

NARRATIVE

1. Statement of Need

Supporting SBBG's Mission

Founded in 1926, the Santa Barbara Botanic Garden (SBBG) is dedicated to research, conservation, education, and horticulture focusing on California's native plants. As an AAM-accredited, collections-based institution, the conservation and curation of core Library, Herbarium, Seed Bank, and Living collections is central to both our mission and our service to the public. The Library's large slide and photo collection is a priceless resource that documents SBBG's 82 year history, California flora, and natural and planted landscapes. Yet this invaluable collection is insufficiently cataloged, inadequately safeguarded, and under-utilized.

SBBG proposes to preserve, organize, and improve the accessibility of this collection through the development of a state-of-the-art digital Image Database. Once fully documented and accessible, the collection will be a unique resource for anyone interested in California's native flora, landscape design, or the history of Santa Barbara and/or the region. The Library's image collection consists of approximately 6,000 photographs and 58,000 35mm slides. In addition, approximately 25,000 slides and 5-10,000 born-digital images are in the possession of staff members. The Library's collection is housed in the Herbarium vault, kept in filing drawers in archival sleeves arranged using a very basic subject organizational scheme. The collection is far from cataloged and many boxes of photos and slides have yet to be incorporated into even this basic arrangement. Although staff have fairly unrestricted access to this resource - putting these irreplaceable items at risk of being damaged, misplaced, or lost - functional access is severely limited by lack of cataloging.

Supporting SBBG's Strategic Plan:

Development of an image database will advance SBBG's strategic goals in multiple ways; in fact nearly every program in research, conservation, education and horticulture involves the use of imagery in some respect.

- *SBBG will be a leader in plant science education:* Staff members are in continual need of high quality photographs for interpretive and educational materials such as signage, brochures, lectures, classes, retail nursery plant information cards, and web pages. A streamlined way of obtaining these images will save time and significantly improve our products and services.
- *SBBG will lead plant conservation in Central California:* SBBG promotes plant conservation with a variety of topical public outreach brochures and lectures, all of which require effective photographs. Photos of invasive exotics, a major threat to the California flora, and rare plants will be made available for these purposes.
- *Results of Garden research will be published in peer reviewed, scientific journals:* Photographs are often produced in conjunction with publishing articles in peer-reviewed journals and Garden publications. The Image Database will allow authors to save and retrieve any image used for future use.
- *Expand the volunteer program to serve all areas/programs of SBBG:* The Image Database project will require creation of a substantial, new and on-going volunteer group at SBBG.
- *Enhance efficiency and cost effectiveness of the Development and Marketing programs:* Development and Marketing efforts are image-intensive activities, hence staff urgently needs a way to efficiently search for specific photographs. Marketing and Development also generates a large number of born-digital images and has no effective method of organizing and retrieving them.
- *More fully utilize technology to accomplish SBBG goals:* Through the use of digitization and database technology, this project will enable staff to utilize SBBG's resources more effectively and efficiently. Use of existing technologies such as the website, Smart Board, and digital projection system will be enhanced.

Institutional capacity:

The Image Database project represents a critical, foundational investment in SBBG's institutional capacity through enhancement of the Library's collections and services. Significant Library collections remain

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unprocessed due to lack of resources. These include the slide collections of Katherine Muller (Garden Director 1950-1973), and those of nature photographer Donald Myrick. There have been few substantial additions made to the Library's image collection in many years. During the course of this project, portions of the following collections will be incorporated into the Library:

- Carol Bornstein's extensive slide collection of California natives and native-plant cultivars, as well as native-plant and other regional gardens;
- Steve Junak's unique collection of slides of the California Channel Islands documenting 35 years of botanical investigations;
- Sally Issacson's collection of native plant and habitat photos as well as pictures documenting SBBG's educational programs;
- Dr. Robert Muller's slides from his *Trees of Santa Barbara* (Santa Barbara Botanic Garden, 2005);
- Don Matsumoto's photos and slides chronicling SBBG activities over the past 15 years; and
- Dr. J. R. Haller's renowned slide collection of the California flora. (Professor Emeritus at the University of California, Santa Barbara, Dr. Haller taught the inspirational *Plants of California* course that launched the careers of generations of prominent botanists.)

The addition of these staff collections will add significantly to the size and value of the Image Database. Although staff has been encouraged to donate copies of their slides and photos to the Library, time and resources have not been available to secure these copies. Furthermore, because there is no way for staff to add their born-digital photos to SBBG's archives, these invaluable collections are in danger of being lost as long-time staff members retire or leave SBBG.

