

## Chapter 8: Conservation Treatment

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# CHAPTER 8: CONSERVATION TREATMENT

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## A. Overview

This chapter explains how to get appropriate conservation treatments by experts in the conservation field. Care of NPS museum collections is based on a preventive conservation approach to preserve objects, archives, and natural history specimens. Sometimes, however, preventive measures are inadequate, and conservation treatment is necessary to preserve an object:

- If an object has inherent vice, preventive measures may not be enough to reduce the rate of deterioration to a tolerable level. An acceptable treatment can prolong the life of an object. For example, a paper conservator can wash deteriorated wood-pulp paper to remove acidic by-products.
- If an object is extremely fragile from deterioration, appropriate treatment can increase stability and durability. For example, a paintings conservator can reattach flaking paint.
- If an object will be used for exhibit, research, or publication needs, conservation treatment may be needed. For example, a textile conservator can construct a special mount for a flag to allow it to be exhibited vertically. An archeological conservator can clean a metal artifact to reveal important markings.

Conservation treatment is active ("hands-on") work to preserve and/or restore objects. Only trained conservators who have experience in the appropriate material (for example, paintings, textiles, furniture, photographs, books, paper, archeological objects, ethnographic objects, natural history specimens) should treat the objects.

If conservation treatment is required, the park staff must ensure that:

- objects, archives, and specimens receive the most appropriate treatment for their preservation and use
- treatment is appropriate by considering an object's condition, history, significance, and use
- treatments are performed by skilled, experienced conservators and documented properly

***Anyone who carries out a treatment on NPS museum collections must agree to follow the principles and practices specified in the AIC Code of Ethics and Guidelines for Practice (American Institute for Conservation of Historic and Artistic Works, 1994). Refer to Appendix D for a copy of the Code of Ethics. Include this requirement in all contracts.***

1. *What is treatment?*

Treatment is any action taken to prolong the existence of objects. National Park Service policy defines treatment as the following:

- preservation
- stabilization
- restoration
- reproduction

At the most basic level, preservation activities might include dusting furniture to prevent grime from becoming embedded in an important historic finish. A high level of treatment, such as restoration, might consist of cleaning a painting, filling areas of loss, and coloring the fill with new pigments to simulate the original intent of the painter.

2. *What is preservation?*

The emphasis of NPS policy is on *preservation*. NPS *Management Policies*, Section 5.3.5.5.1 states that “an item in a museum collection will be preserved in its present condition through ongoing preventive care if:

- that condition is satisfactory for exhibit or research; or
- another treatment is warranted, but it cannot be accomplished until some future time.”

Many of the chapters and appendices of the *Museum Handbook*, Part I, contain information on collection preservation. In particular, see Chapter 3: Preservation: Getting Started.

3. *What is conservation treatment?*

Conservation treatment is the deliberate alteration of the chemical and/or physical aspects of objects aimed primarily at prolonging their existence. The NPS recognizes two levels of conservation treatment:

- stabilization
- restoration

*Stabilization* is the first level of conservation treatment. NPS *Management Policies*, Section 5.3.5.5.1, states that “an item will be stabilized if:

- preventive measures are insufficient to reduce deterioration to a tolerable level; or
- the item is so fragile that it will be endangered under any circumstances.”

One objective of any treatment is minimal intervention to reduce the possibility of compromising the item’s integrity. Often, efforts to repair, stabilize, and restore objects have been detrimental to the long-term preservation of objects. Earlier techniques may have altered or destroyed important features of objects. In some cases, no treatment might have been a better choice. In part, this is why the preventive conservation approach has developed over the last few decades.

4. *What is stabilization?*

*Stabilization* or *minimal intervention* is a treatment strategy of doing the least possible to the object. The goal is to limit the possibility that conservation treatment will compromise the object's significance or result in more rapid deterioration in the future.

Information can be destroyed with any active treatment, even if done with preservation as the goal. New analytical techniques are always being developed. Later generations often re-evaluate objects and have different ideas about what makes them significant. You should understand that, even with the best of intentions, interventive treatment usually makes a permanent change to the object. Even simple cleaning is a permanent change.

5. *What are restorations?*

Restorations are treatment procedures intended to return objects to a known or assumed former state, often through the addition of non-original material. Policy on restoration is very specific (see *NPS Management Policies*, Section 5.3.5.5.2). An item may be restored to an earlier appearance if:

- restoration is required for exhibit or research purposes;
- sufficient data about that item's earlier appearance exist to enable its accurate restoration; and
- restoration will not modify that item's known original character.

Additionally:

- restoration will be accomplished using the techniques and materials that least modify the item
- restoration materials should be removable at a later time with minimal adverse effect
- restored areas should be distinguishable from original material, and documented
- restoration will take into account the possible importance of preserving signs of wear, damage, former maintenance, and other historical and scientific evidence

6. *Why use reproductions?*

The use of reproductions is a preservation strategy to make objects available for interpretive and educational presentations when the originals are too fragile, or would be subject to undue deterioration or loss. (See also *Museum Handbook*, Part III, Chapter 4: Two-Dimensional Reproductions, and Chapter 5: Three-Dimensional Reproductions.)

