

NYBG becomes 100th BG-BASE site

A milestone was reached late last year with the installation of *BG-BASE* at The New York Botanical Garden, the 100th institution to adopt the system. It is particularly fitting that NYBG be a part of this milestone in that they were also one of the earliest *BG-BASE* users as well!

When *BG-BASE* was first installed at NYBG in the mid-1980's, the software, although very advanced for its time, was a far cry from what it has evolved into today. The system was in its infancy, there were no firm provisions in place for ongoing technical support or upgrades, and the software was being developed on a part-time basis. Despite this, NYBG staff recognized that the underlying design and concepts of the system were strong, and as such, adopted *BG-BASE* to manage their data on the living collections.

At some point NYBG's needs outpaced the development cycle of *BG-BASE*, and the decision was made by NYBG staff to 'break off' from *BG-BASE* in order to further develop the system on their own for their own internal use. (This was before specific licensing restrictions and copyrights were in place that now prohibit such action.) Initially this worked out well for the Garden, as functionality specific to NYBG was incorporated into "NYBG-BASE" as it came to be called, and technical support was now available on-site. The living collections were successfully computerized and the Garden also adopted the computerized mapping program BG-Map by Glicksman Associates (which requires *BG-BASE*).

In the meantime, *BG-BASE* continued to slowly but surely gain acceptance as a world leader in collections documentation. Several upgrades were released, many new and significant collections were computerized, and perhaps most importantly, in 1993 The Holden Arboretum and the Royal Botanic Garden, Edinburgh, became primary development and support centers. Development of *BG-BASE* was no longer a

sideline activity for the developers but had in fact emerged as a full-fledged enterprise.

In 1998 NYBG staff recognized that *BG-BASE* version 5.0 offered vast improvements over earlier versions of *BG-BASE* with many features not available in their current system. Meanwhile, the Garden's small in-house technical staff needed to turn their attention to other projects and were no longer available to continue development and support of "NYBG-BASE." NYBG's horticulture and technical staff agreed that the timing was perfect to convert back to a fully compatible and standard version of *BG-BASE*. Fortunately the Garden had continued to use *Advanced Revelation* as its database software and had not drastically altered the internal file structure; within the course of a week the conversion to *BG-BASE* version 5.0 was complete and NYBG staff were trained on the new system.

There is no doubt that NYBG's early use of *BG-BASE* swayed other institutions to use the software as well; these early users spurred on additional development and generated ideas that have ultimately benefitted all users. More directly, three new *BG-BASE* users, the Chicago Park District's Garfield and Lincoln Park Conservatories, The Smithsonian Institution and the Phipps Conservatory, were the thankful recipients of NYBG's extensive NAMES and DS (bibliographic) files.

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We have also discovered firsthand that NYBG will 'push the envelope' on the system(!), to the benefit of all. Special thanks to NYBG staffers **Jill Appel, Wayne Cahilly, Margaret Falk, Jennifer King, and Nancy Steger** for their assistance in sorting through various data issues while fine-tuning the conversion.

And, most importantly, welcome back!

Recent installations

BG-BASE is now used in **111 sites in 17 countries** (Australia, Barbados, Belize, Canada, Cayman Islands, China, Cuba, Dominican Republic, Hungary, Ireland, Luxembourg, Mexico, New Zealand, Singapore, Sri Lanka, UK, US), with 15 new installations in the past 12 months.

Arboretum Kirchberg (May 1998) **Musée National d'Histoire Naturelle (May 1998)**



Luxembourg must be one of the most beautiful cities in Europe, so it was a special treat to work with the staff of the Natur Musée, Musée National d'Histoire Naturelle and the Arboretum Kirchberg to do a joint installation of *BG-BASE* serving both institutions. Using high-speed communication links to join the sites, the two independent institutions have chosen to standardize on *BG-BASE*, moving data on living collections at the Arboretum, herbarium specimens at the Musée, and eventually the occurrence data gleaned from decades of observations of plants native to Luxembourg as well as the plants from the Red Data Book for Luxembourg into a single, integrated system. Data were converted from a series of existing systems and merged with the names of all European plants kindly provided from the Flora Europaea database.
www.mnhn.etat.lu