This project will also serve to collect and preserve institutional memory. Much of the value of a photograph resides in the information associated with it, and the data currently included with many of our historical photos is modest at best. Long-time employees and volunteers will be enlisted to help annotate these photos, capturing the names of the people and the significance of the events depicted. During this project we will endeavor to collect and document as much botanical and horticultural information as can be reliably discerned by the experts on the staff. The resulting metadata-rich Image Database will greatly expand SBBG institutional capacity to strengthen museum services and move forward to meet our strategic goals

Target audience and assessment of their needs:

The project's intended audience is, initially, SBBG's staff and volunteers. A recent staff survey unanimously confirmed the priority of this project and revealed the size and general content of individual collections. Many staff members engage in public outreach by giving lectures, classes, and presentations at SBBG and other venues such as symposia, professional meetings, garden clubs, horticultural societies, local schools, environmental organizations etc. Countless hours are spent searching for appropriate images while preparing slide shows and handouts. Imagery in analog form is far less versatile. SBBG recently installed a cutting-edge digital projection system and an interactive Smart Board in the Library and is phasing out traditional carousel slide presentations.

Of particular use to staff will be the inclusion of subject fields and keyword search capabilities that will allow the database to be searched by topics such as locality, plant community, landscape feature, year or decade, outdoor display section, event, etc. The database schema will be adaptable as new data fields are required, ensuring its usefulness into the future. The database will provide interactive functionality, allowing staff and other users to add metadata to image files on an on-going basis.

Strategic Planning Process:

SBBG is an independent non-profit California Public Benefit 501(c)(3) Corporation governed by an uncompensated Board of Trustees. The Trustees are responsible for setting long-range programmatic and

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funding objectives, and maintaining the financial health of SBBG. SBBG developed its first five-year Strategic Plan in 1995 and has since reviewed and updated it annually. SBBG President directs the strategic planning process using the Vision and Mission statements and SBBG's legacy as guideposts to determine priorities. The Vice Presidents of Finance, Development & Marketing, and Programs & Collections review the plan with their staff and appropriate Board committees to determine new priorities and action items, and confirm timelines and responsibilities. The plan is submitted to the President and Trustees for their approval and an annual Operational Plan is developed that provides specific actions to take place to meet the priorities of the Strategic Plan. Actions related to goals are reviewed monthly with Department Directors, and accomplishments are highlighted in the President's report at monthly Trustee meetings. While a five-year plan emphasizes long-range vision and focus, an annual review and operational plan allows for short-term flexibility in light of changing environments and needs of the organization and its community.

SBBG programs are developed and assessed using a modification of the Academic Portfolio Method that incorporates three criteria: 1) Centrality to SBBG's mission - extent to which a program is directly related to our mission; 2) Quality of programs - the overall quality of program content, judged by the evaluation of program users and comparisons with similar programs at peer institutions; 3) Audience viability - extent to which there is a present and future demand for the program by our audience. Throughout the year, SBBG staff implements surveys, reviews, and other assessment tools to evaluate programs and identify new objectives for incorporation into the annual operational plan. In 2006, for example, SBBG conducted a survey of our members to learn how our services were meeting their needs. Adjustments in our public programs and in our Membership Program were made based on the data collected in the survey.

Audience implications:

Although access to the Image Database initially will be limited to staff and volunteers, public access will be permitted on-site. To insure public awareness and in preparation for enhanced public access, collection level records will be contributed to the Online Archive of California (OAC) and the metadata made available for Open Archives Initiative (OAI) harvesting. SBBG is committed to seek funding to allow public access via our website. The images, the rich metadata, and the sophisticated search capability of the database will constitute a unique resource for the public and will serve to increase our engagement with the broader community. The project will play a core role in the ongoing development of SBBG's educational outreach activities such as traveling exhibits, presentations to regional environmental organizations, local senior centers, Smart Board presentations to school groups, and serve to focus public attention on California flora and the central role of the Santa Barbara Botanic Garden in preserving these invaluable resources.

In 2006, we recorded 105,000 visitors, including 55,000 non-repeat visitors, 6,500 free visits, 32,500 visits by members of SBBG, and the remainder consisting of research visits, meetings held by outside groups, and volunteer trainings. Our education programs, which will particularly benefit from the proposed project, are utilized by local elementary schools. Last year, over 4,600 elementary school students took part in education programs. A total of 8,000 participants were recorded for school, adult and family education programs.

