

AN OUNCE OF PREPARATION:  
EMERGENCY PLANNING FOR THE YELLOWSTONE NATIONAL PARK  
COLLECTIONS

By

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To my loving and supportive family.

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## TABLE OF CONTENTS

	<u>Page</u>
ACKNOWLEDGEMENTS.....	4
LIST OF TABLES.....	7
LIST OF FIGURES .....	8
ABSTRACT.....	10
CHAPTER	
1 INTRODUCTION .....	12
The Yellowstone Heritage & Research Center .....	13
The Yellowstone Collections .....	15
National Park Service Mandate for Museum Emergency Preparedness .....	18
2 EVALUATION OF DPLAN™ AS A TOOL FOR WRITING MUSEUM EMERGENCY PLANS .....	22
Strengths of dPlan™ .....	24
Formatting Problems Encountered During the Editing Process .....	26
Recommendations for Improving and Utilizing dPlan™ .....	28
Conclusion .....	34
3 THE COLLECTIONS PRIORITIZATION PROCESS .....	35
Prioritization of Museum Collections .....	35
NPS Struggle to Set Significance Criteria .....	36
Selection of Priority Objects .....	37
Case Studies .....	39
Thomas Moran Watercolor Field Sketches .....	39
Gray Wolf Skulls .....	43
Red Cloud Bag .....	47
Two Human Skulls .....	49
Management of Priority Objects in Storage .....	51
Rehousing and Moving Collections .....	51
Color Coding and Signage .....	53
Priority Lists, Maps, and Keys .....	54
4 SETTING UP AND UTILIZING EMERGENCY SUPPLY CACHES .....	59
Setting Up Emergency Supply Caches .....	59
Utilizing Emergency Supply Caches During Two Minor Collections Incidents .....	62
Demisted Infestation in Wolf Skull Collection .....	62
Roof Leak Over Library Stacks .....	63

5	FIRE DEPARTMENT COLLABORATION AND STAFF TRAINING .....	68
	Collaboration with Yellowstone National Park Structural Fire Department .....	69
	Heritage & Research Center Staff Fire Extinguisher Training .....	69
	Usefulness of Staff Fire Extinguisher Training .....	70
	Yellowstone Structural Fire Department Walk-Through of the Heritage & Research Center .....	71
	Usefulness of Fire Department Walk-Through .....	73
	Heritage & Research Center Staff Training .....	74
6	CONCLUSION .....	76
APPENDIX		
A	TABLE OF CONTENTS FROM MUSEUM COLLECTIONS EMERGENCY OPERATIONS PLAN .....	79
	REFERENCE LIST .....	89
	BIOGRAPHICAL SKETCH .....	91

## LIST OF TABLES

<u>Table</u>		<u>Page</u>
3-1	Break down of priority score for Thomas Moran watercolors based on chart provided on page 10:38 of the <i>NPS Museum Handbook</i> .....	57
3-2	Break down of priority score for gray wolf skulls based on chart provided on page 10:38 of the <i>NPS Museum Handbook</i> .....	57
3-3	Break down of priority score for Red Cloud Bag based on chart on page 10:38 of the <i>NPS Museum Handbook</i> .....	57
3-4	How the human skulls would have scored using the chart on page 10:38 of the <i>NPS Museum Handbook</i> .....	57
3-5	Museum storage salvage priorities from priority list .....	58
4-1	Contents of each emergency supply trunk .....	65
4-2	Master supply cache inventory .....	65
4-3	Additional supplies and their locations at the Yellowstone Heritage & Research Center .....	64

## LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1-1	The Yellowstone Heritage & Research Center .....	14
2-1	Damaged formatting from page 220 of original dPlan™ output .....	27
2-2	Chain of command for Yellowstone Heritage & Research Center emergency team members .....	33
3-1	Thomas Moran, <i>Tower Creek</i> (1871); YELL 8528 .....	41
3-2	Soldiers at Soda Butte Ranger Station holding wolf pelt in 1905 US Army Corps of Engineers Photo; YELL 22440 .....	44
3-3	Wolf Skull from Yellowstone National Park museum collection .....	45
3-4	Yellowstone National Park wolf skull collection in storage .....	46
3-5	Red Cloud Bag; YELL 6994 .....	47
3-6	Upper shelves of the dedicated priority cabinet .....	52
3-7	Wolf skulls with high priority color-coding .....	53
3-8	Examples of priority signage in museum storage .....	54
3-9	Location map showing main floor salvage priority locations .....	55
4-1	Contents of trunk sized emergency cache .....	60
4-2	Emergency cache packed into trunk .....	60
4-3	Master emergency supply cache, covered and uncovered .....	61
4-4	Wolf skulls bagged for freezing .....	63
4-5	Tarps covering library stacks during roof leak .....	65
5-1	Yellowstone deputy fire chief Mark Gleason talking about proper operation of a fire extinguisher .....	66
5-2	Archives technician (and UF alumnus) Frances Harrell using fire extinguisher to put out prop fire .....	67

Figure

Page

5-3 The author (far left) providing the Mammoth fire company of the Yellowstone Structural Fire Department with an introduction to the Heritage & Research Center facility before beginning the walk-through ..... 69

Summary of Project Option in Lieu of Thesis

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Chair: Glenn Willumson

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Natural disasters, including wildfire, tornado, flood, earthquake, and volcanic eruption, as well as man-made disasters like structural fires, terrorism, and medical emergencies can occur nearly anywhere at any time of the year. Not only do these calamities pose danger to staff and visitors of collecting institutions, but they can also be devastating to collections. As public trusts, museums, libraries, archives, and other collecting institutions have the responsibility to mitigate the destruction of these kinds of emergencies through emergency planning.

When I began my project, Yellowstone National Park was similar to most other U.S. collecting institutions in its lack of preparedness for a variety of emergency situations. The park had no emergency plan in place for its brand new collections storage facility, nor had facility staff or park administration taken any other emergency

planning steps. Indeed, when I began my project, emergency planning was not even on the radar of most of the facility or administrative staff.

For my project-in-lieu of thesis, I undertook the completion of the entire emergency planning process for the Yellowstone collections. Components of my project include: 1) writing a Museum Collections Emergency Operations Plan using dPlan™, an online emergency planning template for non-profit collecting institutions; 2) prioritizing collections for salvage and recovery; 3) reorganizing storage areas to reflect the priority collections, 4) stocking emergency supplies; 5) collaborating with the fire department; and 5) staff training.

As a result of my project, Yellowstone National Park museum, library, and archives staffs, as well as the park fire company, are equipped to respond to the emergencies for which they are at risk. It is my great hope that park staff will never need to utilize my emergency plan, but that if they do it will guide them through each step from response to recovery and resumption of normal operations.

## CHAPTER 1 INTRODUCTION

For museums, libraries, archives, and other collecting institutions, emergency planning consists of assessing and mitigating known risks to people and collections, composing a written disaster plan, prioritizing collections for emergency salvage, reaching out to first responders, and training staff on how to carry out the plan.

Disaster planning is often neglected by collecting institutions because of lack of time, expertise, interest, or funding. According to Getty director John Walsh, “The reasons for emergency preparedness are self-evident, but resistance to emergency plans in museums... has remained. It’s that familiar combination of avoidance and denial. Nevertheless, emergency planning is a matter of common sense and responsibility.”<sup>1</sup>

In 2005, Heritage Preservation and the Institute of Museum and Library Services (IMLS) released “A Public Trust at Risk: The Heritage Health Index Report on the State of America’s Collections.” The report summarized the findings of an extensive survey of 3,370 museums, libraries, archives, and other non-profit institutions holding non-living collections. Survey respondents answered questions about their collections, the environments in which they were stored, security measures taken to protect the collections, preservation activities and expenditures, intellectual control, and emergency planning.

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<sup>1</sup> Quoted in Dorge, Valerie, and Sharon L. Jones, compilers. *Building an Emergency Plan: A Guide for Museums and Other Cultural Institutions*. Los Angeles: The Getty Conservation Institute, 1999 (pg. 10).

The report<sup>2</sup>, which claimed to be the first of its kind, provided quantitative evidence of the poor state of emergency preparedness of U.S. museums and other collecting institutions. The numbers are astonishing: at the time of the survey 70% of archives, 78% of libraries, 92% of historical societies, 78% of museums, and 86% of archaeological repositories and scientific research collections have did not have an emergency plan with staff trained to carry it out.<sup>3</sup> A full 70% of federal collecting institutions surveyed had no emergency plan.

### **The Yellowstone Heritage & Research Center**

With several million objects, Yellowstone National Park has one of the largest collections in the National Park Service. The majority of the objects in the collection are stored at the Yellowstone Heritage & Research Center (HRC) in Gardiner, Montana.<sup>4</sup> The HRC is a modern collections management and research facility that houses Yellowstone's museum, archives, and library collections.

Completed in 2004, the Heritage & Research Center building replaced inadequate object storage in the basement of the Albright Visitor Center in Mammoth Hot Springs.<sup>5</sup> A 1989 on-site audit by the Office of the Inspector General found the storage conditions in the Albright Visitor Center substandard for the preservation and protection of museum collections and highlighted the need for a new facility. There were

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<sup>2</sup> Heritage Preservation. "A Public Trust at Risk: The Heritage Health Index Report on the State of America's Collections" Washington D.C.: Heritage Preservation, 2005.

<sup>3</sup> In the survey, those institutions with emergency plans in place, but whose staffs were untrained to carry them out were considered not to have a plan, because of the importance of staff training. The Heritage Health Index reasoned that there is no point in having an emergency plan at all if it cannot be implemented effectively when required.

<sup>4</sup> A small percentage of the park's museum collection is exhibited in the HRC lobby, visitor centers, and historic hotels throughout the park.

<sup>5</sup> Located in the Fort Yellowstone Historic District, the Albright Visitor Center building originally served as housing for officers stationed in Mammoth Hot Springs during the U.S. Army administration of Yellowstone National Park.

no environmental controls, leading to seasonal fluctuations in temperature and relative humidity. Fire protection was inadequate and security was lax. High levels of radon were also documented. The basement of this historic building provided fewer than 3,000 square feet of storage space for the enormous museum, library, and archives collections. Overflow of the collection was scattered between 8 additional buildings in Mammoth Hot Springs and nearby Gardiner, Montana.



Figure 1-1. The Yellowstone Heritage & Research Center. Photo by author.

At least three preservation emergencies occurred while the collections were stored in the Albright Visitor Center. First, on December 26, 1978, broken pipes flooded the collections area of the basement, affecting several boxes of photographic negatives and glass plates. Museum staff “washed” the photographic negatives in a chemical bath and air-dried the glass plate negatives. Their quick action saved all but two glass plates.

Twenty years later, on December 24, 1998, a water pipe in the boiler room of the visitor center burst. The boiler room was adjacent to the archives collection and by the time museum staff turned off the water, about two inches covered the floor. Boxes of

records and maps that were inappropriately stored on the floor were soaked. Museum staff salvaged many of the wet materials, but some records and maps were destroyed.

A third emergency occurred on May 23, 2000, when a sewage backup in the visitor center overflowed a drain in the archives room, releasing raw sewage and dirty water onto the floor. Luckily, staff was present and removed nearby collections from harm's way. Later that day, water from a bathroom faucet in the building was left on and flooded down the walls and into the rare book room. Again, staff was present and removed collections from the area before any damage occurred.

The 1989 on-site audit and the history of collections emergencies highlighted Yellowstone's need for a dedicated museum storage facility to safely store and preserve the park's collection. Funding for the construction of the Heritage & Research Center was obtained in 2001 through a request to the NPS Line-Item Construction Program. Construction of the 6.4 million dollar facility began in 2002 and was completed in 2004. The result was a state of the art collections storage center, with climate control in all storage spaces, compacting shelving units, dedicated researcher rooms, high-level security, an advanced fire protection system, built-in earthquake protection, and over 32,000 square feet of collections storage, processing, office, conference, and laboratory space.

### **The Yellowstone Collections**

The Heritage & Research Center houses both natural history and cultural collections. The museum's natural history collection includes about 13,000 specimens. Biological collections include thousands of mammal, bird, fish, reptile, insect, arachnid,

and mollusk specimens as well as 10,000 vascular and non-vascular plants.<sup>6</sup> The geology collection includes about 300 specimens, including obsidian, geyselite, rhyolite, basalt, siliceous sinter, travertine, and sulfur. The paleontology collection also contains about 300 specimens such as trilobites, petrified wood, and fossils.

The objectives of the natural history collection are as wide-ranging as the diversity of the collection itself. According to the museum's 2010 Scope of Collection Statement, the purposes of the natural history collection are

“... to support scientific research, resource management and education; provide baseline scientific data of park natural resources; document changes these resources are undergoing because of internal park conditions and external effects; provide a database for researchers concerned with resource use by the park's prehistoric occupants; preserve important or locally significant species collected in response to specific research or interpretive needs; and to guarantee the protection of important paleontological specimens and associated records.”<sup>7</sup>

The museum's cultural collection is divided into five disciplines: archaeology, ethnology, history, archives, and research library. As stated in the museum's 2010 Scope of Collection Statement, the official purposes of the cultural resources collections are to “preserve a portion of our nation's cultural heritage, to increase knowledge through research, and to provide for exhibits and interpretive programs.”<sup>8</sup>

The archaeology collection includes 251,229 prehistoric and historic objects systematically excavated from within the park's boundaries. These materials, comprised mainly of ceramic, glass, metal or stone, date from around 11,000 BP to the 1950's. The

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<sup>6</sup> Botanical collections are stored separately from the rest of the museum collection in the HRC herbarium.

<sup>7</sup> Curry, Colleen. “Yellowstone National Park Museum Scope of Collections Statement.” 2010 (p. 11).

<sup>8</sup> Curry, Colleen. “Yellowstone National Park Museum Scope of Collections Statement.” 2010 (p. 16).

collection includes both the objects collected and the scientific field notes associated with them. The much smaller ethnographic collection contains fewer than 150 objects made and used by many of the 26 tribes culturally affiliated with the park.

The history collection is quite large, with 91,051 objects composed of a variety of materials that document the people, activities, administrations, missions, and events that make up the park's history. This collection includes historic photographs and negatives, postcards, furniture from park hotels, National Park Service and U.S. Army uniforms, firearms and ammunition, historic maps, fine art, souvenirs, scrapbooks, and historic vehicles<sup>9</sup>.

The archives collection is unique in that it includes both the park archives and National Archives and Records Administration (NARA) collections. The park archives contain records in a variety of formats (paper, audio, film) on topics including history, archaeology, concessionaries, resource management, land use, recreation, and natural history. Although the park archives collection is part of the larger museum collection, it is managed separately by the park archivist, under supervision by the museum curator.

Under a 1978 cooperative agreement between Yellowstone National Park and the National Archives and Records Administration (NARA), Yellowstone is the only national park with NARA affiliated archives. This means that instead of transferring permanent archival records to regional NARA records centers according to the *NPS Records Disposition Schedule (NPS-19, Appendix B)*, these records are stored and maintained at the Heritage & Research Center and managed by the park archivist, under supervision by the museum curator and NARA. Keeping the NARA materials on-

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<sup>9</sup> The historic vehicle collection is stored at a separate warehouse facility in Gardiner, MT.

site allows park staff and researchers access to permanent records. This increased access has proved especially helpful to park staff working on projects that require reference to permanent records that would otherwise be stored off-site.

