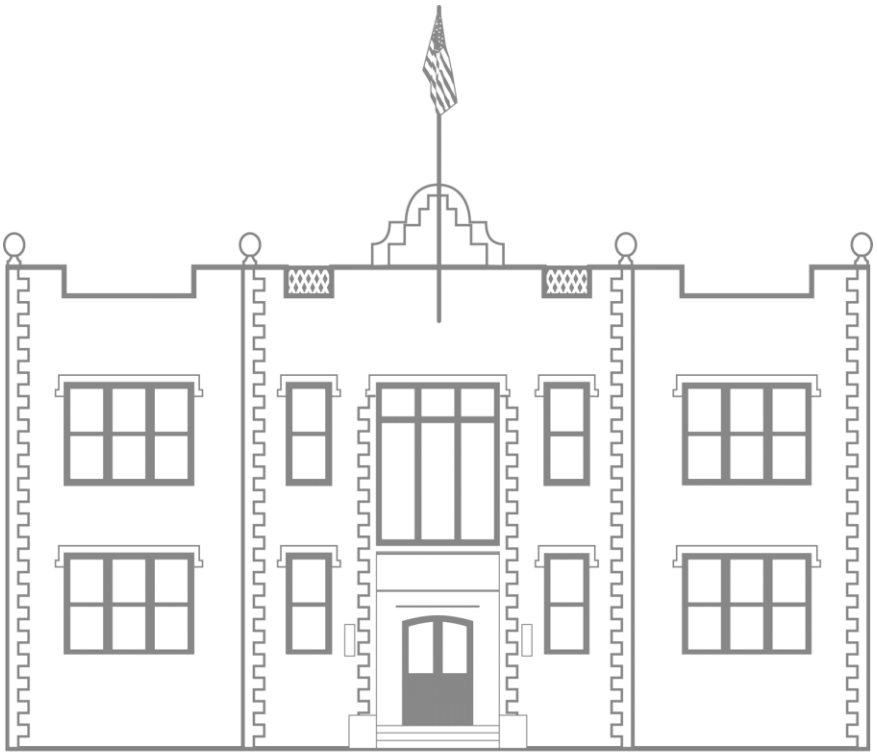
NATIONAL PARK SERVICE

2013 BOARD REPORT

NATIONAL CENTER FOR PRESERVATION TECHNOLOGY & TRAINING



LEE H. NELSON HALL
NATCHITOCHES,
LOUISIANA

REPORT

OF THE ADVISORY BOARD OF THE
NATIONAL CENTER FOR PRESERVATION TECHNOLOGY AND TRAINING

NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF INTERIOR

NATCHITOCHES,
LOUISIANA

MARCH 31, 2014

NATIONAL PARK SERVICE

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This report is published by the Preservation Technology and Training Board, established under Title XVI, Section 470 of Public Law 102-575, October 30, 1992. The purpose of the Board is to advise the Secretary of the Interior regarding the operations of the National Center for Preservation Technology and Training. The specific duties of the Board are to (1) provide leadership, policy advice, and professional oversight to the Center; (2) advise the Secretary on priorities and the allocation of grants among the activities of the Center; and (3) submit an annual report to the President and the Congress.

The National Center for Preservation Technology and Training (NCPTT) is an office of the National Park Service, established under the National Historic Preservation Act, as amended, which states,

The purposes of the Center shall be to —

1) *develop and distribute preservation and conservation skills and technologies for the identification, evaluation, conservation, and interpretation of prehistoric and historic resources;*

2) *develop and facilitate training for Federal, State and local resource preservation professionals, cultural resource managers, maintenance personnel, and others working in the preservation field;*

3) *take steps to apply preservation technology benefits from ongoing research by other agencies and institutions;*

4) *facilitate the transfer of preservation technology among Federal agencies, State and local governments, universities, international organizations, and the private sector; and*

5) *cooperate with related international organizations including, but not limited to the International Council on Monuments and Sites, the International Center for the Study of Preservation and Restoration of Cultural Property, and the International Council on Museums.*

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INTRODUCTION

A DIFFERENT KIND OF YEAR

FY2013 proved to be a challenging year for everyone in the National Park Service (NPS), and indeed for everyone in the federal government. Seemingly endless sequester planning, actual sequester budget cuts, and severe restrictions on travel impeded or disrupted much of the work planned for the year. Complicating things further, the NPS transitioned to a new financial management system that replaced all of the systems responsible for accounting, purchasing, and financial assistance. To support the changeover, five NCPTT staff attended a total of seven weeks of training away from the office and took at least as many hours of training online.

Executive Director Kirk Cordell's year took an unusual turn when he was detailed to manage the cultural resources response efforts to Hurricane Sandy in the Federal Emergency Management Agency's (FEMA) New York Joint Field Office. Beginning with a three week stint in March and concluding with five more weeks in late May and June, Cordell worked with FEMA staff and state and local agencies to develop response strategies for the greater New York City area. He concluded his time there by bringing a team from NCPTT to test the National Center's mobile survey app (more details later in this report). Cordell was also invited to teach again this year at Preservation Institute: Nantucket, the nation's longest running field school, and was invited to advise the NPS and the City of New York on development of the new Mather Building Arts and Craftsmanship High School in Manhattan. He also reviewed the Clemson/College of Charleston master's program as a member of its Historic Preservation Advisory Committee.

Administrative Officer Kevin Ammons' five month absence from the office due to a severe injury put a further strain on resources at NCPTT. In his absence, Materials Conservation Chief Mary Striegel stepped in to help with purchasing and financial management, Research Assistant Ed FitzGerald took over many of the building management duties, and the rest of the staff pitched in to help with other needs. The continuing budget crisis consumed much of September with budget scenario planning, culminating in a 16-day shutdown of the federal government at the beginning of FY2014 that forced the cancellation of symposia and other NCPTT events scheduled for October.

Despite these challenges, the National Center managed to have a successful year of training, research, and grant projects, all detailed in the following pages. In addition, laboratory space was expanded by moving some equipment into two labs at Northwestern State University (NSU), and an existing lab in Nelson Hall was reconfigured to support NCPTT's growing analytical services and research agenda. NSU staff traveled to research meetings in an attempt to stretch limited federal travel dollars, and the National Center was still able to present a wide variety of training programs and research papers throughout the year.

ARCHEOLOGY & COLLECTIONS

The objective of the Archeology & Collections Program is to develop innovative methods, tools, and processes to better manage archeological resources. To meet this objective the program conducts workshops, conferences, and issues grants. In addition, NCPTT's Chief of Archeology & Collections, Tad Britt, RPA, has initiated independent research that utilizes digital data collection, modeling for site prediction and probability, and supercomputing capabilities at Death Valley National Park (DEVA).

Over the past year Britt has visited seven states to either, consult with national parks, attend or present at national and regional conferences or, to conduct fieldwork and research. The major projects discussed below highlight Britt's efforts during his first year of working for NCPTT.

HURRICANE SANDY RECOVERY EFFORTS

In November 2012, Britt was deployed to the Federal Emergency Management Agency (FEMA) for 10 days as a research advisor to assist with damage clean-up and assessment efforts after Hurricane Sandy. While there, Britt monitored restoration and debris removal efforts at NPS sites in New York and New Jersey.

A significant historic resource was discovered during the survey of Fort Wadsworth, a former US military installation located on Staten Island that is currently managed by the NPS—a previously concealed granite gun battery was exposed by the hurricane's storm surge. This particular fortification is unique in that it is the only arched opening with a domed interior structure known to exist at the fort. Recommendations to record the architecture as well as research the battery fortification development and history were suggested as follow-up to the triage survey. This early to mid-19th century cultural resource is significant in that it contributes to a better understanding of the military and architectural history as well as the cultural landscape of the fort.

Hurricane Sandy exposed a previously unidentified gun battery at Fort Wadsworth on Staten Island, NY.

DEATH VALLEY PROBABILITY AND MANAGEMENT MODEL

Throughout FY2013, the Archeology & Collections Program worked closely with the University of Illinois, Champaign, IL, and the Desert Research Institute, Reno, NV, on the development of the Death Valley National Monument (DEVA) Archeological Site Predictive and Management Model. The DEVA model will serve as a tool for documenting recorded sites and their attributes as well as predicting unknown site locations on specific landforms and locations throughout the various ecotones of the park. It will also serve as a database for managing, conserving, and monitoring effects to archeological resources.

A two-year Cooperative Ecosystem Studies Units agreement was signed with each institution. The University of Illinois is developing the geographic information system (GIS) database while the Desert Research Institute is conducting the geomorphological studies. A future research goal is to integrate climatological data into the model so that prehistoric and historic climate models can be generated so that past, present, and future environmental impacts can be better understood and anticipated at DEVA.

NCPTT is working with partners to develop archeology tools for Death Valley National Monument.

Efforts in the ongoing development of this project include the completion of the digitization of over 2,000 archeological site report forms and the creation of a GIS. Another component of the model is the generation and implementation of a geomorphic coverage of the DEVA environs, rendered as a GIS layer. In addition, NCPTT's Archeology & Collections Program has been granted 60,000 supercomputing hours from XSEDE (Extreme Science and Engineering Discovery Environment), a consortium of high processing computers, to process and render the model's GIS and various cultural-temporal scenarios.

CEMETERY CONSERVATION AT KALAUPAPA

While attending the annual meeting of the Society for American Archaeology in April, 2013, in Honolulu, HI, Britt and NCPTT Executive Director Kirk Cordell travelled to Molokai Island to consult with staff at Kalaupapa National Historical Park concerning cemetery preservation and stabilization issues. The over 10,000 acre park has several cemeteries that preserve the remains and memories of thousands of native Hawaiians afflicted with Hansen's disease (leprosy). Those stricken with the disease were forcibly separated from their families, removed from their homes, and confined in isolation on the Kalaupapa peninsula from 1866 until 1969. These historic cemeteries contain a wide variety of vernacular concrete, chiseled stone, and wrought or stamped iron markers. Over time the cumulative effects of wind, salt water spray, and tsunamis have damaged many of the historic grave markers located there.

