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Summary

On a simulated transparent noise barrier using conventional float glass next to Ornilux® glass (Glaswerke Arnold, Merkendorf) we tested the efficiency of the special UV-reflecting and UV-absorbing patterning in the Ornilux® glass for its property to reduce or avoid bird collisions at transparent noise barriers along traffic routes. For this purpose a 4.8 m wide and 2 m high test barrier had been installed in an attractive songbird flyway between a feeding area and a sheltering place. Avoidance behaviour (obstacle perception) and collision events, which were buffered by nearly invisible bird trapping nets, were observed from a camouflaged hide at some 25 m distance from the glass barrier. In two independent test series under sunshine conditions we recorded avoidance of Ornilux® glass in 89,6% and 85,2% of flights, respectively. This even exceeds the experimental glass avoidance value of 76% established in flight tunnel tests. In a third test series under overcast skies obstacle perception was reduced to a value similar to the flight tunnel experiments (s. Section 5).

The tests also established a surprising rate of avoidance of conventional glass under sunshine conditions of 49% and 40%, respectively, and of 36% under overcast skies, implying that not every flight towards a transparent glass wall will necessarily end in a collision (s. Section 5). According to these experiments we conclude that the new bird-protection glass Ornilux® is generally suited to effectively reduce bird strike at transparent noise barriers. Since the effectiveness is not yet established for a glass with UV-patterns on both sides we can, thus far, only recommend the use of Ornilux® for buildings. However, the collision-avoidance potential of Ornilux® along less wide roads may already be rather high (s. Section 6). Variants of the UV-coated glass prototype with suspectedly efficient UV coating on both sides are apparently in production and will subsequently be tested in the standard experiment of the flight tunnel at the Vogelwarte Radolfzell. An equal avoidance efficiency on both sides would increase the range of potential uses of Ornilux® considerably. In order to reach a very high efficiency the potential influence of the surrounding vegetation will need to be taken into consideration at planned deployment sites. Therefore, further test runs should elucidate differences in avoidance behaviour between Ornilux® and conventional glass at various road sites and habitat types (s. Section 6).