The library collection is owned by the National Park Service, but is funded by the non-profit Yellowstone Association. The collection is managed by two librarians, under supervision by the museum curator. The collection includes a wide variety of published materials, including books, periodicals, scientific journals, theses and dissertations, multimedia, maps, microform, pamphlets, and newspapers. Rare and irreplaceable materials are stored separately from the general stacks in the rare book room. Subjects covered in the library collection include administration, resource management, history, natural sciences, legislation, archaeology, and recreation.

### **National Park Service Mandate for Museum Emergency Preparedness**

The National Park Service requires its museums to have Museum Collections Emergency Operations Plans, or MCEOPs.<sup>10</sup> The NPS *Museum Handbook* states “Parks must have an operational, approved, and current MCEOP. The MCEOP is part of the park’s Emergency Operations Plan (EOP).<sup>11</sup> *NPS Policy 28 - Cultural Resource Management Guideline* says “Managers should thoroughly consider the protection of cultural resources when preparing EOPs”<sup>12</sup> and “Threats to the park’s museum collection are identified, dealt with through appropriate security and protective

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<sup>10</sup> Some documents and museum staff also refer to these as Museum Emergency Operations Plans, or MEOPs.

<sup>11</sup> National Park Service. “*Museum Handbook*, Part I: Museum Collections.” Washington, D.C.: National Park Service, 2000 (pg. 34).

<sup>12</sup> National Park Service. “NPS-28: Cultural Resource Management Guideline: Chapter 4 - Stewardship.” [http://www.cr.nps.gov/history/online\\_books/nps28/28chap4.htm](http://www.cr.nps.gov/history/online_books/nps28/28chap4.htm) (accessed 10/28/2011).

measures, and addressed in... emergency operations plans.”<sup>13</sup> (Chapter 9, *Management of Museum Objects*) Finally, section 4.3.10 of *Director’s Order 24: NPS Museum Collections Management* states:

Emergency Operation: Approve, keep current, and implement a Museum Collections Emergency Operations Plan, as part of the park’s Emergency Operations Plan, that identifies museum collection vulnerabilities to events (such as fire, earthquakes, and floods) and identifies responses that will protect resources without endangering human health and safety. Ensure staff is practiced and prepared for emergency response.<sup>14</sup>

In 2002, Yellowstone National Park attempted to fulfill its requirement for museum emergency preparedness. The park contracted James J. Davis and Associates, Inc., a consulting firm specializing in emergency preparedness, to complete an MCEOP for the park’s museum collections. The result was a very general MCEOP that lacked vital information. There was no indication that a thorough risk assessment had been completed. Emergency team members were not determined, and the position descriptions for team members were vague. No triage sites were determined for emergencies that would require moving all or part of the collection. Almost all relevant appendices were left “TBD,” including floor plans, phone tree, list of conservators and contractors, volunteer list, supplies and their locations, and collections priority lists.

The construction of the Heritage & Research Center was the most significant emergency preparedness project undertaken for the Yellowstone collection. The HRC was designed with a lateral force resisting system with chevron-brace members

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<sup>13</sup> National Park Service. “NPS-28: Cultural Resource Management Guideline: Chapter 9 – Management of Museum Objects.” [http://www.cr.nps.gov/history/online\\_books/nps28/28chap9.htm](http://www.cr.nps.gov/history/online_books/nps28/28chap9.htm) (accessed 10/28/2011).

<sup>14</sup> Reprinted in National Park Service. “*Museum Handbook*.” Washington, D.C.: National Park Service, 2000 (pg. A:21-A:22).

between selected columns to brace the structural frame against significant seismic activity and withstand wind speeds up to 110 mph. Although the facility is located within half a mile of the Yellowstone River, the water runs through a ravine deep enough to protect the building site from flooding. Additionally, the area around the Heritage & Research Center was earthscaped to direct surface runoff to percolate into gravelly soils to further prevent flooding.

The fire alarm system includes a central fire alarm panel that controls all functions of the system. A separate annunciator panel, installed at the main entrance, provides immediate notification of the source of the alarm or activation of sprinklers. The system includes an automatic dialer, which places calls to emergency responders upon activation of the alarm. Every room in the building has addressable smoke detectors that communicate with the fire alarm panel and advise the annunciator panel of their status. Smoke detectors are programmed to provide an alarm throughout the building, as well as an audible alarm on the building's exterior. The fire alarm system is connected to the wet pipe sprinkler system. Every room in the facility has heat activated sprinkler heads that are set off independently.

Although the construction of the Heritage & Research Center was a significant upgrade in disaster preparedness from the emergency-prone storage conditions in the basement of the Albright Visitor Center, staff felt unprepared to handle emergency situations without a written emergency plan. Curatorial staff was aware of the National Park Service mandate for a written Museum Collection Emergency Operations Plan (MCEOP), but lacked the time to compose such a document. As an intern at the HRC in

the summer of 2009, I became aware of the park's need for a MCEOP and proposed this as my museum studies project-in-lieu of thesis.

## CHAPTER 2 EVALUATION OF DPLAN™ AS A TOOL FOR WRITING MUSEUM EMERGENCY PLANS

dPlan™ is a free online disaster planning template developed through collaboration between the Northeast Document Conservation Center (NEDCC) and the Massachusetts Board of Library Commissioners (MLBC) with funding from the Institute of Museum and Library Services (IMLS) and the National Center for Preservation Technology and Training (NCPTT).<sup>15</sup>

In order to use dPlan™, institutions must apply for an account by submitting institutional information, providing an email address, and creating a password. This information is sent to the NEDCC for account approval, which requires confirmation that the applicant organization is non-profit. Once approved, users may begin the data entry process on the dPlan™ website. Printable data gathering worksheets are also available from dPlan™, which can be used to collect information on paper for subsequent entry online.

Users have two options for the final product they can create with dPlan™. A thorough disaster plan, with sections on prevention, preparedness, response, and recovery can be created with dPlan™ in Depth. Users may also opt to use dPlan™ Lite to make a plan that is narrower in scope, focusing on disaster response.<sup>16</sup> Prospective users may look at an example of a finished dPlan™ on the website, so they may better decide whether this is a tool that would benefit their institution.

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<sup>15</sup> Created by the Historic Preservation Act Amendments of 1992, the NCPTT is a research division of the National Park Service that funds historic preservation grants with the aim of developing or adapting technology for the purpose of historic preservation. One of these grants, valued at \$40,000, was awarded to the NEDCC in 2002 to develop dPlan™.

<sup>16</sup> As recommended by dPlan™, I chose to use dPlan™ in Depth for the most complete and thorough result.

I found it especially appropriate for my institution to take advantage of the dPlan™ tool for several reasons. There are few emergency planning templates available to museums, libraries, and archives, and dPlan™ was by far the most thorough of these tools that I found during my research<sup>17</sup>. Another reason I chose dPlan™ is because it was developed with funding from my employer, the National Park Service, through the National Center for Preservation Technology and Training. Because dPlan™ was created by professional museum and library organizations, I was confident that the result would be a high-quality and thorough plan that we could rely on in an emergency. I hoped this tool would make the plan writing process quicker, allowing me to focus more on documenting the vital emergency information unique to my institution and less on the daunting task of writing a comprehensive emergency plan from scratch.

Additionally, I liked that we could upload the final version of the dPlan™ as either an RTF or a PDF file.<sup>18</sup> I also appreciated that account holders receive an email every six months reminding them to update their plans. This tool seemed to offer everything I was looking for in an emergency plan - flexibility, convenience, professional content, and time savings.

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<sup>17</sup> Other emergency planning templates for collecting institutions include the following:  
1) "Generic Disaster Plan Workbook." California Preservation Program.  
<http://calpreservation.org/disasters/generic/index.html> (accessed March 20, 2010);  
2) Fox, Lisa L. Disaster Preparedness Workbook for U.S. Navy Libraries and Archives. Northeast Document Conservation Center, Andover, Massachusetts. 1998; and  
3) "Pocket Response Plan (PReP)." Council of State Archivists.  
<http://www.statearchivists.org/prepare/framework/prep.htm> (accessed March 20, 2010).

<sup>18</sup> A PDF file cannot be edited, making this a good option for institutions that are happy with the final product as is. An RTF file can be opened in Microsoft Word for editing.

As I utilized the dPlan™ program, I found that it did, in fact, offer many of the features I was looking for. In many other ways, however, I detected areas in which dPlan™ could be improved. In this chapter, I discuss the various strengths and weaknesses of the dPlan™ program, including some of the formatting problems I ran into during the editing process. Additionally, I provide suggestions for future dPlan™ users for augmenting the generated content to craft more thorough emergency plans.

### **Strengths of dPlan™**

Overall, the dPlan™ tool provides an excellent starting point for museums and other collecting institutions for writing a comprehensive disaster plan. Users of the program are prompted to gather necessary information and supplies, as well as to create relevant policies and procedures for handling a variety of situations.

The dPlan™ website is user-friendly from the beginning. Navigational tabs on the upper left area of the screen are organized into several broad topics, including institutional information, prevention, response and recovery, supplies and services, scope and goals, staff training, and distribution, review and updating. When one of these tabs is selected, several sub-fields drop down. Some, but not all, of these sub-fields are further divided into more specific topics.<sup>19</sup>

When a topic is selected from the tabs on the left side of the screen, users are prompted to complete standardized worksheets by filling in the blanks, selecting answers from options provided in drop-down boxes, and checking boxes. The “Check my Progress” tab displays all sections in dPlan™, indicates the overall percentage completed, and identifies which sections are completed and yet to be completed.

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<sup>19</sup> For example, under the “Supplies and Services” tab, the “Emergency Numbers/ Services” topic is further divided into “Emergency Services,” “Maintenance/Utilities,” and “Recovery Services.”

dPlan™ prompts users to gather nearly all of the information required for a thorough emergency plan. First, and of primary importance, dPlan™ facilitates the completion of an extensive institutional risk assessment, which entails identifying risks to facilities, collections, and staff. The risk assessment is crucial because it provides the basis for the rest of the emergency plan; it is impossible to plan for all potential emergencies without first identifying them. In dPlan™, users are asked to rate the level of risk for a variety of natural, industrial, environmental, and facilities systems hazards on a scale of 1 (serious risk) to 4 (not a risk), as well as to provide details about the sources of these risks.

Second, dPlan™ promotes the collection and entry of existing institutional information into the online worksheets. This data includes staff contact information, facilities shut-off information, floor plans, insurance information, and important emergency phone numbers. In Yellowstone, tracking down this information involved contacting and working with several departments, including Telecommunications, the Plumbing Shop, and Maintenance.

Third, dPlan™ prompts users to create new policies and procedures for their institution to utilize in emergency. These include identifying temporary storage and drying spaces, emergency assembly areas, emergency team members, and institutional salvage priorities. The program urges museums to add regular and thorough staff training to institutional policy and provides ideas for training exercises.

Finally, the program provides custom content in two important areas. First, emergency procedures are automatically generated based on the risk assessment portion of the plan. Emergency instructions are only provided for the situations for which

the institution is found to be at risk. For example, procedures for dealing with hurricanes were excluded from the Yellowstone plan because the park is not at risk for this type of disaster. Second, emergency salvage procedures are provided only for the types of objects users identify as part of their collections. The tailored content in these two areas provides museums with information directly relevant to their institutions.

### **Formatting Problems Encountered During the Editing Process**

Despite all of the wonderful tools dPlan™ provides for the creation of an emergency plan, the editing process revealed several weaknesses in the program. Editing the dPlan™ output in Microsoft Word took about two months and included fixing a wide range of formatting problems, including margins, damaged output, and disorganization.

First, the margins of the original document were extremely wide.<sup>20</sup> It seemed to me that decreasing the width of the margins would not only shorten the document and save paper, but also be more visually appealing. Changing the size of the margins created other formatting problems throughout the document, which subsequently needed to be addressed.<sup>21</sup> To remedy this situation for future users, I recommend that the creators of the dPlan™ program decrease the margins of the document.

Additionally, the formatting in the dPlan™ output was damaged in several areas, showing up as indecipherable code in the RTF document (Figure 2-1). This required manually transferring data from my online dPlan™ account to these areas of my disaster plan document, and then formatting these areas to match the rest of the plan. I

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<sup>20</sup> The original dimensions of the margins were 1.86" at left, 1.88" at right, 1.76" at top, and 1.22" at bottom.

<sup>21</sup> These included repositioning headings and subheadings, as well as spacing in many areas. Fixing these problems was more time consuming than it was difficult.

recommend these issues be remedied in the dPlan™ program so others do not need to spend unnecessary time fixing this problem.

In several areas, I found that the order of the original dPlan™ output was disorganized, and I spent a considerable amount of time reorganizing the document. For example, dPlan™ lists emergency procedures in order from most to least likely to occur. While this makes sense in theory, it seemed to me that it would be easier to locate instructions for handling different types of emergencies if they were listed in alphabetical order. Additionally, I moved sections on damage assessment, preparation for recovery of collections, and stabilizing the building and environment from chapter 1, which deals with response to the beginning of chapter 2, which deals with recovery. Information on these topics seemed to be part of the recovery phase, rather than part of the initial response.

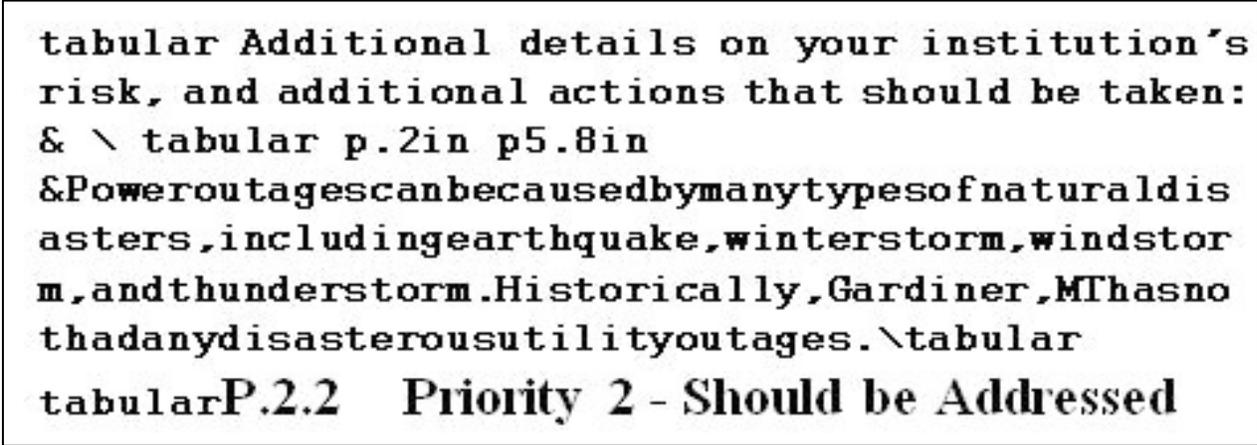


Figure 2-1. Damaged formatting from page 220 of original dPlan™ output.

