie at the heart of systematics and, by extension, the structure of biodiversity databases.

Systems, Configuration, Editions

The Alice System is distributed as Systems, configurations and editions.

Systems are discrete and comprise a set of applications that work together on Alice databases of the same system and configuration. Editions are combinations of applications; designed for different purposes and users, for example, database creation, publication, import or merging and administration across a network.

Within any system Alice databases may vary in configuration to support different taxonomic ranks with specific relationships between the ranks or different classes of taxa or names, or place categories. Systems are released in configurations. Configurations are named, described and published. Databases can only be merged when they are of the same configuration and system.

Why the distinction between systems and configurations?

The differences between configurations are smaller than the differences between systems. Configurations are more compatible than systems.

Systems

During the history of the development of Alice four systems have been released; 1.0, 2.0, 2.1 and 3.0. System 1.0 is no longer available. System 2.0 can be supplied but is no longer developed. The two systems that are currently under developed are systems 2.1 and 3.0.

Tools are available for upgrading Alice System 2.0 databases to Alice System 2.1 or Alice System 3.0.

Configurations

Since the introduction of Alice Systems 2.1 and 3.0 the concept of a configuration has been introduced. The Alice System is highly configurable. The present releases of these systems are in a **standard** configuration and are compatible with the structure of Alice System 2.0.

Editions

Alice Systems 2.1 and 3.0 are supplied as editions. Each edition is subset of programs designed for the needs of a different type of user.

The **Database Author's edition** is for those who build their own databases.

The **End User's edition** provides 'read-only' access to Alice databases. Database authors can thus publish their databases, or subsets of them, electronically by distributing them with copies of the End user's edition, enabling colleagues to have controlled access to their data.

The **Network Manager's edition** is for use by the network administrator in an institute where several users work with more than one Alice database.

The **Database Administrator's edition** is for use by the data administrator in an institute, or collaborative projects where several users are working with Alice databases and aim to share their data, their procedures and common data standards.

Programs available with different Editions of System 2.1 or 3.0

	Ace	Aview	Aquery	Awrite	Alice-Web	Alex	Sam Tool Kit	Amie	Db-update	Db-admin	Db-unlock
EDITION											
Database Author's	✓		✓	✓		✓		✓	✓		✓
End User's		✓	✓								✓
Network Manager's	✓		✓	✓		✓		✓	✓	✓	
Database Administrator's	✓		✓	✓	✓ (*)	✓	✓ (*)	✓	✓	✓	

(*) Not yet available for System 3.0, only compatible with Alice system releases prior to 11c.

What is new in System 2.1 and 3.0?

Here we summarise some of the new functionality in Systems 2.1 and 3.0.

New features of System 2.1

System-wide improvements

- Programs can be used in multitasking environments. For example, you can safely run the ***Awrite*** report writer at the same time as using ***Ace***. System 2.1 has been tested under DOS, Windows 3.1, Windows 95, OS/2 and versions 3.51 and 4.0 of Windows NT.
- Programs can be safely used across networks.
- Tools are provided for managing Alice programs, users and databases across a network.
- All programs work in a consistent fashion.
- Programs have more data integrity tests and checks to improve data quality and longevity.
- Programs have improved performance.
- System 2.1 is available in editions, each for a type of different user.
- A new program, ***Dbupdate***, automatically converts Alice System 2.0 databases into System 2.1 databases.

Data content

- New fields in the citation dictionary allow you to record the sequence of a publication (within a year) and separate the title of a journal citation from the publication details.
- Richer set of classes for Latin names, taxa and introduction status,
- Some field lengths have been increased.

New options for searching Alice databases

- ***Aview*** is a new program for exploring Alice databases to the same level of detail and flexibility as ***Ace*** but with read-only access.
- A new query engine is provided as a part of ***Aquery***, ***Awrite*** and ***Alex*** has new operators: *missing, unique, less than,* and *more than*
- Option to include or exclude taxa with no recorded observations for given data type
- Taxonomic search criteria
- Complex queries can be recorded, edited and recalled using the query history manager.

