

## Library Collections Conservation Discussion Group 2014: Options for Sustainable Practice in Conservation

This Library Collections Conservation Discussion Group (LCCDG) explored methods of lightening the ecological and economical footprint of conservation work. The discussion incorporated voices from both profit and non-profit facilities and included both theoretical concepts and practical advice for project implementation.

Four speakers presented on topics such as the management of conservation materials to reduce waste and improve reuse of scrap, the implementation of green waste and/or recycling programs, the identification of recyclable and/or reusable materials commonly used in conservation, the adaptation of wide scale green initiatives to the conservation lab and the exploration of myths and realities of recycling. Because it is easy to consider ecological conservation too large or too expensive a problem to be tackled by the everyday conservator, this LCCDG session explored not only the ecological benefits of sustainable practice in collections conservation, but also the financial benefits to the conservator.

BRIAN BAIRD  
RECYCLING MIGHT BE GOOD, BUT CONSERVATION IS  
ALWAYS GREAT!

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Though it is less likely to be so among conservators, terms like recycling, environmentalism, conservation, sustainability, waste and landfills can be hot button topics. The arguments surrounding these topics bring to mind the “tastes great, less filling” Miller Light advertising campaign from the 1980’s, in which two groups agreed that the beer was great, but argued over whether it was because of the taste or because it was less

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This open discussion took place during AIC’s 42nd Annual Meeting, San Francisco, California. The moderators organized the panelists, led the discussion, and recorded notes. Readers are reminded that the moderators do not necessarily endorse all the comments recorded and that although every effort was made to record proceedings accurately, further evaluation or research is advised before putting treatment observations into practice.

filling. Most people generally agree that green initiatives are important to preserve the environment; they just do not agree on how or why. Politics and emotions get involved, and data is often manipulated to serve the needs of those presenting the argument. Media bias can lead to misrepresentation of the success or failure of particular green projects and more often does more harm than good.

For example, in the mid-1980’s there was a campaign against the use of polystyrene containers, which were in heavy use across the country. Laws were passed to regulate the use of this material, which all but completely removed it from the marketplace. Polystyrene was originally vilified for the use of chlorofluorocarbon (CFC) in its production, but polystyrene manufacturers were actually no longer using these CFCs when the campaign to outlaw the material began. Similarly, polystyrene is 100% recyclable and is 90% air, so the actual volume of waste generated from the use of polystyrene is very small. In general, it makes up less than 1% of the landfill today. Now this is due to the restrictions put in place on its use, of course, but that only demonstrates how the data can be manipulated to prove a point. Nevertheless, this illustrates how the cure can sometimes be worse than the disease. Measured in sheer waste generation, materials that were adopted to replace polystyrene are in fact worse overall for the environment.

It used to be a common experience at the grocery shopping line to be asked if one wanted paper or plastic for his groceries. Many people found themselves not knowing what the right answer was because few people understood how each of the materials was really made. This plays out similarly all over the country. People are aware that there is supposed to be a right and wrong choice, but are not fully informed enough to know which is right. In some instances, each choice can be both right and wrong.

San Francisco became the first city to outlaw plastic grocery bags. Since then, many cities have implemented a tax which requires the shopper to pay a small fee for any kind of a bag handed out by a store, regardless of whether it is paper or plastic. A tiny pellet of plastic the size of a BB is used to make

a plastic bag. This is a relatively small amount of plastic for the size the bag eventually becomes. Moreover, plastic bags are easier to recycle and generate far less byproduct as a result of recycling than paper does.

Paper recycling has come a long way, and today people are able to recycle more paper than ever before. The quality and function of recycled paper has also improved greatly. Even with these great strides in the paper recycling industry, 40% of all the material that goes into the paper recycling plant ends up in the landfill. Far more than the overall waste generated if people were to shift gears and focus on using and recycling plastic bags.

In 1990, President George H. W. Bush passed into law the Permanent Paper Law, which required all government documents and printed material to utilize acid-free paper. In 1993, President Bill Clinton passed an executive order requiring all government publications to use recycled paper. The preservation community worried about what introducing recycled material would do to the permanence achieved in the 1990 law. There is only so much permanence or recyclability that can be achieved before one effects the other.