Finally, dPlan™ does not provide users with the ability to remove inapplicable information before uploading the plan for editing. In several instances, I realized even as I utilized the dPlan™ website that entire sections or appendices were not relevant to my institution. I could not remove them until I edited the plan as an RTF document. It would

have saved a tremendous amount of time if I could have opted to remove these sections as I used the dPlan™ tool. This could have been accomplished if the program allowed users to check a box indicating that a specific section would be unnecessary in the final plan.

### **Recommendations for Improving and Utilizing dPlan™**

Overall, dPlan™ provides thorough emergency plan content. However, I found several omissions of vital information in the RTF output of the plan, which should be addressed by the creators of dPlan™ in future versions of the program. In the meantime, I am discussing the solutions I found for these omissions. I believe my solutions can be utilized by any museum choosing to use dPlan™. Indeed, I hope my resolutions will help other institutions that opt to use dPlan™ edit their plans quickly and effectively.

First, I found that emergency instructions for several types of emergencies were absent from the plan, including procedures for handling medical emergencies, accidental damage to collections, pest infestations, vandalism, person(s) trapped in elevator, theft of collections, suspicious packages, threatening person(s), and volcanic eruption.<sup>22</sup>

Many, but not all, of these missing procedures are for smaller-scale emergencies that would not technically qualify as “disasters.” If not handled properly, however, events such as pest infestations and suspicious packages could lead to disasters. Several of these omitted procedures, including theft of collections, medical emergencies, accidental damage to collections, pest infestations, and person(s) trapped in elevator

can happen during day to day operations, but also have higher likelihood of occurring during emergencies. Therefore, I believe that dPlan™ should include these smaller emergencies in addition to the larger disasters it already covers. I recommend that museums utilizing dPlan™ also refer to disaster planning manuals for help in crafting policies to fill in the gaps of the existing program.<sup>23</sup>

The dPlan™ program also lacked information on several topics that are vital to any museum emergency plan. First, the plan focused almost solely on salvaging objects damaged by water. There was a short section on fire damage, but absolutely no discussion of how to salvage collections damaged by volcanic ash, mold, or insects. My solution to this lack of information was to research and write these sections myself and to include applicable *Conserve O Gram* leaflets on these topics.<sup>24</sup> I recommend this tact to any museum utilizing the dPlan™ program.

Following are brief examples of my strategies for dealing with several omissions from dPlan™. First, to deal with the lack of information for mitigating pest infestations, I created a new appendix that focused on pest management. To this appendix, I added a copy of the Heritage & Research Center's integrated pest management (IPM) plan, an IPM monitoring and tracking sheet, and five *Conserve O Grams* dealing with IPM issues. I also included photographs and information about local pests and pest-borne

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<sup>23</sup> One especially helpful manual for this purpose is *Steal this Handbook!*, published by the Southeastern Registrar's Association (SERA). This handbook provides emergency procedures for a variety of situations not included in dPlan™, and the book is specifically meant to be copied or modified for use in museum disaster plans.

<sup>24</sup> *Conserve O Grams* are the museum technical leaflet series published by the National Park Service. They are in the public domain; museums can scan these and insert them into their emergency plans without copyright permissions.

disease that could pose danger to human health and safety during salvage operations.<sup>25</sup> Because pest activity often increases following emergencies, I suggest that all users of dPlan™ include information on mitigating pest infestations in their emergency plans.

Another omission to dPlan™ was information on personal protective equipment (PPE), which would most certainly need to be utilized by staff and volunteers during recovery and salvage efforts. Again, I created a new appendix focusing on personal protective equipment. In this case, the National Park Service as well as Yellowstone National Park had pre-existing policies and information on personal protective equipment. Instead of reinventing the wheel and writing new information on the topic, I used this pre-existing documentation in my appendix. I felt this was the best way to ensure that official NPS and Yellowstone policy would be reflected in my disaster plan.

In this appendix, I included the majority of the *Yellowstone National Park Personal Protection Program Handbook*, the majority of the *Yellowstone National Park Respiratory Protection Program Handbook*, and several *Conserve O Grams* dealing with proper use of personal protective equipment in museums. Using pre-existing policies, as well as *Conserve O Grams* (which are in the public domain) saved the considerable amount of time and effort it would have taken to research and write this appendix from scratch.

Next, dPlan™ did not include any information on handling medical emergencies.<sup>26</sup> However, I felt it was vital for our emergency plan to contain information on handling medical emergencies because they can not only happen anytime, but are

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<sup>25</sup> These included the Prairie Rattlesnake, Black Widow Spider, Hobo Spider, Brown Recluse Spiders, and Hantavirus.

<sup>26</sup> Perhaps this is because different museums may want their employees to have very different levels involvement with medical emergencies for liability reasons.

more likely to occur as a result of many of the disasters covered in my emergency plan.<sup>27</sup> To prepare my institution for handling medical emergencies, I encouraged all facility staff to attend the first aid, CPR, and AED certification offered in the park, which several attended.

I used what I learned in this class in combination with information provided in *Steal this Handbook!* to write procedures for staff to follow in a medical emergency. Additionally, I added a section on first aid to the pre-existing appendixes covering facilities information for both the Heritage & Research Center and the vehicle storage area. These additions covered locations of first aid kits, automated external defibrillator, eye wash station, and maps showing their locations in each facility.

dPlan™ also neglects to ask museums to document where hazardous materials are stored. Taxidermy mounts, unexploded munitions, nitrate negatives, and wet specimens are common hazardous materials found in museum collections. Museums also use a variety of hazardous chemicals both in collections management and in regular housekeeping. Institutions utilizing the dPlan™ program should consider adding a section identifying the types of hazardous materials to their disaster plan, complete with their physical locations marked on floor plans.

Additionally, the salvage procedures included in dPlan™ are geared towards paper and photograph collections rather than three-dimensional objects. Salvage priorities for practically every type of paper item or photographic medium are included, but only a handful of sections deal with museum objects, natural history specimens, and textiles. To remedy this situation, I suggest users of this program add the six *Conserve*

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<sup>27</sup> The NPS wants its employees to be empowered to handle medical situations in the time before emergency medical responders arrive on scene. As such, Yellowstone offers regular first aid and CPR classes to employees.

*O Gram* leaflets dealing with “Salvage at a Glance” of wet objects for a variety of object types. These leaflets provide easy to reference charts explaining how quickly different types of objects need to be treated, handling precautions, packing methods, and drying methods.

Although disaster team positions and responsibilities were included in the original dPlan™ output, I rewrote this section because of several deficiencies to this material. I recommend that all cultural institutions using dPlan™ supplement the existing descriptions or rewrite them based on recommendations in manuals such as the *Field Guide to Emergency Response* and *NPS Museum Handbook*, their institution’s organizational structure, and their number of employees.

The disaster team member responsibilities provided in dPlan™ were extremely vague; none were more than two sentences in length. Positions were included that no member of Heritage & Research Center staff would be equipped to fulfill. One example is the dPlan™ position of Technology Coordinator, who “assesses damage to technology systems, such as hardware, software, telecommunications; decides on recovery/rehabilitation strategies; sets priorities for recovery; coordinates with administrator for external services/supplies/equipment related to technology.” (Original dPlan™ output, 85) In Yellowstone, these tasks would be carried out by the Telecommunications Office in conjunction with the Contracting Office.

Additionally, the organizational structure of the National Park Service made the disaster team responsibilities provided by dPlan™ impractical for our use. First, the NPS utilizes the Incident Command System (ICS), a standardized incident management approach that can be applied to incidents of any size, nature, or complexity. Second,

the NPS operates under the Chain of Command, a system where authority passes down from the top through a series of management positions in which each is accountable to the one directly superior.

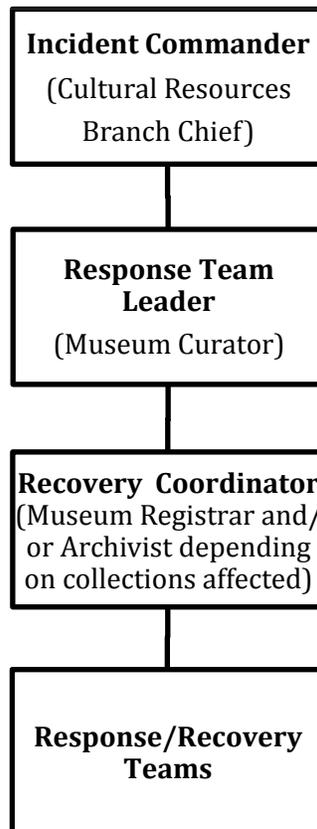


Figure 2-2. Chain of command for Yellowstone Heritage & Research Center emergency team members

For these reasons, it was necessary to rewrite the disaster team responsibilities for my institution's emergency plan. I began by narrowing the number of positions from the ten provided by dPlan™ to four, organized in a chain of command system.<sup>28</sup> (Figure

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<sup>28</sup> I was able to eliminate several of the positions included in dPlan™ that would be handled by separate park offices in the event of a disaster. For example, instead of assigning a museum employee to the position of Technology Coordinator, I made the Incident Commander responsible for coordinating with the Yellowstone Computer Support Services Office to assess damage to technology systems such as hardware, software, and telecommunications and decide on recovery strategies. Indeed, coordination with other park departments and offices is a major theme in the responsibilities of emergency team members.

2-2) My goal was to make the position descriptions as flexible as possible, while providing clear guidance on the responsibilities of each team member.

I also provided guidance as to which museum employee would be best suited to fill each disaster team position, which I assigned based on the skill set required of each museum position. For example, I assigned the museum registrar to the position of recovery coordinator, whose responsibilities include assessing damage to collections, maintaining written and photographic records of damage, and tracking movement of collections during recovery and salvage.

### **Conclusion**

Writing a museum emergency plan is a complex and time consuming project. While it may not be perfect, dPlan™ provides a solid foundation from which museums and other cultural institutions can frame a well-constructed emergency plan. Although dPlan™ is the most complete emergency planning template I have found, using it proved that no template is one size fits all. The creators of dPlan™ implicitly acknowledge this by providing users with the ability to edit their generated output into a plan that fits their needs. Although my final product was unrecognizable from the original dPlan™ output, the dPlan™ program provided me with the jumping off point I needed to compose a thorough and well thought out emergency plan for my institution. I urge future users of this program to consult as many emergency planning resources<sup>29</sup> as possible in order to customize the dPlan™ output into the best plan possible emergency plan for their institutions.

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<sup>29</sup> Excellent resources include the *Field Guide to Emergency Response*, *Steal This Handbook!*, the *NPS Museum Handbook*, and *Building an Emergency Plan*. Refer to list of references at the end of this paper for full citations.

## CHAPTER 3 THE COLLECTIONS PRIORITIZATION PROCESS

### **Prioritization of Museum Collections**

Prioritizing collections for salvage is a crucial part of the museum emergency planning process because in some emergencies there are opportunities for museum staff or first responders to remove threatened items from storage. The confusion and chaos typical of emergency situations makes having a pre-determined list of priority objects imperative: it saves time and allows for quick action. Further, if an emergency occurs after hours, museum staff might not be present to salvage collections. In these situations, first responders can utilize the priority list to locate and remove collections.

Prioritization of collections involves selecting the objects that would be removed from storage first by museum staff or emergency personnel if opportunities exist before, during, or after a disaster. The end product of the prioritization process is a list identifying the objects and their corresponding locations in storage so that they may be evacuated or salvaged as quickly as possible.

To many museum professionals, prioritizing collections may seem anathema to the idealistic credo “Treat every object as though it is priceless and irreplaceable.” In reality, however, museum objects do have differing levels of value, significance, risk, and replaceability. If an emergency situation necessitates the evacuation of collections, it is crucial that the most mission-critical, significant, and valuable items are saved first. Selecting these objects for priority salvage is part of the museum’s central responsibility as a public trust to protect important objects for future generations.

## NPS Struggle to Set Significance Criteria

The National Park Service has been grappling, albeit sporadically, with the creation of service-wide significance evaluation criteria for its many types of museum collections. These criteria would be a means of determining the respective significance of widely varying types of collections. The goal behind the development of these criteria has been to help NPS curators and resource managers with the short- and long-term administration of museum collections. According to the article “A Work in Progress: Development of United States National Park Service Museum Collection Significance Criteria,” Racine ET Al. argue that

Effective museum collections significance evaluation criteria... would increase the intellectual understanding of collections; inform and record collection acquisition; assist in management decisions related to collections; and inform and record collection deaccession.<sup>1</sup>

Relevant to the emergency planning process, the significance criteria could potentially provide curators and museum staff with a new set<sup>2</sup> of standardized procedures for evaluating all types of collections to determine which objects belong on the priority list components of their emergency plans.

In 1986, a set of proposed significance criteria was developed and sent to regional offices for evaluation and approval. However, these criteria were abandoned due to concerns that museum staff were not necessarily subject experts and therefore

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<sup>1</sup> Racine, Laurel, Greg McDonald, Ted Fremd, J.W. Bayless, Allen Bohnert, Louis Hutchins, Christine Jacobs Landrum, and David Vecchioli. "A Work in Progress: Development of United States National Park Service Museum Collections Significance Evaluation Criteria." *Collections: A Journal for Museum and Archives Professionals* 5.1 (2009): pg. 8.

<sup>2</sup> As I will discuss later in this chapter, the *NPS Museum Handbook* provides a separate, more flexible set of criteria specifically for determining priority collections for emergency salvage and recovery. However, in this section, I am discussing a different, unapproved, yet more standardized and detailed set of significance criteria that could be used for a variety of curatorial and collections management decisions.

lacked the knowledge necessary to evaluate their collections based on the criteria, that implementation would consume too much staff time, and that the criteria would turn into strict rules rather than guidelines.<sup>3</sup> In the 1990's another set of significance criteria was developed based on the National Register of Historic Places standards.<sup>4</sup> These, too, were discarded due to the difficulty of utilizing these criteria for anything other than historical collections.

The most recent attempt at the creation of significance criteria began in 2003 with a committee of NPS curators and resource managers from several parks and regional offices. The NPS committee aimed to develop separate criteria for appraising objects from each of the disciplines collected by the NPS: archeology, archives, botany, ethnography, geology, history, and paleontology.

Like so many times before, the development of NPS museum significance criteria is at a standstill. According to Racine, the primary reason is “a lack of staff and funding devoted to the effort. In order to move forward, the agency must decide these criteria are a priority and commit resources to their future development and implementation.”

(39)

### **Selection of Priority Objects**

As part of the emergency planning process, I facilitated the prioritization of all collections at the Yellowstone Heritage & Research Center, and was directly involved in the prioritization of museum collections.<sup>5</sup> Curatorial staff and I agreed on the importance

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<sup>3</sup> According to memo faxed by Laurel Racine, author of article “A Work in Progress: Development of United States National Park Service Museum Collection Significance Criteria.”

<sup>4</sup> National Register of Historic Places standards can be viewed on the official website, <http://www.nps.gov/nr/>

<sup>5</sup> Although all Yellowstone National Park collections were prioritized during the emergency planning process, this chapter focuses only on the prioritization of the museum collections at the

of closely following the *National Park Service Museum Handbook*, Chapter 10, Part D: “Prioritization of Museum Collections for Salvage.”<sup>6</sup> Indeed, we wanted to ensure that the finished emergency plan followed NPS protocol exactly.