7. *Why should treatments be reversible?*

No treatment is completely reversible. For example, you can't "un-wash" a textile. However, conservators must use, wherever possible, materials that are removable without damage to the original material of the object. The principle of reversibility is important because objects may need to be treated again.

8. *What NPS guidance is available to help me make decisions about conservation treatment?*

Review Chapter 3: Preservation: Getting Started, for information on the roles of the curator/collections manager and the conservator and for information on the Collection Condition Survey (CCS). Review the appendices in this handbook for specific information on preservation of different types of materials and collections. In addition, *Management Policies*, Chapter 5: Cultural Resource Management, discusses NPS policy for conservation treatment of museum objects.

9. *When do I need a conservator?*

All interventive treatments (stabilization and restoration) **must** be undertaken by a professional conservator. A conservator is trained and skilled in the theoretical and practical aspects of preventive conservation and conservation treatment. Most conservators specialize in the treatment of specific groups of objects (for example, archeological objects, books, ethnographic objects, natural science specimens, fine and decorative art objects, photographic materials, paintings, paper, sculpture, textiles, or wooden artifacts). There is some overlap among these groups, so one conservator may work on a range of these materials. For more information on the roles that collection management specialists, curators and conservators play in the preservation of museum objects, see Chapter 3: Preservation: Getting Started.

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## **B. Factors to Consider Before Conservation Treatment**

1. *How will I know what conservation treatment is appropriate?*

The treatment choices for objects and collections will vary, based on why they were collected. Share your reasons for keeping an object or collection with the conservator. You may keep objects and collections for a variety of reasons.

Appropriate treatment is developed through discussion between conservator and curator. Consider all technical, historic, scientific, cultural, religious, and aesthetic aspects of an object. Explain why you think conservation treatment is necessary. Talk about the planned use of the object. Explain where the object will be exhibited or stored. Discuss the wishes of affiliated ethnic groups. By developing a shared understanding of the object and its problems, a treatment that takes into account these many different aspects will be developed. Don't approve a treatment simply to make an object look "good" according to your standards.

Reasons for minimal intervention:

- Collections may document the history of a technology. Objects preserve various kinds of information that indicate how they were made and used. These include:
  - design features
  - composition
  - source and processing of raw materials
  - fabrication and manufacturing techniques
  - accretions

- signs of wear
- repair or alterations

In discussions with the conservator, pass on information you may have about paint, markings, residues of associated materials, grime, metallurgical features, and other easily lost remnants.

- Collections may have scientific research value.

Most archeological, natural history, and archival collections are preserved as evidence or as information for research and study purposes. Some ethnographic and historical collections may be preserved for this reason as well. For these types of collections, appropriate treatment always requires minimal intervention.

- Objects may be culturally or legally significant.

Many park collections contain objects that have special significance to Native Americans or other cultural groups. Identify the culturally relevant group, if any, for all items in your collections. Consult with a qualified ethnographer to help identify relevant groups, materials, community consultants, and questions that should be raised when considering the treatment. Consultation with representatives of Native American or other groups should be sought to help identify significant objects and determine appropriate treatments. If there are questions about the acceptability of a treatment, wait until more is known.

Collections may also have associations with eminent individuals, groups, events, or sites. You should be sure that treatment does not destroy evidence of that association. For example, you wouldn't remove bloodstains on the coat Abraham Lincoln was wearing when he was assassinated.

There may be legal issues to consider as well. For example, land records may be used as legal proof, and treatment may affect their legitimacy.

Reasons for restoration:

- Objects may have a special function.

Parks collect some objects because of a special function they perform. For example, a certain musical instrument may produce a quality of sound worth preserving. To preserve the functional capability of an object, worn out or defective parts may require replacement. When considering a treatment for this kind of object, ask "Is preservation of function more important than preservation of the original material?"

- Appearance of the object may be important.

Restoration is often carried out to improve appearance—especially when an object is prepared for exhibit. Often you will have to make a decision about whether to leave signs of wear and tear, or to restore an object closer to original appearance. Ask these questions:

- Why do I want to restore the former appearance? For example, when deciding whether to replace a missing leg on a chair to be displayed in a historic house, consider that the inhabitants probably did not use a broken chair.
- When would restoration go too far and be fraudulent or unethical? For example, overpainting original material so that some of the original is hidden would be fraudulent.

2. *What guidelines should I follow when considering restoration?*

The line between stabilization and restoration is not exact. For example, a torn document can be stabilized by encapsulation between two sheets of Mylar®. This might not be an acceptable treatment for exhibition. A conservator can mend the tear. This is stabilization, but the treatment also *restores* the original shape or format of the document.

Follow these guidelines when reviewing a treatment proposal that suggests restoration:

- Restoration should be based on known facts, not conjecture.
- Restoration should not modify the original character (shape, size, information, visual aesthetic) of an object or item.
- Restoration should be minimally interventive. Agree on techniques and materials that cause the least modification to an object and that can be removed most completely, if necessary, with minimum effect.
- Restored areas should be distinguishable from original material upon close visual inspection, but need not be conspicuous. Ensure that all restored areas are fully documented in the treatment report.
- Restoration should take into account the significance of wear, damage, former maintenance, or other historic or scientific evidence.