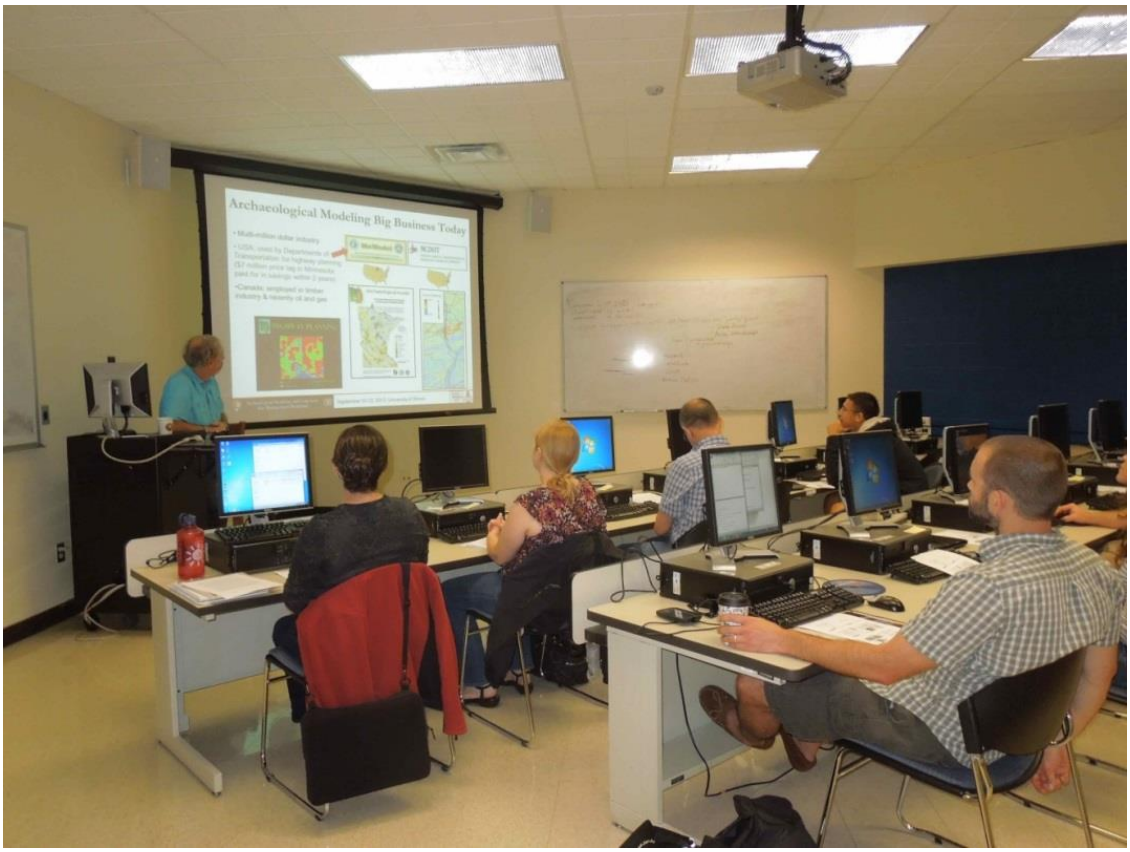
In one prehistoric walled cemetery, the java plum tree, an exotic species, has overtaken and compromised graves. This cemetery is marked with simple uninscribed volcanic boulders. NCPTT has been asked to consult on the partial removal of this stand of trees. In addition, the walls enclosing the burial ground are in need of repair. Several researchers from NCPTT are involved in this project and are collaborating with Kalaupapa staff to address these issues and develop a stabilization plan.

NCPTT's Kirk Cordell consults with staff at Kalaupapa National Historical Park, Kalaupapa, HI.

ARCHEOLOGICAL MODELING AND LONG-TERM SITE MANAGEMENT WORKSHOP

The Archeology & Collections Program also conducted an Archeological Modeling and Long-term Site Management Workshop, September 10-12, 2013. The purpose of the workshop was to teach the basics of GIS modeling for archeological and other types of cultural resources (e.g. structures, landscapes, or objects) to professionals working in the field. The two-and-a-half-day event was held at the University of Illinois Geographic Information System and Spatial Analysis Laboratory. Topics covered in the course included the history and theory of archeological models, mapping cultures in time and space, an introduction to database and weighted overlay analysis, and eco-niche modeling. GeoDa, SatScan, Google Maps/ Earth, MAXENT and ArcGIS software packages were used to explore different types of data sets. In addition, time was spent on discussing strategies for the long-term management and conservation of archeological sites. Instructors for the

workshop included Dr. Ken Kvamme, University of Arkansas, Dr. Marilyn O'Hara and Mr. William Brown, University of Illinois, and Tad Britt, NCPTT.



Students listen to a lecture at the Archeological Modeling and Long-term Site Management Workshop held in Champaign, IL.

ARCHITECTURE & ENGINEERING

The Architecture & Engineering Program provides preservation practitioners with unique training opportunities and innovative research and technologies in the areas of architectural conservation, disaster preparedness and response, and sustainability for the historic built environment.

SUSTAINABLE PRESERVATION

NCPTT continued its work at the nexus of sustainability and historic preservation during FY2013. The National Center began the year by hosting an eco-charrette at its headquarters at Lee H. Nelson Hall in Natchitoches, LA. The firms BAC/Architecture + Planning, PLLC, and Apollo BBC worked with NCPTT staff to develop an Energy Audit and Sustainability Management Plan for Nelson Hall. The eco-charrette included a preliminary visit with staff members to establish sustainability goals for the office and to perform an energy audit. The visit was followed by a report and a second workshop in early Spring. The goal of this process is fourfold: improve the energy and resource performance of Nelson Hall and decrease the costs of utility bills; provide training to NCPTT staff that engages them in sustainable stewardship decisions for the building and site; provides experience with the eco-charrette format and LEED Existing Buildings: Operations and Maintenance; advance the leadership role of the National Center in sustainable stewardship and preservation by providing a model project for "greening" the maintenance and operations of NCPTT's historic headquarters building. The results of the charrettes and planning efforts will be made available to the public through the NCPTT website.

Apollo BBC Principal Gordon Shepperd sets up a blower door during an energy audit at Nelson Hall in Natchitoches, LA

In September, NCPTT partnered with the Louisiana Division of Historic Preservation to hold a series of workshops with hazard mitigation funds from the Louisiana Governor's Office of Homeland Security and Emergency Preparedness. These workshops highlighted best practices for combining sustainable design techniques and historic preservation, including popular topics such as energy efficiency, window performance enhancements, and solar panels. The workshops offered valuable insights for local historic property owners, historic commission members, city government staff, and professionals in related fields.

In October, the National Trust for Historic Preservation released a new study entitled, "Saving Windows, Saving Money: Evaluating the Energy Performance of Window Retrofit and Replacement." The study, commissioned by the Trust's Preservation Green Lab and funded by NCPTT, offers welcome insight for homeowners weighing the financial and energy tradeoffs between replacing or repairing older, less efficient windows. It analyzes decades of research about the performance of double hung windows, comparing the relative energy, carbon and cost savings of various choices in multiple cities across the United States. The study concludes that upgrading windows (specifically older, single-pane models) with exterior storm windows and insulating shades can result in substantial energy savings across a variety of climate zones. Saving Windows, Saving Money is available for download on the NCPTT website.

CLIMATE CHANGE IN NATIONAL PARKS

Climate change poses rapid and increasing challenges to national parks. Glaciers are retreating at an unprecedented rate, increasingly destructive storms threaten cultural resources and park facilities, habitat is disrupted—the list goes on. In FY2013, NCPTT partnered with the NPS Climate Change Adaptation Coordinator for Cultural Resources to host summer intern Miriam Tworek-Hofstetter through the Climate Change Youth Initiative. Tworek-Hofstetter developed new climate change-related content for NCPTT's website, including a map interface that allows users to learn about impacts to a select number of NPS sites. This information can be updated as impacts for additional sites are determined.

POST-DISASTER CONDITION ASSESSMENTS WITH MoCA-B

Post-disaster condition assessments are a vital part of recovery efforts, informing resource managers and government officials of the extent of damage so that they can best allocate funds and other recovery resources. In June, Executive Director Kirk Cordell and several NCPTT staff traveled to New York City to field test a new mobile device-based survey system for conducting post-disaster condition assessments of buildings. The prototype application is called MoCA-B (Mobile Condition Assessment – Buildings). Working with the New York State Historic Preservation Office and FEMA, the field team identified and surveyed several neighborhoods and sites in New York City that were damaged by Hurricane Sandy. The mobile form is based on NCPTT's Rapid Building and Site Condition Assessment form originally developed after Hurricane Katrina in 2005. Compared to traditional survey strategies that rely on paper-and-pencil forms that must subsequently be transcribed to a computer system, MoCA-B offers immediate digitization of collected data at the point of survey, thus improving survey efficiency and accuracy.

A prototype of the new form is currently available on the NCPTT website and the complete system will be made available to the public in FY2014. Future plans include extending the MoCA system to support post-disaster assessments of other cultural resource types, including archeological sites, cemeteries, historic landscapes, and museum collections. For more on NCPTT's mobile development activities, see the Communications and Information Technology section below.

A field team uses MoCA-B to document disaster-damaged buildings in New York City, NY.

HISTORIC FINISHES TRAINING

In FY2013, the Architecture & Engineering Program provided four training opportunities and completed one community service project related to historic paints and finishes.

In May, NCPTT hosted a three-day hands-on workshop at Nelson Hall on the identification and analysis of historic architectural paints and finishes. This type of analysis, as opposed to that used in the field of fine art, has developed from its infancy when paint was scraped on site to the present where scientific analysis is being undertaken not only to determine historic colors, but also to determine other aspects of finishes such as composition and application methods. David Arbogast, an architectural conservator with over thirty years of experience in the area, provided hands-on instruction. The workshop included a visit to a local historic court house building where students practiced collecting samples before returning to NCPTT's laboratories to analyze them using microscopy.

In June, the APT Training and Education Committee and APT's Western Great Lakes Chapter hosted a two-day workshop on historic finishes. The workshop was funded in part

by NCPTT and held at Frank Lloyd Wright's Taliesin located near Spring Green, Wisconsin. Students learned about wood finishes, paint, plaster, and metal finishes, and participated in hands-on field sessions at Taliesin.

NCPTT Architectural Conservator Sarah Jackson taught two workshops on the preparation and application of limewash in FY2013. In June, the National Center held a special workshop in Natchitoches, LA, for staff of the Mississippi Department of Archives and History. Jackson also taught a limewash session at the Save Our Cemeteries (SOC) Hands-on Cemetery Restoration Workshop, held October 13-14, 2012, at historic Lafayette Cemetery No. 1 in New Orleans, LA. The workshop was open to the public and included training necessary for SOC's Restoration Volunteer Certification Program. Fees were waived for participants who committed to volunteer with SOC for a year, building capacity in the organization's volunteer workforce.

Workshop participants limewash a tomb in American Cemetery, Natchitoches, LA.

In addition to these workshops, staff from NCPTT provided paint analysis services to the Cane River National Heritage Area. The Heritage Area requested assistance from the National Center while undertaking a project to stabilize the historic Texas & Pacific Railroad Depot building located in Natchitoches, LA. The depot, a two-story brick building with Italianate features built in 1927, is one of only four remaining urban train stations in Louisiana. NCPTT's paint analysis identified historically appropriate finish colors for the building and provided an opportunity for staff to teach summer interns about the process.