National Institute for Agricultural Quality Control (OMMI) (October 1998)

Marking the second installation of *BG-BASE* in Budapest, Hungary, OMMI is a governmental agency whose responsibilities are broad. One of their primary roles is to assure that plant material grown in botanical gardens and arboreta in Hungary is properly identified and disease-free if it is to be used as parent material for commercial production. Accordingly, OMMI is using *BG-BASE* to track the collections of 16 separate botanical institutions throughout Hungary. A pilot project is also underway between OMMI and ELTE Botanical Garden (the other Hungarian institution using *BG-BASE*) to facilitate electronic data exchange between the two institutions, a model which it is hoped will be carried over to the remaining 15 institutions that OMMI works with. Data were converted from a dBASE III system into *BG-BASE*. The NAMES and DS files were generously donated by the ELTE Botanical Garden.

University of Idaho Arboretum and Botanical Garden (November 1998)

Consisting of 63 acres in a very scenic valley in Moscow, Idaho, the University of Idaho Arboretum was first planted in 1982. Collections are grouped geographically into Asian, Eastern and Western North American, and European sections. Future plans include a visitors center and propagation facilities. The NAMES and DS files were generously donated by the Arnold Arboretum.

www.isu.edu



The North Carolina Botanical Garden (November 1998)

This 600 acre garden is part of the University of North Carolina at Chapel Hill and is made up of three tracts; North Carolina Botanical Garden, Coker Arboretum, and the Mason Farm Biological Reserve. First opened in 1966, the garden specializes in plants native to the southeastern United States as well as plants with special botanical interest or traditional use. The garden also has a strong conservation component, and is a member of the Center for Plant Conservation (NCBG is the 14th CPC garden to adopt *BG-BASE*). An existing dBASE system was converted into *BG-BASE* as part of the installation.
ils.unc.edu/botanical/gardens.html

New York Botanical Garden (November 1998)

New York Botanical Garden became the 100th user when it re-joined the *BG-BASE* user community in November 1998. See feature article in this issue for further information.
www.nybg.org



Phipps Conservatory and Botanical Gardens (December 1998)

Phipps Conservatory in Pittsburgh, Pennsylvania, opened in 1893, is one of the largest and oldest Victorian glasshouses in the U.S. Outdoor gardens include a Japanese Courtyard Garden, Discovery Garden, Aquatic Gardens, as well as bonsai, perennial, and herb collections. The Conservatory is using *BG-BASE* linked to a Norcom embosser to generate bumpy bar-codes for labeling the collection. The NAMES and DS files were generously donated by NYBG.
www.phipps.conservatory.org

**Herbario y Jardín Botánico de la Bememerrita
Universidad Autónoma de Puebla (BUAP)
(December 1998)**

As part of the week-long training session in December 1998, the herbarium and botanic garden in Puebla, Mexico adopted *BG-BASE* to manage their collection information. The Sir Harold Hillier Gardens and Arboretum kindly provided a highly relevant set of Mexican NAMES and DS records created by **Allen Coombes**, who has an abiding interest in and knowledge of Mexican oaks. It is hoped that this will be the first of many installations throughout Mexico.

Lady Bird Johnson Wildflower Center (January 1999)

The purpose of the Lady Bird Johnson Wildflower Center (formerly the National Wildflower Research Center) is to 'educate people about the environmental necessity, economic value, and natural beauty of native plants ... by promoting the preservation and use of native plants through education programs, information dissemination and by example.' Data were transferred from an existing system into *BG-BASE*, which will be used by LBJWC staff to track living collections, images and people.

www.wildflower.org

Native Plant Conservation Initiative (January 1999)