3. *What is the difference between conservation treatment and routine maintenance?*

Routine maintenance keeps an object in working order, while conservation treatment stabilizes the condition of an object within a museum context. Many of the objects in NPS collections were used in the everyday world. Utilitarian objects required repair and maintenance in order to function properly. However, once objects are removed from regular use, the same maintenance procedures can cause deterioration. For example, applying "leather dressings" to horse tack is important to keep pieces flexible and clean while they are being used. After accessioning, however, leather dressings will cause build up on the leather and accelerate deterioration.

In contrast to the use objects receive outside a museum, museum objects are preserved so they can be studied or exhibited. The goals for preservation are different, so the procedures and materials for care may be different. Work with a conservator to ensure that routine care and maintenance procedures are appropriate for the long-term preservation of the object. For examples see:

- *Conserve O Gram 9/1, Leather Dressing: To Dress or Not to Dress*
- *Conserve O Gram 10/3, Preparing Historic Motorized Vehicles for Storage and Exhibit*

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## C. Documentation of Conservation Treatment

All conservation treatment must be documented in writing. Many treatment records will also include graphic documentation (for example, photographs, drawings, analytical results, spectra, and digital images). NPS conservation treatment policy follows the guidelines for documentation in the *Code of Ethics and Guidelines for Practice of the American Institute for Conservation of Historic and Artistic Works* (AIC) (see Figure 8.1).

File all treatment documentation in the appropriate accession folder or catalog folder. You must keep a paper copy of all electronic records.

### 1. *Why is conservation documentation important?*

Documentation is important for these reasons:

- Conservation documentation is a written and graphic report of the work that is done. It provides the park staff with information on the condition of the object, such as how its original state has been altered, what is original material, and what is old restoration.
- It serves as a permanent record of the treatment procedures performed and the materials and methods used.
- It spells out the understanding reached between the curatorial staff and the conservator on the treatment, including the extent and type of any stabilization or restoration treatment.
- It makes possible the assessment of the success or failure of treatment methods and materials over a long period of time and provides information that will help future conservators to assess an object's condition and devise further treatment.
- It may last longer than the object itself and become the only record.

### 2. *What is the ANCS+ Conservation Associated Module?*

The Conservation Associated Module is a feature of ANCS+ that allows parks to incorporate conservation documentation directly into park-automated records. The module is a system that transfers copies of basic catalog information to the conservator and then easily transfers conservation documentation back into the park records.

The conservator must use templates created for Access, Excel, or ASCII formats to record survey, treatment, and analytical information. The template is required to make documentation compatible with the ANCS+ database. Complete instructions for using the Conservation Associated Module can be found in the ANCS+ User Manual, Appendix J.

***Contracts with NPS and non-NPS conservators must include the requirement for using ANCS+ compatible reporting formats to ensure that data can be uploaded (see [ANCS+ User Manual, Appendix J](#)).***



3. *What types of conservation projects can be recorded in the Conservation Associated Module?*

There are four types of conservation projects recorded in the Conservation Associated Module:

- Condition Survey
- Treatment Proposal
- Treatment Report
- Analysis

Parks use the Conservation Associated Module to:

- transfer basic catalog data from the park to the conservator to speed data entry and allow for improved conservation documentation
- incorporate documentation produced by conservators directly into park automated records (You don't have to enter data from paper records generated by the conservator.)
- ensure that you get documentation of critical information (The data fields guide the conservator to provide specific kinds of information in the report.)
- ensure documentation does not get lost over time (Paper reports are harder to track and keep associated with the objects over time. Data in the computer remains associated with the objects on a long-term basis. In addition, the National Catalog keeps backups from your yearly submission.)

Conservators use the Conservation Associated Module data templates to:

- facilitate incorporation of information they generate into park automated records as well as conservation lab databases
- ensure that their documentation is readily available to future curators, conservators, and researchers
- integrate conservation information in the primary database used to make management decisions about collections
- assist in managing conservation for the object, for example, the ANCS+ program facilitates:
  - simple estimation of hours for treatment projects on multiple objects
  - documentation of the amount of work accomplished in a year
  - word searches on treatment materials or types of objects treated
  - searches to find similar objects from past work
  - searches to find all work done for a park over numerous projects

Guidance for using the Conservation Associated Module is included in the *ANCS+ User Manual*, Appendix J: The Conservation Associated Module.

4. *What kinds of documentation should I require from the conservator?*

In addition to information recorded in the Conservation Module, get a copy of all documentation recorded by the conservator:

- **Written reports:** The conservation profession requires documentation of examination, scientific investigation, and treatment by creating permanent records and reports. The written reports often contain information on research into materials and technology that are beyond the scope of the Conservation Associated Module. They are prepared either in a narrative style or checklist format. See Figures 8.2–8.4 for sample reports. For multiple object treatments, summary reports may be included as well.
- **Photographs:** Most treatment documentation will include detailed photography. A complete series will include photos taken before, during, and after treatment. Photographic documentation can be archivally processed black-and-white prints or color slides. Digital images **may not** be substituted for black-and-white prints or color slides. Specialized photographic techniques are often used. These include use of:
  - ultraviolet light—some restorations fluoresce and become more visible
  - infrared light—may reveal details under layers of grime and old coatings; may improve the legibility of difficult-to-read inscriptions
  - raking light—shows surface irregularities by illuminating the surface from an acute angle
  - reflected light—shows variation in gloss or texture by recording the reflection of a light source
  - x-ray radiography—may reveal internal features
  - transmitted light—may show missing areas in translucent objects
  - photomicrography—shows details too small to see with the naked eye
- **Drawings and illustrations:** These media are used to note changes or significant features that are hard to illustrate with photographs (for example, repairs, selvage edges, changes in sewing threads in textiles).
- **Analytical records:** If analysis is undertaken to identify materials or techniques, additional types of information may be generated, such as analytical reports and interpretation, spectra, and graphs. Parks must keep complete sets of the data as part of the record of conservation work.

