



# SUSTAINABLE CHICAGO

Fall 2014 · A Publication of Index Publishing Corporation

## Conservation: The Field Museum's Past and Future



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# A Greener Field

By Matt Baker

You have been to the Field Museum of Natural History, no doubt. You've seen the taxidermied animal specimens, the mummies and the fossils. You've gazed up at Sue. But there's so much you haven't seen.

The Field Museum has over 26 million objects in its collection, only 1% of which are actually on display. But the Field isn't just a repository for dead and dusty things, it's an active research institution. The exhibit areas that visitors see make up only a portion of the building's space with offices, labs and storage occupying the majority of the building's square footage.

As educators focusing on the natural world, it makes sense that the Field would also be involved in conserving the planet. Environmental preservation efforts in South America—in which Field researchers work with local communities to conduct rapid inventories of fauna and flora—have secured 23 million acres of Amazonian wilderness from ruination. Conservation ventures are underway closer to home as well, as the Field focuses on ecological restoration and education efforts in the Chicago and northwest Indiana region.

There has also been restoration of the Field Museum campus, where hundreds of scientists, researchers and staff work every day. "It may not be as sexy as field work in the jungle or archaeological

digs in the desert, but it's also important to further our mission," said Carter O'Brien, the Field's Sustainability Manager of the museum's ongoing efforts to bring the 93 year-old building up to date. "A healthy work environment allows us to retain and keep good staff. If they're not happy with how the building works, they'll go somewhere else."

Many of those changes came about because of space restrictions. The building's original six lightwells provided plentiful natural light and fresh air for staff and visitors, but the donation of 720,000 fossil invertebrates from the University of Chicago in 1965 prompted the renovation of the northwest lightwell to hold the collection. Since that time, the remaining five lightwells have also been retrofitted to house collections. Then in 2001, space was again at a premium due to collections growth, but because the museum is landmarked, the only place to build was down. So the museum began construction on a \$65 million, 186,000 square foot Collections Resource Center (CRC) located just south of the historic building and two stories beneath the ground.

It was not just the lack of space that led to this project, but a desire to keep the collections close at hand. Many institutions of the Field Museum's size must warehouse their archives off-site. Keeping the specimens close at hand makes research easier for

scientific staff and also reduces transportation costs. Digitization efforts underway will also help the museum reduce its greenhouse gas footprint, as high quality images will help reduce the need to ship specimens to researchers around the globe.

Completion of the CRC in 2005 kicked off the substantial task of moving and unifying the museum's collections into the new area. "This place is like one of those puzzles where you only get one little missing piece and you have to solve the puzzle by moving the space around," said O'Brien, as he passed a display case containing small, stuffed primates in a back hallway. "Even in a place this big, every square inch has been fought over."

The underground facility houses large anthropological and geological items, provides a spark-proof environment for specimens that are stored in alcohol, as well as lab space and cryogenic storage for tissue samples. More than half of the museum's vast collection is now held in the CRC.

The original building has undergone some upgrades as well. Every time a permanent exhibit is rebuilt, Field staff usually tear everything down to the studs, making it essentially a new interior project. This has allowed them to complete two LEED Commercial Interiors (CI) certifications, typically reserved for building tenants. They have two more LEED projects currently registered, Existing Building Operations and Maintenance (EBOM) for the building itself, and another CI for the currently under construction China exhibit.

"LEED has really pulled people together," said O'Brien. It has also sharpened their focus on sustainability measures. For instance, prior to the



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**The Edible Treasures Garden next to the brachiosaurus statue (above) is a small but important first step to the museum's landscape overhaul. While most of the building's original lightwells have been co-opted by construction, the Stanley Field Hall (below) is still lit almost entirely by natural daylight.**



Edsel Little

EBOM project, there was no codified recycling or composting policy, just recommended procedures. Staying on top of those procedures proved to be a full time job.

Now, recycling is much more streamlined. "Last year at this point we were diverting 18% of our waste, and we are at 37% this year," said O'Brien. "The LEED process and the work of the restaurants are to thank for that." The brand new on-site

The Field Museum is monitoring the biodiversity of its terraces and grounds to create a baseline, which will then be compared with future surveys after the installation of native plantings. Field Museum staff from the Insects Collections department Jim Louderman, Beka Baquiran and Joe Rowlett installed three sets of traps, interred in the ground and partially covered. Each set consists of five bucket traps (four pitfall and one carion). They will then sort, identify and catalogue the specimens. Since June when the traps were installed, they have collected over 50 different species of native flies. Josh Engel, a Bird Collection Research Assistant with the Field is also conducting bird surveys of the museum grounds to assess the affect of landscaping changes on birdlife around the museum.