New options for publishing, reporting and exporting data

- A new program, AliceWeb, generates HTML pages from data subsets exported by Alex. This enables you to publish all, of part of, your database as a web that can be navigated and accessed using a standard web browser.
- Improved format options for reports from Ace and Awrite
- Lists of taxa with a given property can be generated using Ace
- New data export options

New features of System 3.0

The new taxonomic hierarchy

- System 3.0 supports a more complex taxonomic hierarchy than System 2.1
- Nine levels in the taxonomic hierarchy
- Five levels dedicated to formal taxa recognised within the International nomenclatural code and assigned Latin names
- Three levels dedicated to informal groupings at lower taxonomic levels.
- The lowest level is dedicated to individuals or accessions. These may be optionally assigned to taxa within the hierarchy.

New classes of taxon

- System 3.0 supports additional classes of taxa
- "Informal taxa" - to cover groupings useful for agronomists and horticulturists
- "Unidentified" - for accessions or specimens unassigned to taxa.

New classes of name

- System 3.0 supports additional classes of name
- Informal names can be assigned to taxa in the lower levels in the hierarchy
- Authority strings are required only for names of formal rank
- "modifiers" can be used in place of authorities for non-Latin based nomenclatural systems (e.g. horticultural code).

A new program, *Ace,* for creating databases

Ace is a new program, released for the first time with Alice System 2.1 and 3.0.

Ace is the key program for building databases. It replaces the ***Alice***, ***Nview*** and ***Atext*** programs supplied with System 2.0 and provides considerable additional functionality.

Ace is used to define the elements of each data type supported by the Alice system then to enter and edit data. Ace prevents the entry of inconsistent or conflicting data. Ace is also used to find what data has been entered, and to explore the citations or information sources for any fact in the database. Summary statistics can be produced and information about taxa located. Finally, Ace is used to generate reports with pre-defined formats.

Use other programs from the system to ask more sophisticated questions, define and generate complex reports, and to export data, including for the production of Web pages.

New Features of Ace

The following sections highlight some of the functionality new to ***Ace***.

General Features

- A new user interface, using Lotus ring style menus, allows for quick and intuitive navigation through the program. All menu options have explanatory text. All programs in Alice System 2.1 share a consistent interface.
- Different language versions of Ace can be supplied.
- Changes to the database structure and improved data validation improve data integrity.
- Faster performance, particularly in handling nomenclatural records in large databases.
- Reports generated by all Alice system can now be viewed without exiting any program.

User control and configuration

- For each data type, for example geography, prompts for citations, the confirmation of observations and citations for observations can be set on or off.
- **Tools** are provided to manage the introductory and explanatory text you record within your database and distribute with it.

Improved management of text

- Text is managed using Ace rather than the separate **Atext** program. You can now enter and edit blocks of descriptive text whilst entering other classes of data.
- Ace keeps a complete history of nomenclatural and taxonomic changes as structured notes.
- A number of text editors can be used.

Ease of data access

- Taxa can be searched for by scientific or common name through a new simplified interface. The user controls which categories of taxa and names to include. It is possible to move up and down the taxonomic hierarchy and to select taxonomic ranks and names using pick and point lists.
- Report options are more flexible and varied.
- Database statistics can be output to file.
- New statistics reports list the usage of terms, descriptors or descriptor states.

- You can count or view which taxa are recorded for a particular observation (e.g. "timber", "India" "Yellow flowers"). These search results can be printed to file.

Ease of data entry

- Data entry is done largely using pick and point lists to select from the terms you have already added to your database dictionaries. This minimises typing and improves the consistency and speed of data entry.
- Copying taxa**.** Ace has powerful new functions for copying and deleting data for taxa. Complex descriptions for taxa can now be copied to other taxa and then edited using few keystrokes.
- You can create or append standard lists of terms to Alice database dictionaries by importing data from external sources.
- The screen for entering geographical data is laid out more clearly, facilitating data entry, reducing the amount of typing required and improving data integrity. Distribution records are automatically generated at the higher levels of the geographical hierarchy when you enter new records at lower levels. For example, recording a taxon for Kerala creates entries for India and Asia, if these do not exist.

Ease of data editing

- Dictionary entries for data types can be deleted even where recorded for taxa. Ace advises you of the consequences and, if you insist, deletes the dictionary term and all associated taxon records.
- Deleted dictionary entries can be undeleted.
- Data deleted from an Alice database can be permanently erased using a pack function.
- Before editing a dictionary or descriptor definition any associated taxa can be counted or viewed.
- Names or parts of names, for example the spelling of an authority, can be edited in context using the new Nomenclatural Editor.
- To facilitate quicker selection of taxa, recently used taxa are kept in a hot list.
- Place names in the gazetteer may be moved to another part of the geographical hierarchy or moved to a different level within the geographical hierarchy.
- To facilitate the maintenance of a consistent format global edits can be made to Descriptors and Descriptor states.