At Bridgeport National Bindery, they recycle about 99% of all of their waste. They separate their waste into various types of products to maximize their recycling value. They use a lot of paper as they are primarily a printing and binding company rather than just binding. They go so far as separate their paper waste by quality so that they can get a higher return on long-fiber and clean materials versus the short-fibered and used. By recycling in this way, they are able to pay for all their waste and dumpster fees and still make a profit on recycling at the end of the month. Even materials such as discarded book covers, which cannot be fully recycled due to their complex components, are used to manufacture fuel pellets that are then used to generate electricity. The dirty little secret is that they still generate 30–40 tons of waste every month. This translates into 40–50lbs of waste per staff member per work-day. Yes, money is made on recycling, but much more would be made if the waste were never generated in the first place.

On the whole, recycling as a nation has never been easier. There are more laws in place and more educational programs being used than there ever has been. Recycling is becoming part of our normal life, and is slowly becoming second nature. Despite these achievements, the country has reached a plateau of what can be recycled. It has allowed itself to become less circumspect of the recycling programs themselves. Like everything else related to these green initiative subjects, the data available is very hard to trust. The real numbers suggest that only about 50% of what is sent in for recycling is actually recycled.

In terms of ease and economy, recycling aluminum cans is at the top of the efficiency list. Aluminum is 100% recyclable. It can be recycled over and over again with only minimal decay. Unfortunately, those recycling programs that offer

a payout for returned cans can get mired in politics, which skew the data and provide inaccurate effectiveness and efficiency rates. When money is involved, the value is no longer in the recycling, but in the revenue generated by unreturned cans. This profit is carefully guarded and is used to discourage people from seeking a payout for their recycling efforts.

Glass, on the other hand, has a very high recycling rate, but there are relatively few places that can actually recycle glass. The vast majority of “recycled glass” is crushed and used as filler in roads. Though it is reused, the point to take home is that the idea people have that the glass is being literally recycled into a new glass bottle is misleading. The materials to make glass are just too cheap to make the use of recycled glass profitable, except in areas where there is a glass plant that can recycle close by.

The “recycling” of ink jet cartridges is a similar, though more extreme, example. At roughly \$1,000 per liter, this ink comes in at probably the most expensive material that gets recycled. Many people go to great lengths to ensure that ink cartridges are returned to companies who claim to recycle them. The truth is that almost all these cartridges are sent off to places in Asia where the leftover ink is extracted for resale. The cartridges themselves are then simply tossed into a local landfill.

Using less is the key and should be where focus is placed. Given the inefficiencies and expense of recycling, more education and effort should be put into using less material overall. Having one of the most robust recycling infrastructures in the world means very little if excessive wrapping materials and packaging are exacerbating waste problems. Reducing consumption overall can have a huge positive impact on protecting the environment.

The most efficient conservation departments are often those with lower supply budgets. Human nature seems to be frugal only when money is tight. Too often, people revert back to more wasteful practices when a fiscal crisis is over. Everyone should look closely at their practices and evaluate their efficiencies. Take a closer look at what happens further down the recycling production line. Recycling and sustainability do not end at the curb.

*Brian Baird, Vice President of Library Services, Bridgeport National Bindery*

#### DANIELLE CREECH

#### EVERYTHING BUT THE KITCHEN SINK: A CASE STUDY IN BINDERY RECYCLING

The Midwest facility of HF Group houses a conservation lab and print-on-demand service in addition to their library and edition binding services. These book-based services generate a large quantity of paper-based waste. As a result, HF Group-Midwest has been involved in recycling for as long as such

programs have been available. Thirty years ago, the bindery sent over one-ton of paper waste to the landfill per day. At the time, long before the advent of electronic journals, library binding was a much bigger enterprise. Rebinding a library book in those days also inevitably meant trimming the three outer edges.

Paper-based recycling always made sense for the bindery. It could sell the paper waste to a paperboard supplier, who would process the scrap through their mill to produce new binder's board that they in turn sold back to the bindery. Unfortunately, requirements were strict on what could be recycled. Only corrugated boxes, clean paper, clean paperboard and magazine ads were accepted. The bindery produced much that could not be recycled due to adhesives, sewing threads and lining cloth. Paper was, and still is, the largest waste stream the bindery generates, but they also recycled lead, steel, aluminum and tin.

