

## **Bird Strikes: Hazards and Avoidance:**

Bird Strikes: Hazards and Avoidance Sponsored by the FAA Aviation Safety Program. Presented by: Carl Valeri, ASC.

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### **Presentation Transcript**

#### **Bird Strikes: Hazards and Avoidance:**

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#### **Carl Valeri:**

Carl Valeri 17 years flying experience. FAA Certified Flight Instructor, Instrument Instructor, and Multi-Engine Instructor. Airport Safety Counselor Peter O. Knight Airport, Tampa, FL. 6 years as volunteer FAA Aviation Safety Counselor. Awarded Master CFI by National Association of Flight Instructors. Volunteer Coordinator for Challenge Air for Kids and Friends. Flight experience from experimental through transport category airplanes. Airline Captain. Member Aircraft Owners and Pilots Association, Experimental Aircraft Association, National Association of Flight Instructors, Greater Houston Area Flight Instructors Association.

#### **Slide3:**

Don't be deceived by their beauty. The European Starling caused the most fatal bird strike accident in aviation history!

#### **March 10, 1960:**

March 10, 1960 Boston Logan Airport a Lockheed Electra turbo-prop ingests European Starlings during takeoff. All Four Engines are damaged. The plane crashed into Boston Harbor killing all 62 people on board. FAA initiates action to develop minimum bird ingestion standards for turbine powered engines.

#### **Why should we be concerned with bird strikes?:**

Why should we be concerned with bird strikes? Bird and other wildlife strikes to aircraft annually cause over \$600 million in damage to U.S. civil and military aviation. Bird strikes put the lives of aircraft crew members and their passengers at risk. Over 195 people have been killed worldwide as a result of wildlife strikes since 1988.

#### **Bird Strike Myth #1:**

Bird Strike Myth #1 Bird strikes cannot cause serious airline accidents. Since 1975, five large jet airliners have had major accidents where bird strikes played a significant role.

#### **26 February 1973 :**

26 February 1973 On departure from Atlanta, Georgia's Peachtree-Dekalb Airport, a Lear 24 jet struck a flock of brown-headed cowbirds attracted to a nearby trash transfer station.

#### **26 February 1973 :**

26 February 1973 Engine failure resulted. The aircraft crashed, killing 8 people and seriously injuring 1 person on the ground.

#### **26 February 1973 :**

26 February 1973 This incident prompted the FAA to develop guidelines concerning the location of solid waste disposal facilities on or near airports.

#### **Bird Strike Myth #2:**

Bird Strike Myth #2 Bird strikes are rare. Over 56,000 bird strikes to civil aircraft in the United States were reported to the Federal Aviation Administration (FAA) from 1990-2004, a mere 20% of the number that likely occurred.

#### **Bird Strike Myth #2:**

Bird Strike Myth #2 This equates to an estimate 280,000 bird strikes during this period. That is nearly 54 bird strikes per day!

#### **Bird Strike Myth #3:**

Bird Strike Myth #3 Bird strikes are no more of a problem today than 20 or 30 years ago. In North America, bird strike hazards are increasing. Because of outstanding wildlife conservation and environmental programs in North America, populations of many bird species have increased dramatically since the 1970s.

#### **Slide13:**

A group of professionals met in the early 1970s. to discuss airfield problems, including wildlife hazards. In 1975, the ad hoc meetings led to the formation of the BASH, The Bird/Wildlife Aircraft Strike Hazard Team.

#### **Slide14:**

One of the Team's goals is the preservation of war fighting capabilities through the reduction of wildlife hazards to aircraft operations. The team is responsible for developing research programs to reduce bird strike potential around airfields and during low-level flight operations

#### **USAF Bird Avoidance Model:**

USAF Bird Avoidance Model The United States Air Force has developed a predictive Bird Avoidance Model (BAM) using Geographic Information System (GIS) technology as a key tool for analysis and correlation of bird habitat, migration, and breeding characteristics, combined with key environmental, and man-made geospatial data. The model is available to all pilots at: <http://www.usahas.com/bam/>

**Slide17:**

Available for use by all pilots. USAF Bird Avoidance model.

**Bird Strike Myth #4:**

Bird Strike Myth #4 Large aircraft are built to withstand all bird strikes. Large commercial aircraft like passenger jets are certified to be able to continue flying after impacting a 4-lb bird, even if substantial and costly damage occurs and even if one engine has to be shut down. However, 36 species of birds in North America weigh over 4 lbs and most of these large birds travel in flocks.