NPCI has asked *BG-BASE*, Inc. to assist in organizing the database and information management elements of the overall NPCI programs; based within the Bureau of Land Management in Washington, DC, NPCI now uses *BG-BASE* to manage information on its many contacts and programs. Work is underway with the Society of Ecological Restoration (SER) to produce directories of restoration projects, of taxonomic and ecological experts, and of native plants available in the commercial trade. Note: NPCI has recently announced that its name is changing to the Plant Conservation Alliance.

www.nps.gov/plants/index.htm

Center for Marine Conservation (January 1999)

The Center for Marine Conservation has been a long-time friend of *BG-BASE*, Inc. in that **Mike Smith** has been the main driving force for the installations in Cuba and the Dominican Republic. Although CMC does not hold collections *per se*, they are now using *BG-BASE* to manage a

distributed bibliographic database on Caribbean biodiversity. More on this project in a future issue of *BG-BASE News*.

www.cmc-ocean.org

Northern Virginia Community College (January 1999)

Collections documentation was viewed as a critical step towards recognizing the plantings on the campus of the 35 year-old Northern Virginia Community College as an arboretum. A first-ever accession numbering system was implemented, and long-term plans include the use of *BG-BASE* as a teaching tool for the horticultural courses taught at the school. The NAMES and DS files were generously donated by The Holden Arboretum

www.nv.cc.va.us/campus/loudmap.html

Smithsonian Institution (February 1999)

The Horticultural Services Division of the Smithsonian Institution will be using *BG-BASE* to track the indoor and outdoor collections at all Smithsonian museums and sites. Of particular merit are the 4.2 acre Enid A. Haupt Garden, located on the Mall, and the Smithsonian's extensive collection of orchids which are maintained in the facilities production greenhouses. The NAMES and DS files were generously donated by The New York Botanical Garden

www.si.edu/resource/tours/gardens/start.htm

Algonquin College (March 1999)

Located in Ottawa (commonly referred to as 'Silicon Valley North'), this technology-savvy community college becomes the third Canadian institution to use *BG-BASE*. In fact, more than 40% of Algonquin graduates find employment in high-tech industries. *BG-BASE* is viewed as a link between the horticultural and high-tech communities on campus as the institution begins to catalog its collection. The NAMES and DS files were kindly donated by The Holden Arboretum.

www.algonquinc.on.ca

Chicago Park District (March 1999)

BG-BASE will be used to manage data for both the **Lincoln and Garfield Park Conservatories**, two jewels of the Chicago Park District. Both Conservatories will be linked to a central office over a high-speed network, while a Norcom embosser has recently been purchased to make accession tags. Garfield Park Conservatory was constructed from 1906-1907 and occupies approximately 4.5 acres (inside and out) on Chicago's redeveloping west side. In 1994 a multi-year, multi-million dollar restoration project began that will replace most heating, plumbing, and ventilation systems. Lincoln Park Conservatory opened in 1893 and houses many plants that are over 100 years old. Nearly one million visitors a year visit this north side landmark. The NAMES and DS files were generously donated by the New York Botanical Garden.

www.garfield-conservatory.org
www.chicagoparkdistrict.com

University of Massachusetts, Amherst (April 1999)

Yet another academic institution joins the ranks of *BG-BASE* users with the addition of the University of Massachusetts at Amherst. *BG-BASE* will initially be used on a pilot project to record the health and overall landscape value of specimens for a segment of campus. Ultimately the entire campus will be inventoried using hand-held data collection devices in the field. The NAMES and DS file were generously donated by The Holden Arboretum

www.umass.edu

Betty Ford Alpine Garden (May 1999)

BG-BASE reaches new heights (ca. 9000 ft) with the Betty Ford Alpine Garden in Vail, Colorado, one of the highest public gardens in North America. Founded in 1985 and specializing (obviously!) in alpine plants, this garden's three primary collections are the Alpine Display Garden, Mountain Perennial Garden and Mountain Meditation Garden. A fourth garden, the Alpine Rock Garden, is under construction and will nearly double the garden's size when complete. Future plans also include the construction of an education center. Data from an existing Macintosh system were converted into *BG-BASE*.

WARNING!

