

1. Statement of Need

a. Overview of goals and objectives: The Newark Museum seeks an IMLS Museums for America grant under the Collections Stewardship category to support Phase One of a two-part, comprehensive documentation processing and cataloging project that will improve intellectual control and result in wider access of the Museum's 83,000-specimen Natural Science Collection. The final outcome of the project will be the ability to implement the directives of the 2006 Natural Science Collecting Guidelines, which call for its division into three distinct collections – a Research Collection, an Exhibition Collection, and a Teaching Collection - to make it more accessible and to more effectively serve the diverse needs of the Museum's audiences. The Museum's Natural Science Collection has historically never been under the care of the Office of the Registrar, which oversees the Museum's art collections. As a result, of the 83,000 specimens, only 35,000 have catalog numbers and contain basic record information in the ARGUS database system, fewer than 1,000 have museum accession numbers, and the remaining 48,000 are considered "found in collection" specimens, which have no numbers, no information in their housing, and no characteristics that might connect them to documentation. Thus, legal status of the specimens is undetermined, and documentation is not only separated from the specimens but is located in three different departments throughout the Museum. Due to this complexity, the Natural Science Collection Documentation and Catalog Project is being approached as a two-part initiative. Phase One, for which the Museum seeks the support of IMLS, will take three years and focus on implementing the foundational activities necessary to prepare the collection to be divided. These activities will include gathering the documentation from all departments in the Museum and developing a documentation framework that will help provide intellectual control over the legal status of the specimens; developing taxonomic terminology for the collection and revision of lexicon terms currently used in the Museum's ARGUS database system; the development and identification of an accession numbering system for unprocessed and found in collection specimens; the entering of new and revised records into ARGUS; and the development of corresponding hard files. Phase Two, for which the Museum will seek future support, will capitalize upon the work accomplished during Phase One and focus on the identification and reorganization of the specimens in the collection into systematic placements with the help of science scholars and specialists; the entry of resulting information into the ARGUS database; the deaccessioning of selected specimens from the collection; and the division of remaining specimens into the three distinct collections for use with the public – the Research Collection, the Exhibition Collection, and the Teaching Collection.

b. How project relates to strategic plan, and how the strategic plan was developed: As stated above, the division of the Natural Science Collection is mandated by the 2006 Natural Science Collecting Guidelines. The project also reflects an institutional decision, as directed by the Museum's long range plan, *Toward the Centennial*, to transfer the care, maintenance and documentation of the Natural Science Collection - including accessioning, deaccessioning, and collection management - to the Office of the Registrar. Prior to the directive of the 2000-2009 long range plan, oversight and the care of the Natural Science Collection was assigned to the position of Curator of the Natural Science Collection. Recognizing that the Museum's science collections were equally as irreplaceable as its art collections, the long range plan Trustee and staff sub committees recommended that oversight should be transferred to the Office of the Registrar to enable the collection to receive best current practice documentation, care and management according to museum standards. The Museum's 2000-2009 long range plan, "*Toward the Centennial*," involved Trustees, executive staff, nine staff subcommittees and community stakeholders. As the 2000-2009 plan draws to a close, the Museum has reconvened the subcommittees and stakeholders and is in the process of developing a new strategic long range plan that will guide the institution for the next three to five years. The continued care of the Museum's art and science collections will remain a focus of the new strategic plan as new directives and mandates are identified to continue to move the Museum and its collections forward in service to the public.

c. How project relates to the mission statement: The Museum's exemplary exhibition and education initiatives, which are at the core of the Museum's mission, are based on its nationally and internationally acclaimed permanent collections. In addition to the Natural Science Collection, these include American art, Arts of Asia, the most extensive collection of Tibetan art in the U.S., Arts of Africa and the Americas, Decorative Arts, Art of the Ancient World and Numismatics. The Museum utilizes these collections to continue and further the vision of founding director John Cotton Dana who believed the Museum should "connect the extraordinary objects in the collections and the ideas they convey to the needs and wishes of the Museum's diverse constituencies." All other aspects of Museum operations whether marketing, technology, governance or finances, are driven by the mandate of the Museum's mission to present and interpret its collections for the benefit of the public through exhibitions, research and education programming. The Natural Science Collection Documentation and Catalog Project is designed to improve the Museum's ability to more effectively develop new initiatives that meet the demands and interests of its growing audiences.