	<b>MINIMUM DOCUMENTATION REQUIREMENTS</b>	<b>RECOMMENDED DOCUMENTATION REQUIREMENTS</b>
<b>All Documentation</b>	Include: <ul style="list-style-type: none"> <li>• purpose</li> <li>• documentation by (name)</li> <li>• date</li> <li>• object name</li> <li>• object ID/unique information</li> <li>• catalog number</li> <li>• registration number</li> <li>• measurements</li> <li>• marks/labels/features</li> </ul>	Include associated records such as: <ul style="list-style-type: none"> <li>• previous treatment</li> <li>• excavation reports</li> <li>• curatorial reports</li> <li>• scientific reports</li> </ul>
<b>Examination Reports</b>	Include: <ul style="list-style-type: none"> <li>• observations</li> <li>• present condition</li> <li>• notation of accessory materials or associated elements</li> <li>• past treatment evidence</li> <li>• methods of examination and testing</li> </ul>	Include: <ul style="list-style-type: none"> <li>• drawings/photos to illustrate condition and relevant details (include control numbers)</li> <li>• size scale</li> <li>• gray/color scale (photos)</li> <li>• light direction (photos)</li> <li>• object ID</li> </ul>
<b>Treatment Proposals:</b>	Include: <ul style="list-style-type: none"> <li>• treatment plan</li> <li>• materials to be used</li> <li>• time estimate</li> <li>• cost estimate (when appropriate)</li> </ul>	Include: <ul style="list-style-type: none"> <li>• objectives and limitations of treatment, benefits, and risks</li> <li>• general description of properties of materials to be used</li> <li>• statement that minor variations in treatment may be required as treatment progresses</li> </ul>
<b>Treatment Reports:</b>	Include: <ul style="list-style-type: none"> <li>• conservator name</li> <li>• report date/treatment date</li> <li>• procedures used that deviate from proposal</li> <li>• added materials that remain on object</li> <li>• materials used on object that do not remain</li> <li>• removed materials</li> <li>• materials obscured by treatment</li> <li>• new information about object revealed in treatment (including features hidden by assembly)</li> <li>• changes in artifact as a result of treatment including its state after treatment</li> <li>• names of assisting conservators, consultants, and contractors</li> <li>• dated graphic documentation</li> </ul>	Include: <ul style="list-style-type: none"> <li>• procedures and materials considered, but not chosen</li> <li>• recommendations for subsequent care and maintenance</li> <li>• treatment time</li> <li>• treatment cost (when needed)</li> </ul>

**Figure 8.1. Information Required in Conservation Treatment Documentation**  
 (Taken from *AIC Guidelines and Standards for Practice*)

5. *What are typical documentation steps when an object is treated?*

Most object conservation treatment documentation will include the following steps:

- 1) Park staff provide the conservator with historical information relevant to the treatment or any record of condition or treatment.
- 2) The Conservator prepares an *examination report* (see Fig. 8.2). This examination report is often part of a Collection Condition Survey (CCS). (See Chapter 3: Preservation: Getting Started.) This may also be included as part of the treatment proposal. This report should include:
  - a description of the materials, structure, and construction of the object
  - an analysis of materials, if appropriate
  - a description of the condition of the object and evidence of past treatment, with reference to any previous documentation
  - any deductions, interpretations, or comments
- 3) The conservator prepares a *treatment proposal*. See Figure 8.3 for a sample treatment proposal. In this document the conservator outlines the proposed treatment and includes alternatives, if any. The proposal usually will not list all the technical details that are listed in the treatment report. The treatment proposal should address all the problems identified in the examination report. It should include time/expense estimates. The park curator reviews the treatment proposal and approves it with the concurrence of the park superintendent.

***The conservator should discuss any significant departures from the proposal as the treatment is carried out and receive approval for those changes from the curator (and Contracting Officer's Technical Representative [COTR] if applicable).***

- 4) The conservator prepares a *treatment report*. See Figure 8.4 for a sample treatment report. In this document the conservator details the steps of the treatment that were undertaken. The conservator will discuss the treatment results and often make recommendations about future care, exhibition, or storage requirements. If there are any variations from the original treatment proposal, the park will have approved the changes in writing. The conservator will also discuss treatment changes and their rationale in the final report.

6. *What kinds of documentation should park staff generate on its own treatment activities?*

Record two types of activities:

- You must keep a record of housekeeping tasks done by staff. These tasks include:
  - cleaning (method and frequency)
  - dusting
  - waxing

- maintaining proper fluid levels in wet specimens

Record this information in the ANCS+ Maintenance Associated Module. Instructions for using the module can be found in the *ANCS+ User Manual*, Chapter 4: Associated Modules. Provide this information to the conservator as part of the historical information about the object.

