The Youth Zoology Collection at the Perry Castañeda Library: A Preservation Needs Assessment

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Executive Summary

In order to understand the preservation needs of the Youth Zoology Collection at the Perry-Castañeda Library (PCL) at the University of Texas at Austin, researchers undertook a preservation needs assessment survey. This collection is unique to the UT Libraries because of the large number of oversize volumes and the retention of paper slipcovers.

The survey was designed to assess items' status, condition, and preservation needs. The research team surveyed 100 randomly selected items within the collection of 1,188, observing a large amount of minor damage. The most common damage was cover delamination and fraying/skinning. There was a significant correlation between oversize items and cap damage, failing case-to-text attachment, and page tears.

The following recommendations are made for preservation of the collection:

- 1. Undertake the recommended item repairs to prolong volumes' lifespan.
- 2. Ask library staff and patrons to take special care when handling oversize items, which compose an estimated 47% of the collection and exhibit high rates of cap damage (21.3%), case to text attachment failure (12.8%), page tears (17%), and delamination (27.7%).
- 3. Ask library staff to shelve items upright in order to decrease stress on bindings.
- 4. When evaluating future storage policies, consider reducing total light exposure in the collection.
- 5. Ensure that preservation staff continues to create Mylar slipcovers for items that will retain their original paper slipcovers.

Collection History and Project Goals

The primary purpose of the Youth Collection at the Perry-Castañeda Library (PCL) is to support academic work within the University of Texas Schools of Information and Education. It also serves as a working collection for children within the UT community. Managed by bibliographer Lindsey Schell, the collection contains works intended for an elementary through young adult audience, with a focus on younger children. Collection items span from the 18th century through the modern day, but materials published in the 18th and 19th centuries are located in offsite library storage, as they have a higher incident of embrittlement, fragility, and rarity. Though the collection policy states that the collection contains "print and non-print media, basic reference tools, and selected periodicals," the bulk of the collection consists of bound printed manuscript volumes. The collection also maintains an approval plan for all major ALA award winners, including the Newberry and Caldecott awards.

The materials included in the zoology segment of the Youth Collection consist primarily of 20th and 21st century case-bound volumes. The majority of these volumes are slim, but some are oversize and are shelved on their spines or foreedges. The materials feature a large number of color images. Many items retain their original decorative paper slipcovers, often additionally enclosed in Mylar sleeves. This is unique among PCL collections, in which items are normally stripped of their slipcovers.

To better understand the preservation needs of the collection, the researchers undertook a preservation needs assessment survey. Specifically, the survey focused on the zoology portion of the collection, which comprises 1,188 items within the Library of

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¹ University of Texas Libraries. *Youth Collection Policy*. Accessed 7 February 2008 from http://www.lib.utexas.edu/admin/cird/policies/subjects/youth.html.

Congress classification QL. 18th and 19th century materials were excluded from this population because they are stored offsite, accessed less often, and have special handling needs. The researchers anticipated that the items surveyed might show a high degree of wear and tear on the paper and bindings due to use by children. They also suspected that the books could exhibit stresses caused by observed poor shelving practices, perhaps also a result of the young user audience and the large number of oversize materials within the collection.

Some of the questions the researchers hoped to address in the survey are as follows:

- What are the basic status² traits of the volumes, including materials used and binding styles?
- What are the condition problems in the volumes?
- Do the condition problems correlate with specific status traits?
- What repairs are needed within the collection, and what human and monetary resources will be required to perform them?
- What more general preservation actions may be taken to improve collection condition and prolong volume lifespan?

Survey Design and Implementation

The researchers decided that the most efficient way to understand the surveyed volumes would be to evaluate each item's status and condition. Accordingly, a list of

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² In this report, we refer to an item's basic "demographic" traits and information as "status." For example, an item's status descriptors would be its publication year, size, covering, shelving status, etc.

evaluation points was developed for each of these separate categories. (See survey instrument, Appendix A.)