d. How the project is a high priority: The Natural Science Collection Documentation and Catalog Project is an important Museum objective toward the re-establishment of the Newark Museum as a premiere institution in New Jersey for formal and informal science education. Over the last 25 years, the Museum has fulfilled objectives outlined in its strategic long range plans to re-envision and re-

establish its science resources and facilities. Due to the implementation of the 1985-1989 strategic, *Museum Master Plan*, which called for a major renovation of the entire museum, the momentum of the science program slowed considerably. As a central focus of the following five-year strategic long range plan, the Museum pursued activities with the goal of re-establishing the Science Department as a major division of the Museum. As part of that planning process, the Museum secured an IMLS Conservation Project Support grant in 1990 to plan for the proper storage of the Natural Science Collection. The Museum reconstituted the Science Department in 1997 with the hiring of Dr. Ismael Calderon in the position of Director of Science, followed by Dr. Sule Oygur as Curator of the Natural Science Collection. Beginning in 1998, the Museum began the comprehensive re-housing project of the entire Natural Science Collection into modern airtight cabinetry designed and purposed for these types of materials in which specimens were stored taxonomically; the rehousing was completed in 2001. The Museum also launched a \$14 million capital campaign in 1998 for Science Education Resources at the Newark Museum. The result of that campaign was the creation of a 5,000 sq ft. permanent science wing and the development of the permanent *Dynamic Earth: Revealing Nature's Secrets* exhibition, which features a changing exhibition space. Since its opening in 2002, the science wing serves over 30,000 visitors annually.

As a result, science is thriving at the Newark Museum through a full schedule of exhibition and education activities that utilize the resources of *Dynamic Earth*, a Planetarium, a Mini Zoo, Science Laboratories and a Science Garden. These achievements have brought the Museum to the point where efforts to further meet the science educational needs of its constituency are dependent upon improving control and access to the Natural Science Collection. By repositioning the Museum's science collection and facilities as vital resources for the public, the Museum advances its mission to "actively encourage the study, appreciation, understanding and enjoyment of the subjects represented by its collections by a broad and diverse audience." It will also further the original vision and purpose for the Natural Science Collection, which was begun by John Cotton Dana. This vision, developed in 1909 and still relevant today 100 years later, includes the continued use of specimens (over 50 science exhibitions have been developed and showcased at the Newark Museum between 1909 and 2008), and the assembling of a "teaching collection" that could be lent to area schools and universities for scientific instruction and research. The first attempt at a teaching collection using science specimens was in 1910. The collection was comprised of forty varieties of rock and mineral samples. The Project will continue and enhance this legacy as it will enable the Museum to use the Collection beyond the current level of activity.

e. How project is an investment in institutional capacity: The Museum cannot achieve the mandate to create Exhibition, Research and Teaching Collections without first gaining financial support for implementing the Natural Science Collection Documentation and Catalog Project. This project will provide the intellectual and legal foundation for all other activities related to the Collection, representing an essential investment in institutional capacity for the Newark Museum. Since the opening of the permanent science exhibition *Dynamic Earth: Revealing Nature's Secrets* in 2002, which features over 600 specimens from the Museum's Natural Science Collection, the Museum has presented only four changing exhibits featuring limited resources from the Natural Science Collection. Achieving intellectual control that results in an Exhibition Collection will enable the Curator of the Natural Science Collection to develop relevant new exhibitions and related education programming using greater numbers of Museum specimens. In addition, the project will enable the Museum to further expand its educational mandate. The Museum currently maintains an Educational Loan Collection of 15,000 art, history and humanities objects, as well as scientific models, which is utilized by more than 200,000 students and teachers throughout northern New Jersey and libraries throughout the state. The development of the Teaching Collection will make specimens from the Natural Science Collection available to be utilized in a similar way, and fulfill a need for accessible scientific resources among New Jersey school districts. In essence, the Natural Science Collection Documentation and Catalog Project will provide the foundational work for enhancing the Museum's capacity to address the cultural, research and educational needs of its diverse and growing constituencies.