For more information about developing a housekeeping plan, including the documentation, see Chapter 13: Museum Housekeeping.

- You should also record any observed changes in the condition of the object. Record these in the Catalog Record in ANCS+ in the condition and condition description fields.

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## D. Obtaining the Services of a Conservator

When you need a conservator:

- Take time to locate an experienced, well-qualified conservator. This point is critical to the quality of treatment an object will receive.
- Prepare a scope of work (SOW) for the project. Regional/SO curators and NPS conservation laboratories can provide you with sample SOWs.
- Discuss the process with the conservator and others involved in the project to be sure each person (park manager, park curatorial staff, regional curator, and conservator) understands the others' roles.
- Be sure contract conservators understand the NPS conservation treatment policy to preserve what remains of an object in as stable a condition as possible. Provide them with NPS policy and procedural guidelines, such as pertinent sections of the *Museum Handbook* and *ANCS+ User Manual*.

### 1. How do I find a conservator?

Work with your regional/SO curator to find a NPS conservator or a conservation contractor with the appropriate knowledge and experience. The regional/SO curator can help locate possible conservators to perform the work and help you find funds for the project. They will also help set priorities and determine a time frame for the project, as well as help prepare procurement documents. Discuss the type of project (for example, treatment of a single object, treatment of a group of objects, identification of methods and materials used to create an object) with the regional/SO curator and determine:

- the nature of the object or collection (type of material and condition)
- the present use of the object or collection
- the planned use of the object or collection (for example, for research, in an exhibit, as a working piece of equipment in demonstrations)

2. *How do I decide if a suggested conservator and treatment are suitable?*

First, ensure that the treatment proposal is in response to and addresses an existing documented condition. You also can judge this by evaluating treatment recommendations against the AIC Code of Ethics. In particular, be aware of the following points in the Code:

- *The conservation professional shall practice within the limits of personal competence and education as well as within the limits of the available facilities.* Ask the conservator these questions:
  - What is your training for this sort of treatment?
  - Have you ever treated objects like this before?
  - Do you have the proper equipment to carry out this treatment?
  - What kind of security and fire protection does your facility have?
  - Can you give me references from previous clients?
- *The conservation professional must strive to select methods and materials that, to the best of current knowledge, do not adversely affect objects or their future examination, scientific investigation, treatment or function.* Ask the conservator these questions:
  - How will this treatment affect future analysis?
  - If you do this treatment, can the object be re-treated in the future? No treatment is completely reversible, but it is possible to use materials and techniques that allow for re-treatment. For example, you may not be able to remove a consolidant added to give structural strength. However, the choice of consolidant should not rule out the use of a later, alternative treatment, if the original treatment fails.
- *The conservation professional shall document examination, scientific investigation, and treatment by creating permanent records and reports.* Ask the conservator these questions:
  - What kind of photo-documentation will you do?
  - How will you ensure photographs are archivally processed?
- *The conservation professional shall recognize a responsibility for preventive conservation by endeavoring to limit damage or deterioration to objects, providing guidelines for continuing use and care and recommending appropriate environmental conditions for storage and exhibitions, and encouraging proper procedures for handling, packing, and transport.* Ask these questions:
  - How would you recommend I handle and store this object in the future?

- Do you have any recommendations for the future exhibit of this object?
- Does this object pose health and safety risks to staff or risks to nearby materials?

3. *What do I need to know about contracting for conservation treatment services?*

Work directly with your park or regional procurement officer to ensure that you prepare the proper documents for all conservation services. The procurement officer should be able to provide you with the information you need to decide on the appropriate type of procurement.

Consider taking a basic procurement course to get a background in the tasks that are required. The Federal Acquisitions Institute (FAI) sponsors on-line training in acquisition and contracts management at <<http://www.faionline.com>>.

Ask a NPS conservator to serve as the Contracting Officer's Technical Representative (COTR). The COTR is a federal employee who provides advice on the technical aspects of the work being contracted. A NPS conservator has the technical knowledge to evaluate a treatment proposal and can assist you and the contracting officer with the resolution of technical problems and help approve necessary changes that may come up during the treatment process. **Note:** Be sure the COTR has expertise in the type of material that is being treated.

A regional/SO curator, knowledgeable park curator, or NPS conservator can serve as the COTR for collection condition surveys and general preservation services provided by a conservator.

*Ensure that the contract specifies “work for hire” and that the contractor transfers copyright of all documentation, including photographs (see Museum Handbook, Part III, Chapter 2, Sec. C.7 and Chapter 3, Fig. 3.4).*

4. *What happens after the conservator is selected?*

Once you have selected a conservator, schedule the project. If objects will be shipped to the conservation lab, schedule the shipment dates with the conservator. Discuss packing and shipping methods to ensure the objects are not damaged in transit.

Review all examination reports and/or treatment proposals. Discuss your questions with the conservator. The person with delegated responsibility (usually the curator) must approve and sign a treatment proposal before work can begin. Get advice from the regional/SO curator or NPS conservators to ensure that the proposal describes an appropriate treatment. File a copy of the signed treatment proposal in the Catalog Folder or Accession File.