The *NPS Museum Handbook* identifies six value and significance criteria used by the National Park Service to select priority objects: artifactual, associational, informational, evidential, administrative, and monetary.<sup>7</sup> In addition to value and significance, the *NPS Museum Handbook* identifies inherent risk (based on material type) and frequency of use as criteria for determining priority collections. Together, museum staff<sup>8</sup> brainstormed a long list of potential priority objects based on these criteria.

This list of objects was then evaluated using a chart in the *NPS Museum Handbook*. The chart provided a point system for scoring items based on a combination of value and significance, risk, and use<sup>9</sup>. This process assigned each item or collection

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Heritage & Research Center. Library, archives, and herbarium staff prioritized their respective collections based on the same criteria from the *NPS Museum Handbook*. I provided these departments with the necessary information to carry out this task, but was not involved in the decision-making process in these departments.

<sup>6</sup> The *NPS Museum Handbook* is regarded as the Bible for National Park Service museum management.

<sup>7</sup> The value and significance criteria in Chapter 10 of the *NPS Museum Handbook* are different from the significance criteria described in Racine ET AL. The criteria in the *NPS Museum Handbook* are specifically meant for prioritizing collections for emergencies, while the purpose of the unfinished and unapproved NPS-wide significance criteria is to facilitate a wide range of collections management decisions.

<sup>8</sup> Museum staff included the curator, registrar, and two museum technicians. Each of these staff members provided input in the priority selection process, but as supervisor and staff member in charge of collections decision-making, the curator made all final numerical point allocations during the prioritization process.

<sup>9</sup> This point system gave different weight to risk, value/significance, and use. An object could receive up to 9 points for risk, up to 6 points for value/significance, and up to 3 points for use. Therefore, in this point system, then, the NPS is making the argument that an object’s inherent risk is the most important factor in the decision to add it to the priority list.

a numerical score between 0 and 18, which indicated whether it should be ranked high, medium, or low priority.

Although museum collections priorities were selected based on the value and significance criteria provided in the *NPS Museum Handbook*, the vast majority of the objects on the museum priority list were selected because of their high degree of associational value. This was not surprising due to the nature of the collection, which includes several objects directly related with the creation of Yellowstone, the world's first national park. Following are four case studies outlining the logic used to select priority objects from the museum collection.

## **Case Studies**

### **Thomas Moran Watercolor Field Sketches**

Based on the point system in the *NPS Museum Handbook*, 21 watercolor field sketches produced by artist Thomas Moran during the 1871 Hayden Geological Survey into what would later become Yellowstone National Park were rated the number one priority for the Heritage & Research Center collections.<sup>10</sup> (Figure 3-1) The Moran watercolors were set as high priority because they have artifactual, associational, and monetary value, high risk, and high usage.

The *NPS Museum Handbook* defines artifactual value as “intrinsic value as material culture.” (10:36). This vague definition can be applied to nearly every object in any museum collection, but because of their rich history, strong provenance, and astounding beauty, the high artifactual value of these paintings is easily apparent.

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<sup>10</sup> Although not the official artist of the Hayden Expedition, Thomas Moran's brilliant watercolor field sketches would become influential in the Congressional decision to set aside Yellowstone as the world's first national park. The official artist of the expedition was Henry Wood Elliott. The museum has a large collection of his field sketches as well, and these are also rated “high” on the priority list.

Additionally, the National Park Service considers these paintings as “mission-critical,” meaning they were directly involved in the creation of Yellowstone, and therefore the National Park Service as a whole. This fact added to our appraisal of the artifactual value of these works.

A major factor in the high priority ranking of the Moran watercolors is their high degree of associational value. The *NPS Museum Handbook* defines associational value as a “direct link to eminent individuals or groups, famous events, projects, or activities.”<sup>11</sup> Produced during the 1871 United States Geological Survey led by Ferdinand V. Hayden, these watercolor sketches are directly associated with a significant expedition into the Yellowstone region. Although previous expeditions had been conducted in the area, this expedition represented the first federally funded survey to explore and document the Yellowstone region.

In addition to their association with the Ferdinand Hayden and the Hayden Expedition, the Moran watercolors are also associated with other eminent individuals, including William Henry Jackson, Steven Mather, and John. D. Rockefeller. William Henry Jackson, a prominent photographer on many western survey expeditions, was the official photographer of the Hayden Expedition. Over the course of the expedition, Jackson and Moran became close friends. The two artists explored many areas of the park together, and similarities can be seen in the vantage points of several works they created during the expedition.

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<sup>11</sup> National Park Service. “*Museum Handbook*, Part I: Museum Collections.” Washington, D.C.: National Park Service, 2000 (pg. 10:36).



Figure 3-1. Thomas Moran, *Tower Creek* (1871), YELL 8528.

Museum records show that the Moran watercolor field sketches are associated with Steven Mather, the first director of the National Park Service, and to John D. Rockefeller, an influential American industrialist. A “memorial exhibition” for Thomas Moran at the Milch Galleries in New York City was held from December 20, 1928 – January 8, 1929. The exhibit featured watercolor field sketches painted by Thomas Moran in Yellowstone, the Southwestern United States, and Mexico. Correspondence by Steven Mather, John D. Rockefeller, and others in the Yellowstone archives details the park’s campaign to obtain the Yellowstone sketches from this exhibition for the park.

Mather approached Rockefeller for monetary contributions for the purchase of the paintings. Although he contributed \$1,000 for the paintings, Rockefeller was not

impressed by Moran's work, as indicated in correspondence from Rockefeller to a Mr. George D. Pratt:

I saw the pictures yesterday. Personally, they would not interest me greatly, certainly not at anything approaching the prices Mr. Mather mentioned. At \$4,000... I am glad to join you and Mr. Mather, since you gentlemen think it is desirable to secure the pictures at that price. Please let me know when and to whom I should send my check for \$1,000.<sup>12</sup>

The Moran field sketches are also associated with the creation of Yellowstone, the world's first national park. After the expedition, a bill went through Congress with the purpose of establishing Yellowstone as a national park. During that time, a display of Moran's watercolor field sketches, photographs by William Henry Jackson, and geological specimens from the area was set up in the U.S. Capitol. These items served as proof of the incredible geology in the Yellowstone region. Unlike Jackson's black and white images of the area, Moran's watercolors showed the vivid colors of the hydrothermal features in the region, making them particularly influential in the Congressional decision to set aside the area as a national park.

Additionally, these watercolor field sketches are associated with later, more refined paintings by Thomas Moran. For example, Moran's 1871 field sketch titled "Great Springs of the Firehole River" was the inspiration for later watercolors, "Big Springs in Yellowstone Park" (1872) and "Lower Geyser Basin" (1873) and an oil painting, "The Great Blue Spring of the Lower Geyser Basin" (1876).

The final value and significance criterion applicable to the Moran field sketches is monetary value, "as determined by the marketplace."<sup>13</sup> Although they have not been

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<sup>12</sup> Letter of December 28, 1926. Accession file YELL-0258.

<sup>13</sup> National Park Service. "*Museum Handbook*, Part I: Museum Collections." Washington, D.C.: National Park Service, 2000 (pg. 10:36).

appraised since they were last loaned out for exhibition in the 1990's, the curatorial staff is confident that if they were appraised, the Moran field sketches would have a high monetary value. Whatever the market value of these works, to the National Park Service and Yellowstone National Park, these field sketches are absolutely priceless.

In the *NPS Museum Handbook*, risk and usage are also used as criteria for assessing the priority level of museum objects. The Moran field sketches were given the highest possible risk score based on their material and their age. Watercolors on paper are easily damaged by disasters involving water, heat, smoke, volcanic ash, pests, and fire. Second, the Moran field sketches are not used by scholarly researchers or students, but are shown to visitors regularly on behind the scenes tours of museum storage at the Heritage & Research Center. These paintings are also loaned out, though infrequently, for exhibition to qualified museums. Therefore, they were given the highest possible use score. (Table 3-1)

### **Gray Wolf Skulls**

Another high-priority collection is a group of gray wolf skulls from the wolves (and the descendants of the wolves) reintroduced to Yellowstone National Park in 1995-1996. Native to the Yellowstone region when the park was established in 1872, gray wolves were exterminated during well-meaning, but ecologically detrimental predator control policies followed by park management during the early 20<sup>th</sup> century (Figure 3-2).

Since the reintroduction, Yellowstone has become a premier laboratory for the study of wolves. Groundbreaking research by Yellowstone Wolf Project scientists has uncovered a great deal about the complicated social structure of wolf packs as well as the effects of wolves on the ecosystems in which they live. Still, there is much to be

learned. Studies in Yellowstone have included, but are not limited to population dynamics, interactions between wolves and other large carnivores (bears, cougars, coyotes), wolf behavior (social behavior, pack leadership), wolf-prey interactions (seasonal prey selection and kill rates), den ecology, population genetics, and effects of major wolf diseases on populations.



Figure 3-2. Soldiers at Soda Butte Ranger Station holding wolf pelt in 1905. US Army Corps of Engineers Photo. YELL 22440.

Yellowstone Wolf Project scientists monitored and tracked all of the original reintroduced wolves with radio collars. Today, not all wolves are collared, but the Wolf Project tries to keep at least one wolf from each pack collared so pack movements can be monitored. When collared wolves die, Wolf Project scientists locate the carcass by following the signal from the radio collar and collect skeletal material from the deceased

animals. Eventually, the skulls collected from these wolves are added to the museum collection.

A selection of wolf skulls was set as high priority because they have informational, administrative, and associational value, medium risk, and high usage. In the case of the wolf skulls, informational and administrative values are closely related. The *NPS Museum Handbook* states that objects with informational value chronicle “important data on the topics, activities, individuals, groups, and places that form part of the park’s Scope of Collections Statement.” Similarly, objects with administrative value are defined as “active records used by the park for essential resource management activities.”<sup>14</sup>



Figure 3-3. Wolf skull from Yellowstone National Park museum collection. NPS Photo.

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<sup>14</sup> National Park Service. “*Museum Handbook, Part I: Museum Collections.*” Washington, D.C.: National Park Service, 2000 (pg. 10:36).

The most important data contained within the wolf skulls is DNA, which can be extracted from the teeth. This DNA is used to create a genetic profile of the wolves living in Yellowstone National Park, which provides invaluable information to scientists studying wolves in the park. Other information gleaned from the skulls includes signs of disease, age at time of death, and in some cases, cause of death. Additionally, because they serve as a direct link to a major and successful wolf reintroduction program, the wolf skulls have associational value.

The wolf skulls were given a medium risk score because they are not susceptible to damage from water, and can withstand moderate to high levels of smoke, volcanic ash or pests. Exposure to these elements would have no effect of the ability of researchers to extract and utilize the DNA from the teeth. Because of their high level of use by researchers and Wolf Project scientists, the wolf skulls were given the highest possible use score. (Table 3-2)



Figure 3-4. Yellowstone National Park wolf skull collection in storage. NPS Photo.

Ten wolf skulls out of the total collection of nearly 100 were selected in consultation with Wolf Project scientists.<sup>15</sup> (Figure 3-3 and Figure 3-4) Five of the skulls selected were from particularly important individuals from the first generation of wolves reintroduced in the park. These wolves helped form several packs in Yellowstone, and were parents to numerous pups that would go on to form their own packs. The other five wolves were selected based on the Wolf Project request that they represent a sampling of packs, gender and age.

### **Red Cloud Bag**

Although it is unrelated to the mission of the Yellowstone National Park collection, a game bag that may have belonged to Oglala Sioux leader Red Cloud was included on the priority list with a medium priority ranking. The bag received its priority ranking due to its associational and artifactual value, medium risk, and low use.

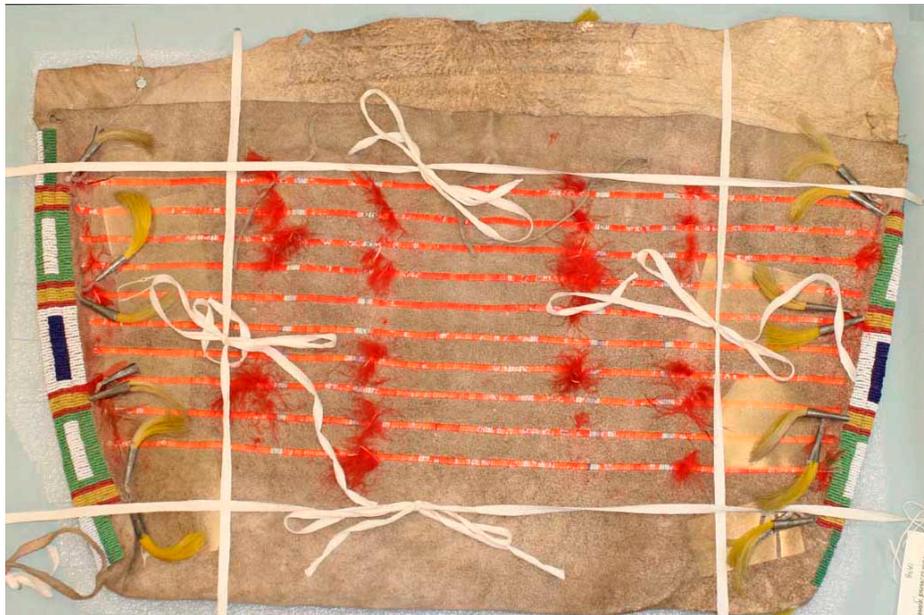


Figure 3-5. Red Cloud Bag. YELL 6994. NPS Photo.

<sup>15</sup> Curatorial staff felt that including the entire collection of wolf skulls would be unwise, because of the time it would take to evacuate this entire collection in an emergency.

The primary reason the game bag was included on the priority list is because of its associational value, as it may have been owned by a major historical figure.

Evidence that the bag belonged to Red Cloud is found only in a claim mentioned in correspondence with the donor, who gifted several other unrelated Native American objects to the park along with the game bag. During a consultation with Curly Youpee, of Assiniboine and Sioux descent, museum staff learned that the bag features strong Sioux symbols, including the colors yellow and red and the box-shaped design along the side. Like most items in the museum collection, the bag also has artifactual value, or “intrinsic value of material culture.”<sup>16</sup>

Because the bag cannot be definitively linked to Red Cloud, and because Red Cloud is not linked to Yellowstone National Park, the game bag was given a low value score of 2 out of a possible 6<sup>17</sup>. The bag scored in the high range for risk because it is made of leather, quill, and dyes. It would therefore be susceptible to damage from exposure to water, fire, smoke, volcanic ash, pests, and other factors. Additionally, the bag received a low score for use because it is rarely, if ever, used for exhibits, research, or educational programs. (Table 3-3)

If it had been my decision, I would have excluded the Red Cloud bag from the priority list because of both its lack of documentation proving association with Red Cloud, and because, even if the association with Red Cloud were confirmed, this bag

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<sup>16</sup> National Park Service. “*Museum Handbook*, Part I: Museum Collections.” Washington, D.C.: National Park Service, 2000 (pg. 10:36).