Once the overhaul of the museum grounds has been completed, the native plantings will reduce irrigation needs, trim back fertilizer and pesticide use and enhance wildlife biodiversity. Stormwater runoff from the Museum Campus drains directly into Burnham Harbor; these changes will lead to more stormwater retention and fewer chemicals making their way into Lake Michigan. The baseline inventory data will provide a scientific foundation for future efforts of other institutions interested in creating a healthier ecosystem on their grounds.

restaurants diverted over 12,000 pounds of compostable materials from landfills in the final two months of 2013, and they are on track to divert over 100,000 pounds this year.

The institution's recycling program covers the usual plastics, glass and paper, but also construction debris and e-waste. A staff recycling center handles eyeglasses, cell phones and printer cartridges. The museum also maintains an institution-wide database to internally track and reuse office furniture.

A thermal storage system supplies temperature control but also ensures appropriate humidity levels are in place for the collection. The system makes ice during off-peak hours; air is then chilled by the ice and used to condition the space during the day.

The museum has a 99 Kilowatt photovoltaic solar array on its roof, the largest in Illinois when it was installed in 2002. The Field offers real-time monitoring of the array on their website. Other energy efficiencies have come from lighting retrofits. The change from incandescent to LED and fluorescent lights have led to energy savings of up to 40%. And though most of the lightwells have been filled,



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the museum’s primary hall is almost exclusively lit by skylights.

Maintaining high air quality is another effort, both for the health of visitors and staff and for maintaining the collection. These range from the use of low-VOC paints and Green Seal-certified cleaning products.

Green cleaning these days has become more advanced than simply using non-toxic chemicals. The Field Museum uses electrically activated water to clean its surfaces. The technology sends a charge into a reservoir of standard tap water, creating microbubbles that cling to dirt and other particles. Wiping away the the water leaves a surface clean and free of chemical-based residues.

A similar, handheld device ionizes water, separating it into acidic and alkaline parts. When sprayed on a surface, the alkaline half of the water neutralizes organic materials while the acidic water disinfects.

The Field Museum also uses subsidies to encourage its staff to make use of public transportation and the I-GO car sharing program. An indoor bicycle cage and showers further promote alternative modes of transportation. A shared bikes program launched in 2008. “We beat Divvy by quite a bit,” O’Brien said. The program offers bikes for employees to use for personal or work-related needs. Many of the museum’s 500+ staff regularly commute by bicycle, and except for 2012 when they came in second, the Field Museum has won the Active Transportation Alliance’s Bicycle Commuter Challenge every year from 2006 to 2014. Additionally, the museum has a renewable energy vehicle that runs on biofuels, and uses solar panels on its roof as a traveling exhibit to schools and festivals.

While the Field Museum is noted for its well-preserved specimens, fossils and other artifacts housed within the beautiful Greek Revival building, its landscaping has been another matter. For decades, the building has been surrounded by turf grass and shrubbery. The unification of the Museum Campus in the ‘90s didn’t alter that.

The museum is crafting a plan to completely redo the roughly 90,000 square feet of field and terraces that surround the building, taking into mind stormwater retention, native planting and biodiversity. Leaning on in-house expertise, there are insect traps in the surrounding lawn so that staff researchers can catalogue what species are inhabiting the site.

Relevant to the museum’s mission, the new landscaping will be an outdoor exhibit, another opportunity to present science and the natural world to visitors. “People were saying native landscaping projects don’t enhance biodiversity as they are too little to constitute ecosystems,” said O’Brien. “But go to our staff community garden. There is more biodiversity in that little pocket than we’ve seen in all of the rest of the Museum’s landscaping put together.”

The Edible Treasures Garden was built in 2012 in partnership with the Peterson Garden Project and the Seed Savers Exchange, the largest non-profit seed bank in the United States. Staff volunteers tend to the weeding and watering.

O’Brien is excited by the prospect of not only overhauling the Field’s grounds, but better connecting it with the Shedd Aquarium and Adler Planetarium, as well as the coming Lucas Museum of the Narrative Arts. One day soon, the entire museum campus will be an ecosystem of its own. 



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