In the status section, the survey instrument collected basic information, including title, author, publication date, and publication place. It also collected information about shelving position, item size, materials used, binding style, case style, and possible pamphlet binding style. Special consideration was given to the shelving position and item size. On the initial collection walkthrough, the researchers noticed a large number of items leaning on the shelves. Accordingly, specific shelving assessments (leaning on foreedge, leaning on spine, and standard) were included to collect detailed shelving information.

The root of these shelving problems may be the large size of many of the items. For this reason, the researchers wanted to gather detailed size information. However, it seemed inappropriate to use traditional terms for book size, such as quarto and folio, because these youth materials were created outside of the typical context of research manuscript volumes. Instead, the researchers decided it was more relevant to define an item's size as it related to the size of its shelf, since this was most likely the determining factor in shelving status. The researchers decided that each item could be oversize (exceeding the height or depth of its shelf), undersize (less than half the height or depth of its shelf), or standard (between half and the full height and depth of its shelf.) These size categories seemed to more accurately express conditions that might lead to abnormal wear and tear.

Next, the researchers formulated the questions in the condition portion of the survey instrument. These addressed binding failures, environmental damage, page

condition, cover condition, slipcover condition, and previous repairs. For consistency of data and ease of analysis, the information collected for page, cover, and slipcover condition was kept as parallel as possible. For all three categories, the survey instrument assessed tears, accretions (tape, stickers, food, and grime), graffiti (pen, pencil, crayon, and marker), and more specific problems (like delamination and fraying.) The researchers also chose to focus on types of binding damage critical to the volumes' continued use and known to be repaired by PCL technicians. These condition problems included loose pages, missing pages, joints broken, spine damage, and failing case-to-text attachment. Last, the researchers included an open response notes field for any additional repair needs. This field was especially intended to catch items in need of any type of repair not specified in the survey instrument.

With the instrument developed, the researchers embarked on a pilot study. First, the team generated a pilot sample by using the random.org website³ to generate 10 random numbers and then paired them with a collection shelf list provided by the PCL. Then, the researchers performed the pilot together as a team. This provided an excellent opportunity to learn new book terminology and agree on mutual classification standards. The pilot results were entered into a draft spreadsheet to evaluate the ease of manipulating the survey data. While data in the summary spreadsheet began to appear unwieldy, the researchers decided to keep an all-inclusive format for an overall results tally and to produce smaller charts and graphs for analysis as necessary. The researchers also added a few items to the survey instrument as a result of the pilot study. These included cap damage as a binding condition, marker graffiti, page creasing, and a special

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³ Random.org. Accessed 3 April 2008 from http://www.random.org.

accretions category for tape used in creating Mylar slipcovers. This type of tape was observed so often that it would skew the accretions results if not broken out into a separate category.

With the pilot study complete, the team was ready to survey the full sample. In order to determine the reliability of the desired 100-item sample, the researchers consulted the statistics website SurveySystem.com⁴ and calculated that at a 95% confidence level, a 100 item sample would yield a confidence interval of 9.38. The team then generated the actual sample by again using the site random.org to generate 100 random numbers and pair them with the PCL shelf list. The team split the selected items into two equal groups and conducted the survey individually over the course of one week. The team members' combined survey time was approximately 11 hours.

Findings Narrative

The initial finding revealed by the survey data is a description of a typical item in PCL's Youth Zoology Collection. This item is a hardcover book with a sewn binding that was published in the United States in the late twentieth century. The item is equally likely to be oversize or standard size.

After the survey was completed, but before analysis could be conducted, the research team set out to define what specific types of damage would require repair. Ultimately, any binding damage, including loose pages, missing pages, broken joints, spine damage, cap damage, and failing case-to-text attachment, was determined to warrant repair, due to impending information loss and structural endangerment. Fraying

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⁴ Creative Research Systems. *The Survey System*. Accessed April 3 2007 from http://www.surveysystem.com/>.

or skinning of the book covers, and delamination of both covers and slipcovers, were viewed as early signs of continued damage that warranted repair. Tearing of pages, covers, and slipcovers is often the beginning of greater damage to the item, and will thus be repaired as well. Also included are the more minor but easily remedied issues of (in this case inactive) mold and pencil graffiti on pages, covers, and slipcovers. Cleaning graffiti from items will encourage better treatment of the items in the long term.