f. How the project will serve intended audiences: The Natural Science Collection Documentation and Catalog Project will enable the Museum to provide access to the resources of the collection in a way that will serve a broad and diverse audience. The Newark Museum's 2008 on and off-site audience represented more than 600,000 visitors, more than half of whom participated in public and school education programs. This diverse constituency was comprised of adults (50%) and children (50%) with ethnicity as follows: Asian or Pacific Islander (8%); Black or African American (42%); Hispanic or Latino (15%), and White or Caucasian (35%). The resulting Exhibition Collection will enable the development of new science exhibitions and related education programs featuring specimens that visitors of all ages have never viewed before. Through Museum partnerships with area universities including Rutgers-Newark campus, Montclair State University, Kean University, William Paterson University and New Jersey Institute of Technology, the Research Collection will enable the Museum to better meet the needs of undergraduate and graduate scholars who utilize the Museum for research purposes, as well as provide resources, particularly on the subject of New Jersey flora and fauna, for scientists and scholars at universities and organizations throughout the state. The Teaching Collection will enable the Museum to provide hands-on resources, similar to the Educational Loan Collection, to classrooms, libraries and community centers throughout northern and central New Jersey. The Museum maintains contractual partnerships with school districts such as Newark Public Schools (the largest in the

state), Jersey City Public Schools, and Hillside Public Schools, all of which utilize the Museum's art and science resources, and for whom the Teaching Collection would enhance academic learning. The Teaching Collection will also be utilized by the Museum's Science Explorers, a group of at-risk teens who engage in mentoring and internship activities at the Museum. Each year the Explorers participate in research projects designed to enhance their academic learning, and the Teaching Collection will provide new resources for their projects. Finally, the Newark Museum has a strong following for science-related public educational programming. The *Dynamic Earth* exhibition attracts more than 30,000 visitors annually, as well as nearly 12,000 school students through on-site programs. The Museum's science-themed family festivals such as *BugMania*, *Dinosaur Day*, and *Circus Science* attract as many as 6,000 visitors in one day. The Exhibition and Teaching Collections will greatly enhance these public education programs, which attract audiences of all ages.

2. Project Design

a. Background of the Natural Science Collection: The Natural Science Collection began as the private collection of William S. Disbrow, a medical doctor and pharmacist, and a man of remarkable knowledge and interest in the natural sciences. Disbrow built a collection that was meticulously prepared and accompanied with scientifically appropriate label information. While most of his collection was from Newark and the surrounding areas, he supplemented it with specimens from throughout New Jersey and the United States and occasional specimens from abroad. Like his contemporaries, his main goal was to share his biological and geological treasures with others for the purpose of educating them on the marvels of the natural world and therefore gifted his collection to the Newark Museum. Following Disbrow, the Collection continued to grow but without focus. Some of the later additions were primarily donated by amateur collectors and represent specimens from around the world, such as pheasants from India and China, shells from Pacific Islands, and trophy heads from Africa. Other donations were from New Jersey or different regions of the United States such as the bird egg and skin collections. Most of these collections did not have solid documentation and were collected with various standards and priorities.

