

**FATALITIES AND DESTROYED CIVIL AIRCRAFT DUE TO BIRD STRIKES
1912-1995**

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Summary

Following a short introduction, the paper contains brief details of all known accidents involving either fatality or the destruction of civil aircraft as a result of bird strikes. The paper is divided into three sections, transport aircraft, general aviation aircraft and helicopters. There have been over 50 aircraft written off and 190 people killed due to bird strikes.

Key Words: Statistics, Civil Aviation, General Aviation, Mishap Investigation

(This paper is the work of an individual author and may not reflect the full and final views of the Civil Aviation Authority)

WORLD-WIDE BIRD STRIKE ACCIDENTS INVOLVING DESTRUCTION OF AIRCRAFT OR FATALITY, 1912-1995

1 INTRODUCTION

The first known bird strike to a powered aircraft was on 7 September 1908 when Orville Wright flying several complete circles near Dayton, Ohio during which he chased a flock of birds and killed one. The first fatal accident due to birds was in 1912 at Long Beach in California, when a gull lodged in the flying controls of a Wright Flyer, killing Cal Rodgers, the first person to fly across the USA. In the November 1925 issue of the Royal Aeronautical Society Journal the then Director of Civil Aviation, Sefton Brancker wrote in an article 'The Lessons of Six Years Experience in Air Transport' the following: *"There is one form of collision which must not be altogether forgotten; the possibility of colliding with birds in flight. We have had one mysterious incident in which the pilot lost control of his aircraft over the sea at a low height, the pilot's opinion was that he had been struck on the head by a sea-bird, several were flying nearby, but nothing was ever clearly proved. In the East, propellers of aircraft have been broken by kites flying over the aerodrome. I have never heard of an aeroplane encountering a flock of ducks at night; such an eventuality might lead to danger of injury to the propeller or wing structure. The best precaution to meet such a danger will be good screening for the pilot and robust metal construction."* These were prophetic words 70 years ago. Since then birds known to have caused:

- 30 fatal accidents
- the destruction of at least 52 civil aircraft
- 190 deaths.

It is quite likely there are more, as information is only accurate for the last 25 to 30 years. The author would welcome any new or additional information.

The paper contains brief details of each case of loss of life or destruction of the aircraft divided into three sections:

- transport aeroplanes over 5700 kg and business jets
- aeroplanes of 5700 kg and below
- helicopters.

2 DISCUSSION

In general the sample size is too small for any in-depth analysis, however, a number of points are noteworthy:

- the seven fatal accidents to transport sized aeroplanes is quite modest, and surprisingly there has only been one fatal accident to a jet airliner, in over 500 million hours flying. This may, in part, be due to a growing awareness of the problem, implementation of better airport measures around the world and improved airworthiness criteria for aircraft and engines.
- however, there have been many cases of multiple engine damage, fortunately with enough runway length to abandon take-off or sufficient power to return. European airlines continue to experience about 20 cases per year where more than one engine ingests birds.
- business jets often operating from aerodromes with little or nothing in the way of bird control measures, also appear to be vulnerable as in many cases their engines are of an age which pre-dates bird ingestion testing.
- twenty of the fatal accidents involve general aviation aircraft, and one helicopter. These classes of aircraft are not required to be designed to withstand bird strikes and they are therefore more vulnerable, particularly the windshield which can be holed by a bird as small as a Swift (*Apus apus*, 40gm).
- a number of fatal general aviation accidents were the result of pilots attempting to avoid birds.

3 OTHER SIMILAR PAPERS

Similar papers covering 'serious' incidents have been published as follows:

- 1912 to 1982 WP16 and 16A BSCE16, Moscow August 1982
- 1981 to 1984 WP27 BSCE17, Rome October 1984
- 1984 to 1985 WP4 BSCE18, Copenhagen May 1986
- 1985 to 1987 WP22 BSCE19, Madrid May 1988
- 1987 to 1989 WP29 BSCE20, Helsinki May 1990
- 1989 to 1991 WP31 BSCE21, Jerusalem May 1992
- 1992 to 1993 WP26 BSCE22, Vienna August 1994

In the papers above 'serious' has been defined as:

- loss of life
- injury to occupants
- destruction of aircraft
- loss of, or damage to, more than one engine
- damage to one engine, together with ingestion in another engine
- uncontained engine failure
- fire
- Significant sized holes, eg windshield, nose, radome
- major structural damage
- particularly unusual or dangerous features, eg complete obscuring of vision, multiple or significant system loss, propeller damage, helicopter rotor or transmission damage.

4 CONCLUSION

Aircraft continue to be destroyed and occupants killed or injured in accidents due to:

- striking birds
- attempting to avoid birds
- birds being the start of a chain of events.

Although NOT a major cause of accidents bird strikes are nevertheless a serious safety and economic hazard which remedial measures and tougher aircraft/engines appear to be having little effect. This may be due to expanding populations of 'problem' birds.