Following these determinations, the research team found that within the 100-item sample, 66 items, or 66% of the sample, were in need of repair. Therefore, we can say with 95% confidence that 66% of the population, within a confidence interval of +/-9.38%, is in need of repair. This means that 673 – 896 items within the collection require treatment. The nature of damage exhibited by this collection is not as extreme as initially anticipated by the research team. While a majority of the survey sample demonstrates some form of damage or preservation concern, damage is generally minor and requires only a small amount of time to repair. The chart below displays the number of instances of each type of damage requiring repair within the 100-item survey:

Figure 1.

Damage	Type of Damage Requiring	#
Category	Repair	Instances
Binding	Loose Pages	3
	Missing Pages	0
	Joints Broken	5
	Spine Damage	3
	Cap Damage	13
	Case-to-Text Attachment	
	Failing	7
Environmental	Mold	1
Pencil Graffiti	Page	11
	Cover	1
	Slipcover	0
Page Tears	At Edge	12
	Through Text	2
	Portion/Page Missing	1
Cover Tears	At Edge	0
	Through Text	0
	Portion/Page Missing	0
Slipcover Tears	At Edge	5
	Through Printed Area	0
	Portion Missing	1
Cover-Specific	Delamination	20
	Fraying/Skinning	52
Slipcover-		
Specific	Delamination	3
		140

As mentioned above, 66 items of the sample were determined to have some sort of damage requiring repair. Figure 1 shows that within the sample, there were 140 instances of damage requiring repair, meaning that the damaged books average 2.12 instances of damage each. When considering overall trends in damage to the collection, fraying and skinning of book covers is overwhelmingly the most prominent form of damage (occurring 52 times in the 100-item sample), likely due to shelving issues surrounding thin volumes and the rough handling of a collection with a high percentage of oversize volumes and frequent use by children. Delamination, another indicator of rough handling, is also a significant problem, occurring 23 times (20 on covers, 3 on

slipcovers) throughout the survey sample. While the problems of fraying, skinning, and delamination are seen extensively in the survey sample, the significance of the damage on the typical item is very minor. Light damage was also observed widely throughout the sample, occurring in an estimated 41% of items. The collection is not located in close proximity to the windows, so most light damage is probably a result of the library's fluorescent lighting. While taking repair action in response to light damage is beyond the scope of this collection's preservation concerns, it is important to note how extensively the problem occurs.

In assessing the preservation needs of this collection, it is important to consider possible correlations and trends between item status and observed damage. Therefore, the researchers decided to investigate the damage trends within four different item status categories deemed most likely to affect item condition. The most likely suspects for influencing item damage, as determined by the research team, are leaning items (as opposed to those that are shelved upright), item size (particularly large size), item binding (sewn or adhesive), and case (hardcover or paperback)⁵. When an item is shelved leaning instead of upright, it is exposed to additional stress on its binding and structure. Oversize volumes are more difficult to handle than those of standard size, likely resulting in rougher handling. The structural attributes of binding and case may have an effect on overall volume durability. Unfortunately, the survey sample produced so few items with adhesive binding (8 items) and paperback case (11 items), that the team cannot correlate damage with these binding or case styles in a significant way. In only one measure did there seem to be a correlation between leaning items and damage: 19.2% of items shelved

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⁵ Please see Appendix B for complete chart of status/damage correlation results.

leaning exhibited instances of cap damage, while only 10.8% of those shelved standard exhibited such damage.

It is important to note that PCL staff has already taken one important preservation measure: adding protective Mylar slipcovers to items that retain their original paper slipcovers. The researchers found that 25% of items had protective Mylar slipcovers, and only 5% of the entire collection had torn paper slipcovers. This indicates that the Mylar is providing effective protection for paper slipcovers that would otherwise be prone to damage and loss. PCL staff should be commended for this successful preservation policy.