PARTNERING FOR PRESERVATION

NCPTT maintains relationships and cooperative agreements with national historic preservation organizations across the country to further its reach and support common goals. In April, APT, in conjunction with the APT Hawaii-Pacific Islands Chapter, held a workshop on Nondestructive Evaluation Methods for Historic Structures to in Honolulu, HI. The workshop, funded in part by NCPTT, provided guidance for designers, engineers, and contractors in the use of diagnostic non-destructive test methods for historic structures. The program was divided between lectures and hands-on field sessions and was intended to provide an introduction to engineers and technically-oriented professionals from other disciplines who were not familiar with the techniques.

In September, the National Center partnered with the Dry Stone Conservancy and the Preservation Trades Network to hold a dry stone repair and preservation workshop at Antietam National Battlefield in Sharpsburg, MD. Dry stone is a building technique in which structures are built from stones laid 'dry', without the use of mortar to bind the stones together. The integrity of structures built using this technique arises from compressional forces and the interlocking placement of the stones. Master Craftsman Neil Rippingale led participants during the two-day workshop as they learned restoration techniques by working on dry stone walls on site.

Participants stop to show off their work during a dry stone workshop at Antietam National Battlefield in Sharpsburg, MD.

PRESERVAPEDIA: THE WIKI FOR PRESERVATION

NCPTT continued its development of Preservapedia, the wiki for cultural heritage preservation, with two new projects in FY2013. During the summer, intern Stephanie Byrd created WikiProject Preservation Education, a collection of articles, examples, and other resources that provide inspiration and make it easier for educators and students to integrate Preservapedia into the classroom. As part of the project, Byrd interviewed educators who use wikis to augment traditional classroom instruction. These interviews are available as podcasts on Preservapedia and the NCPTT website.

A core objective of WikiProject Preservation Education, and indeed all of Preservapedia, is to capture the "grey" knowledge that is generated for things such as course assignments or conference presentations but is never published or disseminated beyond its original use. Another exciting development on Preservapedia in FY2013 came with the launch of WikiProject OpenSpec. The goal of this project is to create a repository of construction or technical specifications that are written specifically with historic buildings or other historic resources in mind. Preservapedia currently contains over 90 specifications covering topics such as epoxy repair for deteriorated wood members, repair and rehabilitation of wood windows, and removing salts/efflorescence from brick and stone masonry. As the project continues to grow, Preservapedia administrators hope to gain additional contributions from architects, tradespeople, and other specification writers. For more on this or to sign up and start sharing your preservation knowledge, visit preservapedia.org.

MATERIALS CONSERVATION

The Materials Conservation Program works to bridge the gap between laboratory science and real-world historic preservation applications. NCPTT scientists and conservators undertake this work through research, training, consultations, and outreach.

LEADING THE WAY IN FOUNTAIN CONSERVATION

The preservation of historic fountains presents a unique and complex series of material problems, from water quality and plumbing issues to corrosion of materials. Environmental conditions surrounding fountains can further exacerbate decay. NCPTT brought together leading experts from across the nation to examine issues surrounding the conservation of historic fountains at the Fountain Fundamentals Symposium, held in Kansas City, MO, July 10-11, 2013. The National Center partnered with the Nelson Atkins Museum to host this one-of-a-kind symposium.

The keynote speaker, Jocelyn Ball-Edson, set the stage for the symposium by presenting on the wide range of challenges encountered in maintaining and preserving a collection of nearly 50 public fountains and over 60 other monuments and sculptures. Ball-Edson is a landscape architect with the Kansas City Parks and Recreation Department where is she responsible for more than 60 fountains. Topics of her presentation included vandalism, weather, budgets and public perception--illustrated with rarely seen images of the inner workings of pump vaults and mechanical rooms, as well as details of fountain structures and sculptures.

Highlights from the eighteen conference presenters included sustainable maintenance issues as well as discussions of materials decay and treatment issues. Katherine Dewey, a conservator with the NPS National Capitol Region, presented on the use of aquatic plants for the maintenance of water quality in fountains. Carol Grissom, an objects conservator with the Smithsonian Institution, discussed issues of cast iron and zinc preservation in ornate historic fountains.

In addition to presentations, the 45 participants took part in field sessions on water quality testing and investigated unique conditions encountered on fountains at the Nelson Atkins Museum. A panel discussion resulted in recommendations for future research topics in the conservation of historic fountains.

Conservator Martin Burke demonstrates water quality testing at the Fountain Fundamentals Symposium, Kansas City, MO.

DEVELOPING A VIRTUAL MUSEUM

The National Center is working with Northwestern State University's Williamson Museum to develop a virtual museum of the school's Malmberg Basket Collection. This collection of 204 baskets covers a large variety of ages, tribal origins, and material types. Currently, the collection is not on view and is in secured storage. The goal of this project is to make the collection accessible to scholars, crafts people, and the general public. The baskets are being documented using non-contact 3D laser scanning, photography, and RTI, and the collection will be made available online.

Supervised by Materials Conservator Jason Church, all scanning done on this project is being completed by high school students attending the Louisiana School for Math, Science, and the Arts (LSMSA) during their 3 hour a week work service. NCPTT's Ed FitzGerald

constructed the framework for the Malmberg Virtual Museum's website. The website features photographs, descriptions, and a 3D view of each basket. All content is searchable and tagged for optimized view-ability. Currently, Church and LSMSA student Joseph Fontenot are working to build up content before publicly launching the website.

STUDYING RUST CONVERSION TREATMENTS FOR METAL OBJECTS

The degradation and subsequent treatment of iron is an important consideration for the preservation of cultural resources. Rust is of particular concern as it weakens the underlying layers of metal, and unlike the protective patina that other metals develop, iron oxide causes further active corrosion.

To address this problem, NCPTT undertook a study into the effectiveness of chemical rust conversion treatments for iron cultural artifacts in FY2013. This work builds on a previous study undertaken by the Canadian Conservation Institute (CCI) in 1995. The Canadian researchers investigated both commercially available and custom formulated rust converters for protecting outdoor iron artifacts. The CCI study used natural outdoor weathering and lasted eight years before results were reported.

Summer intern Sarah Hunter photo-documents treated sample coupons for NCPTT's rust convertor study.

NCPTT's work focused on four newly formulated, commercially available rust converters and included the original CCI custom formula as the fifth product tested. Researchers evaluated changes to treated iron samples before and after artificial aging using a variety of

analytical techniques, including colorimetry, glossimetry, magnetic induction, laser profilometry, and Fourier Transform Infrared Spectroscopy (commonly referred to as "FTIR").

After 1,032 hours of artificial aging, Rustoleum® Rust Reformer® performed the best, with no active corrosion evident. The primary active ingredient in Rust Reformer® is tannic acid. However, the additive acrylic vinylidene chloride copolymer may have been just as important in sealing the metal's surface. The combination of the two ingredients result in a product that outlasted all other converters in this study.

This work was presented by Jason Church at the Metals 2013 conference in Edinburgh, Scotland. The paper will be published in the proceedings of the conference. NCPTT has initiated a second phase of this research that will investigate rust conversion treatments in a salt-rich environment.

HISTORIC LANDSCAPES

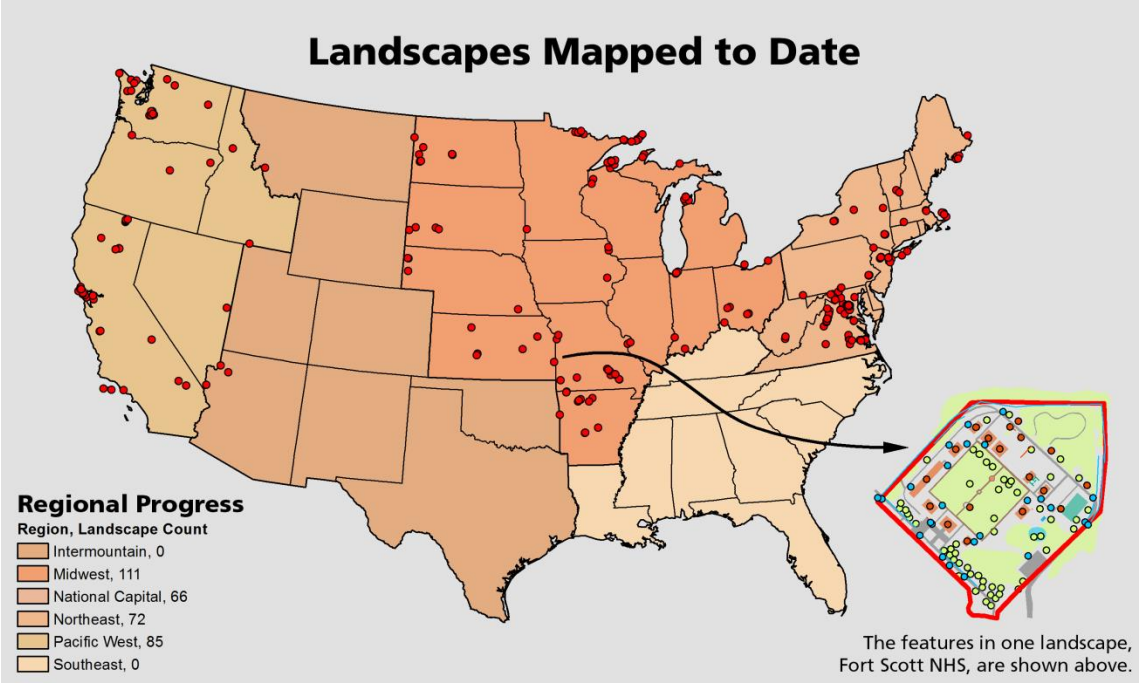
The Historic Landscapes Program encourages research and partnerships that advance techniques and training in historic landscape management.

MAPPING NPS CULTURAL LANDSCAPES

NCPTT and the NPS Cultural Resources Geographic Information Systems (CRGIS) facility in Washington, DC, partnered to create geospatial data that meets recently adopted cultural resources spatial data transfer standards.

For the past year, two GIS Specialists have worked at NCPTT creating spatial data for legacy properties included in the Cultural Landscape Inventory (CLI) using the NPS Cultural Resource Spatial Data Transfer Standards. The CLI is a comprehensive inventory of all culturally and historically significant landscapes within the National Park System. One purpose of the data model is to link features to other cultural resource databases such as the National Register and HABS/HAER/HALS documentation.