5. *When I am evaluating a treatment proposal, what should I consider?*

Before you allow conservators to carry out a treatment on an object, you must approve their written treatment proposal. When evaluating a conservation treatment proposal, consider the following factors:

- The park superintendent has ultimate responsibility for each object. Don't simply accept a recommendation, but question and evaluate its quality. Ask the regional/SO curator or a NPS conservator with expertise

in the type of object to be treated to review treatment proposals before work begins. During treatment, the curator (and COTR, if applicable) must review and approve any significant deviations from the proposal.

- Every active treatment carries inherent risk. No conservator can or will guarantee the final outcome.
- Conservators must convince you that their recommendations are governed by total respect for the physical, historic, and aesthetic integrity of an object by the explanations that they include in the treatment proposal.

6. *What are my responsibilities once the treatment proposal is approved?* Monitor the work by visiting the conservation lab or discussing progress with the conservator. After treatment is completed, the conservator will return the objects to the park. Before approving payment, ensure that all conditions of the contract or SOW were completed satisfactorily. Review electronic data provided by the conservator and incorporate accepted data into the ANCS+ Conservation Associated Module. Consider having another conservator review the work. File all documentation (reports, photographs, drawings, etc.) in the Catalog Folder or Accession File.
7. *Where can I find information on how to treat objects in an emergency?* Refer to Chapter 10: Emergency Planning, for information on planning for and recovering from an emergency. This chapter also gives you information on basic actions you can use to minimize damage. In particular, review Figure 10.13, First 48 Hours Emergency Response Checklist.

Use the Emergency Response and Salvage Wheel from Heritage Preservation (mailed to all parks in 1997) <<http://www.heritagepreservation.org/>>. This tool gives you basic steps to take after a disaster strikes.

Contact a conservator as soon as possible for advice on how to recover from the emergency.

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## E. Glossary

**Accretion** – accumulated materials not original to the object that are attached to the surface of an object. For example, calcium deposits may accumulate on buried (archeological) ceramics.

**Conservation** – the deliberate alteration of the chemical and/or physical aspects of objects, aimed primarily at prolonging their existence. Treatment may consist of stabilization and/or restoration.

**Inherent vice** – the nature of the material or the results of manufacturing techniques that cause an object to deteriorate more rapidly than normal, or that make stabilization nearly impossible. For example, 19<sup>th</sup> century silk fabrics were sometimes treated with metallic compounds that cannot be removed from the fabric, but cause the fabric to split and powder.

**Intervention** – taking direct, hands-on action to stabilize the condition of an object

**Minimal intervention** – using only those treatments necessary to stabilize the condition of an object

**Preservation** – all actions taken to prolong the life of an object

**Preventive care** – synonym for preventive conservation



**Preventive conservation** – non-interventive actions that can be taken to prevent damage to and minimize deterioration of museum objects

**Reproduction** – a copy of an item for exhibit, interpretive, educational, sale, research or other purpose, made when use of the original would be inappropriate or would cause undue deterioration or loss

**Restoration** – an attempt to bring museum objects closer to their original or other previous appearance by removing additions not considered historically important, replacing missing parts, renewing finishes, and/or concealing damage

**Reversibility** – the principle of using materials that can be removed, in so far as possible, should re-treatment of an object become necessary

**Spectrum** – a graphic or photographic representation of the distribution of energy emitted by a radiant source. For example, spectra might be produced by analytical techniques used to identify the type of varnish on a piece of furniture.

**Stabilization** – treatments applied to museum objects to increase their stability or durability when preventive conservation actions are insufficient to reduce the rate of deterioration, or when deterioration has rendered them so fragile as to be in danger under any circumstances

**Treatment** – methods or techniques that are usually interventive in varying degrees to preserve the condition or appearance of a museum object

**Work for hire** – work produced by employees as part of their responsibilities, or rights to work transferred to the employer through contractual agreement

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## F. Selected Bibliography

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Sturman, Shelley G. "Obtaining Professional Conservation Services." In *Caring for Your Collections*. New York: Harry N. Abrams, 1992.

Ward, Phillip. "The Training of Conservators." In *The Nature of Conservation: A Race Against Time*, Santa Monica, Calif.: The J. Paul Getty Institute, 1986.

Williams, Stephen L. "Preventive Conservation: The Evolution of a Museum Ethic." In *Museum Ethics*. New York: Routledge, 1997.

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## **G. Internet Resources**

American Institute for Conservation of Historic and Artistic Works: <<http://aic.stanford.edu>>.

Conservation OnLine (CoOL): <<http://palimpsest.stanford.edu/>>.