**Bird Strike Myth #4:**

Bird Strike Myth #4 About 30% of reported strikes by birds weighing more than 4 lbs to civil aircraft in USA, 1990-2002, involved multiple birds. Even flocks of small birds (e.g., starlings, blackbirds) and single medium sized birds (e.g., gulls, ducks, hawks) can cause engine failure and substantial damage.

**What damage can a bird do to your aircraft?:**

What damage can a bird do to your aircraft? Kinetic Energy = (1/2) x (mass) x (velocity squared). In plain English this means that a 4-pound bird colliding with an airplane that is traveling at 130 knots will hit that plane with a force equal to 2 tons.

**Bird Strike Myth #5:**

Bird Strike Myth #5 Myth - If a bird flies into a transport category airplanes engine during takeoff and the engine quits, the airplane will crash. Transport category aircraft are designed so that if any 1 engine is unable to continue generating thrust, the airplane will have enough power from the remaining engine or engines to safely complete the flight.

**Bird Strike Myth #6:**

Bird Strike Myth #6 Myth - Nothing can be done to keep birds away from airports. There are a number of effective techniques that can reduce the number of birds in the airport area. In general, the techniques fall into three categories: making the environment unattractive for birds, scaring the birds, or as a last resort, reducing the bird population.

**Key Issues in Bird and Wildlife Hazard Reduction Efforts:**

Key Issues in Bird and Wildlife Hazard Reduction Efforts About 90% of bird strikes take place on or around airports, usually while taking off or landing. Ensure that all airports have a valid wildlife management plan. Ensure that all airports have personnel properly trained and equipped in wildlife control. Zero tolerance for any animals large or small on the airport. Cover all trash and garbage receptacles. Ensure the judicious use of wildlife frightening devices.

**Key Issues in Bird and Wildlife Hazard Reduction Efforts:**

Key Issues in Bird and Wildlife Hazard Reduction Efforts Support Zoning of areas near airports to reduce attractants to wildlife. Promote the reporting of bird and other wildlife strikes to the appropriate national authority.

**Slide27:**

A unique solution to a unique problem

**Border Collies have been bred to herd sheep. :**

Border Collies have been bred to herd sheep. Border Collies have been bred to run a hundred miles day and will work for hours on end.

**Slide30:**

This method, the use of Border Collies to harass birds and wildlife, is rapidly catching on at golf courses and large business facilities across the country

**All dogs are trained at Dover Air Force Base and the Gainesville Regional Airport so they are well-accustomed to working in a busy airport environment. :**

All dogs are trained at Dover Air Force Base and the Gainesville Regional Airport so they are well-accustomed to working in a busy airport environment.

**Border Collie Rescue:**

Border Collie Rescue Border Collie Rescue is a national humane organization that assists in the rescue and placement of Border Collies in the United States and throughout the world. For more information go to: <http://birdstrike.bcrescue.org>

**Bird Strike Myth #7:**

Bird Strike Myth #7 Myth - It is illegal to kill birds just to protect aircraft. In North America, there are a few introduced (non-native) birds such as pigeons and starlings which are not federally protected species and generally may be killed if they pose a threat to aircraft. Most birds, such as ducks, geese, gulls, and herons, may be killed in limited number by an airport authority only after obtaining appropriate permits and demonstrating that non-lethal techniques are not adequate. Endangered species may not be killed under any circumstances.

**Bird Strike Myth #8:**

Bird Strike Myth #8 Myth - If birds are a problem at an airport, killing them all would eliminate the problem. Fact - Even if it were legal to do so, killing off all birds at an airport will not solve the problem. An airport is an integral part of the local ecosystem, and like in all ecosystems, each plant or animal species plays an important role. Eliminating any one problem species will only lead to some other species taking its place. A combination of bird control measures which take into account habitat management is a superior long-term solution.

**Bird Strike Myth #9:**

Bird Strike Myth #9 Myth - Except for the very rare accident, bird strikes are only a nuisance to airline operators. Fact - For a modern jet airliner, even minor damage can lead to significant costs. For example, if a bird strike results in damage that leads to replacing a single pair of fan blades, the airline has to deal with not only the direct cost of labor and materials, but also the indirect costs of keeping the aircraft out of revenue service and redirecting passengers. The FAA estimates that bird strikes cost civil aviation over \$500 million per year in the USA, 1990-2003. Worldwide, bird strikes cost commercial air carriers over \$1 billion each year. Furthermore, minor damage to airliners is usually not covered by aircraft hull or engine insurance, so the costs of most bird strikes directly affect airline profits.