The bindery revisited its recycling program in the 1990s, and found that they had gotten lazy. At the time, the bindery had over 300 employees. Those employees were split between two, sometimes even three shifts. It required a lot of training to organize that many people and to convince them to take the time to recycle. By the 1990s, paper-processing plants had relaxed their material requirements substantially and the bindery was able to send more paper waste to them than before. In fact, by 1992 the bindery had cut the amount of waste going to the landfill by 186 tons per year. There were also more non-paper items that could be recycled, such as fluorescent bulbs, oil, limited plastics, glass, some solvents and electronic waste.

The bindery found that it could offer recycling services to its employees with little extra labor and often a savings in money. For example, the local waste management district offered free battery recycling if the majority of the batteries were from domestic households. By encouraging employees to bring in their household batteries for recycling, the company was able to recycle its own batteries for free. Once a year, the company also opens up its electronic recycling for employee participation. The bindery works with Goodwill to recycle employees' electronic waste—even large items like broken washing machines and dryers.

The bindery has reached out to the local community in its recycling efforts as well. Broken pallets are donated to local farmers, who use them as fuel in their wood stoves. The local farming community also makes use of the tons of paper dust the bindery generates during adhesive binding production. This paper dust is too short fibered to be used by paper mills in the production of recycled paper. Approximately 5,000 pounds of paper dust per month are donated to local Amish farmers to be used as biodegradable livestock bedding. In addition, the perforated stubbing paper from library binding is donated to local schools and daycares to help supplement their art supplies. Rubber bands are donated to a teacher in Northern Indiana who is working with his students, primarily

underprivileged youth, to break the world's record for largest continuous rubber band ball. So far, the ball has 71,000 rubber bands, the majority of which were donated by HF Group.

In 2007, the plant manager and maintenance team undertook a massive survey of every material that came into the plant to determine how much was scrapped. They also surveyed how much of that scrap went into the landfill. The survey uncovered that the bindery had gotten a little lazy in its recycling again. As a result, employees redoubled their efforts to reduce and reuse wherever possible. For example, the bindery reuses shipping boxes and packing materials until they are structurally unsound. The bindery cuts every tiny scrap out of a sheet of binder's board that it can. The KASEMake plotting machine in the conservation lab allows them to turn archival board into lacework before recycling the thin scrap leftover.

The second and more pressing issue that the survey uncovered was that the bindery needed to find a way to deal with the discarded book covers replaced during the rebinding process. These covers were covered in cloth, leather, or laminated paper that standard recycling programs were not set up to process. In addition, the bindery's new print-on-demand and facsimile cover services had added large quantities of laminated paper to the list of materials that standard recycling programs were not interested in.

The bindery contacted their local solid waste management district for help and was directed to Quincy Recycle, a business-to-business recycling company with international customers. Quincy Recycle's global customer base provided them the incentive and wherewithal to recycle more stubborn materials like discarded book covers. They were not only interested in paper waste, but much of the plastic waste the bindery could not previously recycle as well. All of the plastic banding and shrink-wrap that secured palletized shipments and the protective plastic films from pamphlet binders could be recycled.

There is a cost to all this recycling in manpower and storage space. All of the recyclables have to be sorted before delivery to Quincy Recycle. For example, the pallet banding and other plastics must be sorted by color and cut into small pieces for efficient storage. Even though the bindery employs approximately 1/3 of the staff it did 30 years ago, training even a reduced staff for such a variety of pre-sorting is difficult, especially during the summer when seasonal staff is hired.

Despite the extra labor expense, HF Group believes their recycling efforts are worth it. Every 3 weeks, the bindery ships out approximately 32 large containers of various recyclables, along with an average of 9,600 lbs. of simple paper waste. In 1988, when the bindery first started keeping track, it was sending nearly 60% of its waste stream to the landfill. Today, it sends less than 5%. In landfill fees, that saves the bindery \$13,000 per year, while allowing the company to help its employees, local community, and environment.

The bindery's recycling procedures are in a state of continual evolution. Like with any mundane task, it is easy to

become complacent. Repetitive reevaluation and training is important to maintain compliance with sustainability goals. Recycling technology itself is always improving, allowing the bindery to recycle a larger variety of materials every year. When all else fails, the bindery gets creative and spreads the wealth, donating to local community art groups and schools as a rewarding way of dealing with excess materials.