For all users of *BG-BASE* running under Windows 95, 98 or NT on a Local Area Network (LAN) or a peer-to-peer network; please read the following two sections carefully – **your data could be at risk!**

BG-BASE running under Windows 95/98/NT on a network

Any user who is running on a Novell or NT network and is using Windows 95/98/NT on *any* workstation on that network must acquire the appropriate network product from Revelation Technologies or via *BG-BASE*, Inc. Refer to the chart below to determine which product you require.

Client OS	Network	Configuration support
DOS or Windows 3.x	Novell 3.x or 4.x	Revelation NLM 1.x recommended
	Novell 5.0	Revelation NLM 5.0 recommended
	NT 3.x or 4.x	Revelation NT Service recommended
	any other network	as is
Windows 95, 98, or NT	Novell 3.x or 4.x	Revelation NLM 1.x required
	Novell 5.0	Revelation NLM 5.0 required
	NT 3.x or 4.x	Revelation NT Service required
	any other network	Network Performance Pack required

Note: these additional products are **not** 'bug fixes' in *Advanced Revelation*. These requirements are necessitated by changes made to the underlying operating system by Microsoft. **You cannot safely operate *BG-BASE* without these products, and we cannot adequately support you if you choose not to update your system appropriately.** For full details, descriptions and pricing of *Advanced Revelation* network products, please visit the network product section of the Revelation Software web site at www.revelation.com.

BG-BASE on NT networks

For those of you running *BG-BASE* on an NT Server 4.0, there may be problems if you have installed the **Microsoft NT Server 4.0 Service Pack 4.0**. According to Revelation Software, if you

install the Service Pack 4.0 to the NT Server, then you must also install the Service Pack 4.0 to the NT Client. Failing to do so will cause problems. (4 December 1998)

BG-BASE Users Meeting

The 9th annual North American *BG-BASE* users meeting will be held in conjunction with the American Association of Botanical Gardens and Arboreta (AABGA) annual conference in Vancouver, B.C., Canada, June 30-July 3, 1999. The town hall meeting format is open, informal, and **all conference attendees are welcome to attend**. The meeting time and place will be announced at the conference. Please also be sure to visit us at our **exhibitor's booth** at the conference as well.

BG-BASE Advanced Training Seminars

The seventh U.S. *BG-BASE* Advanced Training Seminar will be held October 17-18th, 1999 at The Holden Arboretum. Two days will be spent exploring the "nooks and crannies" of *BG-BASE*, focusing on little-known techniques and short-cuts. Much of the time will be spent working at TCL and on report-writing. All participants will be provided with their own computer with copies of data from their own institution. Space is limited to five registrants and there is a registration fee. Contact Mike O'Neal at The Holden Arboretum for more information. Note: If your institution would be interested in **hosting** an Advanced Training Seminar, please let us know!

Fifth International BGCi Conference

The 5th International Botanic Gardens Conservation International Congress was held September 14-18, 1998 in Cape Town, South Africa. The sessions were hosted by the National Botanical Institute of South Africa at the remarkably beautiful Kirstenbosch National Botanical Garden. The theme of the Congress was *Plants, People, and Planet Earth – the role of botanical gardens in sustainable living*.

Mike O'Neal and **Kerry Walter**, along with many *BG-BASE* users from around the world, attended the Conference, which consisted of seven major

themes and 29 workshops. As it has at all BGCi congresses since the first (in the Canary Islands in 1985), *BG-BASE* played an important part in workshops, discussion and poster sessions dealing with information management in botanic gardens. Mike and Kerry helped organize the session on plant record systems and demonstrated *BG-BASE* in a workshop designed to show people different kinds of database systems (also demonstrated were BG-Recorder (English and Russian versions), Brooklyn Botanic Garden's Urban Flora Internet software, CALYPSO, and the PRECIS Garden Records System).

At the end of the workshop the following conclusions were made by the participants:

- there is no more important set of information maintained by an institution than the information about its collection
- biological information is inherently complex, and database systems designed to manage it must also be complex
- careful consideration should be given when deciding to design a collection management system in house or to adopt /adapt an existing system.
- databases must continue to change and evolve as computer standards and users expectations change.
- collection databases represent long-term institutional commitment
- there is much to learn and share with colleagues in other communities, e.g. museums.

