

CHAMPION INNOVATION PROJECT: BIRD SAFE GLASS

Next to habitat loss and feral cat predation, glass collision is the greatest threat to wild bird populations. As cities grow and human populations expand, it is increasingly critical to incorporate native plantings and trees that can serve as habitats for wildlife within our communities while at the same time preserving large expanses of protected wild lands. These areas provide connections to nature that are essential to the well-being of children and adults. Applying effective modifications to buildings to protect birds is an essential complement to plantings, as human beings strive to co-habit with natural communities.

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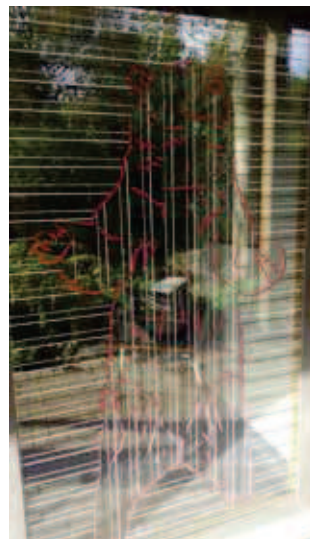
MEASURABLE ELEMENTS

Although bird window collisions happen year-round, studies show an increase during spring and fall migrations, and that the most problematic building heights are low to mid-rise and not high-rise. Estimates are that 300 million to 1 billion birds die due to glass collisions in America each year.

The Zoo began collecting data on bird collisions with our buildings in 2012. A reporting protocol was developed to collect data about the location of collision, date, time, bird species and survival status.

Funding was approved in 2016 to apply this design on our largest windows, in the Animal Nutrition Center and Administration Building. Data collection continues and we are working with the American Bird Conservancy to test our Zoo's unique pattern design in their laboratory.

The new Tasmanian Devil Habitat in the Children's Zoo was the first project utilizing Ornilux glass, a manufactured clear glass that has embedded UV patterns visible to birds, but not humans.



QUALITATIVE ELEMENTS

The Saint Louis Zoo's project impacts native and migratory wild bird populations in Forest Park.

Our project team gathers staff observations about strikes they witness. These observations are incorporated in the master database that provides quantitative data to inform Zoo leadership about which windows are a priority to address.

We have tested various solutions to see what was effective, practical, and affordable. Following design guidelines established by the American Bird Conservancy, our staff created a three-colored design pattern of white, black, and gray stripes. This unique design creates a visual cue any time of the day, regardless of shade. Since this design was applied to test windows, no bird strikes have been reported at the test location.

We placed informational signage on all windows with the application so our visitors can understand the purpose of the stripes. Educating staff and volunteers about the issue, plus some public outreach through social media, has been a major effort.

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Saint Louis Zoo

St. Louis Green Business Challenge – 2016 Champion Innovation Project Building Management Innovation: Bird Safe Glass

Project Description

Glass presents a profound threat to birds. When birds collide with building windows at high speeds the result is often death. Saint Louis Zoo has committed to making buildings safer for birds by tracking bird strikes throughout our campus and applying solutions to the most common collision areas. Our team created a stripe pattern that we are testing on our facilities, in collaboration with the American Bird Conservancy. The new Tasmanian Devil Habitat in the Children's Zoo was the first project utilizing Ornilyx glass, a manufactured clear glass that has embedded UV patterns visible to birds, but not humans.

Project Location

Saint Louis Zoo in Forest Park, City of St. Louis, MO

Project Time Frame

The Zoo made a great deal of progress on this issue in 2016, building on data collection that began in 2012. For most impactful results we needed to know which windows were the most common for bird strikes. We also researched window treatment applications to identify an option that best suited our campus and budget.

Applying the stripe patterns in 2016 to the largest buildings (Animal Nutrition Center and the Administration Building) has drawn considerable attention to the issue. We placed informational signage on all windows with the application so our visitors can understand the purpose of the stripes. Educating staff and volunteers about the issue, plus some public outreach through social media, has been a major effort.

Who or what does this project impact?

Next to habitat loss and feral cat predation, glass collision is the greatest threat to wild bird populations. The Saint Louis Zoo's project impacts native and migratory wild bird populations in Forest Park. Although bird window collisions happen year-round, studies show an increase during spring and fall migrations. It is estimated that between 300 million to 1 billion birds die due to glass collisions in America each year.