2. Project Design

Project Goals

Two overarching goals drive this project: 1) conserving SBBG's image collection by bringing it under the management of the Library, digitizing it, and improving its curation and preservation, and 2) increasing the accessibility and value of the collection by building a metadata-rich, interactive database of these images that staff, volunteers, and eventually the public, can use in support of their programmatic activities. The image collection can be divided into four broad and interrelated subject categories: California native plants and native plant cultivars; California plant communities and habitats; planted landscapes (with an emphasis on native plant gardens); and photographs relating to SBBG – its people, buildings, features, events, and displays. Multiple

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subject tags will be allowed for each image, and ecological keywords will be added where appropriate to enable powerful search capabilities beyond those of most digital libraries of botanical images.

SBBG plans to partner with the Lady Bird Johnson Wildflower Center (LBJWC) on this project, allowing us to leverage their expertise and avoid duplication of effort. The LBJWC state-of-the-art database of botanical images and its user-friendly interface will serve as the technical foundation for our database. Because our collection includes large numbers of non-botanical images – subject categories that don't fit within the Wildflower Center's current database schema – the database structure will need to be expanded to incorporate them. LBJWC web and database designers will help SBBG achieve its goal in the most cost effective, efficient manner possible.

SBBG's Image Database will be a stand-alone, web-based application hosted either by the University of Texas, as per our affiliation with LBJWC, or locally, and be accessible by administered login only. MySQL database software along with PHP scripting language will be used to build the database and user interface respectively. Both master and access image files will be maintained on a dedicated, local server to provide added security. Detailed technical specifications for the project are presented in part 13 of this application "Specifications for Projects that Develop Digital Products."

Project Management

The project will be co-managed by Joan Ariel, SBBG's Library Director, and Elizabeth Collins, the Living Collections Manager. The Librarian will be responsible for all curatorial aspects of the project. She will coordinate the selection and evaluation process, accessioning, and preservation, will share responsibility for quality control, and will supervise the Project Technician. The Librarian will assume responsibility for the accuracy of non-botanical metadata and coordinate staff that will provide this information. The Living Collections Manager will oversee the technical aspects of the project and be the liaison with LBJWC. She will assume responsibility for the accuracy of all botanical and horticultural information included in the database and coordinate staff experts in Research, Horticulture, and Education who will help provide this information. An Advisory Team of staff stakeholders will be assembled to help the Co-Directors design and evaluate the database and user-interface. They will be involved with annotating image metadata and contributing their own images to the database.

Projects of this size rarely proceed smoothly and it is important to periodically evaluate whether the project is meeting its stated benchmarks. Although the co-directors will be in constant communication, a formal evaluation of progress will be made quarterly and course corrections determined and made if warranted.

Project Activities

A synopsis of the project activities follows (a detailed Digitization Plan is included in the attachments):

Phase I: Pre-Production

1. Staffing and Project Management: Recruit and train project technician and volunteers, establish project benchmarks and completion dates, assemble and orient the Project Advisory Team.
2. Collection Preparation: Develop protocols and standards for the digitizing process, including cleaning and scanning procedures, tracking of originals, post-production storage and preservation of originals, and selection criteria. Begin selection of materials to be digitized.
3. Equipment: Purchase and install equipment and software.

Phase II: Database Design

1. Database Design: Work with Advisory Team to define metadata and end-user needs.
2. Work with LBJWC staff to design database and user-interface that satisfies these needs.
3. Usability testing with Advisory Team.

Phase III: Digitization of Photographs and Slides

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1. Accession original and create initial catalog record in database including all information written on the original, clean and scan originals, name and save image file to the server, create user and thumbnail jpegs, and upload jpegs to the database.
2. Cataloging: Begin interpretative annotation of catalog record by Project and Advisory Committee staff.
3. Implement Quality Control (see digital specifications).
4. Develop and implement evaluation plans including usability testing with staff and volunteers.
5. Preservation: Prepare originals and file in appropriate cold storage environment, and create online index of stored materials.

Phase IV: Repurposing Born-Digital Images

1. Develop selection criteria and additional procedures needed for staff to contribute born-digital images to database.
2. Provide for accessioning, security, quality control, and appropriateness of additions.
3. Usability testing with Advisory Team.
4. Train contributors and begin adding images.
5. Apply quality control and evaluation plans to this phase.