Improved citation management

- Citations are easier to work with.
- A list of frequently used citations can be defined.

Versions

The following table describes the version history of the Alice System.

System	History	Programs	Data Structure
1.0	Limited release in 1986.	3	118 files and indices.
2.0	Released in 1988 and in use world-wide since. Under development until 1997.	7	Normalised relational data structure. 145 files and indices
2.1	Released in 1997 with new programs and new versions of System 2.0 programs. Improved data structure and performance.	11	Extended normalised structure. 200 files and indices
3.0	Partial release in 1997. Full release in 1998. Greater nomenclatural and taxonomic sophistication below the rank of species.	11	Extended infra-specific nomenclatural structure.

Since 1998 there have been 11 releases of the Alice System.

The current distribution is release 11c.

Alice System 1.0 is no longer available.

Programs

Program	Function	System 2.0	2.1	3.0
Building databases				
Alice	Design your database, capture, edit data, and produce simple reports. Ace supersedes Alice in System 2.1 and beyond.	✓		
Atext	Enter and edit text. Atext is part of Ace for System 2.1 and 3.0	✓		
Ace	Design your database, configure your system and database, capture and edit data and text, search on single data elements and producing reports.		✓	✓
Searching and viewing data				
Aquery	A powerful, easy to use, data retrieval program suitable for casual users or those that have not been involved in development of the database. Permits complex combinatorial searches. Later versions have a query history manager.	✓	✓	✓
Nview	A nomenclatural search tool. This functionality is part of Ace and Aview in Systems 2.1 and 3.0.	✓		
Aview	A read-only tool for exploring species description, data definitions and searches on single data elements and producing simple reports.		✓	✓
Publishing				
Awrite	Design, store, edit and print your own reports. Later versions have a query history manager.	✓	✓	✓
AliceWeb	Publish your data on the Internet or an Intranet. Later versions include images with your taxon descriptions.	✓		
Exchanging data				
Alex	Export subsets of your data for use by other programs or databases. Alternatively, export subsets as Alice databases.	✓	✓	✓
Sam	Import data sets from other programs or databases into an Alice database. Create new Alice databases or merge Alice databases. Replaced in System 2.1 and beyond by Sam tool kit.	✓		
Sam Tool Kit	A suite of data manipulation tools that import data into empty Alice databases, test for differences between Alice databases, harmonise data dictionaries between Alice databases and merge Alice databases.		✓	
Administering databases				
Amie	Database maintenance, backup and testing	✓	✓	✓
DbUpdate	Convert databases for use with a more recent version of the System		✓	✓
DbUnlock	Unlock Alice programs and databases after you have suffered a system crash on a stand-alone computer.		✓	✓
DbAdmin	Unlock Alice programs and databases after a system crash on a network.		✓	✓

Technical specifications

System 2.1/3.0

The new Alice systems are much more powerful than their predecessors. Like most modern, complex software, they require reasonable computing power to achieve the best performance.

Best performance will not be obtained using a computer with the **minimum** specification. Alice runs smoothly and quickly on the **recommended minimum.** Best performance is obtained using a computer with the **optimum** specification. This will allow you to run a number of Alice programs and other software comfortably at the same time.

	Minimum	Recommended minimum	Optimum
Processor	486/33MHz	90MHz	133MHz
Operating system	DOS[1] / Microsoft Windows 3.x	Windows 95/NT, OS/2	Windows 95 /98 NT, 2000, OS/2
Memory	12 Mb	16 MB	32 MB
Hard disk space[3]	100 MB	500 MB	1 GB
Additional requirements	A disk caching program (e.g. SMARTDrive, as supplied with MS DOS/Windows)		

[1]Windows is required to install Alice.

[2]**A minimum of 540k DOS conventional memory is required to run the Alice system in DOS or Windows 3.x**. This is explained in detail in the User guides.

[3]These figures are arbitrary. Generally, bigger hard disks give faster access to data and therefore better performance. Alice programs and the demonstration/empty databases require a maximum of 30Mb of disk space. This may be less; depending on the version of Windows you are running.