Interestingly, the most problematic building heights are low to mid-rise and not high-rise. The American Bird Conservancy has been researching this issue and has published a design guideline which provides numerous design solutions to help birds. As a result of the solutions we applied on problem buildings on our campus, we have largely reduced strikes that happen on Zoo property.

How does this project advance sustainability within your company's day-to-day operations?

We have a Green Team sub-committee working specifically on this topic as we continue to apply the solution to problem windows on campus, while also expanding our educational awareness campaign. This project has gained a great deal of support among staff and volunteers, all the way to the Zoo's board members.

It is important that cities are designed and built to attract and accommodate wildlife. Native plantings, tree canopies, and feeders attract birds near buildings, which increases chances of window collisions. It is correspondingly important that architects and designers incorporate elements that attract and protect wildlife. Because accessing nature is tremendously beneficial for our health and wellbeing, incorporating windows and outdoor views in offices has become the norm. It is also important to ensure that we consider the health of our interactions with wildlife populations.

The Zoo is committed to considering impact on wild bird populations as we design new projects. We are also committed to including this topic in our public and professional educational efforts to bring awareness to the issue.

How does this project advance sustainability within your company culture?

This project is a concrete action that advances biodiversity within our campus, and it is a replicable solution that our staff, volunteers, and visitors can apply in their homes and businesses. The educational awareness we've developed encourages others to follow our lead.

Since the application of window stripes on our Animal Nutrition Building in February, we have included information about the issue and the results at each of our quarterly all-staff meetings. We have included posts on our social media and recently drafted a more detailed blog on the topic. There is a groundswell of pride among staff and Zoo stakeholders since our stripe pattern was designed in-house, putting a spotlight on the innovations that emerge from our institution. Docents, education staff, and volunteers are able to speak with our visitors about this issue and the solutions we have devised to address it. This is an empowering conservation story.

How does this project advance sustainability In the mix of your services to clients/customers?

Saint Louis Zoo is a conservation organization and it is our mission and responsibility to educate visitors about various threats to wildlife around the world. It is particularly empowering to raise awareness on issues that impact wildlife in our own backyards. By educating visitors about the threat of bird collisions, while also providing a toolbox of solutions, we can inspire all ages to take action locally.

We have also addressed the business community through the Zoo's participation in the St. Louis Green Business Challenge, presenting on this topic at a Challenge seminar and for staff of the Missouri Botanical Garden. We have included this information in behind-the-scenes Zoo tours with professionals in property management, as they have the ability to apply solutions to problem buildings.

Through a combination of awareness building and providing concrete solutions, we are working to both elevate the importance of this issue and address it, in the Saint Louis region, and through our extended networks.

What cost(s) are associated with this project?

Costs associated to date have included hiring outside contractors to print and apply the design we developed in-house, onto windows around the campus. Application costs vary depending on the size of windows, difficulty of application, length of time. Since we utilized our own staff to collect data, research solutions, and develop the stripe pattern, we did not incur additional costs with those project phases.

Existing staff takes nominal time out of their schedules to work on this project. Contractor costs have ranged from \$5,000 to \$8,000 per building. There are also nominal costs associated with printing signs on the windows to educate the public.

The Ornilux glass utilized on the Tasmanian Devil exhibit was a lot more expensive than standard glass of that size. Currently there are only a handful of manufacturers offering UV-embedded glass products, which is partly why the costs are high. By purchasing this type of glass, along with educating about the issue, the Zoo hopes to help build demand for this product needed to make it cost-competitive.

What kinds of savings are generated?

The project is not intended to save money, but rather to improve conditions for wildlife. This project is intended to function equally as an educational opportunity and a means to address the problem areas on the Zoo campus. This has not been an operationally expensive project, especially in light of the stress reduction associated with a documented decrease in bird collisions.

What are the next steps for this project?

The Green Team sub-committee is currently working on expanding the education campaign around this issue, which we hope to roll out to the boarder Zoo audience in 2017. Since this topic is not widely known, we have focused attention around building the urgency for action starting with education. Data collection is ongoing as we measure the effectiveness of the window pattern applications to date. The Saint Louis Zoo is in communication with the American Bird Conservancy to schedule broader testing of the pattern design developed by Zoo staff. We are also poised to serve

as mentors to other institutions or businesses, providing guidance and materials. This particular conservation project is easily replicable on commercial and residential buildings.