<sup>17</sup> This game bag would likely receive a very high value/significance score in other parks or museums that collect Oglala Sioux artifacts. It was only the lack of association with Yellowstone National Park that precipitated our decision to give this item a low value score. I recommend this game bag be either laterally transferred to another NPS unit with connections to Oglala Sioux history or deaccessioned and donated to a non-profit museum whose scope of collections statement includes collecting Oglala Sioux items.

has no connection to Yellowstone National Park. However, the final decision about which objects went on the priority list belonged to the curator, and I believe this is the correct person to make the final call<sup>18</sup>.

This case study highlights the fact that the *NPS Museum Handbook* system for prioritizing collections is a flexible framework for making decisions about which objects to include on the priority list. Decisions about which objects belong on the priority list are variable judgment calls made by individuals, according to their own reasoning and preferences. It is possible that two experts on a single collection could come up with different objects (or priority levels for the same object) for a particular institution's priority list based on the *NPS Museum Handbook* guidelines. If approved in the future, the NPS museum significance criteria discussed at the beginning of this chapter could prove an effective tool at standardizing the selection of priority collections for museum priority lists.

## **Two Human Skulls**

The Yellowstone National Park museum collection includes two human skulls of unknown Native American origin. One of the skulls (YELL 7275) belonged to a Native American female, who was between 30 and 40 years old when she died. The skull was found by a sheepherder northeast of Logan, Montana and was donated to Yellowstone National Park in 1930 with little documentation and several unrelated items. The origins of the other human skull (YELL 18556) are equally mysterious. No documentation of the provenance of the skull existed until 1988, when the skull was found while unpacking

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<sup>18</sup> The curator is the expert on the collections, and therefore the most qualified staff member to decide on priority collections.

the museum collection. In 1992, this skull was scientifically analyzed and determined to belong to a 25 to 45 year old female of Native American origin.

Lack of information about these skulls made repatriation impossible under the original Native American Graves Protection and Repatriation Act (NAGPRA) laws, which required evidence of cultural affiliation. However, recent legislation could allow for future repatriation of these remains. In 2010, 43 CFR 10.11 appended previous NAGPRA legislation by adding procedures for the disposition of culturally unidentifiable Native American human remains in the possession of museums and federal agencies.

Under the revised legislation, which applies to “human remains previously determined to be Native American... but for which no lineal descendant or culturally affiliated Indian tribe or Native Hawaiian organization has been identified,” can now be returned to native groups in the following order: from whose traditional land the remains were removed; other federally recognized native groups; and federally unrecognized native groups. If none of these options proves viable, museums may “reinter culturally unidentifiable human remains according to State or other law.”<sup>19</sup>

Therefore, protecting these skulls for the possibility of future repatriation was a strong reason to rate these skulls as high on our priority list. A more fundamental reason existed, too. Even though these skulls could only be evaluated for their inherent risk under the official NPS value and significance criteria listed in the *NPS Museum Handbook*, curatorial staff agreed they should be given high priority status due to their

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<sup>19</sup> National Park Service. “National NAGPRA: Laws, Regulations, and Guidance.” Washington D.C.: National Park Service, 2010. <http://www.nps.gov/nagpra/MANDATES/INDEX.HTM> (accessed 9/25/2011).

sensitive nature.<sup>20</sup> (Table 3-4) Indeed, the value of these remains seemed to supersede all value and significance criteria provided in the *NPS Museum Handbook*, which is why they were put at the very top of the priority list for museum collections<sup>21</sup>.

## **Management of Priority Objects in Storage**

### **Rehousing and Moving Collections**

Once the museum collections were prioritized, it was necessary to rethink the way they were managed in storage. Priority objects were located in over a dozen cabinets and shelves in storage, and I feared that this would make retrieval of these items in an emergency a complicated task, especially if the fire department were carry this out. Therefore, I decided to consolidate priority collections to the fewest locations possible. One solution was setting aside a large storage cabinet for exclusive storage of priority collections.

I rehoused several hundred priority items in custom-made blue board boxes so they could be safely stored in this new cabinet. For example, large collections of oversized field sketches by Henry Wood Elliott and William Henry Holmes had been stored in folders in large map drawers. Boxes would be needed to contain these folders in cabinet shelving. Another box was constructed to house two rare silver tea services that had previously been located with other silver items in storage. Boxes were also made for stereographs, the Red Cloud bag, and several diaries and sketchbooks.

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<sup>20</sup> In my opinion, all human remains (and all other items subject to repatriation under NAGPRA) should be added to museum priority lists. Provisions for prioritizing all items subject to repatriation should be modified in the *NPS Museum Handbook* to include these provisions.

<sup>21</sup> Museum staff made the decision to place these skulls above all other items on the priority list, meaning they would be removed prior to any other item if evacuation of collections becomes necessary.



Figure 3-6. Upper shelves of the dedicated priority cabinet. NPS Photo.

Most object priorities for the museum collection were moved to the dedicated priority objects cabinet. However, circumstances prevented moving a few items to this space. For example, the Moran watercolor field sketches were already housed together in a cabinet that was conveniently located directly across from the priority cabinet. Additionally, the wolf skulls were already stored in an area designated for natural history specimens. The wolf skulls were arranged numerically by the number assigned to each wolf by the Wolf Project, so the priority wolf skulls were kept with the rest of the collection to prevent confusion. Another item that was not moved to the cabinet was a flagpole finial from Old Faithful Inn. This item remained in its prominent location on display in storage, as park staff regularly interprets it on behind the scenes tours.

Finally, cultural sensitivity prevented me from moving the two human skulls to the priority objects cabinet. During a NAGPRA consultation in the 1990's, representatives from the Salish-Pond Culture Committee of the Confederated Salish and Kootenai

Tribes mentioned that continuous opening of drawers disturbs human remains. Because the priority cabinet is in compacting shelving, and is therefore rolled back and forth on a regular basis, I chose to leave the remains in their long-standing storage location, a non-compacting, NAGPRA-only cabinet that is opened only for inventory purposes.

### **Color Coding and Signage**

I employed color-coding to identify priority items and to indicate their respective priority levels. Again, I followed the *NPS Museum Handbook*, which suggested red for high, yellow for medium, and blue for low priority items.<sup>22</sup> I coded trays, boxes, shelves, and drawers containing priority collections in all storage areas with colored dot stickers.<sup>23</sup> (Figure 3-7) File drawers containing accession files and ledger books were also color coded, as were the ledger books themselves.



Figure 3-7. Wolf skulls with high-priority color-coding. NPS Photo.

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<sup>22</sup> I used green for low priority items rather than blue, because we had the supplies on hand to label them in this way.

<sup>23</sup> There was one notable exception: I didn't put color coding stickers on the trays containing the two human skulls for fear of breaking possible cultural taboos regarding color and human remains.

Additionally, I used signage to indicate all bays and cabinets housing priority objects (Figure 3-8). Signs included both text and color-coding dots so that priority level would be indicated for each storage space.

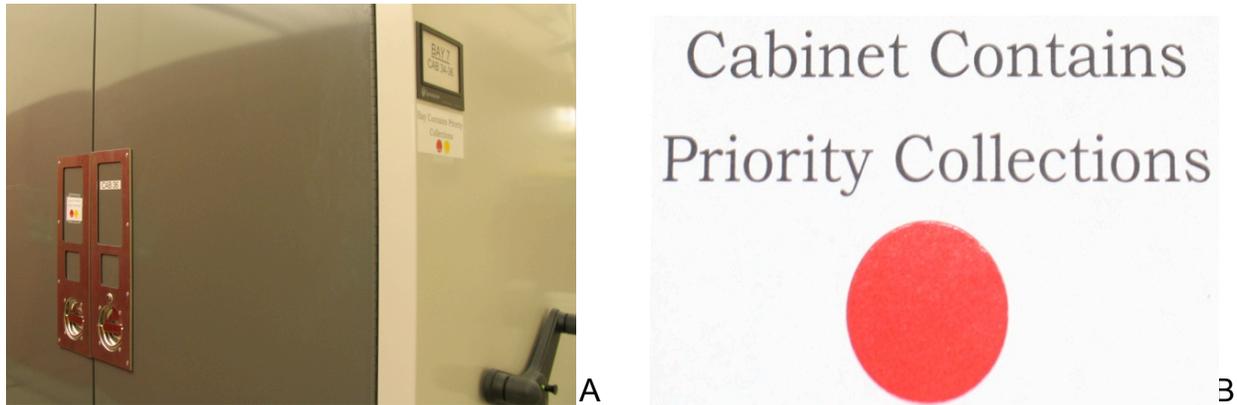


Figure 3-8. Examples of priority signage in museum storage. A) Bay and cabinet marked with priority signage. NPS Photo. B) Priority cabinet signage.

### **Priority Lists, Location Maps, and Keys**

I made special priority lists for use during emergency by first responders and/or museum staff. Separate priority lists were made for each floor, and they were printed on cardstock and then laminated so they would be hardy enough to use during an emergency. These lists contain the same information as those in the written emergency plan, but are intended for utilization during evacuation of collections. Three copies of the laminated priority lists, as well as keys to locked cabinets in the museum storage area, are kept together in a plastic bag tacked to the wall in a closet of the secure curatorial workroom.

There are three main sections to these priority lists. The first page mainly serves to provide the user with the information necessary to utilize the list. This includes a key to the color-coding scheme used to identify priority collections, instructions on the order of removal of collections in different situations, and a recommendation that staff and

emergency responders split into multiple groups when evacuating collections from multiple areas at the same time.

The second section of the priority lists contain charts indicating priority level, item descriptions, and locations of priority objects. (Table 3-5) Each room of each floor that contains priority objects is listed separately, in the order they should be evacuated. For example, on the main floor, the first group of objects is the accession files, the second group is the museum collection, and the third group is the herbarium. In each of these areas, objects are listed from highest priority to lowest priority.

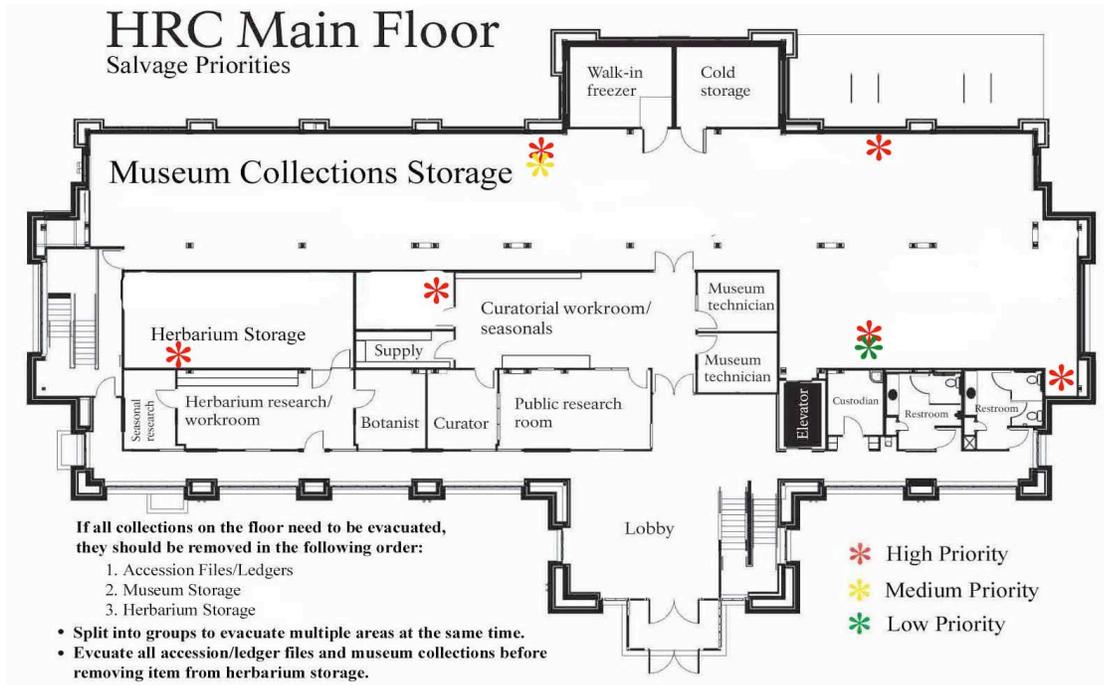


Figure 3-9. Location map showing main floor salvage priority locations, included with priority list. Priority cabinet locations have been changed and cabinet numbers excluded for security purposes.

The final section of each priority list is a color-coded floor plan indicating locations of priority items in storage (Figure 3-9). A colored star corresponding to priority

level is placed in each area of the map containing priority items. Next to each star is text with the cabinet number and contents for each location.<sup>24</sup>

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<sup>24</sup> This text is not included in the map provided for security purposes.

## TABLES

Table 3-1. Break down of priority score for Thomas Moran watercolors based on chart on page 10:38 of the *NPS Museum Handbook*. Because of their artifactual, associational, and monetary value, high risk, and high usage, the Moran watercolors received the highest possible score in all categories.

<i>Item number and description</i>	<i>Risk Score</i>	<i>Value Score</i>	<i>Use Score</i>	<i>Point Total</i>	<i>High, Medium, or Low?</i>
YELL-258, Moran Watercolor Field Sketches	9	6	3	18	High

Table 3-2. Break down of priority score for gray wolf skulls based on chart on page 10:38 of the *NPS Museum Handbook*.

<i>Item number and description</i>	<i>Risk Score</i>	<i>Value Score</i>	<i>Use Score</i>	<i>Point Total</i>	<i>High, Medium, or Low?</i>
Gray Wolf Skulls	6	6	2	14	High

Table 3-3. Break down of priority score for the Red Cloud Bag based on chart on page 10:38 of the *NPS Museum Handbook*.

<i>Item number and description</i>	<i>Risk Score</i>	<i>Value Score</i>	<i>Use Score</i>	<i>Point Total</i>	<i>High, Medium, or Low?</i>
Red Cloud Bag	8	2	1	11	Medium

Table 3-4. How the human skulls would have scored using the chart on page 10:38 of the *NPS Museum Handbook*.

<i>Item number and description</i>	<i>Risk Score</i>	<i>Value Score</i>	<i>Use Score</i>	<i>Point Total</i>	<i>High, Medium, or Low?</i>
Human Skulls	6	N/A	N/A	6	Low

Table 3-5. Museum storage salvage priorities from priority list

Priority	Item	Location
High	Two Human Skulls	Excluded for security
High	Moran Watercolors	Excluded for security
High	Box of Various Items	Excluded for security
High	Henry Wood Elliott Drawings	Excluded for security
High	Lieutenant Charles Moor Drawing	Excluded for security
High	Wolf Skulls	Excluded for security
High	Finial	Excluded for security
Medium	Boxes of Various Items	Excluded for security
Low	Old Tex Skull	Excluded for security

## CHAPTER 4

### SETTING UP AND UTILIZING EMERGENCY SUPPLY CACHES

Stocking disaster response supplies is a critical component of museum emergency planning. In an emergency, various supplies may be utilized to protect staff, facilitate communication between response team members, document damage, pack and transport vulnerable or damaged collections, and provide proper care for damaged artifacts. Having these items on hand can help staff perform immediate response in critical situations involving collections, staff, and patrons. As part of my project, I set up several emergency supply caches in the collections storage areas of the Yellowstone Heritage & Research Center and vehicle storage facility.

