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Bird strikes have big safety and financial impact

The FAA estimates that the cost associated with bird strike damage to civil aircraft could be as high as \$957 million per year in the US. In its most recent report on the issue, EASA estimates that the total global cost of bird strikes to civil aviation could be more than one billion euros per year.

Beyond the significant financial burden of bird strike damage, the safety repercussions are of great concern. It goes without saying that engine failure due to ingestion of large birds is worrying, but any breach of the aircraft inflight can result in injury or death. EASA statistics indicate that engine damage only accounts for 44% of all bird strike events which led to accidents between 1999-2008 around the world. The balance consists of damage to the windshield, nose, fuselage and wing; with wing damage resulting in 31% of all accidents. The FAA reports that damage to engines only accounted for 32% of total bird strike damage in the US from 1990-2012, with 68% of damage happening to other parts of the aircraft.

Also worrying, for anyone who follows aviation safety, are the numbers of bird strike accidents when represented by flight phase. Despite the excellent overall safety of aviation as a mode of transport, the phases of take-off and approach are always most likely to result in accidents for various causes. EASA reports that bird strike accidents for these phases of flight account for 48% of total accidents on take-off and 30% of total accidents on approach. However, this does not mean that only low altitude attacks are risky. In fact, EASA reports that 15% of all accidents around the world are caused by bird strike damage occur en route. For their part, the FAA reports around 11,000 bird strikes occurred at 650 airports in the US in 2013. They indicate that 60% of bird strikes occur during landing phases, 37% during take-off run and climb.

The size of bird affects the total risks associated with the bird strike, the potential scope of the damage and the severity of the accident which results from that damage. The FAA indicates that large ducks and geese “account for 7% of the strikes but are responsible for 30% of the strikes which cause damage to aircraft.” Recent changes to the migration patterns for the Canadian Goose where directly referenced as a concern by EASA in their report. “The interest of aviation organisations has been attracted to this particular species because of their large size (2.3kgs – 7.3kgs) and tendency to fly in flocks. It is feared that in case of a bird strike their in-flight separation of 3 to 4 meters may potentially lead to strikes on multiple engines.”

Anyone doubting that flock strike risks are a concern should remember that USAirways Flight 1549, which came to be known as the “Miracle on the Hudson” resulted from a flock bird strike event when the aircraft’s engines were struck by a flock of geese during the initial climb at an altitude of 2,818 feet. While thanks to the efforts of Captain Sully and his crew there were no deaths as a result of this accident, this result was a marked exception.

In all, EASA attributes 31% of all global bird strike accidents between 1999-2008 to large birds, and a shocking additional 45% of all accidents to flocks of large birds.

The very first incident of a bird strike was reported by Orville Wright in 1905. The first death resulting from a bird strike occurred in 1912 when a Wright Flyer came up against a flock of gulls on a demonstration flight by the sea. Both EASA and FAA perform in-depth studies on the risks of bird strikes and are active in finding potential solutions, but the air

has always belonged to the birds. We humans who have appropriated their domain must do so while respecting the potential risks, if we're going to share the skies.

See a video of a Boeing 757 bird strike, which resulted in engine failure, below.

<https://youtu.be/L1jZvIFmqQU>