*Danielle Creech, Associate Conservator and Operations Manager,  
ECS Conservation—Midwest*

MARIEKA KAYE  
SUSTAINABILITY INITIATIVES OF THE UNIVERSITY OF  
MICHIGAN LIBRARY GREEN TEAM

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Opportunities for sustainability are everywhere, and tend to make operations simpler and easier. The University of Michigan Library Green Team is comprised of interested staff from across the library system. About 25 staff members currently volunteer for the library's multi-departmental Green Team. The Green Team meets about every two months to review and improve sustainability efforts.

One of the reasons the library is so involved in sustainability measures is that the University as a whole is so dedicated to environmental issues. There are campus-wide activities and an entire curriculum related to this subject. U of M's sustainability initiatives are represented by what is referred to as *Planet Blue*, which covers a large range of sustainability education, research, and operations work taking place within and across U of M schools, colleges, departments, and units. Efforts especially focus on energy efficiency, reduction of greenhouse gases and carbon intensity of campus transportation, recycling and composting, land and water management, and education programs for the campus and Ann Arbor community as a whole.

The university strives to have a green campus. This is illustrated many ways, such as growing organic food at a campus farm. It supports large events such as RecycleMania, where different dorms and buildings compete to see who can recycle the most in a given time. There is also active recruitment of Planet Blue Ambassadors who provide the energy and momentum behind a lively dialogue on how we can reduce our carbon footprint and keep our actions sustainable.

Planet Blue maintains careful statistics on how much the university is achieving and is really the large backer of the library's smaller efforts. An entire Sustainability Institute and Office of Campus Sustainability make sure initiatives reach their potential.

There are a few library-specific initiatives that have made a noticeable difference. First, a staff intranet site was modeled after craigslist.org in order to advise staff of serviceable surplus furniture and office equipment that is available for offices

and departments. Library staff are strongly encouraged to utilize this internal reuse website instead of buying new office supplies or furniture. Staff members can even make proactive wish lists of items that they are looking out for. Almost all items are placed. New staff and offices in transition are encouraged to use existing furniture and supplies when possible. For example, when the Serials & Microforms department moved to a new building, they were able to find and reuse all the furniture they needed internally, instead of buying new.

Taking reuse further, much of the furniture in the library is reupholstered and repaired instead of replaced when needed. The U of M Upholstery Shop can provide many fabrics and services to make old furniture look new. They are able to use bolt-end fabrics, which are free for the library, so the library only has to pay for labor. Ultimately a significant amount of money and resources are saved through this special service on campus.

Library staff and students from Central Student Government worked together last year to install seven water bottle refill stations in the University Libraries. To date, an estimated 650,000 disposable bottles have been prevented from being used and discarded. This inspired a campus-wide initiative, which has resulted in over one hundred bottle refill stations campus-wide. Any additional water fountains were retrofitted with gooseneck water fillers making refilling any bottles easy.

The Library also now sells reusable water bottles in the two cafes located in the largest libraries. The bottles are sold for \$1, which is less than the cost of bottled water. These sales began on January 9, 2014 and to date over 1,500 bottles have been sold.

*The Green Team* also performed a survey of library buildings to track where recycling and trash receptacles should be located. The team was able to place recycling receptacles next to every trash can and maintain a database of every location where a disposal set-up should be for easy monitoring and future upkeep. Many of the graphics designed by the team are meant to grab students' attention. The signs also have to be pretty straightforward and clear, because there is always confusion as to what can and cannot be thrown in the recycling bins.

As the conservation department creates a high volume of scraps and refuse, we are always recycling as much as possible. We have also formed partnerships with other departments that may be able to make use of some of our scraps. The architecture department has used our mat board scraps for various model-making projects.

Signage templates have been established to reduce waste associated with preprinted signs that are removed and discarded with personnel changes or room reassessments. The library switched to paper inserts for signage that can easily be updated and placed in plastic sleeves instead of using plastic signs that need to be completely changed. These signs are especially useful for reading rooms, which can often have changing hours depending on the time of year.