#### **Setting Up Emergency Supply Caches**

I set up three small and one large emergency supply cache for the Yellowstone collections.<sup>25</sup> The three smaller caches were contained in plastic trunks in or near each collections storage areas to make them readily accessible in a collections emergency.<sup>26</sup> I filled these trunks with supplies that would be practical in the early stages of an emergency, including personal protective equipment, basic tools, flashlights, duct tape, documentation supplies, and tarps cut from plastic sheeting. (Figure 4-1, Figure 4-2, and Table 4-1)

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<sup>25</sup> I used three main sources to identify supplies that should be included in the emergency supply caches. These were the lists in *The Getty's Building An Emergency Plan*, Heritage Preservation's *Field Guide to Emergency Response*, and *Conserve O Gram 2/6*, "Preparing Salvage Caches for Emergency Use." The reason I used these three lists is because although the materials identified in each of these lists often overlapped, there were also items included in each that were not in the others.

<sup>26</sup> Two of these trunks are set up in the Yellowstone Heritage & Research Center (in the museum storage room on the main floor and in a closet near the library stacks, rare book room, map room, and archives storage room on the upper floor). A third trunk is located in the vehicle storage facility.



Figure 4-1. Contents of trunk sized emergency cache. NPS Photo.



Figure 4-2. Emergency cache packed into trunk. NPS Photo.

The fourth cache, which I call the “master cache” is much larger than the trunk-sized caches, and contains extras of the supplies contained within the trunks as well as other types of supplies that would be utilized in the collections salvage process. These additional supplies include absorbent materials like blotting paper and unlinked newsprint, hair dryers with cool setting, extension cords, box fans, and surge protectors. (Figure 4-3 and Table 4-2)

The master cache is stored on a wheeled metal shelving unit in the basement of the Yellowstone Heritage & Research Center. I covered this cache in plastic sheeting so that its contents would stay dry if the sprinkler system were to go off during an emergency. Additionally, I stored items in plastic boxes or covered them with plastic trash bags so that they will stay dry if they are moved individually during an emergency.



Figure 4-3. Master emergency supply cache, covered and uncovered. NPS Photos.

I organized the master cache so that like items were kept together when possible, such as all documentation supplies in the same box. Each box was labeled with a list of its contents, and each shelf was also labeled with a list of supplies it

contained. Lists of supplies, identifying their exact shelf location were included in the emergency operations plan.

Inventories of the supplies in each cache were included in the Museum Collections Emergency Operations Plan. In addition to these formal supply caches, I made a list of supplies used day-to-day that would also be useful in emergency situations. This list was also included in the emergency plan. (Table 4-3)

### **Utilizing Emergency Supply Caches During Two Minor Collections Incidents**

#### **Demisted Infestation in Wolf Skull Collection**

Just before the end of the workday on Thursday, July 7, 2011, active demisted beetles<sup>27</sup> were discovered on two of the wolf skulls at the Yellowstone Heritage & Research Center<sup>28</sup>. Evidence of a localized<sup>29</sup> infestation included casings and larvae on the skulls and inside their storage trays. Staff responded quickly, forming an assembly line system to bag each wolf skull (with storage tray) in individual plastic freezer bags from the master supply cache and bring them to the walk-in freezer for treatment. We found that having the plastic bags on hand allowed us to take immediate action to remove the skulls from the collections storage area for treatment. We were quickly able to isolate these skulls from the rest of the collection to help prevent a facility-wide outbreak.

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<sup>27</sup> Demisted beetles eat organic materials, including leather, hair, feather, and paper.

<sup>28</sup> A demisted beetle colony is used to clean flesh from the wolf skulls before they are added to the museum collections. As the beetles eat the flesh from the skeletal material, eggs, pupa, and larva get into the tiny cracks and crevices in the bone. As part of the museum intake process, all wolf skulls are frozen in two cycles, in an attempt to kill any living demisted beetles lodged in the skulls. However, demisted beetles are incredibly resilient, and eggs can remain dormant for up to several years before hatching. Museum staff believes that a few eggs may have survived the freezing process and hatched, resulting in the living beetles that were discovered.

<sup>29</sup> Extra sticky traps were placed in storage cabinets near the affected wolf skull cabinet. No demisted activity was noted outside the wolf skull cabinets.



Figure 4-4. Wolf skulls bagged for freezing. NPS Photo.

### **Roof Leak Over Library Stacks**

On Monday, July 12, 2011, heavy rains preceded a roof leak over the library stacks on the upper floor of the Heritage & Research Center. The events that occurred next demonstrate both the usefulness of having emergency supplies on hand and the lack of interest and concern for emergency planning on the part of some building staff.

When library staff noticed the roof leak over the library stacks, they called the museum curator to help assess the situation. I accompanied the curator to the library, and when we arrived we found one of the librarians attempting to cut a tarp from a large roll of plastic sheeting to cover the stacks, despite the fact that an emergency supply cache containing pre-cut tarps was located about 20 feet away.<sup>30</sup> When asked why she did not use tarps from the emergency supply cache, the librarian seemed not to remember that there were emergency supplies available nearby.

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<sup>30</sup> All collections staff had been thoroughly briefed about the contents and location of the emergency supply cache in their area about a month before this incident.

Upon seeing the librarian attempting to cut a new tarp from plastic sheeting, I retrieved tarps from the supply trunk and covered the affected stacks before she was finished cutting a single tarp from the roll of plastic sheeting. The tarps from the supply trunk proved effective at preventing any water damage to the library collections.



Figure 4-5. Tarps covering library stacks during roof leak. NPS Photo.

To conclude, the two minor collections emergencies at the Heritage & Research Center proved the value of keeping emergency supplies on hand. In both instances, staff members were able to quickly and effectively handle situations posing threats to collections due to the close proximity of appropriate supplies. However, the lack of staff knowledge of the locations and contents of emergency supplies at their disposal hammers home one important point: the staff needs to know what they have on hand and how to utilize these supplies.

## List of Tables

Table 4-1. Contents of each emergency supply trunk.

<b>Item</b>	<b>Quantity</b>
Boots, rubber	2 pairs
Emergency Response and Salvage Wheel™	1
Flashlight	2
Freezer bags, sandwich	1 box of 50
Freezer bags, 1 quart	1 box of 50
Glasses, safety	2 pairs
Gloves, nitrile	25 pairs
Hard hat	2
Masks, N-95	10
Notebook, steno	1
Notebook, green bound	1
Paper towels (tech wipes)	1 box
Pencils, mechanical	4
Protective coveralls	2 (1 med., 1 lg.)
Scissors	1 pair
Sponges, cellulose	4
Tape, clear packing	1 roll
Tape, duct	1 roll
Tarps cut from plastic sheeting (10' x 10')	8
Tyvek tags	25
Utility knife with blades	1

Table 4-2. Master supply cache inventory.

<b>Item</b>	<b>Quantity</b>	<b>Location</b>
Batteries (D for flashlights)	6	Cart, Shelf 3
Boots, rubber	2 pairs	Cart, Shelf 4
Brushes, soft natural bristle	3	Cart, Shelf 3
Buckets	6	Cart, Shelf 4
Cellophane, roll	2	Cart, Shelf 2
Clipboards	2	Cart, Shelf 3
Clothesline	2	Cart, Shelf 3
Clothes pins, plastic	6 pkg. of 100	Cart, Shelf 3
Extension cords, 50 foot	2	Cart, Shelf 3
Fans, portable	2	Cart, Shelf 3
File organizer, plastic	1	Cart, Shelf 3

Table 4-2. Continued.

File folders	1 box of 100	Cart, Shelf 3
Flashlights	2	Cart, Shelf 3
First aid kit	2 (minimal contents)	Cart, Shelf 4
Freezer bags, sandwich	2 boxes of 50	Cart, Shelf 4
Freezer bags, quart	2 boxes of 50	Cart, Shelf 4
Freezer bags, pint	2 boxes of 20	Cart, Shelf 4
Freezer bags, gallon	4 boxes of 38	Cart, Shelf 4
Freezer bags, various sizes	1 rescube full of loose bags	Cart, Shelf 4
Garbage bags, 33 gal.	1 box of 100	Cart, Shelf 4
Glasses, safety	2 pairs	Cart, Shelf 4
Gloves, nitrile or vinyl	1 box	Cart, Shelf 4
Goggles, safety	2 pairs	Cart, Shelf 4
Hair dryer with cool setting	3	Cart, Shelf 3
Hard hats	2	Cart, Shelf 4
Hole punch, single (for making Tyvek tags)	1	Cart, Shelf 3
Masks, N-95	1 box of 20	Cart, Shelf 4
Notebook, steno	3	Cart, Shelf 3
Notebook, green bound	3	Cart, Shelf 3
Paper, absorbent blotter (40" x 32")	24 sheets	Cart, Shelf 1
Paper towels (tech wipes)	5 boxes	Cart, Shelf 2
Paper, unlinked newsprint	2 rolls (18" x 1695")	Cart, Shelf 2
Paper, waxed	2 rolls (24" x 1,100')	Cart, Shelf 2
Pencils, Mechanical	1 box of 12	Cart, Shelf 3
Plastic sheeting (20' x 100')	10 rolls	Pallet rack, Bottom shelf
Protective coveralls, med.	3	Cart, Shelf 4
Protective coveralls, large	1	Cart, Shelf 4
Protective coveralls, x-large	2	Cart, Shelf 4
Rescubes (various sizes)	Several dozen	Pallet rack, Middle Shelf
Scissors	1 pair	Cart, Shelf 3
Screen, plastic mesh	1	Cart, Shelf 3
Sponges, cellulose	1 pkg. of 12	Cart, Shelf 2
Sponges, soot	6	Cart, Shelf 2
Sponges, absorbent	5	Cart, Shelf 2

Table 4-2. Continued.

Surge protector	1	Cart, Shelf 3
Tape, clear office (with separate dispenser)	4 rolls	Cart, Shelf 3
Tape, clear packing	3 rolls	Cart, Shelf 3
Tape, duct	2 rolls	Cart, Shelf 3
Twill tape for Tyvek tags	1 roll	Cart, Shelf 3
Tyvek tags for objects	50	Cart, Shelf 3
Tyvek roll (for making additional object tags)	1	Cart, Shelf 1
Utility knives	1	Cart, Shelf 3
Utility knife blades	2 pkg. of 5	Cart, Shelf 3

Table 4-3. Additional supplies and their locations at the Yellowstone Heritage & Research Center.

<b>Item</b>	<b>Quantity</b>	<b>Location</b>
Brooms	4	1 per custodial closet, 1 in kitchen
Camera, digital	4	2 in cabinet in curatorial workroom; 1 in archaeology lab; 1 at library desk
Dataloggers (HOBOS)	Varies w/ use	Basket in closet in rear of curatorial workroom
Dollies	2	Closet in curatorial workroom
HEPA bags + filters	Varies w/ use	Archives/library/museum storage room
HEPA vacuum	3	1 in archives/library/ museum storage; 1 in closet in curatorial workroom; 1 in museum processing room
Mops with buckets	3	1 per custodial closet
Moving blankets	Varies w/ use	Laundry room
Pallet fork	2	Archives/library/museum storage room
Paper towels	Dozens of pkgs.	Every bathroom closet
Shovels	2	Inside front entrance
Tool kit	2	Supply closet in curatorial workroom
Wet-dry vacuum	1	Archives/library/museum storage room

## CHAPTER 5 FIRE DEPARTMENT COLLABORATION AND STAFF TRAINING

Regular staff training on the contents and implementation of any emergency plan is important because an emergency plan will be of little use without people who are prepared to carry it out. Many types of emergency preparedness training exercises can and should be employed by museums. These include, but are not limited to, regular review of emergency procedures for all at-risk emergencies, small- and large-scale disaster simulations, salvage procedures for different types of damage (e.g. fire, water, smoke, pest) based on object material (e.g. paper, textile, or metal), and how to find and use object priority lists, emergency supplies, and fire extinguishers.<sup>1</sup>

For my project, I wanted to provide training for the two main parties who would typically react to a collections emergency: facility staff and the park fire company. Three separate trainings were held. First, I worked with the Yellowstone structural fire department to facilitate Heritage & Research Center staff training in the use of fire extinguishers. Second, I led members of the fire department on a walk-through of the Heritage & Research Center facility to familiarize them with the building, the collections, and use of object priority lists. Finally, I presented a PowerPoint to the staff of the Heritage & Research Center to familiarize employees with the use and implementation of the Museum Collections Emergency Operations Plan.

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<sup>1</sup> Many museum emergency planning guides provide guidance on emergency preparedness training specifically for cultural institutions. The most comprehensive information I found on this topic was included in chapter 5 of the Getty Conservation Institute's *Building an Emergency Plan: A Guideline for Museums and Other Cultural Institutions*. Topics included how to plan and execute mental drills, disaster simulations, fire drills, object handling training, fire extinguisher training, and more.

## Collaboration with Yellowstone National Park Structural Fire Department

### Heritage & Research Center Staff Fire Extinguisher Training

Heritage & Research Center staff training on proper fire extinguisher use was facilitated by Yellowstone deputy fire chief Mark Gleason on the morning of July 26, 2011. The 45-minute training started with a video describing different types of fire extinguishers, how to operate them, and procedures for putting out small fires. Next, Gleason spoke in-depth about these procedures, clarifying points from the video, talking about the specific types of fire extinguishers in the Heritage & Research Center facility, and answering staff questions.

Next, Gleason brought the staff outside the building, where he had set up a propane-fueled prop for employees to practice putting out a fire with the type of extinguisher used in the facility. Each staff member in attendance had the opportunity to shoot a fire extinguisher to put out the propane-generated fire.



Figure 5-1. Yellowstone deputy fire chief Mark Gleason talking about proper operation of a fire extinguisher. Propane fire prop is lit in background. NPS Photo.

## Usefulness of Staff Fire Extinguisher Training

The fire extinguisher training seemed to be very useful to the staff in attendance. Few staff members had operated a fire extinguisher before the training, and the opportunity to feel the weight of the extinguisher, practice pulling the pin out of the handle, pulling the hose out of the side of the extinguisher, pointing the hose, pressing the handle, and shooting the extinguisher to put out a real fire proved invaluable practice in the case of a fire inside the museum facility.



Figure 5-2. Yellowstone archives technician (and University of Florida alumnus) Frances Harrell using fire extinguisher to put out prop fire. NPS Photo.

For example, one staff member accidentally forgot to pull the hose from the side of the extinguisher and point it at the fire before squeezing the handle, which resulted in shooting the extinguisher at her feet instead of at the fire. She explained that her fire extinguisher at home did not have a hose, and therefore she did not think to point the hose on the extinguisher she was using. This lesson was better learned during a practice exercise than during an actual building fire. Several staff members said the

training gave them confidence that they could use an extinguisher to put out a real fire in the future.

One unexpected benefit of the fire extinguisher training was that it provided me with information used to revise emergency instructions in the emergency operations plan for handling fires within the building. Although I had already consulted the fire chief about the accuracy of the procedures I had written, Gleason's eloquent instructions allowed me to modify and strengthen these procedures in my plan.