To date, the team has created spatial data for over 10,000 features in 334 NPS cultural landscapes. The project is proceeding region-by-region, with substantial work completed in the National Capitol, Midwest, and Northeast Regions. Work is also underway in the Pacific West Region. When complete, the project will include all six NPS regions in the lower 48 states.



Landscapes mapped as part of the legacy CLI GIS conversion project.

CONVERSATIONS WITH CULTURAL LANDSCAPE PROFESSIONALS

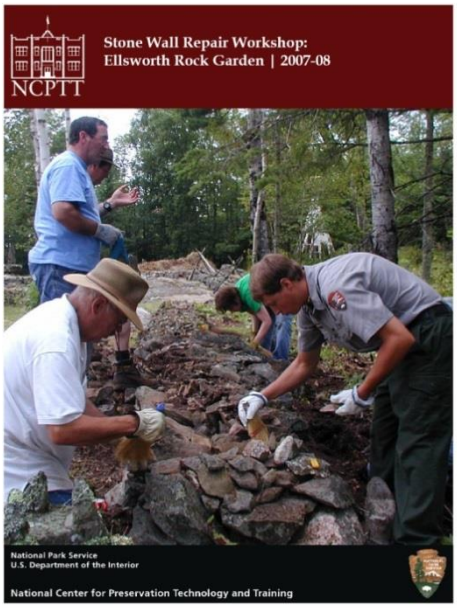
As part of a new initiative to capture the wisdom of early pioneers in the cultural landscapes field, NCPTT recorded interviews with five cultural landscape professionals. Among the group are former NPS and Parks Canada pioneers in cultural landscape preservation. Interviewees include Hugh Miller, Historic Preservation Thesis Director and Adjunct Professor at Goucher College (former NPS Chief Architect); Susan Buggey, Environmental Services Professional, Ottawa, Canada (former Parks Canada Chief of the Historical Services Branch and founding member of the Alliance for Historic Landscape Preservation), Robert Melnick, Professor of Landscape Architecture at the University of Oregon (and former NCPTT board member); Ian Firth, Professor Emeritus of Landscape Architecture at the University of Georgia; and Carrie Gregory, Senior Historic Preservation Project Director at Statistical Research, Inc., Albuquerque, NM, and current president of the Alliance for Historic Landscape Preservation. The video interviews and transcripts are available for download on the NCPTT website.

ONLINE TRAINING IN LANDSCAPE PRESERVATION MAINTENANCE

NCPTT and the NPS Olmsted Center for Landscape Preservation have partnered to develop a curriculum that gives students an opportunity to develop knowledge essential for understanding the concepts, principles, and techniques of historic landscape preservation maintenance. In 2013, NCPTT began construction of a web-based education program that addresses the curriculum goals. With funding from the NPS Learning and Development Program, the National Center hired a student from NSU's Computer Information Systems program to assist with the project. The curriculum will provide users with a variety of ways to achieve their own learning goals, allowing them to complete the entire course or to complete individual lessons a-la-carte. In addition to web-based training, the website will also include information for related face-to-face training opportunities.

DIGGING THROUGH THE ARCHIVES

In preparation for National Center's twentieth anniversary, Debbie Smith and several interns undertook the reorganization of old project files and posted all related products on NCPTT's website. The work involves files dating back to the National Center's opening in 1994. Products include research reports, how-to manuals, posters, videos, and websites completed in-house or by partners—many funded through the PTT Grants Program. The reorganization includes aggregating all files into a central database that captures significant project information. As part of this effort, NCPTT is also adding standardized covers to project reports and manuals. To date, seventy-five previously uncatalogued products have been identified and placed on the web, and over one hundred new covers have been created.



Example of a new NCPTT report cover.

DISASTER PREPAREDNESS AND RESPONSE

FY2013 saw several major natural disasters affecting cultural resources across the United States. As part of its ongoing initiative to educate the public and provide tools to help prepare for and overcome the effects of disasters, the National Center conducted several training events in FY2013.

SAFEGUARDING COLLECTIONS IN THE LOWER MISSISSIPPI DELTA

In FY2013, NCPTT partnered with Cane River Creole National Historical Park to hold several workshops on disaster preparedness and response for collections in the Mississippi Delta Region. Funding for these workshops was provided by the Lower Mississippi Delta Region Initiative, an NPS outreach program intended to bring about the protection, preservation, and interpretation of significant natural, cultural, and recreational resources located in this geographic area of the United States. The region frequently faces hurricanes, flooding, and tornadoes.

The workshop series entitled, "Disaster Preparedness and Response for Collections Along the Delta", was designed for small museums, collections, and institutions. Instructors covered topics including safeguarding historic buildings, preparing disaster plans, mitigating damage to museum collections, protecting workers during cleanup efforts, and pre- and post-disaster documentation.

Three hands-on workshops were offered through the initiative. The workshops were held at the Tunica Museum in Tunica, MS; the MacArthur Museum of Military History in Little Rock, AR; the Bayou Folk Museum in Cloutierville, LA, and at Nelson Hall. In all, over 50 people attended.

MAY DAY WEBINAR

In May, NCPTT offered a free webinar entitled, "Disaster Preparedness for Cultural Resources: Preparing You for the Next Disaster," at Nelson Hall. The webinar was offered during May to call attention to Preservation Month and the Heritage Emergency National Taskforce's "May Day", an initiative to protect collections from disasters.

The two-day webinar included presenters from all program areas at the National Center, providing information on preparing historic buildings, archeological sites, landscapes, museums, and cemeteries. Among the presenters was Dr. Carol Chin who spoke about lessons learned from NCPTT's response to the Deepwater Horizon Oil Spill. Andy Ferrell and Ed FitzGerald spoke about their work on mobile technologies for rapid, post-disaster documentation for built resources. Dustin Fuqua, Museum Technician at Cane River Creole National Historical Park, presented a case study on resource documentation and post-disaster recovery at the Bayou Folk Museum and Kate Chopin House. The webinar was well attended, with over 100 viewers across the country (many of whom were from the NPS).

PTT GRANTS

The Preservation Technology and Training (PTT) Grants program provides funding for innovative research, training, and publications that develop new technologies or adapt existing technologies to preserve cultural resources. Each year, the National Center awards grants of up to $25,000 to non-profit organizations, universities, and government agencies. Grant recipients undertake innovative research, provide unique training opportunities, and produce publications which meet national needs in the field of historic preservation.

2013 PTT GRANT AWARDS

In FY2013, NCPTT awarded eight grants selected from 57 completed applications. These grants, totaling $195,000, leveraged matches of $169,300 in cash and in-kind services. Awards included:

Asian Pacific Islander Historic Sites Map: The Asian Law Caucus will use HistoryPin software and crowd-sourced data to map historic sites that reflect the diverse histories of Asian Pacific Islanders across the United States. ($20,000)

Application of Biotechnology Techniques for Accurate Identification of Regional Localization of Mammalian Materials in Native American Cultural Heritage: Researchers at Harvard College will use peptide mass fingerprinting to identify mammalian materials used pervasively in Native American objects. ($25,000)

Energy Modeling of Historic Buildings, Improving Simulation and Verification Techniques: Researchers at Philadelphia University will investigate minimally invasive techniques to inventory and assess the thermal and energy performance of historic buildings. ($25,000)

Preserving Timber Frame Structures with Non-destructive Evaluation of Critical Joinery: Researchers at the State University of New York will investigate non-destructive testing methods to evaluate joints in traditional timber structures. ($25,000)

Cone and Friction Cone Penetrometer Applications to Archeological Organic Midden Deposits: The NPS Southeast Archeological Center will adapt an inexpensive and portable technology to measure resistance and other soil characteristics to help archeologists determine the horizontal and vertical extents of midden soils while minimizing excavation. ($25,000)

Genetic Sequencing in the Bacterial Analysis of Mercury Treated Collections: Researchers at the University of Colorado Denver will develop a novel, microbial-based technology for the removal of mercury from museum collections. ($25,000)

Simple Rapid Corrosion Tests with Quantitative Image Analysis for Materials Preservation: Researchers at the University of Delaware will create a new approach for rapidly and quantitatively testing collection storage and display materials for potential to induce corrosion on metal artifacts. ($8,000)

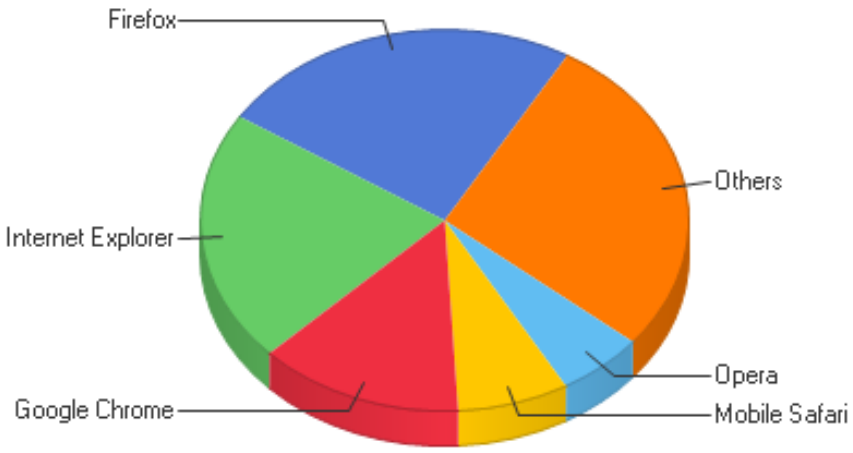
A Preliminary Manual of Policy and Management Responses to Climate Change Impacts on Cultural Landscapes: Researchers at the University of Oregon will provide essential preliminary tools for policy makers and site managers to make critical decisions regarding the appropriate responses to climate change across a range of ecological regions and landscape types. ($25,000)

A PTT Grant will investigate the use of non-destructive testing methods to evaluate traditional timber frame joints like this one from a 1750s blacksmith shop in Sherborn, MA.

NCPTT WEBSITE DEVELOPMENT

In FY2013, the NCPTT website received over 1.38 million visits by over 500,000 unique visitors who viewed 4.7 million pages. While overall visits decreased by 12.5%, unique visitors increased by 172% compared to FY2012. Page views decreased by approximately 50%. Most of the reduction was from fewer home page loads and less spam from user-submitted comments.

Website visitors are increasingly mobile. In FY2012, combined iOS and Android users accounted for a combined total of 3.28% of traffic. In FY2013, these devices accounted for 11.25% of visitors, an increase of 343% in one year. NCPTT added a mobile theme to the website to accommodate visitors with handheld devices, whereas tablet users experience the desktop version.



Breakdown of web browsers used by visitors to NCPTT's website.