**Bird Strike Myth #10:**

Bird Strike Myth #10 Myth - Bird strikes are a concern only to those who fly. Fact - The issue of bird strikes is tied into a wide range of social and policy issues that go beyond aviation. The most important areas where this is true is the environment. Past and present policies of wildlife and habitat management can directly affect bird populations and bird strike hazards. Because bird strikes can lead to aircraft accidents, bird strikes can have a direct effect on both the families and friends of potential victims both in the aircraft and on the ground. Bird strikes can also have environmental consequences. For example, as a result of a bird strike that disabled an engine on a B-747 departing Los Angeles International Airport (LAX) in August 2000, the pilot had to dump 83 tons of fuel over the Pacific Ocean before returning to land safely at LAX.

**Interesting Fact:**

Interesting Fact What is the largest killer of migratory birds in the United States? Glass Windows!

**Bird Strike Myth #11:**

Bird Strike Myth #11 Bonus Myth – Bird strikes never occur at high altitudes. Fact – It is true that most strikes occur in the airport environment. About 41% of reported strikes with civil aircraft in USA occur while the aircraft is on the ground during take-off or landing and about 75% of strikes occur at less than 500 feet above ground level (AGL). However, over 1,300 strikes involving civil aircraft at heights above 5,000 feet AGL were reported from 1990-2003. The world height record for a strike is 37,000 feet.

**What can you do? :**

What can you do? We have determined that bird strikes are a hazard. But what can we as pilots do to avoid these hazards?

**Avoiding bird strikes :**

Avoiding bird strikes One of the first things you should do to avoid a bird strike is to try to avoid areas in which there is a known risk. You can do this by checking NOTAM's for bird activity near airports. Also the FAA Airport/Facility Directory (A/FD) can warn of dangerous bird hazards.

**Avoiding bird strikes :**

Avoiding bird strikes It is important to be familiar with the patterns of migratory birds. July and November with the peak being in September. There are four major migration routes across the U.S. These routes are the Atlantic Flyway, which follows the Atlantic Coast; the Mississippi Flyway, which is in and around the Great Lakes and Mississippi River; the Central Flyway is situated east of the Rocky Mountains; and the Pacific Flyway follows the West Coast.

**Avoiding bird strikes :**

Avoiding bird strikes Use the Bird avoidance Model available on the internet at <http://www.usahas.com/bam> Avoid areas such as marshlands and landfill because birds like to congregate around those areas. Don't fly beneath a flock of birds. When birds sense danger in the air they have a tendency to dive. If you are approaching a flock of birds you should always pitch up.

**Avoiding bird strikes :**

Avoiding bird strikes When flying in an area with birds, you should turn your landing lights on. The birds may see you in time to move. Don't rely on this completely — many birds on the ground face into the wind so it is possible that they may have their back towards you and will not even see the lights.

**Prepare for a bird Strike:**

Prepare for a bird Strike When involved in a bird strike many pilots seem to forget the first and most important rule of flying: Fly the aircraft! There are many accident reports in which a pilot, in attempting to avoid a bird, lost control of the aircraft or even flew it right into the ground. When trying to steer clear of birds you must remain in control; if you pitch up to avoid a flock, don't pitch up so high that you stall.

**Prepare for a bird Strike:**

Prepare for a bird Strike If you are flying in an area with bird hazards, make sure that you have an emergency plan in case of a bird strike. Consider all phases of flight and know what you would do in each phase. Would you go-around or abort takeoff? If enroute, could you make it to the airport or would you need to make an emergency landing and, if so, where?

**Prepare for a bird Strike:**

Prepare for a bird Strike If the weather is cool, warm the windshield to reduce the chances of it shattering if a bird were hit. Consider keeping shatterproof glasses/goggles on hand to wear when taking off or landing in an area with birds. If you are involved in a bird strike, regain control of the aircraft before doing anything else. Keep in mind that if there is a loss of power or damaged airfoils, the stall speed may increase and maneuverability may decrease.

**Reporting a bird strike :**

Reporting a bird strike If you encounter birds on the airport you should call the airport operator; they have a duty under FAR Part 139 to mitigate wildlife hazards on the airport. You should also report the hazard to ATC as a PIREP. ATC has a duty under FAA Order-110.65 paragraph 2-1-22 to inform other pilots about the hazard.

**Reporting a bird strike :**

Reporting a bird strike If you are involved in a bird strike, remember to report it once you have landed safely on the ground. Be sure to fill out the FAA Form 5200-7 Bird/Wildlife Strike Report, as well as a NASA ASRS report. This form can be found in the AIM as appendix .

**Your experience with bird strikes:**

Your experience with bird strikes Have you been involved in a bird strike? What did you do to try and avoid the bird strike? Do you think that your bird strike could have been avoidable? What do you think others could learn from your experience?

**Thank you for your Time:**

Thank you for your Time Next time you fly think of our feathered friends. Fly Safe!