Although the fire extinguisher training was informative for the Heritage & Research Center staff in attendance, several building occupants chose to remain in their offices rather than attend the exercise. Understandably, some staff members could not attend because of prior obligations. However, it was clear that several staff felt the training was of little importance. Some staff remained in their offices rather than attend, and afterwards I personally overheard the park's oral historian say, "I didn't go because I really don't care." Lack of interest in emergency preparedness by several staff was common during the course of my project.

### **Yellowstone Structural Fire Department Walk-Through of the Heritage & Research Center**

On the afternoon of July 26, 2011 deputy fire chief Gleason returned to the facility with ten members of the Mammoth Hot Springs fire company. Before the walk-through, most members of the fire department had never been inside the Heritage & Research Center. I led the firefighters through all building spaces, starting at the top floor and working down to the lowest level. Joining me were the museum curator and the Yellowstone National Park cultural resources branch chief.



Figure 5-3. The author (far left) providing the Mammoth fire company of the Yellowstone Structural Fire Department with an introduction to the Heritage & Research Center facility before beginning the walk-through. NPS Photo.

Not surprisingly, the firefighters were interested in seeing all spaces and systems they could potentially utilize in a fire suppression effort. These included crawl spaces, annunciator panels, hose valves, and systems shut-offs on both the interior and exterior of the facility. I was impressed at the level to which they sought to understand how the building and its systems worked. Deputy chief Gleason took copious notes for a fire pre-plan, a manual for the company to use to manage a fire response at the facility.

Members of the fire department were also eager to learn how to locate and evacuate items from the collections using the object priority lists. I showed them the locations of the priority lists on each floor and discussed how to locate and remove priority items and the order in which to take items out in a variety of situations. I also

recommended that if possible, firefighters should split into groups to evacuate priority items from separate areas.

### **Usefulness of Fire Department Walk-Through**

The fire department walk-through was an extremely successful exercise, with tangible results. For example, the group noted that the fire extinguisher in the archives storage area was not as big as it should be, and replaced it with a larger model. Similarly, they decided to add an extinguisher to the rare book storage room, which did not previously have one.

The firefighters were highly engaged throughout the exercise, and were eager to find the best possible way of doing things. They had creative solutions to many problems. For instance, during an inspection of one of three locked fire extinguisher boxes containing fire department valves, it was discovered that the fire department did not have the key to unlock the doors. The only copy of the key was located in a closet in the curatorial workroom. Gleason put in a work order the following day to have the doors removed from these boxes, having the dual effect of providing the fire department with quick access to the fire department valves and building employees unfettered access to the fire extinguishers within.

Members of the fire department also provided ideas for improvements that could be made in the storage areas to help them during the salvage effort. One creative example was to place reflective stickers on the priority signage so they could be located more easily in the dark with flashlights. Another idea was to place tarps (besides the ones in the salvage caches) on top off priority cabinets for easy access in an emergency.

Not only is the Heritage & Research Center more prepared thanks to this exercise, but the fire department also feels more confident in handling an emergency situation at the building. Gleason explains:

The walk through was extremely important to me, and all the folks that showed from the Mammoth Fire Company. One very important thing learned from this trip is where to start from in case of fire or water flow. Getting to see the workings of the building and to solve some problems before they become a problem is great as well ... all the work you have done has increased the safety of your folks and artifacts as well as the safety of our firefighters.<sup>2</sup>

### **Heritage & Research Center Staff Training**

In addition to the fire extinguisher training facilitated by the fire department, I provided Heritage & Research Center staff with training on the use of the emergency operations plan. Trainings were in the form of two PowerPoint presentations.

The first training was intended for all staff working in the building,<sup>3</sup> and focused on the information provided in the response chapter of the emergency plan. In my presentation, I went over the results of my risk assessment, talked about emergency procedures for a variety of emergency situations, and discussed the various ways to report an emergency.<sup>4</sup> Additionally, I brought staff to the utility room and showed them how to operate the emergency shut-offs for the HVAC, propane, sprinklers, and domestic water supply.<sup>5</sup>

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<sup>2</sup> Gleason, Mark. "Re: Effectiveness of Walk-Through." Email to Molly Conley. 7/27/2011.

<sup>3</sup> Besides museum, library, archives, and herbarium staff, there are offices for the archeology, geology, and paleontology departments.

<sup>4</sup> These include via work phone at a four-digit extension, via cell phone, via park radio, and by using one of the panic buttons installed in the building.

<sup>5</sup> Written shut-off procedures are also laminated and available for staff in the utility room.

I prepared an additional presentation for staff working with museum, library, and archives collections, focusing on the contents of the rest of the emergency operations plan. Included in this presentation were salvage procedures for wet and otherwise damaged items, disaster team position descriptions, record keeping during the salvage process, funding sources for disaster recovery, potential sources of volunteers, instructions for updating the plan, and more.<sup>6</sup>

I also discussed the salvage caches located throughout the building – where to find them, when to use them, how to inventory them, and their contents. I brought staff to the master cache and showed them the contents and also opened up a smaller cache and explained what was inside. I closed the training by asking that once I am gone that staff take ownership in the plan, keep it up to date, and conduct additional trainings regularly.

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<sup>6</sup> These topics were based on appendices of the emergency plan.

## CHAPTER 6 CONCLUSION

Ideally, my project should be only the beginning of a permanent commitment to museum emergency planning for Yellowstone National Park. I provided the staff with suggestions on how to make emergency planning an on-going project, including updating the plan annually to keep all information current<sup>7</sup>, bringing the park fire company on a yearly walk-through of the building, updating object priority lists annually<sup>8</sup>, requiring all staff to read the emergency plan annually, and offering staff a variety of relevant training opportunities on a regular basis<sup>9</sup>.

In reality, collections staff at Yellowstone were disinterested in emergency preparedness, and I worry that emergency planning will be a low priority for Yellowstone in the future. It seemed to me that lack of staff interest was caused by three main factors: a denial that anything bad could happen due to the newness of the building, a fear that emergency planning would add to staff workload, and lack of administrative leadership promoting emergency planning.

This resistance to emergency planning is not unique to Yellowstone, but a challenge for many collecting institutions. According to Gail Joice, registrar of the Seattle Art Museum, "At the start, we had trouble getting people to take this seriously... there is an initial resistance, a fear of the unknown, and some people are in denial."<sup>10</sup>

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<sup>7</sup> Sections that should be updated annually include phone numbers, salvage priorities (these should be reviewed and additional items should be added), supply lists, external resources for supplies and services, and risk assessment (to indicate any recently discovered risks).

<sup>8</sup> Priority lists should be updated regularly in order to ensure that additional items are included as their significance becomes known, as new items are added to the collection, and to ensure that locations of priority items stay current.

<sup>9</sup> Training opportunities could include workshops, conference sessions, or seminars related to emergency operations or salvage procedures.

<sup>10</sup> Quoted in Dorge, Valerie, and Sharon L. Jones, compilers. *Building an Emergency Plan: A*

Scott Carrlee, curator of museum services at the Alaska State Museum, echoes this point:

Emergency preparedness can be abstract and it doesn't really capture people's interest. At our museum, the staff did not take it seriously until after we had a major water emergency that involved most everyone in the mitigation efforts. There is nothing like a real emergency to bring home the benefits of planning or the shortcomings of not being prepared.<sup>11</sup>

One way to battle lack of staff interest is to engage them in the emergency planning process. Because this project was undertaken as part of my thesis project, I performed all emergency planning tasks on my own and asked very little of the rest of the building staff. Perhaps staff would have felt invested in the emergency planning process had they been more directly involved. Emergency planning certainly adds to staff workload, but the level of commitment may have been stronger if the importance emergency planning were better understood.

I also think it would have made a difference if upper level management had shown more enthusiasm about the value of the project.<sup>12</sup> Although management supported me during my project, they did not provide institutional leadership in promoting the importance of this project. I feel that a top-down institutional culture of safety and preparedness would have made a major difference. Had lower level staff been aware that the administration felt this project was valuable, perhaps they would have shown more enthusiasm for it.

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*Guide for Museums and Other Cultural Institutions*. Los Angeles: The Getty Conservation Institute, 1999 (pg. 92). 0

<sup>11</sup> Carrlee, Scott. "Re: Question for Thesis." Email to Molly Conley. 11/7/2011.

<sup>12</sup> When I refer to upper level management, I mean high-level cultural resources branch and park administrative staff. I would like to note that my supervisor, the museum curator, was one of the few people on staff who understood the importance of emergency planning for our institution. Although she showed a great deal of enthusiasm and interest in this project, she was ultimately unable to convince other staff of its relevance and value. This was not due to a lack of trying on her part, but a resistance by building staff.

To conclude, my thesis project certainly increased the level of emergency preparedness at the Yellowstone Heritage & Research Center. The emergency plan, priority lists, and supply caches are theirs and the emergency planning process is now in their hands. I hope that it does not take a major disaster to make staff interested in the process or to understand the value of emergency planning.

APPENDIX A  
TABLE OF CONTENTS FROM MUSEUM COLLECTIONS EMERGENCY  
OPERATIONS PLAN

**INTRODUCTION**

- How to Use this Plan ..... i
- Scope and Goals ..... ii
- Review, Updating, and Distribution of this Plan ..... iii
- The Yellowstone Collection ..... iii

**CHAPTER 1: RESPONSE ..... 1**

- 1.1 REPORT THE EMERGENCY ..... 1
  - 1.1.1 Communications Center Emergency Call Chain ..... 2
- 1.2 EMERGENCY PHONE NUMBERS ..... 3
  - 1.2.1 Emergency Services ..... 3
  - 1.2.2 Maintenance ..... 3
  - 1.2.3 Important Park Phone Numbers ..... 3
- 1.3 ADVANCED WARNING – EMERGENCY PREPARATIONS ..... 4
  - 1.3.1 Flooding ..... 4
  - 1.3.2 Wildfire/Forest Fire ..... 5
  - 1.3.3 Volcanic Eruption ..... 6
- 1.4 EMERGENCY INSTRUCTIONS ..... 7
  - 1.4.1 Accidental Damage ..... 7
  - 1.4.2 Anthrax Threat – Mailed In ..... 8
  - 1.4.3 Anthrax Threat – Phoned In ..... 9
  - 1.4.4 Bomb Threat ..... 11
  - 1.4.5 Earthquake ..... 13
  - 1.4.6 Environmental Emergency ..... 14
  - 1.4.7 Explosion ..... 15
  - 1.4.8 Fire ..... 16
  - 1.4.9 Hazardous Materials Incident ..... 17
  - 1.4.10 Medical/Health Emergency – Minor ..... 18
  - 1.4.11 Medical/Health Emergency – Major ..... 19
  - 1.4.12 Mold ..... 21
  - 1.4.13 Pests ..... 22
  - 1.4.14 Power Outage ..... 23
  - 1.4.15 Property Damage/Vandalism ..... 24
  - 1.4.16 Stuck in Elevator ..... 25
  - 1.4.17 Suspicious Package/Device ..... 26
  - 1.4.18 Terrorist Attack ..... 27
  - 1.4.19 Theft of Collections ..... 29
  - 1.4.20 Threatening Person ..... 30

1.4.21	Tornado .....	32
1.4.22	Volcanic Eruption (without advanced warning) .....	33
1.4.23	Water Damage .....	34
1.5	EVACUATION PROCEDURES – HRC .....	35
1.5.1	General Procedures .....	35
1.5.2	Procedures for Clearing the Building during Evacuation: .....	36
1.5.3	Visitor Logs .....	36
1.5.4	Assembly Areas .....	36
1.5.5	Evacuation Maps .....	37
1.6	EVACUATION PROCEDURES – VEHICLE STORAGE .....	40
1.6.1	General Procedures .....	40
1.6.2	Assembly Areas .....	40
1.6.3	Evacuation Map .....	41
1.7	SALVAGE AND EVACUATION OF COLLECTIONS .....	42
1.7.1	Scenario #1: Localized Collections Emergency .....	43
1.7.2	Scenario #2: Large-Scale Disaster .....	43
1.8	NOTIFICATION OF PERSONNEL .....	44
1.8.1	Park Personnel .....	44
1.8.2	Heritage & Research Center Personnel .....	45
<b>CHAPTER 2</b>	<b>– RECOVERY .....</b>	<b>47</b>
2.1	INITIAL RECOVERY STEPS .....	47
2.1.1	Assess the Damage .....	47
2.1.2	Prepare for Recovery of Collections .....	49
2.1.3	Stabilize the Building and Environment .....	51
2.2	HANDLING, SORTING, AND PACKING COLLECTIONS .....	52
2.2.1	Handling Damaged Collections .....	52
2.2.2	Triage .....	53
2.2.3	Packing .....	54
2.2.4	Salvage Process Flow Chart .....	56
2.3	GENERAL SALVAGE PROCEDURES FOR WET COLLECTIONS .....	57
2.3.1	Rinsing .....	57
2.3.2	Air Drying .....	58
2.3.3	Other Drying Options .....	59
2.3.4	Freezing .....	61
2.3.5	Documentation .....	62
2.4	CONSERVE O GRAMS .....	63

2.4.1	Salvage of Water-Damaged Collections: Salvage at a Glance .....	63
2.4.2	Salvage at a Glance, Part I: Paper Based Collections .....	65
2.4.3	Salvage at a Glance, Part II: Non-Paper Based Archival Collections.....	69
2.4.4	Salvage at a Glance, Part III: Object Collections .....	73
2.4.5	Salvage at a Glance, Part IV: Natural History Collections .....	77
2.4.6	Salvage at a Glance, Part V: Textiles .....	80
2.5	SALVAGE OF SPECIFIC MEDIA .....	84
2.5.1	Archival Materials .....	84
2.5.2	Art on Paper .....	85
2.5.3	Audio Recordings, Compact Discs .....	85
2.5.4	Audio Recordings, Record Albums .....	85
2.5.5	Audio Recordings, Tapes and Cassettes .....	85
2.5.6	Books, General Collection .....	86
2.5.7	Books, Rare .....	86
2.5.8	Computer CDs/CD-ROMs .....	87
2.5.9	Computer Disks, Magnetic .....	87
2.5.10	Computer tapes, Magnetic .....	87
2.5.11	DVDs .....	88
2.5.12	Film, Motion Picture .....	88
2.5.13	Manuscripts .....	88
2.5.14	Maps and Plans .....	88
2.5.15	Microfiche .....	89
2.5.16	Microfilm .....	89
2.5.17	Natural History Materials .....	89
2.5.18	Negatives, Acetate .....	90
2.5.19	Negatives, Glass Plate .....	90
2.5.20	Negatives, Nitrate .....	90
2.5.21	Negatives, Polyester .....	90
2.5.22	Newspapers .....	91
2.5.23	Objects .....	91
2.5.24	Organic Materials .....	92
2.5.25	Paintings .....	92
2.5.26	Parchment & Vellum Manuscripts .....	92
2.5.27	Photographic Prints, Black and White .....	93
2.5.28	Photographic Prints, Color .....	93
2.5.29	Photographs, Cased .....	94
2.5.30	Posters .....	94
2.5.31	Scrapbooks .....	94
2.5.32	Serials .....	95
2.5.33	Textiles .....	95
2.5.34	Transparencies, Color .....	95
2.5.35	Videotapes .....	95
2.5.36	Wooden Objects and Furniture .....	96