NCPTT podcasts have also proven popular with 2.1% of overall web traffic accessing podcasts via iTunes, a rise of 24%. In FY2012, almost 10,000 episodes of The Preservation Technology Podcast were downloaded. In 2013, downloads rose to 28,000.

NCPTT publications were downloaded over 82,500 times, approximately 15% lower than FY2012. In FY2013, 21 new titles were published online. Publications on timber framing have consistently been the most popular for several years. Masonry publications are the second most popular.

TEN MOST POPULAR PUBLICATIONS IN FY2013	
Publication	**Downloads**
Historic American Timber Joinery: A Graphic Guide	5,914
Best Practice Recommendations for Cleaning. Government Issued Headstones	4,363
Mechanical Anchor Strength in Stone Masonry	2,771
Timber Framing: No. 71, March 2004	2,101
Timber Framing: No. 69, September 2003	1,868
Masonry History Integrity: An Urban Conservation Primer	1,258
Timber Framing: No. 72, June 2004	1,204
Rapid Building Site Assessment	1,030
Nondestructive Method for Hardness Evaluation of Mortars	1,001
Digital Image Analysis of Petrographic Thin Sections in Conservation Research	734

On YouTube, over 100,000 visitors watched more than 600,000 minutes of NCPTT videos in FY2013, a 363% increase in visitors and a 423% increase in time watched over FY2012. The National Center produced 75 new videos this year, most from the "Disaster Preparedness for Cultural Resources: Preparing You for the Next Disaster" webinar held in May, other presentations and webinars conducted in FY2013, and remaining videos from the 3D Digital Documentation Summit and the Divine Disorder Conference in FY2012. Transcription and closed captioning of video prior to publication is a requirement under Section 508 of the Rehabilitation Act. NCPTT strives to make its products accessible to all Americans, regardless of disability, by fulfilling these requirements.

TEN MOST POPULAR VIDEOS IN FY2013	
Video	**Views**
Walls of Stone: How to Build Drystone Walls and Rock Fences	24,678
Pintura de Cal (Limewash, Spanish version)	14,958
Building Dry Stone Retaining Walls	14,020
Application and Preparation of Limewash	7,567
Lifting and Hoisting Stone Grave Markers	4,902
An Axe to Grind: Part 1	3,887
Iron Fence Repair	3,869
Realms of the Unreal and the Henry Darger Archives	1,983
Ferry of Hope: Ellis Island and US Immigration	1,459
African-American and Creole Traditions Surrounding Death in the Cane River Region	1,101

NCPTT continues its web development work with the NPS Cultural Resources Career Academy and the Facility Maintenance Career Academy and will add the Visitor and Resource Protection Career Academy to its list of clients in FY2014. NCPTT will manage and maintain the overall WordPress CMS and the Commons in a Box social networking software for the academies. NPS subject matter experts have been preparing training and career materials that will be folded into the content management system. This project will enable employees at various career phases to share expertise with one another in an online community. The use of open source software and in-house staff and hosting provides a substantial cost savings to the NPS.

MOBILE DEVELOPMENT

NCPTT continues to develop mobile applications for both the iOS and Android platforms. Two of the most recent apps are Risk and MoCA.

Risk provides mobile versions of two assessment models. The first is called SPE which stands for Severity x Probability x Exposure. This "quick and dirty" calculation can help evaluate a specific hazard.

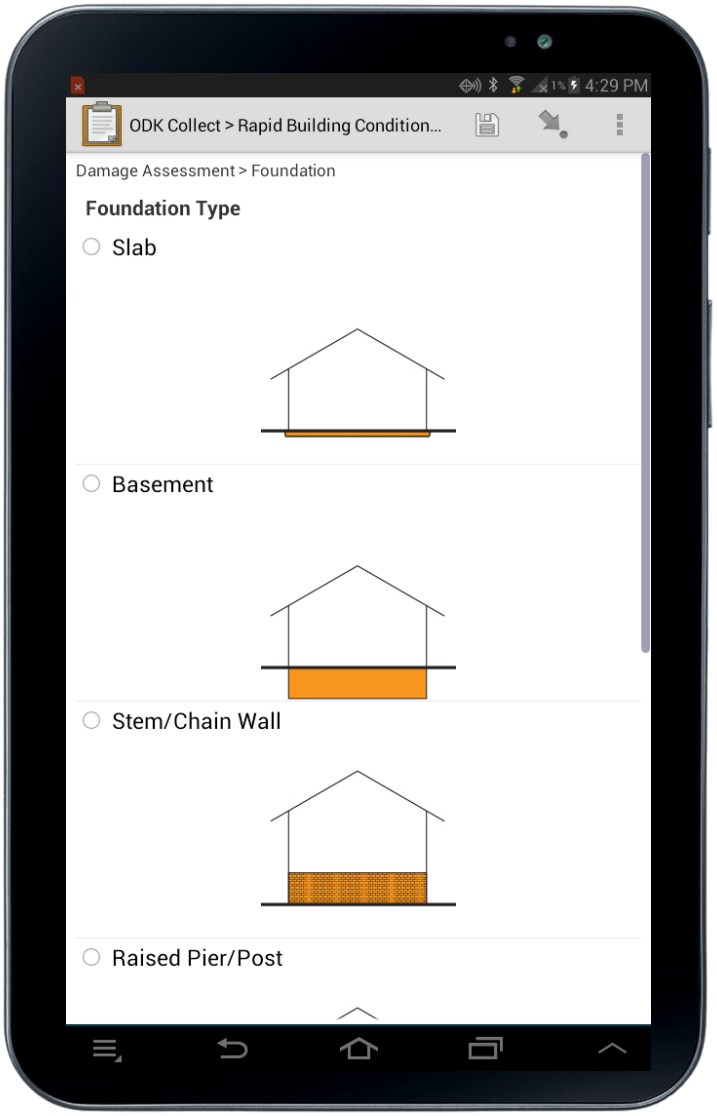
The Operational Risk Management Analysis (ORMA) Model is more deliberative. It does not tell managers what they should do, rather it helps them to think critically about a mission, identify hazards, review risks, explore options, determine risk versus gain, make decisions, and monitor for change. ORMA uses the Green Amber Red (GAR) model to determine risk.

This application is a planning tool that serves as a replacement for the laminated card provided to NPS personnel during training in the Operational Leadership safety course.

The bulk of this app was completed in FY2013. Once *Risk* is reviewed, revised, and approved, it will be submitted to the Apple and Android app stores and made available to the public for free.

The Mobile Condition Assessment (***MoCA***) app began as an Open Data Kit (ODK) project on the Android platform to update and improve the Rapid Building Site Condition Assessment form that NCPTT developed in conjunction with disaster management agencies. While ODK is an outstanding software tool for rapidly developing and field-testing proofs-of-concept, it is currently available for Android devices only, and does not have a method for synchronizing different platforms (e.g. Android *and* iOS) with a common back-end.

Using the work begun with ODK, NCPTT is developing a suite of assessment tools using the open-source WordPress content management system (CMS) for iOS and Android projects. By interfacing with the web-based version of the WordPress CMS, the mobile apps create each form as a custom post type. This allows for different kinds of forms—from buildings surveys to archeological site assessments to evaluations of historic trees—to use the same code base, saving development time. It also allows data to be synchronized between phones, tablets, and a web-based system. If a data connection is available, surveys are saved in real-time. If not, they are synchronized when a Wi-Fi connection becomes available.



Screenshot of the MoCA post-disaster building assessment form.

REACHING OUT TO YOUTH

NCPTT values its role in mentoring youth in archeology, architecture, landscapes, science and historic preservation. The National Center works with grade schools and universities throughout the year to offer educational field trips and mentor students. In FY2013, NCPTT offered three summer camps for youth, including Robotics Camp, Conservation Scientist for a Day, and History Detectives Camp.

NCPTT's Carol Chin demonstrates microscopy techniques during Conservation Scientist for a Day at Nelson Hall, Natchitoches, LA.

During the History Detectives Camp, NCPTT's Tad Britt and summer intern Ben Donnan conducted an excavation at a turn of the century residence in Natchitoches, LA. The project was a hit with the kids and several diagnostic artifacts dating from the eighteenth-century were recovered. The students were taught artifact identification, archeological field techniques, and reporting responsibilities. Much fun was had by all!

NCPTT's Adam Cox helps students at History Detectives Camp sift for artifacts in Natchitoches, LA.

Staff also worked with a local Girl Scout troop to complete their Save Outdoor Sculpture patch. As part of the patch program, Materials Conservator Jason Church described and provided hands-on activities on how bronze statues are made and how they weather. NCPTT also presented a workshop entitled "The Chemistry of Soap Making" to local Girl Scouts. They made soap in one of the Northwestern State University chemistry labs with NCPTT instructors Carol Chin (Joint Faculty Researcher), Debbie Smith (Chief of Historic Landscapes), and Christina Palomo (NSU student intern).

Also in FY2013, NCPTT offered students an opportunity to learn about non-traditional science careers through its Conservation Scientist for a Day program. In March, students from the Avoyelles Parish Charter School, learned about the role of conservation scientists, use of the scientific method in the preservation of cultural heritage, and the application of laboratory testing in studying cultural objects. They examined low- and high-fired pottery and documented Native American and French Colonial pottery fragments. Students also performed diagnostic tests on objects using microscopy, chemical spot tests, and portable X-ray fluorescence spectroscopy. The Conservation Scientist for a Day program was offered again in July, with participation open to local community youth.

APPENDICES

TRAINING AND PRESENTATIONS

The National Center develops and conducts seminars and workshops nationwide on topics ranging from maintaining historic fountains to disaster preparedness and recovery. The staff of NCPTT also speak at conferences, provide hands-on experiences for school groups, and give other presentations, disseminating the National Center's research and sharing its knowledge of preservation topics. The following is a list of training programs offered in FY 2013.

EVENTS

Headstones Cemetery Styles and Iconography, Oct. 10, 2012, Natchitoches, LA: NCPTT conducted a four-hour program for Natchitoches Magnet School eighth grade students. The students learned about burial traditions from different ethnic groups and participated in a scavenger hunt in a local historic cemetery.

2012 Creole Heritage Conference, Oct. 10-12, 2012, Natchitoches, LA: NCPTT sponsored and helped organize the two-day conference on the influence of the Spanish in Creole culture.

Preparation and Application of Limewash, Oct. 13-14, 2012, New Orleans, LA: NCPTT hosted a two-day workshop focused on the preparation and application of limewash for tombs in historic New Orleans cemeteries. The training was held during a cemetery restoration workshop organized by Save Our Cemeteries.

Cemetery Monument Conservation Basics Workshop, Dec. 1, 2012, Natchez, MS: NCPTT, in partnership with the Historic Natchez Foundation and CO-LIN Community College, held a one-day workshop on cemetery documentation, preservation planning, and proper cleaning techniques.

