



Andy Foster, CFI-S presents:

Bird Strikes

Myths and Mitigations



Overview

- Bird strikes prove that $KE = \frac{1}{2} MV^2$ is a valid equation. (Kinetic Energy = one half times the mass times the velocity squared.)
- A 12-pound Canada goose struck by a 150-mph airplane at liftoff generates the kinetic energy of a 1,000-pound weight dropped from a height of 10 feet.
 - Or as the US Navy used to say it... "one small bird can tear hell out of an airplane".



Overview

- Though not high on the list of fatal accident causes, bird strikes have killed close to 300 people since we started flinging ourselves into the sky in machines .
 - The first recorded bird strike was reported by the Wright brothers in 1905; the first bird strike fatality was in 1912.
 - One of the most famous bird strike events was the “Miracle on the Hudson” water landing, January 15, 2009, involving a US Airways Airbus 320-214.
 - We’re here today to discuss the risk from bird strikes and what we can do about them.
 - How many of you have had a bird strike?



The Numbers

- Bird strikes are actually common.
 - 9000 collisions with wildlife occurred in the US during 2010; most of those were bird strikes. (950 collisions occurred with deer and 350 with coyote between 1990 during 2009.)
 - The USAF reported 5000 bird strikes in 2010.
- Bird strike numbers are generally increasing.
 - More birds are in the air because of better conservation efforts.
- Most bird strikes are relatively benign, but there are exceptions.
 - From 1990-2008, there were 106,604 strikes; 2,780 caused “substantial damage”.



The Numbers

- A statistical breakdown of where they hit the airplane:
 - Engine – 44%
 - Wing – 31%
 - Windshield – 13%
 - Nose – 8%
 - Fuselage – 4%
- 81% of bird strikes occur below 3000 ft. AGL (FAA 2005 data).



Bird Strike Myths

- According to recently published research on bird strikes, these are the myths:
 - birds don't fly at night.
 - birds don't fly in poor visibility, such as in clouds, fog, rain, or snow.
 - birds can detect airplane landing lights and weather radar and avoid the airplane.
 - airplane colors and jet engine spinner markings help to repel birds.
 - birds seek to avoid airplanes because of aerodynamic and engine noise.
 - birds dive to avoid an approaching airplane.
- Don't count on any of these to keep you safe!



Mitigations

- Keep up a GOOD lookout -90% outside, 10% inside and scan from wingtip to wingtip!
 - Be looking for anything you can hit—including birds!
 - Deviate to put distance between you and any bird you see.
- Get as high as practical as soon as practical.
 - Most strikes occur in the vicinity of an airport and below 3000 feet,
 - Don't fly low over wildlife preserves or garbage dumps.
- Slow down as much as you can.



Mitigations

- Note bird activity before takeoff and on the landing approach.
 - If during takeoff, delay takeoff or switch to another runway.
 - If on landing, reduce speed as much as possible.
- Check with your airport to see if they have a Wildlife Mitigation Plan.
- Oppose any landfills or nature preserves within 5 nm of your airport.
- Understand what a collision bearing is and how to get out of it.



If you have a bird strike...

- **FLY THE AIRPLANE!**
- Assess damage to you, your passengers, and your airplane.
 - Declare an Emergency if you need to.
 - For damage you can see, what could it cause?
 - What can you do to mitigate it?
 - Don't assume you can see all the damage.
 - Listen and feel
 - If anything is out of kilter, land and inspect.
- File a bird strike report with the FAA when feasible. (<http://wildlife.faa.gov>).