Today, the Natural Science Collection consists of approximately 83,000 specimens and has some characteristics of both a professionally assembled scientific collection, i.e., a research collection, and an amateur collection.¹ The Collection has specimens from local, national, and international regions, and includes several specimens that are of extreme biological importance, such as extinct, endangered or threatened species, including plant, insect, shell and bird species. The Natural Science Collection includes Economic and General Botany, Herbarium, Shells, Insects, Mammals and Trophy Heads, Bird Mounts and Skins, Bird Eggs, Bird Nests, Rocks, Minerals and Fossils. Economic Botany is an historic collection gifted by Dr. Disbrow that holds a variety of specimens from seeds and nuts to tree bark, some of which are now extinct, with an emphasis on plants that have certain pharmaceutical and economic importance. The Herbarium collection represents an important part of the historic heritage of New Jersey and neighboring states and contains foreign plants collected as early as 1818. The Mineral collection contains mostly local objects with some minerals from other continents representing variations in crystal formations. The local minerals feature extensive holdings of NJ traprock crystals and fluorescent minerals collected by Dr. Disbrow, but the collection continued to grow after Dr. Disbrow as well. The Rock collection includes examples of all major igneous, metamorphic and sedimentary rocks. Most sandstone rocks are from the young Brunswick Formation and the older High Falls Formation. The Fossils consist primarily of invertebrate marine animals found in the ancient NJ oceans from as early as five hundred million years ago. The historic Insect collection is comprised of four collections - those of Charles Rummel, Henry F. Herpers, S.H.M. Seib and William T. Bather, representing Lepidoptera (butterflies & moths), Coleoptera (beetles) and other small orders. These collections represent the insect fauna found in New Jersey, New York and Pennsylvania during the early 20th century. The holdings of the variety of marine, freshwater and land mollusks are an excellent representation of the sea life found mostly along the Atlantic coast. However, the collection also contains many radiant and beautiful examples of Pacific species. The Bird collection comprises bird mounts, skins, bird eggs and several hundred bird nests. The Bird Eggs collection includes all the species that are known to nest in NJ and was collected from various parts of NJ by the NJ Audubon Society from 1918 to 1942. An impressive selection of 26 Asian pheasants holds a special place in the collection as they are a part of the renowned naturalist/explorer William Beebe's expedition to south-east Asia. The Mammal mounts, Skins and Trophy Heads in the collection are from mostly Africa, Asia and North America.

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Economy and General Botany	6,818 specimens	Bird Mounts and Skins	2,200 specimens
Herbarium	1,216 specimens	Bird Eggs	8,977 specimens
Shells	23,231 specimens	Rocks	3,068 specimens
Insects	20,058 specimens	Minerals	7,975 specimens
Mammals and Trophy Heads	125 specimens	Fossils	9,445 specimens

Historical collections such as the Museum's are critical for assessing patterns of change in biodiversity and are therefore, are an irreplaceable and extremely valuable research tool for the scientific community. These collections are have tremendous value as natural history collections play a major role in scientific research - they provide data sets crucial in unraveling the mysteries of nature, they can and do contribute significantly towards defeating disease, combating environmental pollution, understanding the green house effect and its impact on global warming, and are essential to other scientific studies vital to human society and to life on the planet. According to E. O. Wilson at Harvard University in 1992, it is estimated that by 2020 about 20% of living species will be extinct. For some animal and plant groups, museum collections will soon present the only record of biodiversity. For example, the Museum's Herbarium and Insect specimens accumulated over the past century are the most readily available source of information on species diversity and geographic distribution in the state of New Jersey. The Insect collection contains several specimens of bright red and black colored *Nicrophorus americanus*, the American burying beetle which is currently in danger of extinction. In the near future, the Newark Museum may be one place to study and find the associated information on this species.

b. Current state of the Natural Science Collection: The majority of specimens have received inconsistent care and documentation over many years, which has made the Collection inaccessible for developing the three focused collections mandated by the Natural Science Collecting Guidelines. While some specimens have complete collection data (approximately 35,000 specimens) others have minimal or no data associated with them (approximately 48,000 specimens). Many of the donations to the Collection were not completely processed, fewer than 1,000 pieces have been formally accessioned, and the numbering systems that have been used over the years are inconsistent. The Collection has many specimens with no clear goal for future use, including many low-grade fossil specimens with no information, and many duplicate bird eggs and bird taxidermy. Over the last century, the Museum has amassed approximately 76 linear feet of unprocessed archival records documenting the Science Department's first century of service to the people of Newark and the citizens of New Jersey. Other Natural Science Collection records are mixed in with general collection records in the Office of the Registrar, and still others are stored in card and binder systems in the Science Department. With the restructuring of the care, maintenance and documentation of the Collection transferred to the Office of the Registrar under the auspices of the Deputy Director for Collection Services, the Museum will come up-to-date with a national trend to centralize collection accessioning and processing in science museums. Through this strategic objective, the Natural Science Collection will be maintained and managed with the same level of care and documentation as the art collections, resulting in greater accessibility for public audiences.