Chemistry of Soap Making, March 8, 2013, Natchitoches, LA: NCPTT instructed elementary school girls on the chemistry of soap making. The girls worked at individual lab stations, measuring ingredients, and preparing their soap using the hot press saponification method.

Conservation Scientist for a Day, March 11, 2013, Natchitoches, LA: NCPTT conducted a four-hour program for students from the Avoylles Parish Charter School. The students investigated authentic pottery sherds through proper documentation techniques, x-ray florescence analysis, and chemical spot testing in NCPTT laboratories.

Save Outdoor Sculpture, April 4-5, 2013, Natchitoches, LA: NCPTT guided local Girl Scouts through the requirements to earn the *Save Outdoor Sculpture* patch, a program offered through Heritage Preservation. The scouts learned how bronze and stone statues are made and how they deteriorate, and participated in a cemetery cleanup day in a local cemetery.

Nondestructive Evaluation Methods Workshop, April 11-12, 2013, Honolulu, HI: With support from NCPTT and APTI, the APT Hawaii Pacific Islands Chapter conducted a workshop on Nondestructive Evaluation Methods for Historic Structures. The workshop provided guidance for designers, engineers and contractors in the use of diagnostic non-destructive testing.

Cemetery Monument Conservation Basics Workshop, April 20, 2013, Pineville, LA: NCPTT, in partnership with the Historical Association of Central Louisiana, held a one-day workshop on cemetery documentation, preservation planning, and cleaning techniques.

Paint Analysis for Historic Buildings, May 7-9, 2013, Natchitoches, LA: NCPTT hosted a three-day hands-on workshop with guest instructor David Arbogast on the identification and analysis of historic architectural paints and finishes.

Cemetery Monument Conservation Basics Workshop, May 11, 2013, Natchez, MS: NCPTT, in partnership with the Historic Natchez Foundation, held a one-day workshop on cemetery documentation, preservation and maintenance planning, and cleaning techniques.

Preparing for the Next Disaster, May 22-23, 2013, Natchitoches, LA: NCPTT broadcast this two-day webinar. Topics included disaster preparedness and recovery for buildings, archeological sites, landscapes, and collections. The webinar presentations are available on the NCPTT website.

Historic Finishes Workshop, June 14-15, 2013, Spring Green, WI: With support from NCPTT, the Association for Preservation Technology International hosted a workshop on historic finishes. During the two-day workshop, held at Frank Lloyd Wright's Taliesin, students learned about wood finishes, paint, plaster, and metal finishes, and participated in hands-on field sessions.

Limewash Training, June 25-26, 2013, Natchitoches, LA: NCPTT conducted a workshop for staff of the Mississippi Department of Archives and History. The two-day workshop included a review of the history of limewash, NCPTT's "Study on the Durability of Traditional and Modified Limewash," and application of limewash.

Fountain Fundamentals, July 10-11, 2013, Kansas City, MO: NCPTT, in partnership with the Nelson Atkins Museum, brought together leading experts nationwide to examine issues surrounding conservation of historic fountains. A panel discussion resulted in recommendations for future research topics in the conservation of historic fountains.

History Detectives Camp, July 15-19, 2013, Natchitoches, LA: NCPTT conducted a five-day camp for middle and high school youth. The campers discovered how to apply lime wash, construct bousillage walls, excavate an archeological site, document landscape changes over time, and learned about the geology of cemetery monuments and markers.

Robotics Camp, July 22-26, 2013, Natchitoches, LA: NCPTT conducted a five-day camp for middle and high school aged youth. The campers learned soldering, programming, electronics, robot assembly, and navigation using sensors.

Disaster Preparedness and Response Workshop Series, July 23-24 and Sept. 25, 2013 Tunica, MS, Little Rock, AR, and Natchitoches, LA: NCPTT, with funding from the NPS Lower Mississippi Delta Initiative, and in cooperation with Cane River Creole National Historical Park, conducted three one-day hands-on workshops that covered the basics of disaster preparedness and response for recovery and stabilization of collections and buildings.

Conservation Scientist for a Day, July 30, 2013, Natchitoches, LA: NCPTT conducted a day-long camp for middle and high school aged youth. The students investigated authentic pottery sherds through proper documentation techniques, x-ray florescence analysis, and chemical spot testing in NCPTT laboratories.

Dry Stone Workshop, Sept. 4-5, 2013, Hagerstown, MD: NCPTT sponsored a two-day hands-on workshop that focused on restoration techniques for dry stone walls, as part of the International Preservation Trades Workshop.

Gravestone Preservation, Sept. 4-5, 2013, Frederick, MD: NCPTT sponsored and co-instructed a two-day hands-on workshop featuring sessions on marker styles and geology, stone cleaning, consolidation, resetting, and adhesive repairs, as part of the International Preservation Trades Workshop.

Archeological Modeling and Long-term Site Management Workshop, **Sept. 9-12, 2013, Champaign, IL:** NCPTT, in partnership with the University of Illinois, conducted a two-and-a-half day workshop on the modeling and management of archeological and cultural resources data.

Webinar: Preparing for the Next Disaster, Sept. 25, 2013, Natchitoches, LA: NCPTT hosted a two-day webinar on natural and cultural disasters and their effects on cultural resources.

Sustainable Design and Historic Preservation, Sept. 26, 2013, Natchitoches, LA: NCPTT partnered with the Louisiana Division of Historic Preservation to hold a series of workshops with hazard mitigation funds from the Louisiana Governor's Office of Homeland Security and emergency Preparedness. The workshops highlighted best practices in combining sustainable design techniques and historic preservation, including popular topics such as energy efficient windows and solar panels.

APPENDIX A

STAFF PRESENTATIONS

Preservapedia: Leveraging the Knowledge of Preservation Practitioners, Oct. 2, 2012, Charleston, SC: Ed FitzGerald presented at the APT Annual Conference.

Reading Grave Markers, Oct. 3, 2012, Natchitoches, LA: Jason Church presented to the First United Methodists Young at Heart group.

The Case for Preservation Trades, Oct. 3, 2012, Charleston, SC: Kirk Cordell and Andy Ferrell presented at the APT Annual Conference/PTN International Preservation Trades Workshop.

A Comparative Study of Cleaning Fragile Marble Monuments after Pretreatment with Hydroxlating Conversion Treatment (HTC), Oct. 22, 2012, New York, NY: Jason Church presented at the 12th International Congress for Deterioration and Conservation of Stone.

Evaluation of Cleaning Methods and Products for Removal of Crude Oil from Stone, Oct. 23, 2012, New York, NY: Carol Chin presented a poster at the 12th International Congress for Deterioration and Conservation of Stone.

NCPTT's Mission and Capabilities, Feb. 9, 2013, Lafayette, LA: Tad Britt presented to the Louisiana Archeological Society.

Digitization of the Malmberg Basket Collection, Feb. 21, 2013, Natchitoches, LA: Jason Church presented at the 26th Annual Research Day, Northwestern State University of Louisiana.

NCPTT's Mission and Capabilities, Feb. 22, 2013, Tyler, TX: Tad Britt presented at the Eastern Texas Archeological Conference.

Cemetery Landscapes, March 19, 2013, Natchitoches, LA: Jason Church presented to the St. Denis Garden Club.

Role of Science in National Park Service Historic Preservation, April 25, 2013, Baton Rouge, LA: Mary Striegel presented to chemistry students, Louisiana State University.

Use of Polymers in Cultural Heritage, April 25, 2013, Baton Rouge, LA: Mary Striegel presented to chemistry graduate students, Louisiana State University.

NCPTT and Sustainable Preservation, May 13, 2013, St. Augustine, FL: Andy Ferrell and PTT Board Member Roy Graham presented at the Florida Trust for Historic Preservation Annual Conference.

Preservation Technology in the 21st Century and Sustainable Preservation, July 17-18, 2013, Nantucket, MA: Kirk Cordell gave two presentations at the University of Florida's Preservation Institute: Nantucket.

Study of Commercially Available Rust Converters, Sept. 18, 2013, Edinburgh, UK: Jason Church presented at the ICOM-CC Metal 2013 Conference.

Methods for Crude Oil Removal from Fort Livingston, Grand Terre Island, Louisiana, Sept. 21, 2013, Natchitoches, LA: Carol Chin presented at the 5th Annual Louisiana Studies Conference.

Public Works Administration Architecture on the Northwestern State University Campus, Sept. 21, 2013, Natchitoches, LA: Carol Chin presented at the 5th Annual Louisiana Studies Conference.

Mapping the American Cemetery: Using GIS in Historic Preservation, Sept. 21, 2013, Natchitoches, LA: Adam Cox presented at the 5th Annual Louisiana Studies Conference.

Community Involvement in Historic Cemetery Care, Sept., 30, 2013, Natchitoches, LA: Jason Church presented to the Natchitoches Lions Club.

APPENDIX B

PUBLICATIONS AND MEDIA PRODUCED IN FY2013

RESEARCH AND TECHNICAL PUBLICATIONS

- *Archaeological Survey Technologies, Data, Integration, and Applications Workshop and Seminar, Longfellow House – Washington's National Headquarters, National Historic Site, Cambridge, MA Final Report* by Margaret S. Watters, Joukowsky Institute for Archaeology and the Ancient World, Brown University.
- *Assessment of Handheld Multibeam Sonar Imagery for the Study of Submerged Cultural Resources* by Arthur B. Cohn and Adam I. Kane, Lake Champlain Maritime Museum.
- *Applications of Digital Photogrammetric Methods for Preservation Documentation of Historic Homes* by Dale Kronkright, The Georgia O'Keeffe Museum.
- *Comprehensive Understanding of Archaeological Magnetism and Instrumentation* by Kenneth L. Kvamme, University of Arkansas.
- *Corrosion Resistance Surface Treatment for Marble* by George W. Scherer, Princeton University.
- *Curriculum and Certification for Adobe Professionals* by Ann Galer, Helen Levine, and Jake Barrow, Cornerstone Community Partnerships.
- *Dendrogeomorphological Analysis of Earthwork Stability at Poverty Point SHS, Louisiana* by Diana Greenlee, University of Louisiana at Monroe
- *Enhancements to What's Out There for Mobile Devices* by Marcus Iannozzi, The Cultural Landscape Foundation.
- *Learning from the Texas Wildfires: Bastrop State Park and Beyond* by Dennis Gerow, Texas Parks and Wildlife.
- *Modernizing Living Collections Management in an Historic Landscape* by Rebecca Sucher, Missouri Botanical Garden.
- *Molecular Characterization and Technical Study of Historic Aircraft Windows and Head Gear using Portable Raman Spectroscopy* by Alex Spencer, Smithsonian National Air & Space Museum.

