New Workflows for Born Digital Assets: Managing and Providing Access to the Charles E. Bracker Orchid Photographs

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Introduction

The Charles E. Bracker Orchid Photographs digital collection features digital images taken by Charles E. Bracker. Bracker took thousands of digital photographs of orchids, a selection of which are featured in Ball State University’s Digital Media Repository, or DMR, which contains content selected and digitized by University Libraries’ personnel. Prints of some of the photographs, along with the entire collection of digital images, were donated by Bracker to the University Libraries in 2009. This article explores the collaborative processes undertaken by archivists and digital projects librarians to bring the born digital assets online, including techniques for organizing, selecting, editing, and preserving digital files, building digital collections, and promoting web resources.

Background

The Charles E. Bracker Orchid Photographs digital collection is a sampling of nearly 30,000 digital photographs of orchids taken from 2002 to 2006 by Bracker. Charles was a professor of botany and plant pathology at Purdue University from 1964 to 1999, and his late wife, Anri, was an orchid enthusiast who began collecting and housing orchids in the 1980s. In fact, the collection features a photograph of the Chrisanda Memorial Anri Bracker orchid, a flower named in honor of Anri Bracker. The digital collection includes over 600 images of orchids from around the world, most of which were photographed in the Brackers’ home in Lafayette, Indiana. The Brackers were such passionate collectors that they obtained 2,000 orchids and stored them in their renovated and environmentally controlled basement greenhouse. In addition to their usefulness to botanists and horticulturists, the orchid photographs have considerable artistic value. Charles Bracker’s photography has been featured in numerous exhibitions, and is an excellent example of still life photography.

Donated to Ball State University Libraries, located in Muncie, Indiana, in late 2009, Bracker’s 30,000 digital photographs were arranged, described, and made available online through the efforts of archivists, digital projects librarians, subject specialists, and system administrators who worked collaboratively from the project’s inception. In conjunction with the University Foundation, personnel from the University Libraries and Wheeler Orchid Collection and Greenhouse worked to secure the donation of the photographs and to ensure the online promotion of the Brackers’ work. The collection of Charles Bracker’s photography posed
significant challenges to traditional archival collection processing procedures and existing digital collection building workflows.

**Digital Media Repository**

Since September 2009, the Charles E. Bracker Orchid Photographs digital collection has resided in the DMR, a product of the cooperative efforts of digital projects librarians, archivists, reference librarians, catalogers, and information technology personnel. These disparate groups come together to provide access to locally digitized content and promote use of collections by Ball State University students, faculty, and staff. Comprised of a myriad of primary source materials across multiple subject areas, the DMR aims to serve the teaching, learning, and research needs of users in the Ball State and global communities. The DMR is powered by OCLC’s CONTENTdm digital asset management software, used by a number of libraries and cultural heritage institutions to provide online access to digital content. According to OCLC’s website, the product serves nearly 2,000 organizations’ digital collection needs.

A working group comprised of archivists, digital projects librarians, and system administrators meets biweekly to plan new digital collections, update existing online content, and implement emerging technologies. In most cases archivists play the role of the content specialists, digital projects librarians serve as the imaging and description specialists, and system administrators advise on the use of new and existing technologies to support digital collection initiatives. This team works to ensure the continuation of ongoing collections and the addition of new assets. Thanks to these efforts, the DMR has grown at a rate of one or more new collections a month since 2005. At the time of publication, the DMR boasted 80 collections totaling over a quarter of a million individual digital assets. Of those assets, 602 form the Charles E. Bracker Orchid Photographs collection.

**Challenges and Collaboration**

Presentation and curation of analog resources in a digital environment is a necessarily cooperative process, as digital collections require an assortment of skills and knowledge. The Charles E. Bracker Orchid Photographs collection was no exception. As members of the Digital Media Repository working group, we (an archivist and a digital projects librarian) work together frequently to make digital collections available to the public. We found that this project required us to communicate frequently as we negotiated the new and unfamiliar techniques involved in managing a born digital collection. We also found that we needed additional help from outside the University Libraries.