The most notably problematic correlation between status and damage is in the category of size. In a children's collection such as this one, oversize books are common. As mentioned previously, the survey sample contained almost an even number of standard (49) and oversize (47) volumes. Figure 2 below displays the status-specific damage ratio, which illustrates the percentages of volumes in each category affected by the specific types of damage classified as requiring repair. Note specifically the categories of cap damage, failing case-to-text attachment, page tears at edge, and delamination, all of which are seen significantly more among oversize items. It is likely that these instances of damage are evidence of the inherently difficult handling of oversize items, general rough handling, and the stress imposed upon volumes in book drops. While a greater percentage of standard sized volumes require repair (71%, compared to 57.4% for oversize volumes), each oversize volume with damage averages more instances of damage requiring repair (2.63 instances/volume) when compared with volumes of standard size (1.72 instances/volume). Overall, there is a distinct correlation

between large item size and greater item damage in specific areas of preservation concern. In this case, issues of preservation are directly linked to a unique attribute (oversize volumes) of a collection intended for young readers.

Figure 2

Damage Category	Type of Damage Requiring Repair	Standard Size		Oversize	
		#	%	#	%
		49		47	
Binding	Loose Pages	2	4.1	1	2.1
	Missing Pages	0	0	0	0
	Joints Broken	2	4.1	2	4.3
	Spine Damage	2	4.1	1	2.1
	Cap Damage	3	6.1	10	21.3
	Case-to-Text Attachment Failing	0	0	6	12.8
Environmental	Mold	1	2	0	0
Pencil Graffiti	Page	8	16.3	3	6.4
	Cover	1	2	0	0
	Slipcover	0	0	0	0
Page Tears	At Edge	3	6.1	8	17
	Through Text	0	0	2	4.3
	Portion/Page Missing	1	2	0	0
Cover Tears	r Tears At Edge		0	0	0
	Through Text	0	0	0	0
	Portion/Page Missing	0	0	0	0
Slipcover Tears	At Edge	2	4.1	2	4.3
	Through Printed Area	0	0	0	0
	Portion Missing	0	0	1	2.1
Cover-Specific	over-Specific Delamination		12.2	13	27.7
	Fraying/Skinning	28	57.1	21	44.7
Slipcover-Specific	Delamination	1	2	1	2.1
	Additional Note in Repair Field	1	2	0	0
	Total Number Preservation Needs	61		71	
	Books in Need of Repair	35	71.4	27	57.4

It is important to note that in this project, our definition of "oversize" simply means that an item overhangs its shelf in at least one direction. Often, this means the

item is deeper than its shelf; seldom does it mean an item actually will not fit on its shelf. As a result, very few items require larger shelf space to be shelved upright on their tails. Reshelving this collection would require the purchase of an entirely new shelf design, and the research team does not judge that expense to be worthwhile to accommodate just a few volumes. We have determined that the damage to oversize items is more a result of rough handling than shelving issues.

Assuming that the sample is representative of the collection population (as indicated by the 95% confidence level), we can conclude that damage is minor, but occurs extensively throughout. The most frequently observed types of damage are cover fraying/skinning and delamination, indicating age and rough handling. Leaning items represent 26% of the sample, posing preservation threats to a volume's binding and structure, particularly in the form of cap damage. There is, however, no correlation between leaning items and oversize items. The leaning item problem is more related to shelf maintenance than item size. Especially significant in the Youth Collection is the issue of volume size, oversize volumes making up nearly half of the sample. Handling issues for oversize items have led to noticeably more cap damage, failing case-to-text attachments, page tears at the edge, and delamination. Ultimately, repairing existing damage and making minor changes to library activities regarding this collection will aid in its long term preservation and continued usefulness to the university community.