VIDEOS

Videos from the 3D Digital Documentation Summit

In July 2012, NCPTT presented 3D Digital Documentation Summit at the Presidio in San Francisco. The program featured two days of contributed papers and a poster session, followed by a third day of field demonstrations and exercises. The following video presentations were translated, close-captioned, and made available on the NCPTT website in FY2013:

- *A Comparative Study Using LiDAR Digital Scanning and Photogrammetry,* Mike Nulty, Technical Coordinator, Center of Preservation Research, University of Colorado, Denver and Tom Noble, Branch Resource Technology, Bureau of Land Management.
- *Advances in Computational Photograph Techniques for Cultural, Historic, and Natural History Materials*, Carla Schroer, Director, Cultural Heritage Imaging (CHI).

APPENDIX B

- *Application of Current 3D and Pseudo-3D Imaging for Conservation* by Melvin Wachowiak, Senior Conservator E. Keats Webb, Digital Imaging Specialist, Smithsonian Museum Conservation Institute, Washington D.C., Melvin J. Wachowiak, Smithsonian Institute and E. Keats Webb, Imaging Specialist.
- *Applications of Reflectance Transformation Imaging (RTI) in a Fine Arts Museum: Examination, Documentation, and Beyond*, Philip Klausmeyer, Conservation Scientist and Associate Painting Conservator, Worcester Art Museum.
- *Archive of Digital Data for HABS, HAER, and HALS,* Anne Mason, Digital Library Production Manager, National Register of Historic Places and the National Historic Landmarks Program, National Park Service.
- *Assessing the Value of Laser Scan Data,* Dana Lockett, Architectural Project Manager, Historic American Engineering Record (HAER) National Park Service, and Paul Davidson, Project Architect, HAER.
- *Automated Classification of Surface Texture for Photographic Paper,* C. Richard Johnson, Jr. Geoffrey S. M. Hedrick Senior Professor of Engineering, Cornell University and Paul Messier, independent conservator of photographs.
- *Best Practices for Digital Documentation,* Ekaterini 'Kat' Vlahos and Mike Nulty, Technical Coordinator, Center of Preservation Research, University of Colorado, Denver.
- *Conservation & H-RTI*, Anna Serotta, Fellow, Metropolitan Museum of Art and Ashira Loike, Sherman Fairchild Center for Objects Conservation, Metropolitan Museum of Art.
- *Close Range Photogrammetry vs. 3D Scanning for Archaeological Documentation*, Katie Simon and Rachel Opitz, Center for Advanced Spatial Technologies.
- *Designing the Lidar Mission for Industrial Heritage: Cooperation Across the Fields*, Mark Dice and Timothy Goddard, Michigan Technical University.
- *Documenting National and World Heritage Sites: the Need to Integrate Digital Documentation and 3D Scanning with Traditional Hand Measuring Techniques*, Krupali Krusche, Assistant Professor, University of Notre Dame.
- *Evolution in Project Workflow – Is High Definition Survey the Missing Link?* Brandon C. Friske, Architectural Designer, Quinn Evans Architects.
- *Foambenge: 3D Modeling and Conservation of a Monumental Sculpture,* B. Story Swett, Regional Chief Architect, General Services Administration.
- *Four Light Total Appearance Imaging of Paintings,* Roy S. Berns, Richard S. Hunter Professor in Color Science, Appearance, and Technology and Director of the Munsell Color Science Laboratory, Center for Imaging Science at Rochester Institute of Technology; Tongbo Chen, Postdoctoral Fellow, Munsell Color Science Laboratory, Center for Imaging Science at Rochester Institute of Technology; and Jim Coddington, Agnes Gund Chief Conservator, Museum of Modern Art.
- *High Resolution Digital Photogrammetry with Object Surface Texture,* Battle Brown, Senior Research Scientist, Carnegie Mellon University.
- *Monitoring Using Laser Scanning – Case Study of Watts Towers,* Christopher Gray, Director of Business Development, Mollenhauer Group.

- *Restoring the Lion's Roar: Documenting and Replicating Limestone Structures Through Laser Scanning, 3D Computer Modeling, and CNC Machining*, Caitlin Smith, Architectural and Sculptural Conservator, Kreilick Conservation, LLC.
- *Rocket Science and 3D Analyses in the Preservation of Artistic and Historic Works*, John F. Asmus, Department of Physics, University of California at San Diego.
- *The Patternmaker's Art: Innovation within a Timeless Tradition,* Scotty Howell, Vice President and General Manager of Robinson Iron.
- *3D Digital Documentation as a Basis for the Finite Element Method in the Restoration of Tullio Lombardo's Marble Sculpture of Adam*, Ronald Street, Metropolitan Museum of Art, New York, NY.
- *3D Modeling of a Gravestone*, Dante Abate, Research Fellow, ENEA Research Center of Bologna, Italy.
- *3D Scanning of Matisse, the Back I-IV: One Thing after Another*, Lynda Zycherman, Sculpture Conservation Laboratory, Museum of Modern Art and Joe Nicoli, Harry Abramson, and Glenn Woodburn, Direct Dimensions.
- *3D Technology and the H.I. Hunley: Beyond Documentation*, Christopher Watters, Warren Conservation Center.
- *Utilizing Digital Methods to Document and Reconstruct Old Sheldon Church*, Chad Keller, Savannah College of Art and Design.
- *Why DIGITAL? Its only 1's and 0's,* Robert Warden, Center for Heritage Conservation, Texas A&M University.

Videos from the Disaster Preparedness for Cultural Resources Webinar
In May 2013, NCPTT offered a free webinar "Disaster Preparedness for Cultural Resources." The webinar included presentations that provided information on preparing and recovering historic buildings, sites, landscapes, or cemeteries from natural and man-made disasters. The following videos are on the NCPTT website:

- *Archaeological Sites after Disasters,* Tad Britt, Chief of Archeology, National Center for Preservation Technology and Training.
- *Disaster Planning,* Mary Striegel, Chief of Materials Conservation, National Center for Preservation Technology and Training.
- *Disaster Preparedness and Response for Historic Cemeteries,* Jason Church, Materials Conservator, National Center for Preservation Technology and Training.
- *Picking up the Pieces*, Dusty Fuqua, Cultural Resource Specialist, Chief of Resource Management, Cane River Creole National Historical Park
- *Trees: Storm Preparation and Recovery*, Debbie Smith, Chief of Historic Landscapes, National Center for Preservation Technology and Training.
- *Disaster Preparedness for Buildings,* Sara Jackson, Architectural Conservator, National Center for Preservation Technology and Training.
- *Oil and Cultural Resources*, Carol Chin, Conservation Scientist, National Center for Preservation Technology and Training.

APPENDIX B

Video Interviews with Cultural Landscape Professionals

- *Susan Buggey*, preservation consultant, Ottawa, Ontario, Canada. Former chief of the Historical Services Branch, Parks Canada.
- *Ian Firth,* Professor Emeritus, College of Environment & Design, University of Georgia.
- *Carrie Gregory*, Statistical Research, Inc., Albuquerque, NM.
- *Robert Melnick,* Professor, Department of Landscape Architecture, University of Oregon.
- *Hugh Miller,* preservation consultant and Adjunct Professor, Goucher College, Towson, MD. Former Chief Historical Architect of the National Park Service.

PODCASTS

- *Episode 40: Thin Section Petrography for Conservation,* interview with Chandra Reedy, Director of the Laboratory for Analysis of Cultural Materials, Center for Historic Architecture and Design, University of Delaware.
- *Episode 41: KeckCAVES, Immersive 3D Visualization System for Cultural Sites*, interview with Marshall Millet, owner of MMars 4-D.
- *Episode 42: Have Laser Will Travel*, interview with John Asmus, physicist at the University of California, San Diego.
- *Episode 43: SEAC,* interview with Dr. David Morgan, Director of the National Park Service's Southeast Archeological Center.
- *Episode 44: Incorporating Wiki-based Assignments in Higher Education*, interview with Professor Bruce Sharky, Louisiana State University.
- *Episode 45: Texas Wildfires and Bastrop State Park*, interview with Fran Gale, Director of the Architectural Conservation Laboratory at the University of Texas at Austin.
- *Episode 46: Restoration of the Camden House Orchard*, interview with Rico Montenegro, Chief Arborist for The Fruit Tree Planting Foundation.
- *Episode 47: Recording Civil War Earthwork Fortifications with Lidar*, interview with Matthew Luke, GIS Analyst and Staff Archeologist at the South Carolina Battleground Preservation Trust.

POSTERS

3D Digital Documentation Summit

The following posters presented at the 3D Digital Documentation Summit are available on the NCPTT website:

- *Cooperation Creates A Custom Crate: Conservation, Laser Scanning, 3D Milling and Crate Building Work Together*, Lynda Zycherman, Sculpture Conservation Lab, Museum of Modern Art and Stephen O'Banion, Winterthur/University of Delaware Program in Art Conservation.
- *Integrating Aerial and Ground-based LiDAR in Appalachian Heritage Planning and Visualization*, Peter M. Butler, Assistant Professor of Landscape Architecture, Iowa State University.

- *Laser Scanning America's Cultural Landscapes,* Christopher M. Stevens, Historic American Landscape Survey (HALS) National Park Service, Dana Lockett, Historic American Engineering Record (HAER) National Park Service.
- *Mind the Gap: the Need to Supplement Laser Scan Data in HABS Documentation Projects,* Daniel De Sousa, Architect, Historic American Building Survey (HABS) National Park Service, and Jason McNutt, Architect, HABS.
- *Post-Processing Workflows: Identifying Hidden Costs in Converting Scan Data to Useable Information*, John Wachtel, Staff Architect, Heritage Documentation Programs, National Park Service.
- *Recording Structure and Process: HAER 3D Digital Documentation Methods*, Jeremy Mauro, Architect, Heritage Documentation Programs, National Park Service.
- *3D Data Recordation and Immersive Visualization: Considerations for Creative Mitigation Practices*, Marshall R. Millet, Senior Archaeologist and GIS Administrator, MMars4d Cultural Services and Aemass, Inc.
- *3D Digital Documentation of Cultural Resources in Southern Arizona National Parks,* National Park Service, Intermountain Region, Southern Arizona Group; Western Mapping Company; and University of Pennsylvania.
- *Utilizing Digital Methods to Document and Reconstruct Old Sheldon Church*, Chad Keller, Savannah College of Art and Design.