In a typical DMR project workflow, the archivist or other content specialist is responsible for selecting collections for digitization and preparing preliminary descriptions in the form of brief
database records or finding aids. The digital projects librarian is responsible for digitizing the materials and uploading the assets with Dublin Core metadata records. For Bracker’s photographs, however, there existed many gaps in the existing workflow. First, there was nothing to digitize, since these were digital photographs, and already in a digital format. Admittedly, this was an advantage that eliminated a bulk of the digital imaging responsibilities, saving time and labor. Second, the photographs had not been organized or labeled in a way that indicated the content of the images, making brief description of images by archivists impossible. The subject matter of orchids was so specialized, that neither the content specialist nor the description specialist were knowledgeable enough about orchids and their taxonomies to organize, classify, and describe the photographs.

Archivists were challenged by mass of unorganized and unlabeled images donated by Bracker. With print photographs, brief descriptions and dates are often scribbled on the back. In other instances, the photographs depict localities or people of which archivists have pre-existing knowledge. Bracker’s photography lacked captions and archivists were not experts in orchid identification. Another difficulty in organizing the digital files was the lack of meaningful file directories grouping like items together. Generally, archivists adhere to the principle of original order, which, according to the Society of American Archivists’ Glossary of Archival Records and Terminology, maintains that archives preserve the “sequence of records established by the creator of the records.” In the case of the Charles E. Bracker photographs, this was not possible. The photographs were not arranged by date, species, or any other common system.

To overcome the lack of expertise in orchid classification, archivists and digital projects librarians worked to identify an advanced undergraduate student with specialized knowledge of orchid taxonomies in collaboration with faculty from the Wheeler Orchid Collection and Greenhouse. The Wheeler Orchid Collection and Greenhouse conserves rare and endangered species of orchids, disseminates them for conservation, and advertises use of the collection for research and education. The student selected had years of experience working with rare and unique orchids. Although the student spent most of the warmer, spring days working in the greenhouse, he was able to dedicate fifteen hours a week during the winter months to arranging and describing the digital photographs.

File Management

Considering organization according to the principle of original order proved impossible, a new file management strategy was developed in order to categorize the digital images. The orchid specialist created directories for described photographs and undescribed photographs. To make sense of the undescribed photographs, the student orchid specialist sorted the digital files into various directories titled with the name of the genus. Reviewed, but unselected, images were added to a third directory and selected images and accompanying metadata records made up the
Upon description of all 30,000 photographs, the digital images will be archived in a single directory along with a brief project description and corresponding metadata records. The chart below is a graphical representation of the file directory structure used to organize the photographs for description and digital collection production.

<Insert Figure 1>

Metadata

The student specialist entered preliminary metadata for each image into a Microsoft Access database created to house the information. This database was created by University Libraries’ personnel as a new workflow tool for this collection, and it contained fields suggested by archivists, digital projects librarians, and the experts working with the Wheeler Orchid Collection. Descriptive metadata fields entered by the student included genus, species, continent where the orchid grows, taxonomic authority, and the original identifier assigned by Bracker, or, more likely, automatically generated by his digital camera. Wherever possible, options available from a drop down menu or autofill fields were employed to ensure the accuracy of student entered metadata. For example, all of the orchids were linked to the same Library of Congress Subject Headings and Thesaurus for Graphic Materials terms, so these fields were automatically populated and hidden. By hiding subject term, media type, and other automatically completed fields, librarians prevented confusion and streamlined the data entry process for the student.

In addition to descriptive metadata, the student entered the digital identifier and the date on which he completed the metadata record. The student also recorded the date on which corrections to a metadata record were made. This step ensured that even if a photograph had already been selected and uploaded to the digital collection, corrections could be queried from the database easily. Additionally, archivists entered the date on which the photographs and metadata were selected for the digital collection. This step made it possible to debut the collection with 300 images, and continually add to the collection as new orchids were identified. Finally, the digital projects librarian entered the date that the images were loaded into the DMR. In order to track the date on which DMR records were revised, another date field was added. The aforementioned date fields marked workflow milestones, allowing data entry personnel, archivists, and digital projects librarians to collaborate easily. For example, by querying the database for records that had been revised locally, but not in the digital collection, digital projects librarians maintained the accuracy of the online information.

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Selection and Export
As the orchid expert made progress in arranging and describing images, an archivist made selection decisions. Criteria for selection of digital photographs for inclusion in the online collection were necessary because many of the images were duplicates or almost indistinguishable in difference. For example, a single species of orchid might have been photographed one hundred times from similar vantage points. In order to avoid redundancy in the digital collection, the archivists selected only a sampling of the photographs. Images were selected for their clarity, uniqueness, and visibility of the orchid.

To ensure representative sampling of all orchids photographed by Bracker, archivists queried the database for species, and selected the best photographic representatives of the generated results. Once the archivist selected photographs for the digital collection, she added the selection date to the metadata record. The database houses full metadata records for 9,478 photographs, but archivists and digital projects librarians needed a way to isolate those records selected for the online collection, so this “workflow” metadata field was vitally important. Once subject specialists described and selected photographs, archivists exported the metadata records corresponding to the selected images into a Microsoft Excel spreadsheet. This file was used by digital projects librarians to begin the upload process. Before the orchids could be added to the DMR, however, many of the digital photographs required editing by digital imaging personnel.

**Image Editing**

In viewing the orchid photographs, it was apparent that Bracker had digitally adjusted a number of his images prior to donation. His top selections were already cropped and color corrected, because these images comprised an exhibition of large photographic prints of the orchids. Others were branded with the Bracker Studios signature and had been printed for sale. Digital projects librarians left those edited images completely untouched, in order to preserve Bracker’s stylistic decisions. Conversely, several of the photographs had never been edited for exhibition. Many were too dark or too bright, lacked contrast, or required cropping and rotation to the proper orientation. It was necessary for digital projects librarians to examine and alter those images one at a time, in a way mimicking the artistry of Bracker’s handpicked photographs, while at the same time striving to capture the essence of each image.

**Enhancing Access**

In preparing to upload the Charles E. Bracker Orchid Photographs digital collection, the digital projects librarian found herself in familiar workflow territory. Repurposing data provided by archivists and subject specialists is often a vital task for digital projects librarians. To create Dublin Core metadata records CONTENTdm would accept and display in the DMR, the student orchid specialist’s Microsoft Access data was edited in Excel and exported into a tab delimited text file in preparation for file upload. Several changes were made in Excel to standardize the
metadata and bring it in line with other DMR records. In order to create a title element, for example, the librarian combined the genus and species fields into one, resulting in the scientific name for each flower. Fields used for administrative data across all collections in the DMR, such as a copyright statement, were also added to each record.

After the metadata was finalized and the images were selected and edited, it was necessary to prepare the web interface to display the images and descriptive records together. As with previous projects, this required collaboration with system administrators in order to establish a new collection in the DMR. Once the unpublished collection was made available, the Qualified Dublin Core metadata template for the collection could be arranged based on fields established in the completed metadata file. Next, the digital projects librarian mapped the data fields to Dublin Core. For instance, while fields such as species, genus, and others are independently searchable in the DMR, they are all mapped to the Dublin Core description element using CONTENTdm. The order of the elements as they would display on screen was also established. Finally, the images and corresponding metadata were bulk-loaded to the system. The digital identifier recorded by the student orchid specialist served to link each image to its corresponding metadata. This screenshot provides an example of a completed metadata record.

<Insert Figure 3>

When the Charles E. Bracker Orchid Photographs digital collection premiered in 2009 with 300 photographs, University Libraries provided access to the collection using the existing architecture of the DMR’s web user interface. The main entrance point for researchers is the collection home page, consisting of browse and search elements and well as descriptive text and representative images from the collection. As is the case with many other DMR collections, researchers may discover the Charles E. Bracker Orchid Photographs using the variety of browsing options, including the option to browse by collection title from A to Z, subject, location, format, and contributor. The orchids were assigned to the broad categories of fine arts, science, international, photographs, and Archives and Special Collections.

**Promotion and Use**

Promotional outreach of digital collections is varied and requires collaboration. Archives and Special Collections worked with personnel from the Wheeler Orchid Collection and Greenhouse to promote use of the digital collection by botanists and enthusiasts. The collection is advertised from the Ball State University Orchid Collection webpage. Additionally, The Friends of the Alexander M. Bracken Library co-hosted afternoon tours of the Orchid Greenhouse and an evening lecture, *Orchid Art and Conservation* delivered by orchid expert Russ Vernon on October 20, 2009. Numerous blog and newsletter articles document the acquisition of the
photographs, announcement of the digital collection, and promotion of additions to the digital collection during October 2009 and April 2010.

The University Libraries also made a selection of orchid photographs available for a Microsoft Surface unit housed in Bracken Library, the main undergraduate research library on the Ball State campus. A photo browsing application was loaded with identified images for the orchids in early October 2009 for on site visitors to explore. Additionally, Ball State University Archives and Special Collections exhibited the photographic prints of Bracker’s work from October to December 2009, providing another access point for orchid admirers and still life photography aficionados.

Website traffic statistics gathered using Google Analytics suggests that promotional outreach initiatives were successful. The month of October 2009 boasts the highest number of web visits to the online collection with 1,579 visits out of a total of 6,192 total visits from September 1, 2009 to August 31, 2010. It appears promotion of the collection through exhibition, sponsored lectures, and newsletter publication was successful as evidenced by website traffic statistics. See chart below.

Sustainability

Sustainability, in stewardship of existing files and in pursuit of new developments, must be addressed in any digital project. The Charles E. Bracker Orchid Photographs digital collection proved to be less of a managerial challenge than many of the previous DMR collections, in terms of preservation and archival storage, primarily because of its born digital nature. Not having to contend with the enormous mass of 30,000 digitized archival master files made this collection easy to organize, transfer, and store. The whole of the collection, including the images (both edited and unedited), documentation, and description database totals 68 gigabytes. Compared to physical collections digitized in-house, which can reach nearly a terabyte, or 1000 gigabytes, in size, this born digital collection represents a small amount of data to manage. Library and Technology Services, the unit in charge of administering CONTENTdm and ensuring the long term storage and integrity of the DMR’s digital files, is responsible for the off-line storage of these assets. Upon notification that a set of images and/or data is ready to be archived, the files are moved to redundant external hard drives. These hard drives are searchable by digital identifier, should copies of images be needed at a later date.
To ensure the growth of the collection, the Libraries must continue to nurture relationships with faculty from the Wheeler Orchid Collection and Greenhouse and other knowledgeable parties. Nearly 10,000 of the images are fully identified, however, approximately 20,000 photographs require digital identifiers and metadata records. Project notes, in the form of instructions for database entry and identifying orchids, as well as an orchid identification bibliography, detail description standards and identification procedures. The creation and sustained development of the digital collection of Charles E. Bracker’s digital photography requires interdepartmental collaboration in addition to forging new connections with the orchid collector and researcher communities.

Conclusion

Bringing born digital objects online is a challenge facing many digital projects librarians and archivists. Traditional archival processing methods and description standards often do not apply to born digital media, requiring the development of new methods and standards. Similarly, digital content containing highly specialized subject areas presents a significant challenge, often calling for outside assistance in creating relevant metadata. Electronic records, especially those with unfamiliar content, encourage archivists, digital projects librarians, system administrators, and subject specialists to work together to navigate new territory. As new challenges to digital stewardship such as these arise, librarians and archivists must continue to educate themselves on metadata standards, digital archiving best practices, and asset management technologies to ensure access to and preservation of digital resources.

Authors

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