c. Project implementation: To develop a workable plan that takes into consideration both the Museum's operation procedures and the varying standards of best practice for documenting and cataloguing science collections, Rebecca Buck, Deputy Director of Collection Services and Dr. Sule Oygur, Curator of the Natural Science Collection, sought the guidance of Dr. Paisley Cato, Assistant Director of the Western Science Center, consultant John Simmons, Adjunct Curator of Collections, Earth and Mineral Science Museum & Art Gallery at Penn State University, and Dr. Carolyn Rose Rebbert, Curator of Science at the Bruce Museum of Arts and Science. Based upon these discussions and in consideration of the Museum's own registration procedures for the general collections, the strategy for approach will be as follows:

Year One Goals: Compile, Organize and Process Documentation for the Collection

The Natural Science Collection has historically been given catalog numbers (applied to 35,000 specimens) that identify the basic collection (birds, rock, minerals, etc.), but carry little of the legal data of an accession number, which allows for a system of consolidation of legal data of ownership, permits, correspondence, field notes and provenance. To begin this process, the following activities will take place in Year One:

- A temporary, fulltime Assistant Registrar for Science will review the central collection file records for those items that are associated with the Natural Science Collection and consolidate all science records found in the three locations. The Assistant Registrar will then begin identifying information from all three sources regarding transactions that relate to the science accessions, providing a broad picture of the background of the Collection for the first time. He/she will work closely with Dr. Sule Oygur, Curator of the Natural Science Collection and Dr. Linda Hsu, Science Assistant, to find, identify and match specimens with the processed documentation.
- Jeffery Moy, Archivist, with the help of a temporary part-time Archivist Assistant, will evaluate and prioritize for processing the surveyed records of past science curators and directors found in the science archives. The materials will be arranged into a logical record series and described in finding aids that will be marked in Electronic Archival Description (EAD) for inclusion on the Museum's website. Past experience and professional benchmarks have established a processing rate of approximately 12 hours per linear foot of archival material; therefore, it will take the Assistant Archivist at least 900 hours to complete work with the 76 linear feet of records.
- The Curator of the Natural Science Collection, with the help of the Science Assistant, will compile and review documentation located in the office of the Curator of the Natural Science Collection. The Science Assistant will work with the Assistant Registrar for Science in processing these records.

- Rebecca Buck, Deputy Director of Collection Services/Chief Registrar, and Antonia Moser, Associate Registrar for the Permanent Collection, will review the work of the Assistant Registrar and Dr. Linda Hsu and verify the catalog numbering system used by the Science Department in the past for the 35,000 objects. Heidi Warbasse, Database Administrator, will also be central to this work. They will then work with consultant John Simmons on developing optimum methods for accession and catalog numbering systems for the collection, as well as record development.
- Near the end of Year One, the Deputy Director for Collection Services/Chief Registrar and Curator of Natural Science Collection will, with the input of consultant John Simmons, assess the work completed and adjust the scope of the project as needed. In addition, the temporary part-time Database Technician will be hired in preparation for the activities that will take place in Years Two and Three.

Year Two Goals: Complete Documentation Consolidation, Develop and Begin to Implement an Accession Numbering System, Revise and Implement Catalog Numbering System, Begin ARGUS Database Lexicon and Terminology Revision, Begin Database Entry of Master Records to be used for Future Cataloging of the 48,000 Found in Collection Specimens.

In many general museums, science collections are accessioned in accordance with the general accessioning pattern. This was not implemented at the Newark Museum. Therefore, the Museum will follow a system already in place for processing materials in other collections: A sequential accession number, which will be used to identify documentation but not the actual specimen, will be assigned and entered into the Museum's ARGUS database to provide overarching access to the activity file that holds all accession information. Catalog numbers, as begun with the 35,000 specimens, will continue to be used for the rest of the collection in the traditional manner of corresponding to the natural science area they belong. The catalog numbers will then be attached to the accession numbers as per the initial transaction. To accomplish this system, the following activities will take place:

- The Deputy Director for Collection Services and Associate Registrar for the Permanent Collection will assign accession numbers to all specimens that have been identified in the consolidated documentation. That process will be ongoing throughout the rest of the grant period. There will be one day of review and input by consultant John Simmons.
- The Assistant Registrar for Science will oversee completion of documentation consolidation and development of hard copy files. He/she will data enter the accession activity information into the ARGUS database in consultation with the Database Administrator. This work will be ongoing through the rest of the grant period.
- The Curator of the Natural Science Collection and Science Assistant will continue to work with the Assistant Registrar for Science to identify and match specimens to source documents. They will also identify and select taxonomic terminology to be used in the database for each collection.
- Heidi Warbasse, Database Administrator, will work with the part-time Database Technician to devise an appropriate database entry plan. This plan will include linking the matched specimen catalog numbers to the accession activity records, the entry of the selected standardized lexicon terms identified by the Curator of the Collection, and the revision of non-standardized terms used in the existing 35,000 records for the Natural Science Collection. Entry will also begin for master records to be used for future cataloging of the 48,000 found in collection specimens.
- Near the end of Year Two, the Deputy Director of Collection Services and Curator of Natural Science Collection will assess work completed and adjust scope of the project as needed.

Year Three Goals: Complete Documentation Processing, Assign Accession and Catalog Numbers to 48,000 undocumented Found in Collection Specimens, Complete Data Entry in Database, and Plan for Phase Two.

- Deputy Director for Collection Services and Associate Registrar for Permanent Collections will complete assignment of accession and catalog numbers. The consultant, John Simmons, will also spend two days reviewing the work and identifying solutions for problems that may have developed with the process.
- Assistant Registrar for Science will complete documentation processing for remaining 48,000 found in collection specimens in accordance with the Museum's collections management policy, which states that the Museum holds undocumented and found in collection objects as property of the Museum, tracks and documents them from the time they are identified as such, and accessions those which will be useful for the permanent collections. Those that will be disposed of must go through formal deaccessioning. If original documentation is later found, the "found in collection" number is retired. Hard files will also be developed.
- Database Administrator and Technician will complete entry of master records to be used to catalog the found in collection specimens in accordance with current procedures for the general collections, as well as continue to revise any remaining lexicon issues, and complete activity and catalog record linking.
- Curator of Natural Science Collection and Science Assistant will continue to assist the Assistant Registrar for Science and Database Technician with un-sourced specimens as needed. In addition, in preparation for Phase Two, they will identify

science consultants to begin the identification and reorganization of the collections in preparation for dividing them into the desired Exhibition, Research, and Teaching Collections.

3. Project Resources

The project will take place over three years. Due to the sheer volume of the work involved in the Natural Science Collection Documentation and Catalog Project, and to accomplish the project goals as well as continue to fulfill day-to-day operation activities, it will be necessary to hire a temporary part-time Archive Assistant who can devote his/her full attention to the project, which will enable the Museum's Archivist to both work on the Natural Science Collection Documentation and Catalog Project and current work. As the Museum's permanent fulltime registrar staff is currently focusing on a number of other grant projects as well as their daily responsibilities, it will also be necessary to hire a fulltime temporary Assistant Registrar for Science, who will devote his/her full attention to the project. Working with the Deputy Director of Collection Services and the Associate Registrar for Permanent Collections, knowledge gained about the Natural Science Collection during the project will remain accessible to the Museum. A part-time Database Technician will also be necessary due to the large amount of data to be revised and the large number of specimens that will need to be entered into the ARGUS database system. The Database Administrator is the only fulltime staff dedicated to the database and with daily responsibilities, an assistant is essential for completing the project in three years. The Deputy Director for Collection Services, Associate Registrar for Permanent Collections, Curator of the Natural Science Collection and Science Assistant will all dedicate a portion of their time to achieving the goals and objectives of the project and will balance their day-to-day responsibilities accordingly. Following is information on each participating staff member:

Rebecca Buck, Deputy Director of Collection Services and Chief Registrar, has a Master of Education degree from Boston University and has worked in the museum profession for more than 25 years. She is co-editor of the *New Museum Registration Methods* and *On the Road Again: Developing and Managing Traveling Exhibitions*, both published by the American Association of Museums. She is the 2001 recipient of the AAM Dudley Wilkinson Award of Excellence and was recognized by the AAM as one of the museum world's "one hundred champions" of the past 100 years. Ms Buck is responsible for the registration of the Museum's collection of approximately 200,000 pieces, collections care and documentation, storage and maintenance. She will serve as the Project Director.

