

BirdShades: Effective bird protection on glass surfaces

Dr. Niklas Kästner & Dr. Tobias Zimmermann, *ETHOlogisch – Verhalten verstehen*

- **Transparent protection from bird strike**

The *BirdShades* transparent window film reduces the risk of collision for birds – without disturbing the view for humans.

- **Reflected UV light**

The *BirdShades* film reflects ultraviolet light, which many birds can perceive. Thus, they recognize structures on the pasted glass surfaces that are not visible to our eye.

- **Scientifically proven effectiveness**

Independent studies showed that when birds flew from a flight tunnel towards differently prepared glass surfaces, up to 94.4 % of them did not fly in front of the pane with the *BirdShades* film. Furthermore, birds flew on average 25 % slower towards panes when these were provided with the *BirdShades* film. Additional field studies confirm the high effectiveness of the protective measure.

Details of the scientific studies

Flight tunnel studies

A research team led by Prof. John Swaddle tested the effectiveness of the *BirdShades* film using a specially constructed flight tunnel. The researchers repeatedly let birds fly toward two side-by-side windows, only one of which was covered with the *BirdShades* film. To protect the animals from collision, a fine nylon net was stretched immediately in front of it.

The results show that the protective measure significantly reduces the risk of accidents: In two separate studies, 94.4 % and 89.2 % of the birds, respectively, did not fly toward the pane with the *BirdShades* film, but were either on a collision course with the unmarked control pane (50 % and 62.2 %) or avoided both obstacles (44.4 % and 27 %).^{1,2} Thus, the transparent *BirdShades* film was equally effective as an identically tested bird protection film with visible black and orange vertical stripes.¹ In addition, when both windows were covered with the *BirdShades* film, birds flew toward them 25 % slower on average compared to trials with only unmarked control windows.² This suggests that the *BirdShades* film decreases the risk of injury, even if the birds can no longer avoid it in time.

Field studies

A research team led by Prof. Daniel Klem Jr. confirmed the effectiveness of the *BirdShades* film in a field study. The researchers placed differently prepared windowpanes at distances of a few meters in a rural area and recorded how many wild birds collided with each of them over a period of about three weeks. In this case, too, the *BirdShades* film significantly reduced the risk of collision.³

A study by Ewa Zysk-Gorczyńska and Prof. Michał Żmihorski reached the same conclusion: The researchers recorded for several months how many birds collided with the glass panes of selected bus stops, some of which they had covered with *BirdShades* film. They found that the protective measure markedly reduced the number of collisions.⁴

Common countermeasures

Most of the solutions currently available on the market to prevent so-called bird strike make use of conspicuous markings on the glass surfaces to increase their visibility to birds. With the right arrangement and choice of colour, this brings the desired success. However, it has a decisive disadvantage: the markings are also visible to the human eye and therefore impair the view.

Transparent protection

The transparent window film by *BirdShades* solves this dilemma: it makes glass panes visible to birds, while we humans can see through them unhindered. How does it work? The film reflects ultraviolet radiation from sunlight. Unlike us, many birds are able to perceive this. As a result, they recognise structures on the pasted glass surfaces that are invisible to our eyes.

Conclusion

Several billion wild birds are estimated to die each year worldwide due to collisions with glass surfaces.⁵ The *BirdShades* transparent window film promises an effective remedy, as proven by both flight tunnel and field studies: The product significantly reduces the risk of birds colliding with glass surfaces while they remain transparent to the human eye.

This whitepaper was created on behalf of BirdShades Innovations GmbH.

Date: 07.02.2023

ETHOlogisch – Verhalten verstehen

As behavioral biologists, we have made it our mission to disseminate scientific findings on animal behavior to society. In doing so, we guarantee an unbiased presentation of the current state of research – regardless of who commissions or finances our work.

¹ Swaddle, J. P.; Brewster, B.; Schuyler, M & Su, A. (2023): Window films increase avoidance of collisions by birds but only when applied to external compared with internal surfaces of windows. *PeerJ* 11: e14676.

² Swaddle, J. P.; Emerson, L. C.; Thady, R. G. & Boycott, T. J. (2020): Ultraviolet-reflective film applied to windows reduces the likelihood of collisions for two species of songbird. *PeerJ* 8: e9926.

³ Klem Jr., D. (2021): Studying the ability of BirdShades exterior film to deter bird-window collision.

⁴ Zysk-Gorczyńska, E. & Żmihorski, M. (2022): Ultraviolet film invisible to humans reduces bird-glass collision risk. *Ornis Fennica* 99: 95-103.

⁵ Klem Jr., D. (2015): Bird-window collisions: a critical animal welfare and conservation issue. *Journal of Applied Animal Welfare Science* 18: 11-17.