Recommendations

Based on the survey results, the following prioritized preservation and conservation actions are recommended:

- 1. Undertake the recommended item repairs to prolong volumes' lifespans and encourage future respectful use (see Appendix C.)
- 2. Ask library staff and patrons to take special care when handling oversize items, as these items are prone to damage.
- 3. Ask library staff to shelve items upright, and to straighten leaning items during shelving. Leaning items compose an estimated 26% of the collection, and may develop future binding damage.
- 4. When evaluating future storage policies, consider reducing total light exposure in the collection. Light damage was observed on an estimated 41% of the sample.
- 5. Ensure that preservation staff continues creating Mylar slipcovers for items that will retain their original paper slipcovers. Mylar slipcovers add effective protection for paper; while 25% of the collection had Mylar slipcovers, only 5% also had torn paper slipcovers.

Appendix A: Survey Instrument

PCL Youth Zoology Collection Preservation Assessment Survey

Title:	
Author:	
Call No.:	
<u>Item Status</u>	Pamphlet bound (adhesive)
1. Shelving:	No pamphlet binding present
Standard	
Leaning	10. Nonstandard publication:
On spine	(ex: pop-up,
On foreedge	scratch & sniff, stiff board leaves, Pat the
2. Publication date:	Bunny)
2. I doncation date.	Notes (Does item need repair?)
3. Publication place:	rtotes (Boes item need repair:)
US	
Foreign	
Poleign	
4. Size:	
Oversize (exceeds height or depth of	
shelf)	
,	
Undersize (less than half height or depth of shelf)	
Standard	
5 Climaayam	
5. Slipcover:	
Paper	
Mylar None	
None	
6. Covering material:	
Paper Textile	
Leather	
Leattiei	
7. Binding:	
Adhesive	
Sewn	
Stapled	
 ·	
Spiral	
8. Case:	
8. Case: Hardcover	
Paperback	
Paperback	
9. Pamphlet bindings:	
Pamphlet bound (envelope)	
Pamphlet bound (stapled)	

<u>Item Condition</u>	
1. Binding:	
Loose pages	c. Graffiti:
Missing pages	Pencil
Joints broken	Pen
Spine damage (excluding caps)	—— Crayon
Cap damage	Marker
Case-to-text attachment failing	Other:
2. Environmental damage:	d. Cover-specific damage:
Insects	Delamination
Water	Fraying / Skinning
Mold	Light damage
	Creasing
3. Page Condition	Creasing
a. Tears:	5. Slipcover Condition
At edge	a. Tears:
Through text	
Portion / page missing	At edge
<u> </u>	Through printed area
b. Accretions:	Portion missing
Tape	1 4 4
Stickers	b. Accretions:
Food	Tape
Grime	Tape (Mylar to paper slipcover)
Other:	Food
<u> </u>	Stickers
c. Graffiti:	Grime
Pencil	Other:
Pen	
Crayon	c. Graffiti:
Marker	Pencil
Other:	Pen
Other	—— Crayon
d. Page-specific damage:	Marker
Creasing	Other:
4. Cover Condition	d. Slipcover-specific damage:
a. Tears:	Delamination
At edge	Light damage
Through printed area	•
Portion missing	Creasing
Portion missing	
b. Accretions:	6. Previous repairs:
	Reback
Tape	Rebound
Food	Taped
Stickers	Other:
Grime	I
Othor	

Appendix B: Findings

Please contact author via contact page for full chart of findings.

Appendix C: Budget

The Association of Research Libraries classifies repair treatments into three levels according to their complexity and time to completion. Level 1 treatments take 15 minutes of technician time or less; Level 2 treatments take between 15 minutes and two hours; and Level 3 treatments take over two hours. Of the items in the PCL Youth Zoology collection, only damaged bindings and one additional item fall into the Level 2 repair category. All the other needed repairs are Level 1 activities. Because most of the Level 2 treatments are fairly basic, including tightening hinges and tipping in pages, the research team estimates that these repairs would take approximately one hour each to complete. Level 1 treatments should take the regular ARL-estimated 15 minutes each. Accordingly, the research team calculates that the 32 Level 2 repairs in the sample would require 32 hours of technician time, and the 108 Level 1 repairs would take 27 hours. This makes for 59 hours of potential repairs within the sample.