Dr. Sule Oygur, Curator of the Natural Science Collection, holds a PH.D. in Entomology, from Rutgers University, New Brunswick. She has over 20 years of science collection experience, which includes working as a museum technician at the Rutgers University Entomology Museum and as a senior scientific assistant at American Museum of Natural History's Entomology Department in New York. Dr. Oygur will oversee the work of the Science Assistant, and will work with the Assistant Registrar for Science, Archivists and Database staff on the various documentation and data entry aspects of the project.

Heidi Warbasse, Database Administrator, has a Bachelor of Arts degree from Oberlin College in Art History and East Asian Studies and is charged with documenting and maintaining the Museum's collections database management system, ARGUS. Ms. Warbasse will oversee the Database Assistant, perform lexicon organization, ensure standards are followed, and oversee the data entry process.

Jeffery Moy, Archivist, earned a Certificate in Archival Management and Historical Society Administration from New York University, and holds a Masters in United States History from Rutgers University. He has served as Archivist of the Newark Museum since 2001 and will over see the Archive Assistant as they process the 76 linear feet of archival science records. He will also coordinate subsequent research with the processed records by the Assistant Registrar for Science and other members of the project team.

Antonia Moser, Associate Registrar for Permanent Collections, has a Ph.D. from Vanderbilt University and a Masters in Museum Professions from Seton Hall University. She will be responsible for working with the Deputy Director for Collection Services to develop the accession numbering and filing system for the collections, and develop the methods for accessing the information.

Dr. Linda Hsu, Science Collection Assistant holds a PH.D. from the University of Michigan and a Masters in Museum Professions from Seton Hall University. She has completed an internship in the Smithsonian National Museum of Natural History's Paleobotany department and volunteers at the Museum of Modern Art when she is not working for the Newark Museum. She will assist the Archivists, Registrar staff and Database personnel to implement the activities of the project, as well as work with the Curator of the Natural Science Collection to develop taxonomic terminology and to plan for Phase Two of the project.

Assistant Registrar for Science (1) – This temporary fulltime position will focus solely on the Documentation and Catalog Project and work to achieve its goals and objectives. A job description for the position is attached to this application.

Archive Assistant (1) – This temporary part-time position will focus solely on processing archival documentation for the project and will report to the Archivist. A job description for the position is attached to this application.

Database Technician (1) – This temporary part-time position will focus solely on the data entry aspects of the project and will report to the Database Manager. A job description for the position is attached to this application.

Science Consultant - John Simmons will serve as the science consultant for the project. Mr. Simmons' specialties include collection management, collection planning, collection assessment, policy development, natural history collections, medical museum collections, and fluid preserved collections. He is also the Adjunct Curator of Collections at the Earth and Mineral Sciences Museum & Art Gallery at Penn State University. Mr. Simmons will work with the Registrar staff on developing the accession and catalog numbering systems for the collection as well as provide input into the planning for Phase Two.

As the majority of the project is hands-on work implemented by staff members, the Museum seeks IMLS funding to underwrite the costs of the temporary positions of Assistant Registrar for Science, Archive Assistant, Database Assistant, and honorarium for the Science Consultant. The Museum will provide matching funds by underwriting the costs of permanent Museum staff participation, fringe benefits, travel expenses for the Science Consultant and registration and archival supplies.

4. Impact of Project

The benefits of the successful completion of the Natural Science Collection Documentation and Catalog Project will be immediate and far-reaching for the Museum in the following ways: A) The goals and objectives of the institutional strategic long range plan will be implemented as the Natural Science Collection will receive standardized collection and management practice; B) The Collection will, for the first time, be consistent with the art collections in terms of documentation and catalog processing; C) Archival material compiled over a century will have been properly processed, now providing the time and attention to tackle other archival projects; and D) The Museum's registration and science departments will have improved intellectual control over the collection that will allow for implementation of the activities necessary to divide the collection according to the recommendations of the Natural Science Collecting Guidelines.