Partners

In anticipation of initiating this project, the Santa Barbara Botanic Garden has become an official affiliate (see supporting documentation) of the Lady Bird Johnson Wildflower Center, an organization whose mission is quite similar to our own. Located in Austin, Texas, LBJWC was founded in 1982 to protect, preserve, and restore the beauty and biological richness of North America's native plants and natural landscapes. Since then, LBJWC has become one of the country's most distinguished research institutions and effective advocates for native plants. The Center's gardens display the native plants of the Central Texas Hill Country while the Plant Conservation Program protects the ecological heritage of Texas by conserving its rare and endangered flora. Their online Native Plant Database contains a wealth of information on 7,200 native species along with 18,356 plant images.

LBJWC will make a significant contribution to the proposed project by sharing the basic design and user-interface of their image database with SBBG. They will also collaborate with SBBG to design and implement all additional features required, and provide staff training, troubleshooting and ongoing consultation. Grant funds used to pay LBJWC staff specialists to assist SBBG in these activities will benefit the Center. In addition, this collaboration will help further the Center's goal of developing database capabilities for cataloging non-botanical images. SBBG will also contribute a selection of California native plant images to the LBJWC image database.

Evaluation

All aspects of the project, including security, search capabilities, metadata, and database content will be evaluated by the Advisory Team at regular intervals. The surest way to build a robust and truly useful system is to try hard to make it fail. We will ask staff to enter into the database images from their own collections covering as wide a variety of subjects as possible to test the adequacy of metadata structure,. Staff will also be instructed to attempt to gain unauthorized access to the database in order to test the restriction provisions built into the system.

Outreach

The value of the Image Database to the staff will be promoted by consulting with key stakeholders to ensure that both metadata and search capabilities are designed to meet their diverse needs. For example, the Co-Directors will work with SBBG's Director of Education to explore ways the metadata can be structured to support the curriculum needs of students and teachers at the primary through collegiate levels. The goal is to provide search capability across multiple subject areas with a user-friendly interface in a secure environment that controls both access and use. It is important that staff feel comfortable in contributing their images to the

database, knowing the images will be both secure and easily retrievable. All staff members have access to both the World Wide Web and our internal servers via their work station computers. Training sessions using the Library's Smart Board will be offered to all staff, and trouble shooting will be available from both the Librarian and Living Collections Manager.

3. Project Resources

SBBG is strongly committed to the stewardship of its collections. Our Trustees and staff have identified the successful development of the Image Database as a strategic priority for our institution and are committed to devoting the required time and resources to this project during the two-year grant period and beyond. Once the grant has concluded, SBBG will support the continued building and maintenance of the image database through the Ada Wood Library Endowment Fund.

The following staff, representing every Garden department, will participate in this project:

Elizabeth Collins, Living Collections Manager holds a B.A. in Environmental Biology. A part-time employee, she has designed (in Microsoft Access) and manages databases for several of SBBG's collections including the Plant Records Database, Seed Bank, Propagation Records, and Retail Nursery. As Co-Project Director, Elizabeth will oversee the technical aspects of the project and be the liaison with LBJWC. Her position will be grant funded for 12 hours/week for the first year, 6 hours/week for the second year.

Joan Ariel, Director of the Library holds a Masters of Library Science. Also a part-time employee, she is responsible for SBBG's Library collections and Archives. As Co-Project Director, she will be responsible for all curatorial aspects of the project and will supervise the Project Technician. She will devote 12 hours/week to the project, 4 hours funded by IMLS and 8 hours funded by SBBG.

Project Technician. This two-year grant-funded temporary 32-hour/week position will have primary responsibility for the digitization and repurposing of images; the cataloguing and databasing; quality control; and the preservation of original photographs. This position also will supervise all volunteers working on the project.

Volunteers. A new volunteer group of at least 5 volunteers will be created to launch and sustain this project. Volunteers are integral to every Garden program, and we anticipate that a significant contribution of their time will be committed to this endeavor. Volunteers will be recruited by SBBG's Volunteer Coordinator, then trained and supervised by the Co-Directors and Project Technician.

Services/Partners: Ladybird Johnson Wildflower Center

- **Damon Waitt**, LBJWC Senior Botanist, will devote 60 hours to the project. He will be responsible for coordinating the activities of LBJWC staff assigned to the project and consult with SBBG on the design of the user-interface.
- **Phillip Hawkins**, LBJWC Web and Database Manager, will devote 160 hours to the project. A MySQL database and PHP scripting language expert, he will be responsible for creating the Image Database in consultation with SBBG and assisting with development of the user-interface.
- **Melissa Zilic**, LBJWC Library Specialist, will devote 40 hours to the project. As a Library Information Specialist, Melissa will assist SBBG with the conceptual design of the non-botanical metadata.