Kill-A-Watt at the University of Michigan is a student organization that arranges an energy saving competition each fall. Their mission is to involve students in energy, environmental, and sustainability issues, and start discussions on these topics while reducing energy usage on campus. In 2012, students reduced energy consumption in University Housing by over 107,000 kilowatt-hours, saving an estimated \$9,000 in utility costs.

While this competition is university-wide, the library has become a repository of tools that help students and members of the university community monitor their energy consumption, such as the Kill-A-Watt meter that can be checked out of the Media Library. Each year during the competition, Kill-A-Watt organizers and partners aim to help students reduce their energy usage by 10% during a 4-week period compared to the same period during the previous year.

Something the conservation department has focused on is the switch to CFL bulbs. Despite their typically more yellow cast, CFL bulbs result in lower UV levels as well as lower utility bills. The average incandescent light bulb is 60 W, and a CFL equivalent is 14 W. This means that if everyone on campus, which amounts to about 43,500 people, had one incandescent and switched it to a CFL, the campus would save approximately 2,001 kW of energy.

Last but not least, the library hosts a number of lectures and events related to sustainability and environmental issues each year, showing further that although it is one small part of the university, the library plays a large part in promoting and supporting sustainability and a healthier, more conscious community.

*Marieka Kaye, Conservation Librarian and Book Conservator,  
University of Michigan Libraries*

#### JULIE NEWTON

#### THE MIXED PAPER PROJECT: RECYCLING, WASTE REDUCTION, AND CREATIVE SCRAP REUSE AT EMORY UNIVERSITY'S PRESERVATION OFFICE

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Conservators are generally very frugal. Take for example Japanese tissue. It is purchased in big sheets, which are torn into narrow strips. Those strips are torn into even finer strips and tiny pieces. Finally, conservators tease out individual fibers for repair. So what does a conservation lab generate in the way of waste? Generally not much from conservation treatment itself; however, there remain a number of sources of waste in a conservation lab.

In the construction of protective enclosures quite a lot of scrap from binder's board to book cloth to a variety of lignin-free boards and fine papers is generated. The encapsulation process produces a large quantity of polyester film off cuts as well. Pamphlet binders produce plastic waste by way of the

protective film used in their production as well as the plastic wrapper that bundles the binders into groups. Music scores require covers for their individual parts, which are made out of a 10 pt. board that also produces scrap. The lab at Emory University uses Vivak for book supports and that generates off cuts of the Vivak itself, as well as more of the protective plastic film covering. The lab also generates quite a bit of white paper by way of memos and correspondence, binding tickets and discarded damaged books. Since conservation staff is fastidious about cleanliness when treating rare books, inevitably there are also quite a few paper towels used despite efforts to use reusable rags. Finally, the lab generates adhesive waste.

At Emory University, the unit that handles the physical and logistical part of recycling is Emory Recycles. It originated from the efforts of a group of staff and students in the Woodruff Library where the lab is located. Since its creation, Emory Recycles has grown to serve two campuses—Emory University, Oxford College, the sprawling Emory health care system, and the CDC—all through the efforts of library staff and students. Over the years, the conservation lab has worked with Emory Recycles to determine the suitability of certain materials for recycling.

In order to minimize the waste, the lab tries to extend the life of materials even before recycling them. White paper waste and polyester film off cuts are first used for gluing out. With fine papers like Reeves and so on, the small pieces are kept to line the trays of platform boxes and for tiny endpapers. They can also be cut down into pieces just a few millimeters wide for spine inlays and liners. Polyester film can be cut into thin strips to strap books for exhibition. Small Vivak pieces can be used to make tiny book mounts. Scrap board can be turned into wedges and backing boards for the exhibition of documents. Cardstock scraps can be cut down into tabs for Special Collections to use for barcodes and call numbers.

Woodruff Library's conservation lab uses its small scraps in a cross training program as well. The cross-training program was developed to train all student workers and staff to be able to respond to any rush order, regardless of enclosure or binding type, and to keep student workers stimulated. These training sessions used the scraps smaller than feasible for real protective enclosures. At the end of the cross training, each participant had a miniature portfolio of techniques and different structures they could keep for their reference. As an added bonus, the use of discarded book jackets for collage allowed participants to tailor their portfolios to their own aesthetics.