The Congress was a great success, with over 400 participants representing 55 countries in attendance. Plan now to attend the 6th Congress, to be held in conjunction with the AABGA national meeting, June 25-30, 2000 at the NC Arboretum.

Late-breaking news

As we go to press (10 June 1999), Kings Park and Botanic Garden in Perth, Australia are just releasing the *BG-BASE DELTA* module to members of the Wildflower Society of WA. This will be used to capture horticultural data on native WA plants. More on this exciting project in a future issue.

Collections management training course in Mexico

Assisted by the proceeds of a plant sale at the Sir Harold Hillier Arboretum and Botanic Gardens, **Allen Coombes** and **Kerry Walter** led a 4-day training workshop organized by **Maricela Rodriguez Acosta** on collection management for a group of over 15 botanic gardens and herbaria from around Mexico. Maricela had translated the *BG-BASE Quick Start Guide* into Spanish, which served as the 'textbook'. Prior to the workshop, Kerry met with Robert Bye and others at UNAM in Mexico City to discuss information management issues in the herbarium and botanic gardens there.

Native Plant Conservation Initiative action agenda meeting

In January, 1999 the second consortium-wide meeting of the Native Plant Conservation Initiative (NPCI) was held at the Lady Bird Johnson Wildflower Center in Austin. NPCI is a consortium of 10 government agencies and more than 130 non-federal cooperators (including BG-BASE, Inc.) dedicated to the preservation of the native flora and habitats of the United States. NPCI members include field biologists, botanists, habitat preservationists, horticulturists, resource management consultants, soil scientists, special interest clubs, non-profit organizations, concerned citizens, nature lovers, and gardeners.

One of the six strategies set out at the first NPCI meeting in May, 1995 was to 'promote the development and use of coordinated database and information-sharing to support native plant conservation.' Four years later, information sharing became one of the five day-long working groups (repeated the following day, so each of the participants attended two working groups).

At a special luncheon held to present a lifetime achievement award to Lady Bird Johnson, U.S. Secretary of the Interior, Bruce Babbitt, spoke eloquently of the need to conserve plants as well as animals. During that event, the NPCI presented Secretary Babbitt with a copy of the *1997 IUCN Red List of Threatened Plants* along with a letter highlighting the U.S.-specific findings in this first-ever global list of threatened plants (derived from WCMC's copy of *BG-BASE*, the North American data of which was kindly supplied by The Nature Conservancy).

Association of Systematics Collections

In April 1999 the Washington-based Association of Systematics Collections (ASC) convened a meeting of its Database Advisory Committee on which **Kerry Walter** serves. ASC is in the process of building databases on collection-holding institutions as well as taxonomic experts. Kerry's major input was a plea that ASC broaden its remit to encompass living collections (historically, ASC has focused on herbaria and natural history museums) and that it also embrace collections, both living and preserved, outside of North America.

Take a look at ASC's much expanded web site: www.asc.org

PlantNet meetings in Wales

On behalf of both the RBGE and *BG-BASE* **Robert Cubey** attended the 2nd annual PlantNet conference in South Wales in April 1999.

PlantNet ("The Plant Collections Network of Britain & Ireland") is a network of people and Institutions involved in plant collections in the United Kingdom and Ireland, serving a similar function to that which AABGA plays in North America.

Held in conjunction with the conference was the first meeting of the of the PlantNet Plant Records Group, initiated by Becky Govier (Plant Records Officer, RBGE) and Andy Sier (Senior Database Administrator, RHS Wisley) specifically to address plant records topics.

This first meeting of the group was attended by over 40 people directly involved in plant records, and was formally opened by the Chairman of PlantNet, **Bernard Payne** (formally of Sir Harold Hillier Garden and Arboretum). This was followed by two guest talks on plant records. The first talk was given by **Steve Waldren**, (Curator of Trinity College Botanic Garden, Dublin) on ITF (International Transfer Format). The second talk was given by **Melissa Simpson**, Horticultural Taxonomist at the National Trust who discussed various collections data management issues faced by the Trust with its many historical sites.