2.6 ADDITIONAL TYPES OF DAMAGE .....	98
2.6.1 Fire & Soot Damage .....	98
2.6.2 Volcanic Ash .....	100
2.6.3 Mold .....	104
2.6.4 Pests .....	111
<b>CHAPTER 3 – REHABILITATION .....</b>	<b>113</b>
3.1 REHABILITATION PLANNING .....	113
3.2 REHABILITATION OF WATER-DAMAGED COLLECTIONS .....	114
3.3 REHABILITATION OF FIRE-DAMAGED COLLECTIONS .....	114
3.4 OTHER REHABILITATION ACTIVITIES .....	115
3.5 EVALUATION OF SALVAGE & RECOVERY EFFORTS .....	116
<b>APPENDIX A – FACILITIES INFORMATION – HRC .....</b>	<b>117</b>
A.1 EMERGENCY SHUT-OFF PROCEDURES .....	117
A.1.1 HVAC System .....	117
A.1.2 Propane/Boiler .....	119
A.1.3 HVAC Water Supply .....	120
A.1.4 Domestic Water Supply .....	121
A.1.5 Sprinkler System .....	122
A.2 HAZARDOUS MATERIALS .....	123
A.2.1 Lower Floor .....	123
A.2.2 Main Floor .....	124
A.3 FIRST AID .....	125
A.3.1 First Aid Kits .....	125
A.3.2 Automated External Defibrillator (AED) .....	125
A.3.3 Eye Wash/Emergency Shower .....	125
A.3.4 Staff Trained in CPR/First Aid/AED .....	126
A.3.5 Location Maps .....	126
A.4 FIRE PROTECTION SYSTEMS .....	128
A.4.1 Fire Extinguishers .....	128
A.4.2 Fire Alarm Pull Boxes .....	132
A.4.3 Smoke Detectors .....	136
A.4.4 Sprinkler System .....	136
A.5 WATER DETECTORS .....	137
A.6 SECURITY .....	138
A.6.1 Panic Button .....	139

A.7 BUILDING ACCESS .....	140
A.7.1 Park Staff .....	140
A.7.2 Yellowstone Structural Fire Department .....	140
A.8 CLIMATE CONTROL SYSTEMS .....	141
<b>APPENDIX B – FACILITIES INFORMATION – VEHICLE STORAGE .....</b>	<b>143</b>
B.1 HAZARDOUS MATERIALS .....	143
B.2 FIRST AID .....	144
B.2.1 First Aid Kit .....	144
B.2.2 Eye Wash Station .....	144
B.2.2 Location Map .....	144
B.3 FIRE PROTECTION SYSTEMS .....	145
B.3.1 Fire Extinguishers .....	145
B.3.2 Fire Alarm Pull Boxes .....	145
B.3.3 Sprinkler System .....	145
B.4 SECURITY .....	146
B.5 BUILDING ACCESS .....	146
B.5.1 Museum Staff .....	146
B.5.2 Yellowstone Structural Fire Department .....	146
<b>APPENDIX C - NPS ORGANIZATIONAL STRUCTURE FOR EMERGENCY RESPONSE .....</b>	<b>147</b>
C.1 INCIDENT COMMAND SYSTEM .....	147
C.2 EMERGENCY ORGANIZATION FOR CULTURAL RESOURCES EMERGENCY TEAM MEMBERS .....	147
C.3 CHAIN OF COMMAND FOR CULTURAL RESOURCES TEAM MEMBERS .....	148
C.4 CULTURAL RESOURCES EMERGENCY TEAM MEMBERS AND RESPONSIBILITIES .....	149
<b>APPENDIX D – SALVAGE PRIORITIES .....</b>	<b>151</b>
D.1 SCENARIO #1: LOCALIZED COLLECTIONS EMERGENCY .....	152

D.2	SCENARIO #2: LARGE-SCALE DISASTER .....	152
D.3	MAIN FLOOR SALVAGE PRIORITIES .....	153
D.3.1	Accession Files .....	153
D.3.2	Museum Storage .....	154
D.3.3	Herbarium Storage .....	154
D.3.4	Location Map .....	155
D.4	UPPER FLOOR PRIORITIES .....	156
D.4.1	Archives Storage Priority List .....	156
D.4.2	Rare Book Room Priority List .....	157
D.4.3	Map Room Priority List .....	157
D.4.4	Location Map .....	158
D.5	LOWER FLOOR SALVAGE PRIORITIES .....	159
D.6	VEHICLE STORAGE PRIORITIES .....	160
<b>APPENDIX E – RECORD KEEPING .....</b>		<b>161</b>
E.1	GENERAL INFORMATION .....	161
E.2	OBJECT TRACKING FORM .....	162
E.3	OBJECT CONDITION REPORT FORM .....	163
E.4	PACKING INVENTORY FORM .....	164
E.5	ENVIRONMENTAL MONITORING FORM .....	165
E.6	DONATION FORM .....	166
E.7	COLLECTIONS INCIDENT REPORTING INSTRUCTIONS .....	167
E.8	BUILDING INCIDENT REPORT FORM .....	168
<b>APPENDIX F – IN-HOUSE EMERGENCY SUPPLIES .....</b>		<b>169</b>
F.1	DISASTER SUPPLY CACHES .....	169
F.1.1	Master Cache .....	169
F.1.2	Museum Cache & Library/Archives Cache .....	172
F.1.3	Additional HRC Disaster Supplies .....	174
F.1.4	Vehicle Storage Cache .....	175
F.2	SALVAGE SUPPLIES – INTERNAL SUPPLIES .....	176
F.2.1	Mammoth Supply Center .....	176
F.2.2	Staff Supplies .....	177
<b>APPENDIX G - EXTERNAL SUPPLIES AND SERVICES .....</b>		<b>179</b>

G.1	24-HOUR PRESERVATION ASSISTANCE HOTLINES .....	179
G.2	REGIONAL CONSERVATION AND PRESERVATION CENTERS .....	181
G.3	SALVAGE SUPPLIES – EXTERNAL SOURCES .....	183
	G.3.1 Archival Supplies .....	183
	G.3.2 Hardware Stores .....	184
G.4	BUILDING RECOVERY/COLLECTIONS SALVAGE SERVICES .....	185
	G.4.1 Nationwide Building Recovery/Collection Salvage Services .....	185
	G.4.2 Montana Building Recovery/Collection Salvage Services .....	188
G.5	MICROFILM SALVAGE SERVICES .....	191
G.6	MAGNETIC MEDIA SALVAGE SERVICES .....	192
G.7	OTHER SUPPLIES AND SERVICES .....	193
	G.7.1 Trailer & Truck Rentals .....	193
	G.7.2 Refrigerated Trucks .....	194
	G.7.3 Frozen Storage – Montana .....	194
	G.7.4 Frozen Storage – Regional .....	195
	G.7.5 Storage Units/Portable Storage .....	196
	G.7.6 Portable Toilet Rentals .....	197
	G.7.7 Tent Rentals .....	198
<b>APPENDIX H – DISASTER RECOVERY CONTRACT .....</b>		<b>199</b>
H.1	VENDOR QUALIFICATIONS .....	199
H.2	SCOPE OF WORK .....	200
	H.2.1 Scope of Work for Salvaging Wet Materials .....	200
	H.2.2 Scope of Work for Salvaging Charred, Burnt, and Smoke-Damaged Materials .....	201
<b>APPENDIX I – COMMAND CENTER/TEMPORARY SPACE .....</b>		<b>203</b>
I.1	COMMAND CENTER .....	203
I.2	RELOCATION/TEMPORARY STORAGE/DRYING OF COLLECTIONS .....	204
<b>APPENDIX J – VOLUNTEER/TEMPORARY PERSONNEL .....</b>		<b>205</b>
J.1	PARKWIDE RESOURCES FOR VOLUNTEERS AND WORKERS .....	205
J.2	REGIONAL EXPERIENCED NPS MUSEUM & ARCHIVES PROFESSIONALS .....	206

J.3 LOCAL EXPERIENCED VOLUNTEERS/WORKERS .....	207
J.4 OTHER EXPERIENCED WORKERS .....	208
J.5 SERVICES FOR STAFF/VOLUNTEERS/TEMPORARY WORKERS .....	208
<b>APPENDIX K –PERSONAL PROTECTIVE EQUIPMENT .....</b>	<b>209</b>
K.1 GENERAL INFORMATION .....	209
K.2 YELLOWSTONE PERSONAL PROTECTIVE EQUIPMENT PROGRAM .....	209
K.3 RESPIRATORS .....	212
K.3.1 Yellowstone National Park Respiratory Protection Program .....	212
K.3.2 Heritage & Research Center Employee Respirators .....	214
K.4 CONSERVEOGRAMS .....	215
K.4.1 An Introduction to Respirator Use in Collections Management .....	215
K.4.2 Health and Safety Hazards Arising from Floods .....	219
K.4.3 Hazardous Materials in Your Collection .....	223
K.4.4 Guidelines for the Handling of Pesticide Contaminated Collections .....	227
K.4.5 Health and Safety Risks of Asbestos .....	231
K.4.6 Ethylene Oxide Health and Safety Update .....	235
K.4.7 Dichlorvos (Vapona) Update .....	238
K.4.8 Physical Properties and Health Effects of Pesticides Used On National Park Service Collections .....	241
K.4.9 Health and Safety Issues with Geological Specimens .....	248
K.4.10 Radioactive Minerals .....	253
<b>APPENDIX L - INFORMATION TECHNOLOGY .....</b>	<b>257</b>
<b>APPENDIX M – INSURANCE INFORMATION .....</b>	<b>259</b>
M.1 SELF INSURANCE .....	259
<b>APPENDIX N – EMERGENCY FUNDS .....</b>	<b>261</b>
N.1 IN-HOUSE FUNDS .....	261
N.1.1 Base Account .....	261
N.1.2 Institutional Credit Card .....	261

N.1.3 Parkwide Contingency Fund .....	261
N.2 ADDITIONAL FUNDS .....	262
N.2.1 Yellowstone Park Foundation .....	262
<b>APPENDIX O - STAFF TRAINING .....</b>	<b>265</b>
O.1 STAFF TRAINING .....	265
O.2 FIRST AID/CPR/AED TRAINING .....	266
<b>APPENDIX P – PRE-DISASTER COMMUNICATION WITH EMERGENCY SERVICES .....</b>	<b>267</b>
P.1 YELLOWSTONE STRUCTURAL FIRE DEPARTMENT .....	267
<b>APPENDIX Q: INTEGRATED PEST MANAGEMENT .....</b>	<b>269</b>
Q.1 GENERAL INFORMATION .....	269
Q.1.1 Venomous Snakes .....	269
Q.1.2 Venomous Spiders .....	271
Q.1.3 Hantavirus .....	272
Q.2 YELLOWSTONE HERITAGE & RESEARCH CENTER INTEGRATED PEST MANAGEMENT PLAN .....	276
Q.3 INTEGRATED PEST MANAGEMENT TRACKING SHEET .....	281
Q.4 CONSERVEOGRAMS .....	282
Q.4.1 Identifying Museum Insect Pest Damage .....	282
Q.4.2 An Insect Pest Control Procedure: The Freezing Process .....	289
Q.4.3 Monitoring Insect Pests with Sticky Traps .....	293
Q.4.4 Controlling Insect Pests: Alternatives to Pesticides .....	296
Q.4.5 Anoxic Microenvironments: A Treatment for Pest Control .....	300
<b>APPENDIX R – RISK ASSESSMENT .....</b>	<b>305</b>
R.1 NATURAL HAZARDS AND RISKS .....	305
R.1.1 Earthquake – Serious Risk .....	305
R.1.2 Wildfire – Serious Risk .....	306
R.1.3 Severe Winter Storms – Moderate Risk .....	307
R.1.4 Thunderstorms/Windstorms – Moderate Risk .....	307
R.1.5 Tornado – Minimal Risk .....	308
R.1.6 Flooding – Minimal Risk .....	309
R.1.7 Volcanic Eruption – Minimal Risk .....	309
R.1.8 Dam Failure – Not A Risk .....	309

R.2 INDUSTRIAL/ENVIRONMENTAL HAZARDS AND RISKS .....	310
R.2.1 Power Outage – Moderate Risk .....	310
R.2.2 Proximity to Hazardous Materials – Moderate Risk .....	310
R.2.3 Terrorist Attack – Moderate Risk .....	311
R.2.4 Urban/Structural Fire – Minimal Risk .....	312
R.2.5 Water Main Break – Risk Unknown .....	312
R.2.6 Sewer System Backup – Risk Unknown .....	313
R.3 BUILDING/SYSTEMS HAZARDS AND RISKS .....	314
R.3.1 Environmental Control Systems – Serious Risk .....	314
R.3.2 Roof - Moderate Risk .....	315
R.3.3 Skylights – High Risk .....	315
R.3.4 Water Pipes Running Through Collections Areas – Moderate Risk .....	315
R.3.5 Water-Bearing HVAC Equipment - Moderate Risk .....	315
R.3.6 Pest Infestation - Moderate Risk .....	316
<b>APPENDIX S - SELECTED BIBLIOGRAPHY .....</b>	<b>317</b>
<b>APPENDIX T – ADDITIONAL RESOURCES FOR SALVAGE OPERATIONS .....</b>	<b>319</b>
T.1 CONSERVEOGRAMS .....	319
T.1.1 Retrofitting a Moving Van to Transport Museum Collections .....	319
T.1.2 Salvaging Acidic or Damaged Museum Accession Books .....	323
T.2 ONLINE RESOURCES .....	326
<b>APPENDIX U – STANDARD OPERATING PROCEDURE FOR     UPDATING THIS EMERGENCY PLAN .....</b>	<b>327</b>
U.1 UPDATING .....	327
U.2 PRINTING .....	329
U.3 DISTRIBUTION .....	329
<b>APPENDIX V – PARK WIDE CONTACT INFORMATION .....</b>	<b>331</b>
V.1 RADIO NUMBERS .....	331
V.2 PARK WIDE PHONE DIRECTORY .....	335

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## BIOGRAPHICAL SKETCH

Molly Elizabeth Conley was born on June 28, 1983 in Portland, Maine. The first of two children, she grew up mostly in Buxton, Maine, graduating from Bonny Eagle High School in 2001. Molly attended the University of New Hampshire, where she earned a B.A. in history and a B.A. in Communication.

During the summer between her third and fourth years at the University of New Hampshire, Molly enrolled in a class that followed the Lewis and Clark Expedition during a three-week road trip from St. Louis to the Pacific Coast. Each history museum, interpretive center, historic landmark, and historic re-creation along the way helped her imagination bring the past to life in new and different ways. This experience dramatically increased Molly's desire to work in the world of museums because it inspired her to make history come alive for others.

Molly began her Master's in museum studies in the fall of 2008. As a graduate assistant, she worked for the University Gallery and the Art in State Buildings program. She also volunteered at the Matheson Museum in Gainesville. In the summer, Molly answered the call of the mountains to the west, working as a museum intern in Yellowstone National Park in 2009 and Valdez, Alaska in 2010.

In 2011, Molly moved to Anchorage, Alaska where she works at the Alaska Aviation Heritage Museum.