Emory University's Office of Sustainability Initiatives promotes outreach to the local community and donation before recycling. One of their partnerships is with a program called re:loom, which gives jobs and training to homeless and under skilled Atlanta citizens. re:loom has used donated materials from Emory University to produce items like reusable coffee cup sleeves made from old Emory staff uniforms. The conservation lab is investigating the possibility of donating long cloth

off cuts and that protective plastic film to be woven into new products. The conservation lab is also looking into donating materials to a group that makes bedding for shelter animals. Conservation staff members take materials, as well as skills out into the community to work with at-risk youth and underserved populations. Scrap materials have been reused in artist books and other craft projects during these workshops.

Many of the staff in the conservation lab are artists, and tend to horde scrap materials for personal projects. Almost anything can be recycled into beautiful art. Paper-based scraps can be pulped to cast new, handmade sheets of paper art. Minuscule scraps can be crafted into tiny book earrings.

What cannot be repurposed or reused is recycled. Discarded books can be put into white paper waste after the spines are chopped off. The blue plastic liner waste can be put into the standard plastic 1–6 waste stream. The library also has an aggressive composting project. The conservation lab's wheat starch paste and paper towels are placed into this compost, which is given to a commercial recycler before being returned to Emory for use in the educational gardens and landscaping.

These recycling practices also present challenges. The conservation lab at Woodruff Library is a production lab, so it has to be periodically evaluated whether or not it is worth it to take the time to accumulate scrap, check the grain, and check the size in order to use for protective enclosures. That is a labor-intensive process that may, in the long term, not be as feasible as cutting from a new board. Also, though the conservation lab is closed to the public and has a high level of control over recycling streams inside the lab, once the recycling leaves the lab, it is no longer so contained and the public does not always recycle correctly. The library as a whole is still in a learning phase and working towards better education about and better labeling of the varied recycling streams. At the end of the day, the conservation lab's recycling efforts have substantially reduced its landfill waste. Lab staff keep in touch with Emory Recycles, and as recycling processes improve, the lab is able to recycle more and more of its waste material. Emory University has a mandate to radically reduce landfill waste by 2015, and the conservation department is doing its small part.

*Julie Newton, Collections Conservation, Emory University*

#### QUESTIONS, COMMENTS AND DISCUSSION

*Commenter:* I thought it was really neat that you also do art projects with your scraps because at my institution we have all this scrap that is the wrong size which we don't really know what to do with. So what we do is actually donate a whole stack to our local book artist club. Which has been really great. As well, local schools love to take that material to supplement their supplies inventory.

*JN:* We've also been donating to some of the artists groups in our area, and just recently went through stacks of matt-board which had been cut up for exhibition. We went to our local arts high school, who will make use of that material.

*JJ:* I'd like to thank the representatives from the commercial bindery community for being willing to share what's behind the scenes. For those of us working in a university setting, commercial binding is a big part of what goes on and it is good to hear that all the work we are involved in is being done in a responsible way. It is important that when we think of our work, whether at the bench or away somewhere in a factory, that we follow our impact all the way through the process so that we are not only sure of our own impact but those of our partners as well.

*Commenter:* In my shop, and having had students over the years. For those of you who do not do this, but using colored pencils to mark the grain direction, and of course the different colors identify the different thicknesses. This can be an effective way to organize off-cuts and make them easily identifiable amongst the stack. I've also been using a file cabinet to sort the scraps and make them easily accessible. The point here is that with any waste material, if you can't find it then it's not worth the time.

*DC:* That also can help to keep dust off your piles, which as we know tend to sit around for long periods.

*BB:* I've worked with some of your students, and they all have kept that method of organizing scraps.

*Commenter:* As I listen to this, I can't help but think we are in the business of library, and every book that is on our shelves is there to be reused many times. So it's kind of stacking the deck, but the libraries do a bigger part for the environment than the mission of any recycling program.

*BB:* I bet that doesn't get counted in your stats though. You should count each circulation as a reuse.

JUSTIN JOHNSON  
Senior Conservator  
University of Washington  
Seattle, WA  
jpjohn@uw.edu

DANIELLE CREECH  
Associate Conservator and Manager  
ECS Conservation, The HF Group—Midwest  
North Manchester, IN  
dcreech@hfgroup.com