Future meetings of the group will focus on two key areas: training workshops and information sharing. A series of information workshops was proposed, and **Simon Thornton Wood** (Head of Botany, RHS) offered to run the first workshop on

"Essential Taxonomy and Nomenclature."

The meeting proved that there was a strong desire for information sharing, something that is of special interest for *BG-BASE* users. Individual institutions were aware of programs or areas of interest in other institutions but lack detailed information on who was growing what, information that was traditionally included in published accessions books and catalogs but that is now increasingly held electronically, and information that all managers need to consider when curating their collections.

Need more HELP?

One of the most important features new to *BG-BASE* version 5.0 is its greatly expanded on-line help. The old HOW.DO.I file (containing fewer than 10 records) has now been expanded into 500 questions and answers in the FAQs (Frequently Asked Questions) file. New users are taught to refer to the FAQs file, but those of you who have upgraded from a previous version may not have noted the significance of this new functionality.

Above virtually any entry window is a **Help menu**, under which are now several new options that draw on information in the FAQs file. The **Entry window help option** presents a multi-selection popup of nearly 60 questions that people often ask us about how to use entry windows, ranging from 'How do I enter partial dates?' to 'How do I create or use a browse list?' to 'How do I accept or ignore the default supplied for a field?'

The **File-specific help option** displays a popup of questions dealing with the particular file you are in; for example, there are over 65 questions for the NAMES file, nearly 40 for the ACCESSIONS file, over 20 for the CONTACTS file, etc.

The **Frequently asked questions option** allows you to select any of the nearly 500 FAQs topics by entering one or more keywords, or you can choose from any of 38 categories.

Also new to the Help menu are options for displaying **file interactions** (if you have the optional Images module), for giving you an instantaneous count of how many records are in a file as well a listing of all indexes for the file.

Of course, a vast amount of field-specific help (1000 printed pages' worth!) remains available by

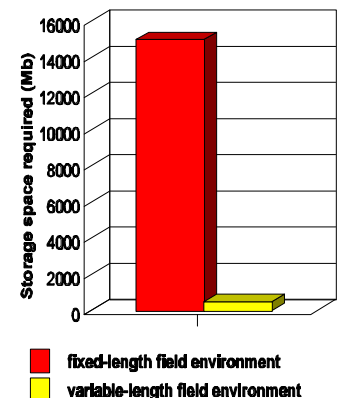
pressing F1 at any prompt in any entry window.

We think all users should explore these new on-line help features – no matter what your level of expertise, you almost surely will learn something, and you will become a more efficient user of the system.

Variable-length fields – an update

In the Fall 1998 issue of *BG-BASE News*, we discussed the importance of the variable-length field technology that underlies *BG-BASE* and the difference in size needed to store data in a fixed-length field database with the size needed to store the same data in a variable-length field database. This graph showed a 2 to 1 space savings. We were wrong!

As we have recently re-analyzed various data sets taken from fixed-length field systems and converted them into *BG-BASE* format, and as we have reviewed data in some of the larger *BG-BASE* sites (during upgrades to version 5.0), we have found to our amazement that the space savings is not a mere 2 to 1; rather, it is up to a whopping **35 to 1** at some sites. This figure was arrived at by determining the maximum amount of data stored for each field in each file, then extrapolating that for every record in the file, as would be the case with a fixed-length system. (Remember, a fixed-length system uses the space allocated for each field *regardless* of whether any data are stored there.)



For example, the 544 Mb that the RBG Edinburgh uses to store its 1,100,000 *BG-BASE* records would require a staggering **19 gigabytes** if stored in a fixed-length field environment. Similar statistics were found in other data sets. Thus, we are even more confident that we have chosen the correct platform (*Advanced Revelation* and soon *OpenInsight*) on which to develop an extremely flexible, powerful and space-efficient system.