Advisory Team (see Budget Justification for additional information).

The following staff will help design and evaluate the project and contribute images.

- Average 8 hours/month over two years: Carol Bornstein, M.S. *Director of Nursery Operations and Horticulture Outreach*; Sally Isaacson, *Director of Education*; Steve Junak, *Herbarium Curator*; Don

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Matsumoto, *Graphics and Signage Manager*; Dr. Robert Muller, *Director of Research*; and Dr. Dieter Wilken, *Vice President for Programs and Collections*.

- Average 4 hours/month over two years: Mary Allcott, *Development Coordinator* and Dr. J.R. Haller, *Education Botanist*

The image database project is closely aligned with current job responsibilities of these staff members and thus project responsibilities will be easily balanced with other ongoing duties. Initial time investment will be rewarded with subsequent time (and frustration!) savings.

Equipment: The equipment requested (computer, server, bulk loaders, etc) will be dedicated solely to this image database project and remain so after the granting period.

Cost share will be met through the contribution of LBJWC database design, volunteer hours, Librarian hours, and all hours of the Project Advisory Team.

4. Impact

The primary product of this project will be a carefully designed, interactive database of digital images with end-user search capabilities that maximize its utility. The database will be populated with a minimum of 20,000 photographs from our various image resources. After the granting period, annotation of image metadata will continue and additional images, especially those born-digital, will be added on an on-going basis by staff and volunteers. We can measure the progress and success of the project by the number of images digitized and the completeness of the designed metadata structure. The Advisory Team will be asked to formally evaluate the effectiveness of the user-interface and the value of the metadata at specified intervals to ensure that the product meets the needs of our users. We will also establish a methodology to track and report usage of the database. The database design and functionality, and all protocols and procedures will be fully documented throughout the project.

This investment in SBBG's institutional capacity will reap innumerable benefits for staff and public in the years to come. Once sufficiently populated, SBBG will seek funding to publish a version of the Image Database on our website. Exciting features we anticipate creating include: an interactive map of SBBG including photos and information concerning the displays; an online history of SBBG featuring many of the newly digitized photographs; the capacity to geo-reference photo locations allowing users to generate a Google Map of the site; seasonal virtual wildflower tours along several routes, again using Google Maps; virtual slide shows for any number of topics, from plant conservation to gardening with native plants, some specifically tied to our diverse educational curriculum, etc.

SBBG's local audience, including attendees of our school and adult education programs, botanists, horticulturalists, home garden enthusiasts, indeed all who participate in or collaborate with Botanic Garden programs will benefit from this project by the improved ability of staff to deliver requested image resources and to create interpretive materials. Digital imagery increasingly plays a crucial role in SBBG's Mission-based programs in the conservation, education, research, and display of California native plants. IMLS funding of this project will enable SBBG to conserve and promote our image collections and to provide 21st century programming in the service of our Mission.

BUDGET FORM: Section B, Summary Budget

	\$ IMLS	\$ Cost Share	\$ TOTAL COSTS
1. Salaries and Wages	\$99,454.00	\$110,585.00	\$210,039.00
2. Fringe Benefits	\$13,984.69	\$25,317.48	\$39,302.17
3. Consultant Fees	\$0.00	\$0.00	\$0.00
4. Travel	\$4,000.00	\$0.00	\$4,000.00
5. Supplies and Materials	\$8,830.00	\$18,950.00	\$27,780.00
6. Services	\$17,200.00	\$0.00	\$17,200.00
7. Student Support	\$0.00	\$0.00	\$0.00
8. Other Costs	\$0.00	\$600.00	\$600.00
TOTAL DIRECT COSTS (1-8)	\$143,468.69	\$155,452.48	\$298,921.17
9. Indirect Costs	\$0.00	\$42,525.18	\$42,525.18
TOTAL COSTS (Direct and Indirect)	\$143,468.69	\$198,010.66	\$341,479.35

Project Funding for the Entire Grant Period

1. Grant Funds Requested from IMLS	\$143,468.69
2. Cost Sharing:	
a. Applicant's Contribution	\$140,877.66
b. Kind Contribution	\$57,160.00
c. Other Federal Agencies*	\$0.00
d. TOTAL COST SHARING	\$198,010.66
3. TOTAL PROJECT FUNDING (1+2d)	\$341,479.35
Percentage of total project costs requested from IMLS	42 %

*If funding has been requested from another federal agency, indicate the agency's name:

