

Face Sheet

OMB No. 3137-0035
CFDA No. 45.312

1. Applicant Organization _____

2. Institutional Mailing Address _____

3. City _____

4. State _____

5. Zip Code _____

6. Web Address _____

7. Name of Project Director/Principal Investigator Mr. Ms. Dr. 8. Business Phone of Project Director _____

9. Project Director Mailing Address _____

10. City _____

11. State _____

12. Zip Code _____

13. Fax Number of Project Director _____

14. E-mail Address of Project Director _____

15. Name and Title of Authorizing Official _____

16. Business Phone of Authorizing Official _____

17. Sponsoring institution if applicable (e.g., municipality, state, or university)

check if this entity will manage funds if an award is made. Name and address: _____

18. Is the applicant organization university controlled? yes no

19. For museum applicants, Non-Federal operating budget for the most recently completed fiscal year \$ _____

20. Governing control of applicant (turn page for selections) Other, please specify _____

21. Type of organization * (turn page for selections) **select only one** * please specify _____

22. Employer identification number/tax ID number _____

23. Type of project (turn page for selections) **select only one**

24. Project Title _____

25. AMOUNT REQUESTED \$ _____

26. Amount of Matching Funds \$ _____

27. Grant Period (Starting Date) ____ / ____ / ____ — ____ / ____ / ____ (Ending Date)

28. In the space below, include names of any organizations that are official partners of the project.

ABSTRACT

Birds of a Feather: A Library-Museum Collaboration to Develop a Replicable Model for Dissemination of 3-D Objects

The Virginia Tech Museum of Natural History (VTMNH) <<http://www.vtmnh.vt.edu/>> seeks to collaborate with the Virginia Tech Digital Library and Archives (DLA) <<http://scholar.lib.vt.edu/>> to improve information literacy for universities, museums, libraries, and the public at large through the use of 3D images in on-line exhibitions that are capable of being readily adapted to different learning levels.

The *Birds of A Feather* project will partner with Nueweb, Inc.<<http://www.nueweb.com/>>, a private company located in the Virginia Tech Corporate Research Center, to create a replicable model for the digitization, cataloging, and dissemination of museum and library collections on the Internet. This project will bring together physically separate, but related collections—The Bailey-Law Ornithological specimens (~18,000 skins) and manuscripts they have informed. As a proof of concept, we expect to work with ~1% of the collection, representing most resident or migrant bird species in our area. The model interface will also provide the capacity for diverse audiences to explore these objects and relationships in their own inquiries.

The *Birds of a Feather* project will build upon established digitizing and cataloging technology to create a virtual research collection that is fully archival, searchable, and interoperable with related information systems. The collection will adhere to and comply with existing standards: the Open Archives Initiative (OAI), the MARC cataloging record format, Dublin Core, etc. Upon completion, the project team will have:

- 1) made an adaptable package of hardware and software to capture collection objects;
- 2) assembled a training manual and on-line program guide for educating staff on the process of digitizing, developing a 3D display, capturing metadata, and publishing onto the Internet;
- 3) created a model system of equipment and training;
- 4) modified the VT ImageBase system for use with large 3D TIFF files and programmable metadata mapped using MARC records;
- 5) tested the approach by digitizing and cataloging part of the Bailey-Law Ornithology Collections; and
- 6) undergone Outcome-based Evaluation through system performance monitoring by a beta group of K-12 teachers and college-level students, and through on-line survey instruments such as those at <<http://lumiere.lib.vt.edu/surveys/>>.

To help visualize the image quality this project can achieve, a 3D digitized example can be viewed at <<http://www.birdsofafeather.net/>>. This is representative of one of the building block elements. The user-friendly tools to be developed for different audiences to examine these 3D images are unique to this project.

Digitizing the Bailey-Law collections will reveal the process of ornithological study from field notes to museum specimen. These research specimens will be available to scholars and birders along with students and teachers. This will "open the collection drawers" to the world and the collections will be available as a cataloged library, as well as a creative, dynamic, interactive, and multidimensional museum exhibit. Further, digitizing the specimens and manuscripts will ensure their preservation. They will be viewable worldwide, while the specimens and documents themselves can remain protected from public handling.

Narrative

Background

This project is a collaboration of collections in a University environment, which will present a model for other college collections, small-to-mid-sized museums, and K-12 schools to use in bringing their physical collections on-line. The Virginia Tech Museum of Natural History (VTMNH) and the Virginia Tech Digital Libraries and Archives (DLA) hold complementary collections; the Bailey-Law Bird Collection (18,000 bird specimens held at VTMNH), and the Bailey-Law Collection Papers (housed at the Virginia Tech Library) will be the initial focus. The specimen collection represents over 85% of bird families found in the world. This project will exhibit on-line 180 bird specimens representing 180 resident or migrant species of our area, many of which are featured in the manuscripts at the library. The opportunity for the Museum to expand this project into other parts of the collection is compelling.

The complete Bailey-Law collection of books, manuscripts, and specimens was given to Virginia Tech's Department of Biology in 1964. In 1982, the Department of Biology transferred the book and manuscript collection to the Library. The specimens were transferred to the Museum of Natural History in 1989. Taken together, the collections inform contemporary ornithologists and students of natural history about birds in North America in the first half of the 20th Century, documenting the professional activities of two ornithologists, Harold H. Bailey (1878-1962) and John Eugene Law (1877-1931). Harold Bailey, son of a noted ornithologist who was one of the founders of the American Ornithological Union, published The Birds of Virginia (Lynchburg: J.P. Bell, 1913) and The Birds of Florida (Baltimore: Privately Printed, 1925), as well as numerous articles on ornithological topics. Birds of Florida is a rare book with few existing copies. The DLA's copy has hand-painted watercolor illustrations of birds. Eugene Law's work in California included participation in the Cooper Ornithological Club, a curatorship at the California Museum of Vertebrate Zoology (Berkeley), and publication of numerous ornithological papers. Uncatalogued and with limited access, the collections are widely known but not widely available for ornithological study in North America.

National Impact

To date, small museums have had limited success in broadening and expanding their research and educational influence by taking advantage of significant advances in digital technology available to create, manipulate, and disseminate 3D information. This project will develop a model for bridging the existing technology gap by digitizing and publishing 3D collections and other information resources; by creating and disseminating a cost-effective, easily implemented model for museum and library staffs to collaborate on to make their artifacts and complementary information resources accessible by the public and their immediate user communities. The system will simultaneously maximize the educational value and availability of these resources to a broad range of educational levels.

Related projects demonstrate the scarcity of on-line research collections using 3D digital technology. The most relevant on-line collection to this project is Cornell University's Division of Rare Books and Manuscripts digital collection: **Louis Agassiz Fuertes** (<http://rmc.library.cornell.edu/Birds/>). Fuertes, according to their website, is the "nation's most notable ornithological painter since Audubon." The collection is accessible digitally through a database of 2500 of his illustrations, personal papers, and a journal he kept during an expedition.

In this project, our museum's Bailey-Law collection has the actual bird specimens that were drawn and included in published scholarly works. Rather than cataloguing the hand-drawn watercolors, *Birds of a Feather* will reproduce the birds in as realistic a way as possible, providing researchers with 3D versions of the actual objects studied by well-known ornithologists.

Adaptability

The model proposed will permit institutions to readily replicate these systems and apply them to other museum and library collections. The model to be developed will include a portable system that builds upon existing technology and standards to significantly improve the ability to open important scholarly collections presently hidden in small to mid-sized museums and libraries. It will be a primary goal of this project to document the process so that other institutions can replicate the model in their facilities..

The technical aspects of this project have been designed to allow for the widest possible variation in size, shape, texture, and weight of different objects to be digitized and incorporated in on-line displays. This will ensure that when this model is applied to other institutions, few modifications, if any, will be required.

The portable system for digitization will be designed so that it is easy to assemble and easy to transport. The digitizing of the Bailey-Law specimens will occur at the Museum of Natural History so that the collection will remain in its secure location. After the digitization project is complete, the system will be housed at the Virginia Tech New Media Center, one of over 100 digital media centers in U.S. universities. The Center will serve as the focal point for housing the physical equipment required to enable this project, and will also serve as a convenient location for centralizing training for others to implement the program being developed. As part of a statewide system of three museums and affiliated programs, The Virginia Museum of Natural History can act as a natural test site for adaptability and portability of the project. During the initial stages of the project, we will use this statewide system to design the interactive model to meet the needs of the users. Current learning standards and pedagogical styles (such as inquiry learning) will be applied through the consultation of an end – user design group.

Design

Background:

Museums are one of a very small number of environments in which students can gain three-dimensional perspective on objects they study. Museums typically house collections that historically have only been accessible to the public through exhibits staged within the museums' facilities. Those exhibits, in turn, usually only allow viewing a small portion of the objects shown (e.g., a few pages out of an illuminated manuscript, or one specimen of a taxonomic group from a series of dozens). On occasion, exhibits travel to other geographic locations, but in general, access to the museum collections requires a physical visit to the facility. Further, the majority of a museum's collections are in storage, leaving only a fraction available to the public as exhibits are rotated in and out of the museum's public display spaces.

Museums have always played an important role in public education. Information housed in museums is typically accessed either by staff-guided or self-guided tours of the physical museum. Students generally have only a few opportunities to visit museums throughout their K-12 education, and these opportunities are often remembered as the highlights of students'

ornithology and ecology will benefit from the accessibility of the collections on-line, especially given this project's conformity with international data standards. Other research groups that will benefit from this project include technology education, formal and informal science education, and state agencies.

Technical Design:

For the duration of the *Birds of a Feather* project, the digitization hardware and software to be developed will be located at the museum. Upon completion of the project the equipment will be housed at the New Media Center (NMC). The NMC will act as the training and learning center throughout and beyond the project. NMC staff will be trained and available to teach University personnel the processes necessary to digitize collections. The NMC also will facilitate the 3D digitization of objects by students and the community at large. However, other museums and libraries will not require a NMC to replicate this model.

The hardware provided through the IMLS grant will consist of a turntable mechanism that will support objects with a variety of sizes and shapes. This turntable will be controlled through software on a computer dedicated to the system, allowing for precise capture of images. A lighting and blue screen setup will be employed which will allow for proper lighting and minimal shadowing of the objects during the image capture portion of the digitization process. Finally, an appropriate resolution digital camera will be supplied that will provide the features necessary for image capture. This configuration will be documented so it can be a model for other sites.

Multiple hardware setups may be used as this project is adapted to future collections at other locations. The typical setup for the digital capture of the collection will take place through the use of a high-resolution digital camera and motorized turntable. However, other technologies may be used for the digitization such as film photography, digital or film based video, and 3D scanning. The required frames for assembling the 3D rotation in the Flash display may be obtained through the use of these mediums. By providing this flexibility, the project hopes to make future replication of the technology as accessible as possible.

Software will consist of custom designed tools to transfer the digitized images into presentation form. Custom tools will be developed to allow information creators to develop presentations easily and efficiently in Macromedia Flash format, a universally available image format, without having to know the programming skills associated with the Flash format. This level of usability is unprecedented.

The grant will provide staffing and equipment for digitization of a portion of the bird collection, with creation of Dublin Core Metadata records for each bird to be stored with 3D images in the VT ImageBase. Original programs will be written that will migrate the metadata to MARC for OCLC, and MARIAN (a local R&D indexing, search, and retrieval system for digital libraries). MARIAN was developed at the Virginia Tech Computing Center for VT Information Systems. Virginia Tech's Digital Library Research Laboratory is conducting continuing development of MARIAN. These cataloging systems are compliant with worldwide standards. The three-dimensional displays will be dynamically linked to bibliographic information about the digital objects. The sources that will serve as the basis for the bibliographic information in this 3D bird encyclopedia include the books published based on research into this collection of birds, unpublished notes and journals that were generated by the ornithologists collection, the bird specimens, and secondary works that will place the collection within the larger context of ornithological scholarship.

will involve the creation of the hardware/software package, development of the training program, and training of a beta group who will in turn develop a test sample of items from the Bailey-Law Bird collection and library manuscript collection. The project will conclude with a six-month evaluation period where end-users will be monitored and surveyed, and the project will be modified as needed.

Personnel

Attachments include the curricula vitae for the key personnel: the project directors, the project coordinators, and the technical team.

Project Directors: Mike Rosenzweig, Director of Virginia Museum of Natural History and Gail McMillan, Director of Digital Library and Archives

Mike Rosenzweig will devote 30% of his time for the purpose of hiring and training graduate students to coordinate identification and scanning of 180 bird specimens. He will also curate the on-line exhibit produced at the end of the grant. He has a PhD in Biology from Virginia Tech and is an adjunct professor in the Department of Biology. He is the founder/co-founder and organizer of several educational efforts beyond his activities as Director of the museum.

Prof. Gail McMillan will devote 10% of her time for the purpose of ensuring that the policies and procedures established for the project are compatible with departmental, library, university, national and international professional activities and standards. She will work with the University Library's Technical Services to develop programming for mapping metadata to MARC for the specimens. Professor McMillan holds an M.A. in History and an M.L.S. from the University of Maryland.

Project Coordinators: Llyn Sharp, Assistant Director of Museum of Natural History, Jennifer Gunter, Coordinator of Special Collections, Digital Library and Archives.

Llyn Sharp will devote 30% of her time coordinating the preservation and cataloging of the bird specimens. Ms. Sharp holds an M.A.Ed. and a B.S. in Geology.

Jennifer Gunter will spend 10% of her time for the purpose of hiring and training the graduate students involved with entering the metadata for each specimen. She will work with the University Library's Technical Services to develop procedures for cataloging the specimens and manuscript collection in the MARC format. She will also supervise the archival processing of the Bailey-Law collection and selection of materials for digitization. Ms. Gunter holds an M.A. in History and an M.L.S. from the University of Maryland.

Project Technical Team: Three key individuals at Nueweb will lead the Company's contribution to the project. David Catalano, the CIO of Nueweb, will be the project leader and liaison. Brian Leitten, CEO, will be the overall manager, and David Salvaggio, CTO, will manage the development and design of the display template. To be determined Nueweb personnel fully qualified for the tasks will be assigned to the roles of: Sr. Flash Programmer, Jr. Flash Programmer, ASP Programmer, Photographer, and Editor.

Graduate Student Assistants: positions *open*

Graduate students from related academic departments, such as the Department of Computer Science, Biology, and Department of History.

Programmer: position *open*

Project Evaluation

Display and correlated information

During the initial stages of the project, the museum will assemble a consultant end – user design group consisting of education specialists who can assist in how current learning standards and pedagogical styles (such as inquiry learning) will be applied throughout the display interface.

Digital Display:

The *Birds of a Feather* grant will conclude with a six month evaluation period monitoring and surveying end-users, modifying the project:

The survey given to the beta testers evaluating the end-user experience will consist of questions addressing:

- Ease of use in locating desired object
- Satisfaction of expectations prior to viewing the collection
- Educational level
- Effectiveness of the materials presented
- Intuitiveness of the display layout and navigation

After the completion of the grant, built-in monitoring and performance measurement systems will continue to collect data. The gateway to the users, VT ImageBase, will trace visitor usage of the collections, including time spent and number of repeat visits. Use of equipment will be monitored by tracking both the number of new images added to the collections and NMC usage. On-line surveys will be designed for completion by museum and library personnel as they complete training, by the general public (i.e., users of the exhibition and ImageBase materials), and specific students and teachers asked to evaluate the ornithology on-line exhibition. Data collected will include:

- Level of the learner (K-12, Undergraduate, Researcher)
- Time spent viewing the display
- Number of repeated views of the same display
- Number of unique displays viewed
- Navigational path through the display

As part of the outcome-based evaluation of this project, the displays will be modified as needed to provide a maximum level of learning across the predefined educational levels.

Training:

For the first six months of the second year, a beta program will be put in place to evaluate the training procedures and software. This evaluation will be survey-based and administered to a select group of testers. Some sample questions that may be included on the training survey will address:

- Amount of time to go through the entire training process
- Practicality of amount of time spent in training
- Comfort level with the technology and the available features of the program
- Quality and usability of output created
- Effectiveness of training materials

Dissemination

Dissemination of the project will take place through the website, conferences and associated

SCHEDULE OF COMPLETION/PROJECT IMPLEMENTATION AND EVALUATION

Goal: To create and demonstrate an innovative collaborative model utilizing emerging information technologies to open the cabinets of museum collections, library collections, and other information resources into an interactive core learning experience for K-12 and college students and professional researchers.

Objective 1: Organization of project and model system – Months 1-4

EVALUATION MEASURES

ACTIVITY	MO	FUND ALLOCATION	PERSONS RESPONSIBLE	FORMATIVE/PROCESS	SUMMATIVE IMPACT MEASURES
Develop project management system	1	%Mike Rosenzweig(M) %Llyn Sharp (M) %Gail McMillan (DLA) %Jen Gunter(DLA)	M.Dir., DLA Dir., Tech. Staff Coord. (Nueweb)	Management system communications developed. Notebook developed.	Notebook entries include system map, minutes of meetings, and participation of personnel.
Purchase Computers	1,2	\$2,847 (M,computer) 2,847 (DLA,computer) \$500 (DLA,memory)	M.Dir., DLA Dir.	Equipment list developed by Management team.	Equipment purchased by deadline.
Recruit Staff Develop end-user design consultant team	1,2	Museum: 1 grad.stud., 1 work study DLA: 1 grad.stud., Programmer(payband4)	M.Dir., DLA Dir., Tech. Staff Coord. (Nueweb)	Equipment list developed by Management team.	Equipment purchased by deadline.
Training staff on processes and reporting	2,3	Museum: Grad student, work study, %Mike & Llyn DLA: Grad student, %Gail & Jen	M.Dir., DLA Dir., Tech. Staff Coord. (Nueweb)	Staff put into place, training schedule developed.	Staff checked out on equipment and trained on notebook log, reporting to management team.
Identify Museum collections and Library manuscripts	3,4	Museum: Grad student, work study, %Mike & Llyn DLA: Grad student, %Gail & Jen	Museum and DLA Grad. Students	Identify collections, management and care of collections, linkages between collections, proper set-up for project management.	Museum and Library collections are ready for project data collection, database set-up.

Continued - SCHEDULE OF COMPLETION/PROJECT IMPLEMENTATION AND EVALUATION

Objective 2 Development of the model system – Months 4-12

EVALUATION MEASURES

ACTIVITY	MO	FUND ALLOCATION	PERSONS RESPONSIBLE	FORMATIVE/PROCESS	SUMMATIVE IMPACT MEASURES
Flash Template Development	1,2 3,4	\$40,916 – Nueweb % Mike % Gail.	M.Dir., DLA Dir., Tech. Staff Coord. (Nueweb)	Develop Flash based template based off of defined component requirements	Programming of template is completed and ready for integration with the Display Creation System
Identifying and Cataloging Bird record information	4,5 6	Museum: Grad student, work study, % Llyn & curator (J. Via)	Museum Project Coordinator	Identifying parameters for cataloging specimens.	Bird specimens are cataloged as per project specifications
Catalog Baily -Law manuscript collection 1 MARC record for MSS, 180 subsequent analytic records (3hrs/bird)	4,5 6	DLA: Grad student, %Gail & Jen, Programmer	DLA Project Coordinator & Programmer	Identifying parameters for cataloging manuscripts.	manuscripts are cataloged as per project specifications
Develop Lighting & Rigging System	4,5	\$6,375	Technical staff (Nueweb)	Identify proper lighting setups, create rigging system	Digitization requires no image editing because of proper lighting and rigging
Develop Display Creation System	4,5 6,7 8	\$52,207	Technical Staff (Nueweb)	Team designs and implements system that develops displays based on Flash Template	System is created, document, and prepared, then delivered to the digitization team.
Developing the graphic interface and informational linkages	6,7 8,9	Museum: Grad student % Mike&Llyn DLA: Grad student, %Gail & Jen	Technical Staff Coordinator (Nueweb)	Identify information parameters and metrics to be included in graphic interface.	Graphic interface Beta system is created and tested among project team members.
Training technical staff on equipment	9, 10	Museum: Grad student % Mike&Llyn DLA: Grad student, %Gail & Jen	Museum Director, DLA Director, Technical Staff Coordinator	Staff put into place, training schedule developed.	Staff checked out on equipment and trained on notebook log, reporting to management team.
Digitizing Bird Collection	11, 12	\$4,860	Tech.Coordinator (Nueweb)	Identifying parameters for digitization.	An image database of the bird specimens is created.
Add birds to ImageBase and link to MARC records	12	~ 90 hrs. grad. student.	DLA Grad. Student	birds digitized birds cataloged	ImageBase linked to online catalog,check test queries

Continued - SCHEDULE OF COMPLETION/PROJECT IMPLEMENTATION AND EVALUATION

Objective 3 Implementation of the model system – Months 13-24

EVALUATION MEASURES

ACTIVITY	MO	FUND ALLOCATION	PERSONS RESPONSIBLE	FORMATIVE/PROCESS	SUMMATIVE IMPACT MEASURES
Beta Testing: <ul style="list-style-type: none"> • scheduling sessions • recruiting subjects • evaluating interface use • evaluating interface transfer 	13, 14, 15, 16, 17	Museum: Grad student, Work Study % Mike&Llyn DLA: Grad student, %Gail & Jen	Museum Director, DLA Director, Technical Staff Coordinator (Nueweb)	Graphic interface presented online: <ul style="list-style-type: none"> • Pre- and post questions related to the interface. • users manual • example learning resources for DLA and museum made available. 	Results evaluated by management team. Interface transfer evaluated by another museum director in the Virginia Museum of Natural History system Interface evaluated by Virginia Tech museum studies faculty member.
Editing bugs, adding material and information to displays.	18, 19, 20	Museum: Grad student, Work Study % Mike&Llyn DLA: Grad student, %Gail & Jen	Technical Staff Coordinator (Nueweb)	Information from Beta testing identified for potential and real bugs. Information from Beta testing identified for addition of other material to the interface.	Bugs edited. New information added as per Beta testing.
Scheduling Conferences and Presentations	20, 21, 22, 23, 24	\$5,000	Museum Director, DLA Director, Technical Staff Coordinator (Nueweb)	Identification of regional and national audiences.	Scheduling of paper and poster presentations by members of the management team: Museum director DLA director Technical coordinator and staff

Specifications for Projects Involving Digitization

1. Describe types of materials to be digitized (i.e., artifacts, maps, manuscripts, photographs) and number of each:

2. Identify copyright issues and other potential restrictions:

Public domain Permissions have been obtained

Permissions to be requested - Plan to address: _____

Privacy concerns - Plan to address: _____

Other - Explain: _____

3. List the equipment, with specifications, whether purchased, leased, or outsourced, that will be used (e.g., camera, scanner, server): _____

4. Specify each type of file format (e.g., TIFF, JPEG) to be produced and anticipated image quality of each (minimum resolution, depth, tone, pixels) :

Master _____

Access _____

Thumbnail _____

5. Describe the quality control plan: _____

6. Estimate cost per image. Include costs such as scanning, quality control and indexing. Indicate the basis for calculation: _____

7. Explain how you will describe the content through metadata, including which standard you will use (e.g., MARC, EAD, Dublin Core): _____

8. Describe plans for preservation and maintenance of the digital files after the expiration of the grant period (i.e., storage systems, migration plans, and funding): _____

9. If you are producing collection-level records, describe plans for submitting collection-level descriptive records to a bibliographic utility, such as Research Libraries Information Network (RLIN) or Online Computer Library Center (OCLC). State reasons for selecting any alternative approaches:

10. Describe plans for submitting information about the project to a national level registry of digital resources, such as the Association of Research Libraries' Digital Initiatives Database

(<http://www.arl.org/did/>) or OCLC's Cooperative Online Resource Catalog

(<http://www.oclc.org/corc>). State reasons for selecting any alternative approaches:

11. Provide URL(s) for applicant's previously-digitized collections: _____

Partnership Statement

- The Applicant Organizations are:
 - The Virginia Museum of Natural History at Virginia Tech and
 - The Virginia Tech Digital Libraries and Archives along with
 - Nueweb, Inc.

- Each partner agrees to perform the following activities for this proposed project:

Museum of Natural History	Digital Libraries, Archives	Nueweb, Inc.
- manage grant funds	- develop project management system	- develop project management system
- develop project management system	- purchase necessary equipment	- purchase necessary equipment
- purchase necessary equipment	- recruit and train necessary staff	- recruit and train necessary staff
- recruit and train necessary staff	- prepare manuscript collections	- Flash template development
- prepare collections specimens	- catalog images	- develop lighting and rigging system
- assist with bird cataloging	- assist development of graphic interface and informational linkages	- develop display creation system
- lead development of graphic interface and informational linkages	- co-manage testing, evaluation, and editing	- develop of graphic interface and informational linkages
- co-manage testing, evaluation, and editing	- schedule and present at appropriate conference	- digitize bird collection specimens
- schedule and present at appropriate conference	- work as a team member with other partners	- co-manage testing, evaluation, and editing
- work as a team member with other partners		- schedule and present at appropriate conference
		- work as a team member with other partners

- We the undersigned institutions, agree to all of the following:
 - We will carry out the activities described above and in the Application Narrative;
 - We will use any funds we receive from IMLS in accordance with applicable Federal laws and regulations; and
 - We assure that our facilities and programs comply with applicable Federal requirements.

Signature of Authorizing Official
 Michael S. Rosenzweig

Name of Authorizing Official (Type or Print)

Virginia Museum of Natural History-VT
Partner Organization (Type or Print)

Date

Signature of Authorizing Official
 Gail McMillan

Name of Authorizing Official (Type or Print)

VT Digital Libraries and Archives
Partner Organization (Type or Print)

Date

Signature of Authorizing Official
 Brian J. Leitten

Name of Authorizing Official (Type or Print)

Nueweb, Inc.
Partner Organization (Type or Print)

Date

Mission Statement of the Digital Library and Archive

The **Digital Library and Archives** (DLA) is the combination of the Virginia Tech's Scholarly Communications Project (begun in 1989) and the University Library's Special Collections Department. DLA preserves, organizes, and makes accessible the historical as well as the timely resources housed in the department. The Special Collections Reading Room provides on-campus library users reference services and access to the unique and primary resources in its rare books, manuscript, and archival collections. These materials are also selectively available on the web as catalog records, finding aids, and digital documents. DLA also works with the university constituency to help them create online resources such as electronic scholarly journals, and to use library services such as electronic reserve with its centralized access to course materials. In addition, Virginia Tech's electronic theses and dissertations and digital images are available on the web through systems designed and maintained by DLA.

The Digital Library and Archives is a department within University Libraries. **Virginia Tech's University Libraries** provide and promote access to information resources for the achievement of the university's objectives in teaching, learning, research, creativity, and community service. The library is dedicated to meeting the university community's information, curricular, and research needs wherever they are located and the library is committed to sharing what humanity has discovered and thought. University Libraries value:

- *Information*, whose free flow throughout the university provides an accurate basis for its work
- *Ideas*, the university's defining occupation
- *Knowledge*, which preserves the progress of past generations
- *Discovery*, which builds the future
- *Truth*, which guides our interactions with one another and with our public

The library collaborates with members of the university community to collectively position the university as a top-tier research institution. Wherever they are located, members of the Virginia Tech community will be supported by the library as they engage in research, as they share in quality learning experiences at the undergraduate and graduate levels, and as they work in transferring knowledge and expertise between the university and society.

The University Libraries supports its parent institution, **Virginia Polytechnic Institute and State University**, a public land-grant university serving the Commonwealth of Virginia, the nation, and the world community. The discovery and dissemination of new knowledge are central to the university's mission. Through its focus on teaching and learning, research, and outreach, Virginia Tech creates, conveys, and applies knowledge to expand personal growth and opportunity, advance social and community development, foster economic competitiveness, and improve the quality of life.

Management of *Birds of a Feather* will be the responsibility of the Digital Library and Archives, under the supervision of its Director, Gail McMillan, and Coordinator of Special Collections, Jennifer Gunter.

Nueweb, Inc. Organizational Profile

Mission:

To help companies show products, procedures and technologies in the digital medium, in the same way they would in real life.

Background:

Nueweb, Inc. was founded in 1998 with the intention of bridging the gap between the real world shopping experience and that of on-line shopping. Nueweb has built various proprietary tools and technologies, based on the ubiquitous Flash player, to enhance the way products are viewed over the Internet. Over the years Nueweb has expanded from the creation of visual tools to providing other technologies for promoting a manufacturer's products in the digital medium.

Nueweb provides the following technology and services:

- stationary Kiosks on display at trade-shows
- leave-behind CD-ROMs for traveling salespeople
- product tutorials and manuals for inclusion with a new product.

Nueweb provides these services to various industries including:

- Computers and Electronics
- Telecommunications
- Healthcare
- Industrial Equipment
- Retail Goods Manufacturers

Services:

Today, Nueweb provides its services to the following areas:

- Marketing
- Sales
- Service
- Training & Testing
- Information Delivery Management
- Customer Service

Nueweb is an independently owned and operated company located in the Virginia Tech Corporate Research Center in Blacksburg Virginia.

Organizational Structure (as it pertains to the *Birds of a Feather* project)

- Brian Leitten, CEO
 - David Catalano, CIO
 - David Salvaggio, CTO

Brian Leitten is the CEO of the company and will have the overall responsibility of the work for the project done by Nueweb. The CIO, David Catalano, will be the project coordinator and will report directly to the CEO. David Salvaggio, the CTO, will manage the production team during the programming of the Display Template and Display Creation System. Mr. Salvaggio will report to the CEO.

Appendix B

Handling Objects: Managing Risks to Humans vs. Risks to Objects

We hold these natural history collections in perpetuity--that means as near as forever as we can--and we do everything we can to minimize risks to them. We also want to protect the people working with collections, so we emphasize safety for people as well as objects.

One of the main causes of deterioration and loss of value in collections is improper handling. Handle all collections objects as if they were important, fragile, and irreplaceable. Everyone who handles an object for whatever purpose is responsible to future users forever. Feel free to coach anyone that you are handing an object to, or giving a loan.

The first rule is: SLOW DOWN and BE GENTLE when you are working with objects or moving in a collections area. There is no excuse for roughness or rushing with objects: you have the right to refuse to be drawn into the frantic mode that makes for "accidents". An undamaged object can be used tomorrow, or in the next decade--a damaged one may never be useful.

ASK FIRST: if you are working with a type of object for the first time, or packing a loan, ask someone knowledgeable for handling tips. Minerals, herbarium sheets, insects, skins, and skeletal materials all have different needs and traditions of handling. For example, herbarium sheets should never be paged through like a book, despite your intuition to do that. *Seek training rather than forgiveness.*

WEAR GLOVES: even your clean skin has oils and acids which build up on objects over years of touch. Also, some objects may be toxic themselves.

USE TWO HANDS as much as practical to help steady the object and protect it from drops. Push up baggy sleeves that could snag objects.

LOOK CLOSELY AND THINK BEFORE PICKING UP AN OBJECT. We have seen experienced scientists grab fragile specimens with their thumb mashed right on top, destroying the specimen, because they didn't realize which part of the object was important. Try to handle things by the base or body or the most sturdy appearing parts.

HANDLE THE CONTAINER INSTEAD OF THE OBJECT, but still provide adequate support to the container. A lightweight box may collapse under the weight of a skull if pulled out with just one hand.

BE CAREFUL WHERE YOU PUT THINGS: don't leave objects out of eyesight on upper shelves, or on the edges of counters, or near hazards like sinks.

PROTECT INFORMATION: collections objects are valuable because of what we know about them and their ability to be retrieved. Be sure to note where objects came from and where they are going. Keep associated information such as tray labels and copies of loan forms in an organized way.