Networking requirements

The following factors influence performance when using Alice on a network:

- Network capacity (100mbit is better than 10mbit).
- Network load (how intensively the network is used - performance will suffer at anything greater than 50% load)
- Network card 'bandwidth' (32bit is faster than 16bit is faster than 8bit).
- Packet size (how much information is accessed from the network server at one time. Generally, bigger packet sizes give faster access).

Technical Specifications (continued)

System 2.0

To use Alice System 2.0 you need an IBM compatible PC 386, 486 or Pentium with a *minimum* of 512K RAM.

ALICE runs under DOS, Windows, Windows NT and OS/2. Alice can be made available for UNIX**.**

If you intend to purchase a new machine and build a reasonably sized database, buy at minimum a 486 machine with at least 4 Megabytes of RAM and a 100-Mb hard disk. Program performance will be improved with a more powerful machine particularly with a faster hard disk.

Interactive programs, such as **Ace** and **Aquery,** benefit more from a faster processor than less interactive programs, for example, **Awrite** or **Alex**. Disk caching significantly improves the performance of all programs.

The largest amount of RAM available to any program is critical for acceptable performance of the Alice text-handling program (**Atext**). This program, once loaded into memory, loads a word processor program into memory alongside it. This may not be possible if RAM is limited. The more RAM available to you, the greater your freedom to choose a word processor that suits your taste. We have successfully run Atext with a number of standard word processing packages as well as smaller public domain programs such as Qedit and Wedit. The best way to maximise available RAM if you are using Microsoft's Windows 3.1 on your machine is to instal a memory manager program such as QEMM from Quarterdeck.

Note: <u>All System 2.0 databases and programs must reside on the same physical disk drive</u>. This restricts how the system can be used on a network.

Database size limits

The design of the ALICE system ensures efficient use of data storage and performance that is largely independent of database size. The design imposes very few limitations on the size of your database, which, in practice, is determined by the size of the hard disk in your computer and your effort gathering and capturing data

Sizes of some example databases

The following may help you estimate how much disk space you may require for your database.

A database of **17,000 legume taxa** (species, subspecies and varieties) with 40,000 scientific names, many with extensive descriptions for all data types (e.g. distribution in 178 countries and 12 sub-continents linked to 1,898 citations) and text notes is 29Mb. Scientists working at different sites have collated the database over a ten-year period.

Another database of nearly **1,300 palm** taxa gathered over a five-year period at a single site contains more descriptive information for each species than the database described above. It has 4,800 geographical records, 1,560 vernacular name records and more than 4,000 observations of descriptive characters linked to more than 4,300 bibliographic Citations. This database currently is approximately 3.5Mb.

A database of **540 species of medicinal plant** including detailed descriptions of their use based on more than 50 user-defined descriptors, together with common names and bibliographical citations is 1.8Mb in size.

Limits on the size of a single ALICE database

TAXA	Permitted records
Taxa (species, subspecies, varieties etc)	100,000
Latin binomials	100,000
Authority combinations	10,000
Family or supra-generic names	100,000
Generic names	100,000
Specific names	100,000
Infra-specific names	100,000
CITATION LIST	
Different bibliographic Citations	10,000
Pointers to Maps/Illustrations/Descriptions	1 billion
Citations / name	no limit
Citations / data observation (any data type)	no limit
Nomenclatural citations	1 billion
Citations for any other single data type	1 billion
GEOGRAPHY	
Levels in gazetteer hierarchy:	3
Place names at any one level in gazetteer	100,000
Distribution records /species	1 billion
USER DEFINED DESCRIPTORS	
Descriptors :	100,000
States for any one descriptor	100,000
Observations / taxon	1 billion
Observations / taxon / descriptor (for descriptors defined by user as 'variable')	no limit
Observations / taxon / descriptor (for descriptors defined by user as 'non-variable')	one
Citations / observation	no limit
Observations / database	1 billion
USES, HABITATS AND VERNACULAR NAMES	
(The following limits apply individually to each of the above data types)	
Data categories (e.g. classes of use)	100,000
Records	1 billion
Records for any one taxon	no limit
STRUCTURED NOTES	
Length of each note	80 characters
Notes / taxon	no limit
Notes / database	1 billion
TEXT	
Text entries / taxon	one
Size of text / taxon	Limited by available RAM
Choice of word processor program	limited by available RAM