## Object Examination Report

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<b>Owner:</b>	National Park Service	<b>Laboratory Supervisor:</b>	
<b>Catalog No:</b>	WASO1	<b>Proposed by:</b>	Lesley Jones
<b>Object:</b>	Frock coat	<b>Date Proposed:</b>	January 5, 2001
<b>Lab Tracking No:</b>	11788.70	<b>Estimated Hours:</b>	75 hours

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### DESCRIPTION:

The object is a single breasted Civil War frock coat of navy blue doeskin (fulled wool) with a standing collar and long cuffed sleeves. The coat has a nine-button center front closure. It is fully lined—the body and skirt with green wool and the sleeves with natural colored twill weave cotton. There is a belt tab on the proper right (PR) side at the waist and an inner breast pocket on the proper left (PL) side of the coat. The 2.4 cm (7/8 inch) diameter brass buttons depict an eagle with a shield. The eagle holds an olive branch in his PL talons and a shaft of arrows in his PR talons; he faces to the right. Two of the same buttons adorn the back vent of the skirt at the waist; each sleeve cuff contains three smaller diameter buttons—1.5 cm (1/2 inch)—with the same eagle and shield design. The buttons have a maker's mark on the back "HORSTMANN & CO / NY & PHI." Shoulder boards of navy blue wool with sheet brass stamped to resemble gold bullion embellish both shoulders.

### Dimensions:

Length: 98.9 cm (39 inches) (measured at the center back from the top of the collar to the bottom edge)

Width: 53.4 cm (21 inches) (measured at the widest point across the shoulders)

### Structure or Construction:

This coat is a well-made, hand tailored garment constructed of high quality piece goods. The doeskin is fine. This coat does not have bound buttonholes. The collar is lined in black velvet.

The back is constructed in four pieces with a center back seam and two princess seams. Each front section is a single piece with a dart extending up 14.1 cm (5-1/2 inches) from the waist seam. The sleeves are constructed of two pieces with an added cuff that measures 6.5 cm (2-1/2 inches) in width. The skirt is constructed of two main pieces with small additional pieces used to form the vent in the center back. The entire coat is lined—the body and skirt with a green wool and the sleeves with natural colored twill weave cotton. The inside front panels are quilted; the quilting extends under the arms to the princess seams.

**Figure 8.2. Sample Narrative Examination Report**

**CONDITION:**

The coat is in excellent structural and aesthetic condition.

The shoulder guards are very heavy and may not be entirely original. The sheet brass appears to be attached to navy wool, which in turn has been stitched to what may be a modern, black fabric. This final layer is what has been stitched to the shoulders of the coat.

There are several small holes, a result of insect damage, scattered across the surface of the coat; they do not compromise the coat's structural integrity. There is a hole the size of a nickel in the center back along the bottom edge and slightly smaller holes on both sleeves at the elbows. There is a 1.3 cm (½ inch) tear at the PL sleeve seam in the back. The center front edge is unstitched along much of its length on both sides.

The lining is in excellent condition. There is one hole in the lining in the area of the inner breast pocket. The collar lining has come unstitched at the center back.

**PREVIOUS REPAIRS, TREATMENT, MOUNTING:**

Some buttons may have been re sewn. Aside from the difference in thread used, it is possible to tell the difference between original and re sewn buttons because the original buttons were sewn on before the facing was attached. As a result, the stitching does not extend through all layers and is not seen on the inside. In contrast, the stitching on re sewn buttons extends through all layers and can be seen on the inner face of the coat. Components of the shoulder boards may have been replaced.

**PHOTOGRAPHIC DOCUMENTATION:**

None

**Figure 8.2. Sample Narrative Examination Report (continued)**

## Object Treatment Proposal

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<b>Owner:</b>	National Park Service	<b>Laboratory Supervisor:</b>	
		<b>Proposed by:</b>	Lesley Jones
<b>Catalog No:</b>	WASO1	<b>Date Proposed:</b>	January 31, 2001
<b>Object:</b>	Frock coat	<b>Estimated Hours:</b>	75 hours
<b>Lab Tracking No:</b>	11788.70	<b>Cost of Treatment:</b>	

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### DESCRIPTION AND CONDITION:

See Object Examination Report dated January 5, 2001.

### PROPOSED TREATMENT:

1. Vacuum clean coat using reduced suction.
2. Visually reintegrate areas of loss using compatible weight and color fabric to back holes.
3. Clean buttons and apply protective coating of microcrystalline wax.
4. Restitch seams requiring stitching; reinforce with Stabiltex polyester multifilament fabric as needed.
5. Examine shoulder guards. Because of their weight, explore mounting options besides stitching them to shoulder of coat.
6. Prepare custom-built mannequin on which to display coat when on exhibit.

### DOCUMENTATION:

The artifact will be photographed with Ektachrome 160 Tungsten color slide film before and after treatment. Minute fiber samples will be taken and mounted on microscope slides for visual analysis.

Figure 8.3. Sample Treatment Proposal

**RECOMMENDATIONS FOR SUBSEQUENT CARE:**

**DISPLAY REQUIREMENTS:**

- Light levels should not exceed 5 lux (5 footcandles) using a Visitor Activated lighting system.
- The coat should be inspected annually for signs of pest infestation.
- The coat should be micro vacuumed while on exhibit as required. Vacuuming frequency should be determined by inspecting the textile and noting the accumulation of dust inside the exhibit case.
- The coat should be rotated off display in 2 to 3 years and allowed to remain in storage for at least 5 years before being exhibited again.

**POST EXHIBITION CARE:**

The coat should remain in storage, in a dark, clean, stable environment for at least 5 years after rotation. See *NPS Museum Handbook*, Part I, pages K:19-29 for preventive conservation, handling and storage procedures.