APPENDIX C

FY2013 BUDGET

	APPROPRIATED FUNDS
FEDERAL PERSONNEL	**1,028,165**
Personnel	1,028,165
TRAVEL	**63,699**
NCPTT Staff Travel	63,699
TRANSPORTATION OF THINGS	**832**
GEN – Express Shipping	832
RENT, COMMUNICATIONS, AND UTILITIES	**39,559**
GEN – Utilities – Nelson Hall	23,234
GEN – Phone Service	11,524
GEN – GSA Vehicle	4,801
PRINTING & REPRODUCTION	**1,625**
GEN – Reproduction	1,625
SERVICES	**45,724**
GEN – Maintenance/Security/Parking – Nelson Hall	6,838
GEN – Advertising	0
GEN – Conference Displays and Fees	17,301
GEN – Professional Memberships – APT, ICOMOS, etc.	4,417
GEN – Video Closed Caption and Supplies	1,525
AC – Radioscopy of Liberty Bell Reproductions	2,500
MC – AIC Booth and Sponsorship	2,500
MC – Lab Equipment Repairs	10,643
TRAINING	**9,753**
GEN – Conference Attendance	4,443
GEN – Staff Training	4,735
GEN – Health Club Reimbursement	575
SUPPLIES	**42,077**
GEN – Books and Subscriptions	4,536
GEN – Office Supplies	10,755
GEN – Furniture	2,671
GEN – Laboratory Supplies	9,553
GEN – Laboratory Equipment	3,642
IT – Software	10,920
CAPITAL EQUIPMENT	**25,778**
IT – Hardware	19,478
MC – Laboratory Equipment	6,300

APPENDIX C

GRANTS, COOP. AGREEMENTS, & PROJECTS	610,699
GEN – PTT Competitive Grants	195,000
GEN – NSU CA (Personnel, Janitorial, etc. for 2014)	367,916
GEN – Aluminum Conference	3,000
GEN – Rising Damp Conference	3,000
GEN – Gordon Research Conference	3,000
AC – Archeological Predictive/Management Model	21,349
AE – APT CA – 2 workshops/web modules/tech. library	15,000
AE – Glazing Compound Study	1,434

TOTAL APPROPRIATED FUNDS EXPENDED **$1,867,911**

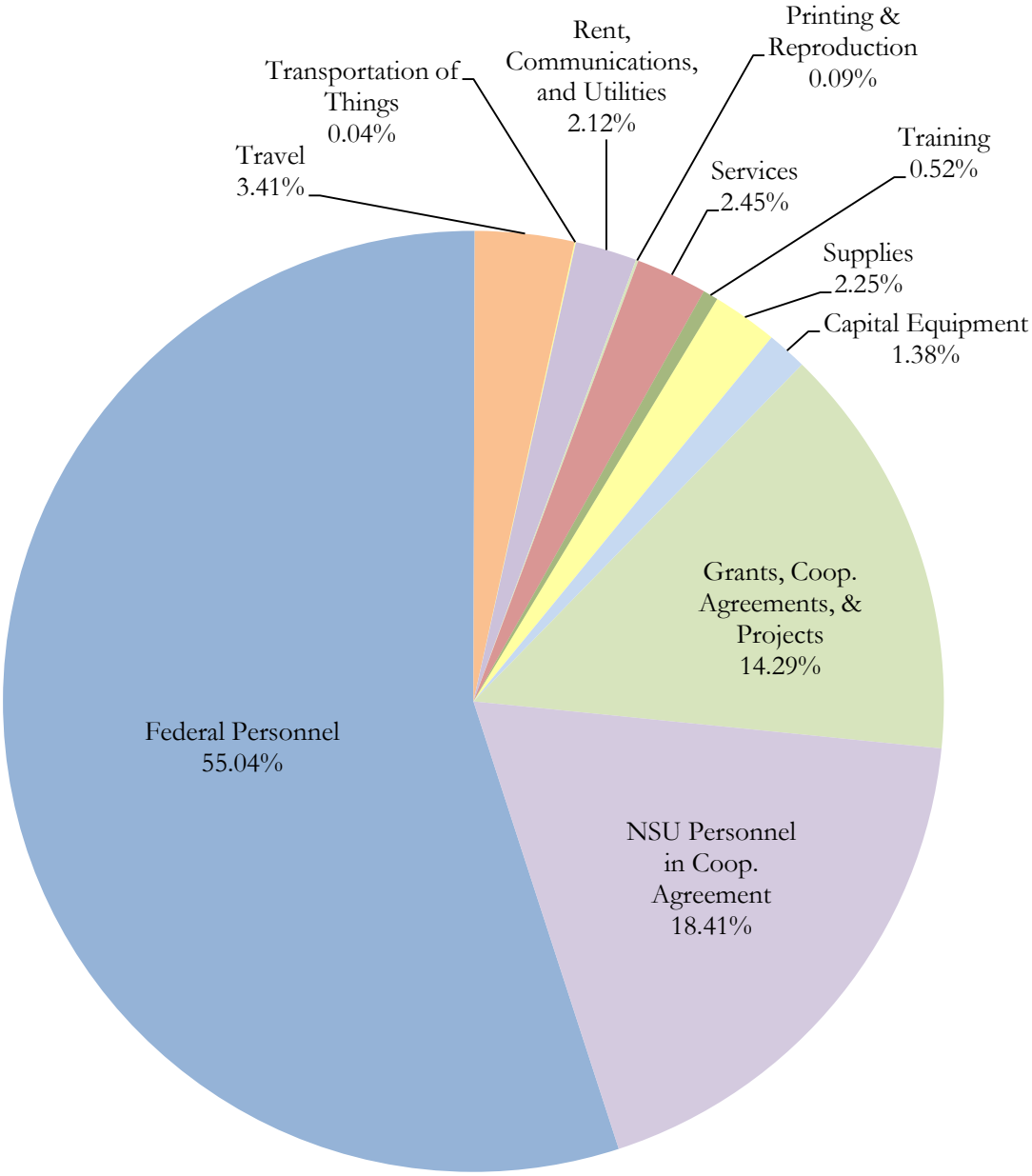
ABBREVIATIONS USED ABOVE			
AC	Archeology and Collections	HL	Historic Landscapes
AE	Architecture and Engineering	IT	Information Technology
GEN	Center-wide activities	MC	Materials Conservation

FIXED COSTS (EXTRACTED FROM ITEMS ABOVE)

OPERATION		
Utilities		23,234
GSA Vehicle		4,801
Copier Maintenance and Toner		6,838
Maintenance – Nelson Hall		13,000
Phone Service		11,524
Janitorial (in NSU CA)		8,000
	TOTAL OPERATION	67,397
PERSONNEL		
Federal Personnel		1,028,165
Permanent NSU Personnel		345,714
Interns		31,735
	TOTAL PERSONNEL	1,405,614
	TOTAL FIXED COSTS	**1,473,011**

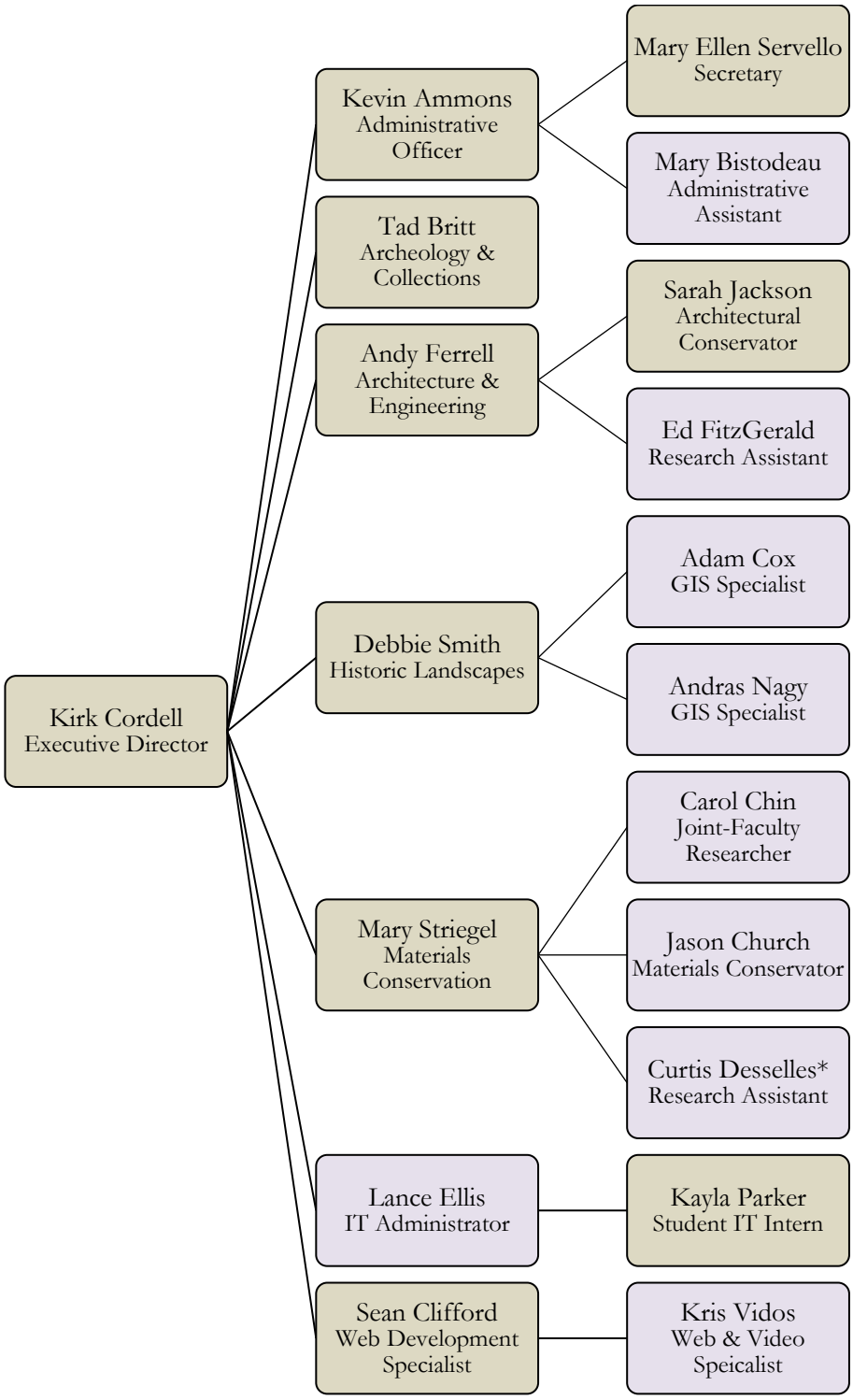
APPENDIX C

BUDGET PIE CHART



APPENDIX D

ORGANIZATION CHART



Positions employed through the National Park Service.
Positions employed through a Cooperative Agreement with Northwestern State University.
* Position vacated in May 2013.