

# Bird-Window Collision Mitigation at USU's C&SS Building, Brigham City, Utah

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## Introduction

Bird-window collisions a major problem for bird populations worldwide. In the United States alone it is estimated that 365-988 million birds fatally collide with human-made windows annually,<sup>1</sup> and another 16 to 42 million collide in Canada per year.<sup>2</sup>

We are investigating the scope of bird-window collisions at the Classroom & Student Services Building on the USU-Brigham City campus (below).



We are performing a daily census to gauge the magnitude of the problem. Should collision hotspots be found, we plan to share methods for mitigation with the campus administration. To that end, we are investigating different methods of preventing bird-window collision. We hope to help make the building a safer place for birds in Brigham City, which is home to a world-famous bird refuge.

## Methods

### Mitigation Efforts:

The mitigation techniques we have uncovered include: fritting, which is a pattern on the glass to deter birds, placing decals on the glass to alert birds that there is a solid surface, mosquito screens, netting, one-way transparent film, ABC bird tape and a motion activated sound system that will produce a noise to help prevent collisions.



*Clockwise from top-left: fritting, decals, netting, and ABC tape.*

We have undertaken a cost comparison of mitigation methods. Cost estimates were made per window based on the average-size window at the C&SS Building.

## Results

### Mitigation Cost Comparison:

At present, we do not have a full year of census data, so we are unable to determine if there is a hot spot for bird-window collisions. However, at present, 70% of collisions have occurred on the east side of the building. Still, the results of our cost comparison indicate that ABC bird tape would be the most cost effective (see the table below).

| Mitigation Effort | Cost USD*         |
|-------------------|-------------------|
| Bird Decals       | ~10 per window    |
| Mosquito Screen   | ~60-80 per window |
| Netting           | ~50 per window    |
| ABC bird tape     | ~4 per window     |
| One-way film      | ~32 per window    |
| Sound System      | ~560 total        |

\*All prices are averages as the price would vary based on the company and total amount needed. Sound system would include full building protection.

## Conclusions

Given our preliminary finding that the east side of the building has produced 70% of the fatal collisions up to this point, we predict that this will be where mitigation efforts will be needed.

Given our cost comparison, it appears that ABC tape would be the most cost-effective measure. However, it would not be as pleasing to the eye as a more uniform option such as one-way film or netting. These options would not jeopardize the building design compared to decals and other more affordable options.

## Future Directions

As hotspots are found they will be used as sites to test mitigation efforts. Additional University or city buildings in Brigham City could also be included in a future census. We hope to encourage others in the community to become more knowledgeable about this problem. Allowing students and their families to decorate a window of the building would be a great way to help them learn about the collisions while making a positive difference in the community.

## Bibliography

- Loss, S. R., Will, T., Loss, S. S., & Marra, P. P. (2014). Bird-building collisions in the United States: Estimates of annual mortality and species vulnerability. *Condor: Ornithological Applications*, 116(1), 8-23. <https://doi.org/dist.lib.usu.edu/10.1650/CONDOR-13-090.1>
- Machtans, C., Wedeles, C., & Bayne, E. (2013). A first estimate for Canada of the number of birds killed by colliding with building windows. *Avian Conservation and Ecology*, 8(2)

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