Long-term impact of the project will result from the use of the divided collections. By fully developing the Exhibition Collection, the Museum will be positioned to develop new changing and traveling exhibitions as well as and public education programs and special events featuring an increased number of specimens from the permanent collection. The Research Collection will serve as an unparalleled resource for scientific investigation in New Jersey. For example, the specimens for research can be viewed as a vast data and DNA bank for New Jersey's plant and insect community in the early 20th century. Therefore the Museum's herbarium collection will serve as an important resource for New Jersey citizens and as critical research tools for a network of scientists, amateur botanists, entomologists and educators. The Newark Museum is a member of Index Herbariorum (IH), which is the official international registry of herbaria compiled by the International Association for Plant Taxonomy and the New York Botanical Garden. IH is widely used by both the professional and public arena. Although the Museum's records show over 7,000 botanical entries, only 3,000 of those records are included in Index Herbarium. Upon completion of the proposed project, new records plus additional catalog information will be added to the records in the Index Herbarium. This will give the Newark Museum greater visibility as a science museum and enable the Museum to better serve the professional and amateur scientific community. The collection will also be a vital resource for undergraduate and graduate students and researchers from surrounding universities and high schools, many of which have inquired about access to the Natural Science Collection and its documentation.

The Teaching Collection will have tremendous impact on the Museum' on-site and off-site education programming as intellectual control and increased access will enable the Museum to deaccession multiple specimens that can be used for hands-on, up-close inspection during Museum-wide family festivals, as part of education programs for school students in the classroom through outreach, and during drop-in weekend science education programs. Information content on the specimens can provide an excellent tool for science education on a variety of subjects including environmental studies and nature conservation, evolution and behavior, migration, medicine, agriculture and fisheries, and biochemistry. In addition, specimens themselves can be used to engage students in inquiry based learning as they employ the science process to study many different science concepts: taxonomy, food pests, host-parasite relationship, fecundity/mortality patterns, dormancy, mimicry and polymorphism, or just simply to learn animal and plant characteristics that are used to identify them and to study phylogeny (relationship between organisms). As stated earlier in this proposal, the Teaching Collection will also be used to enhance the research projects for the Museum's Science Explorers program, and used to further the reach of the Educational Loan Collection to classrooms, libraries and community centers throughout New Jersey.

BUDGET FORM - PAGE FOUR

MA-05-10-0477

Newark Museum Association

Section B: Summary Budget

	\$ IMLS	\$ Cost Share	\$ TOTAL COSTS
1. Salaries and Wages			
2. Fringe Benefits			
3. Consultant Fees			
4. Travel			
5. Supplies and Materials			
6. Services			
7. Student Support			
8. Other Costs			
TOTAL DIRECT COSTS (1–8)			
9. Indirect Costs			
TOTAL COSTS (Direct and Indirect)			

Project Funding for the Entire Grant Period

1. Grant Funds Requested from IMLS

2. Cost Sharing:

- a. Cash Contribution
- b. In-Kind Contribution
- c. Other Federal Agencies*
- d. TOTAL COST SHARING

3. TOTAL PROJECT FUNDING (1+2d)

% of Total Costs Requested from IMLS

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

The Newark Museum

IMLS Museums for America grant

Lead departments:

Registrar Archives Science

2010-2011 August September October November December January February March April May

Consultant reviews and refines project guidelines (1 day - October).

Assistant Registrar for Science hired

Assistant Registrar finds and begins organization of science ownership and provenance records.

Registrars will complete ongoing file reorganization and develop science record section

Organization of records begins

Numbering systems developed

Project Archivist hired

Archivists process 75.93 linear feet of science records

Science Collection Manager works with registrars on science records

Collection records consolidated

Consultant reviews findings and works with staff on adjustments as needed (1 day - May).

Review work/adjust

2011-2012 June July August September October November December January February March April May

Database Technician hired.

Registrars correlate documents and assign numbers as needed.

Curator of Science determine taxonomies/systematic nomenclature standards for each collection.

Database Manager trains Assistant Registrar, Database Technician and Science Assistant in lexicon development and revision.

Assistant Registrar works on database framework for science collection and works on revising lexicon.

Consultant reviews progress and provides input on adjustments as needed (1 day - May).

Review work/adjust

2012-2013 June July August September October November December January February March April May

Assistant Registrar and Database Technician continue work on database.

Registrars and Database Managers finish numbering accessions, work on FIC, and work with Curator of Science on Phase 2 planning.

Curator of Science and Assistant begin identification of consultants for Phase Two.

Consultant reviews progress, identifies solutions, and provides input in planning for Phase 2 of implementation (2 days - May).

Decisions regarding Phase 2 are made