If the findings in the sample are directly indicative of the collection as a whole, it is estimated that 700.92 hours of repair⁶ would address the needs of the entire 1,188 item collection. For a 10-hour weekly student worker, this project would take approximately 1.5 years to complete. At a student wage of \$11 per hour, the cost of technician time for the entire collection would be \$7,710.12. This breaks down to \$6.49 per collection item. Because the repairs required for this collection are extensive, but mostly very minor, this estimate is thought to be a maximum required amount. A managing conservator's time would also be required to select items for repair, but the conservator's salary is not included in this estimate.

⁶ These numbers are calculated based on the center of the +/- 9.38% confidence interval.

The research team further estimates a repair supply cost of \$12.29 for 100 items.

This low supply cost reflects the relatively simple nature of these items' repair needs.

Scaled up to the entire collection, a thorough repair project would require a supply budget

of \$89.08. Estimated shipping for collection repair supplies is \$37.50. Thus, the total

supply cost for the entire collection is \$126.58, or approximately \$0.11 per item.

The total cost of supplies and labor for the collection is \$7,836.70, as follows:

Collection Repair Budget

Labor:

\$7,710.12 +

Supplies: \$89.08 +

Shipping: <u>\$37.50</u>

\$7,836.70

Specific supply cost information follows below. All pricing information is taken

from the Gaylord Library Supplies online catalogue at www.gaylord.com.

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Supply	ApproximateTreatments	Amount Needed	Purchase Amount	Amount Used	Price	Total Cost
	36 tip-ins, 83 hinge tightenings, 250 rebacks, 238 cover delamination, 36 slipcover delamination, 618 cover fraying /					
PVA adhesive	skinning	95 oz	1 gallon	3/4 gallon	51.95	38.90
70# paper	249 rebacks	59 sheets	1 box (100 sheets)	3/5 box	38.85	23.3
paper-backed bookcloth	249 rebacks	9979 square inches	1 roll (16,848 square inches)	3/5 roll	21.09	12.6
soot sponge	12 mold infestation	12 cubic inch	1 sponge (13.5 cubic inches)	9/10 sponge	6.95	6.20
wheat starch paste	178 page mends	6 oz	1 jar (17.6 oz)	1/3 jar	11.19	3.69
kozo tissue	178 page mends	190 square inches	1 package (4,750 square inches)	1/25 package	40.35	1.6°
heat set tissue	59 slipcover tears	107 square inches	1 box (9350 square inches)	1/100 box	26.29	0.20
vinyl erasers	131 pencil page graffiti, 12 pencil cover graffiti	3 erasers	1 box (20 erasers)	3/20 box	15.59	2.3 ⁴
shipping						37.3
Total						126.5

Annotated Bibliography

Association of Research Libraries. *ARL Preservation Statistics Questionnaire* 2006-07. Accessed 8 April 2008 from http://www.arl.org/bm~doc/07pinstruct.pdf. Instructions to preservation administrators for completing yearly statistics for submission to the Association of Research Libraries. Addresses levels of conservation treatment.

Creative Research Systems. *The Survey System*. Accessed 3 April 2007 from http://www.surveysystem.com/.

Online vendor of survey and research aides. Free sample size calculator is available to generate confidence level and interval.

Gaylord Library Supplies. Accessed 3 April 2008 from http://www.gaylord.com. Online catalogue offering equipment for conservation repair, preservation monitoring, and more general library needs.

Random.org. Accessed 3 April 2008 from http://www.random.org.

Free online service for assorted statistical activities, such as generating random numbers and exercises in flipping coins and rolling die. Background information and a for-payment premium service are also available.

University of Texas Libraries. *Youth Collection Policy*. Accessed 7 February 2008 from http://www.lib.utexas.edu/admin/cird/policies/subjects/youth.html.

Description of the Youth Collection at the Perry-Castaneda Library, University of Texas at Austin. Includes statements about type of holdings and collections goals.