If you agree with this proposal, please sign it and return it to the conservator. Your approval of this request must be received before work can proceed. The conservator will be happy to discuss this treatment proposal with you and answer any questions. If significant changes to this proposal are anticipated once treatment has begun, the conservator will consult with you.

Prepared by: \_\_\_\_\_ Date: \_\_\_\_\_  
Title: Conservator

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_  
Title: Curator

Concurred by: \_\_\_\_\_ Date: \_\_\_\_\_  
Title: Superintendent

**Figure 8.3. Sample Treatment Proposal (continued)**

## Object Treatment Report

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<b>Owner:</b>	National Park Service	<b>Laboratory Supervisor:</b>	
<b>Catalog No:</b>	WASO1	<b>Treated by:</b>	Lesley Jones
<b>Object:</b>	Frock coat	<b>Date Completed:</b>	May 10, 2001
<b>Lab Tracking No:</b>	11788.70	<b>Total Lab Hours:</b>	75 hours

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### DESCRIPTION:

See Object Examination Report dated January 5, 2001.

### CONDITION AND TREATMENT PROPOSAL:

See Object Treatment Proposal dated January 31, 2001.

### TREATMENT:

Several small holes scattered across the surface of the coat, a result of insect damage, as well as the insect or rodent damage evident along the bottom edge of the coat in the center front, were repaired using patches of a compatible blue wool fabric placed behind the holes and secured with stitching using a thread pulled from Stabiltex, a polyester multifilament fabric. The buttons were cleaned and degreased with Stoddard solvent and a protective coating of microcrystalline wax was applied using cotton swabs. Stitching securing seams of the coat and lining that had failed in numerous areas was replaced using a thread pulled from Stabiltex. A custom mannequin was built on which to display the coat when on exhibit. Once the coat was fit on the mannequin, it was vacuumed using reduced suction.

The shoulder bars were removed from the coat and gently reshaped to better fit the shoulders of the coat. To prevent further damage to the coat, a Velcro hook was sewn to a support fabric and the fabric was sewn to shoulders of the coat with a black cotton thread, 3 S plied Z. A strip of Velcro fabric was sewn to the underside of the shoulder bars. The Velcro hook attaches to Velcro fabric securing the shoulder bars in place.

### PHOTOGRAPHS:

Before:	Yes
During:	No
After:	Yes
Type Film:	Ektachrome 160T

### SUPPORTING DOCUMENTATION:

Fiber Analysis: No

Figure 8.4. Sample Treatment Report

## RECOMMENDATIONS FOR SUBSEQUENT CARE:

### DISPLAY REQUIREMENTS:

- Light levels should not exceed 30 lux (3 footcandles) using a Visitor Activated lighting system.
- The coat should be inspected annually for signs of pest infestation.
- The coat should be micro vacuumed while on exhibit as required. Vacuuming frequency should be determined by inspecting the textile and noting the accumulation of dust inside the exhibit case.
- The coat should be rotated off display in 2 to 3 years and allowed to remain in storage for at least 5 years before being exhibited again.

### POST EXHIBITION CARE:

The coat should remain in storage, in a dark, clean, stable environment for at least 5 years after rotation. See NPS *Museum Handbook*, Part I, pages K:19-29 for preventive conservation, handling and storage procedures.

### Notes:

Fuller wool was a British specialty. After the cloth was woven, removed from the loom, and scoured to remove the oils used in the spinning process, fulling occurred to both felt the cloth and shrink it. Fulling was done in a fulling mill using wooden hammers or stocks to raise the nap. The cloth was first scoured with the slow motion of hammers, "leisurely without such violence as heats it much;"<sup>1</sup> fulling was then done with "quick heavy strokes which heat the cloth and shrink the fiber"<sup>2</sup> using an *aena*, a flat wooden implement set with spikes. In some cases the woven cloth was burlled before being fullled but after being scoured. Fuller's earth in soft water was used as a detergent in the scouring process; if Fuller's earth was not available, sig (stale urine) or swine's dung was employed instead. The scouring agent needed to be alkaline; sig provided a natural source of ammonia.

The main problem in fulling was ensuring that the textile shrank evenly. "Fine medley broadcloth made in the early eighteenth century shrank less than half its width and one-third its length." Shrinkage was proportional to the texture of the cloth and the length of the fulling process; the thinner the cloth, the less the shrinkage. Well-woven Wiltshire medleys of the eighteenth century could be finished in nine hours; the process was lengthened considerably for badly woven cloth. The degree of fulling varied by location —Gloucestershire cloth tended to be more heavily fullled.

Cloth was easily damaged during the fulling process. After emerging from the fulling mill, the cloth was hung on tenters to dry; the tenters served to stretch the wet fabric. The fulling process sometimes left the sides of the cloth longer than the middle section. Gloucestershire led in the mechanization of scouring; Wiltshire led in the mechanization of fulling. The first patent for a fulling machine was obtained in 1833; by the mid-19th century the fulling process was fully mechanized.

<sup>1</sup>Jenkins, J. Geraint ed. *The Wool Textile Industry in Great Britain*. London: Routledge & Kegan Paul, 1972.

<sup>2</sup>Mann, J. de L. *The Cloth Industry in the West of England from 1640 to 1880*. Oxford: Clarendon Press, 1971.

Figure 8.4. Sample Treatment Report (continued)