5 TRANSPORT AIRCRAFT

| DATE | AIRCRAFT | LOCATION | PART STRUCK | BIRDS/WEIGHT | OCCUPANTS/ INJURY |
|------|----------|----------|-------------|--------------|----------------------|
|------|----------|----------|-------------|--------------|----------------------|

| | | | | | |
|---------|--|--------------------|----------------|--|---------------------------------------|
| 4.10.60 | <i>Lockheed L188 Electra (Allison 501)</i> | <i>Boston, USA</i> | <i>Engines</i> | <i>Starlings - 80gm (Sturnus vulgaris)</i> | <i>72/ 62 fatal 9 injured</i> |
|---------|--|--------------------|----------------|--|---------------------------------------|

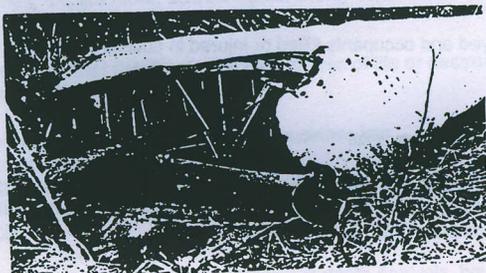
A few seconds after becoming airborne a starling flock was ingested into 3 engines. Engine 1 had to be shut down and 2 and 4 lost power. Speed decayed and aircraft stalled and spun into harbour. Worst bird strike accident.

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|----------|--|-----------------------------|-------------------|---|-----------------------|
| 15.07.62 | <i>Douglas DC3 (P&W R1830)</i> | <i>Lahore, Pakistan</i> | <i>Windshield</i> | <i>Vulture - up to 10kg (Accipitriformes)</i> | <i>3/ 1 fatal</i> |
|----------|--|-----------------------------|-------------------|---|-----------------------|

Co-pilot killed when vulture attacked aircraft and penetrated windshield during cruise.

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|----------|------------------------------------|--------------------------|------------------|--|-------------------------|
| 23.11.62 | <i>Vickers Viscount (Dart)</i> | <i>Maryland, USA</i> | <i>Tailplane</i> | <i>Whistling Swan - 6kg (Cygnus columbianus)</i> | <i>17/ 17 fatal</i> |
|----------|------------------------------------|--------------------------|------------------|--|-------------------------|

At night at 6000ft, aircraft struck a flock of Whistling swans. One penetrated the tailplane leading edge weakening the structure, causing detachment and the aircraft to crash.



Remains of tailplane

| | | | | | |
|----------|------------------------------|---------------------------|----------------|--|-----------|
| 28.07.68 | <i>Falcon 20 (CF700)</i> | <i>Lake Erie, USA</i> | <i>Engines</i> | <i>Gulls - 280gm to 1.7kg (Larus sp)</i> | <i>3/</i> |
|----------|------------------------------|---------------------------|----------------|--|-----------|

Gulls ingested into both engines on take-off causing severe damage, ditching in lake, 315 dead birds on runway.

| | | | | | |
|----------|--|------------------------------------|----------------|---|-----------|
| 28.07.69 | <i>Douglas DC3 (P&W R1830)</i> | <i>Khar, Ambadu, India</i> | <i>Engines</i> | <i>Cranes - up to 6kg (Grus sp)</i> | <i>4/</i> |
|----------|--|------------------------------------|----------------|---|-----------|

While flying at 300ft the aircraft struck a flock of Cranes blocking both carburettor intakes, ditched in sea.

Notes:

- 1 The part struck relates to the part which was the primary cause of the accident.
- 2 Cases included where aircraft in flight suffered total loss of engine power resulting in a crash.

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|----------|--------------------|--------------|---------|--|---|
| 26.03.73 | Lear 24 (CJ610) | Atlanta, USA | Engines | Cowbirds - 44gm (<i>Molothrus ater</i>) | 7/ 7 fatal 1 third party injured |
|----------|--------------------|--------------|---------|--|---|

Just after take-off severe power loss on both engines. Aircraft crashed into buildings and burned. Left engine had 14 strikes, right at least 5.

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|----------|----------------------|-------------|---------|--------------------|-------------------------|
| 12.12.73 | Falcon 20 (CF700) | Norwich, UK | Engines | Gulls* (see below) | 9/ 1 minor injury |
|----------|----------------------|-------------|---------|--------------------|-------------------------|

Just after it became airborne Gulls [Common gulls (*Larus canus* 420g) and Black-headed gulls (*Larus ridibundus* 275g)] caused severe damage to both engines, crash landed in fields.



Plate 1 Ingestion hazard - gulls
Fan Jet Falcon which ingested gulls in both engines on take off on 12 December 1973.
Three crew were injured but the other six occupants were unhurt.

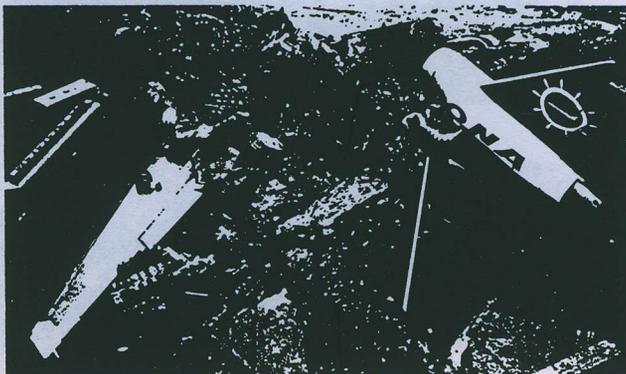
Photo - Eastern Counties Newspapers, Norwich

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|----------|-----------------------------|-------------------|---------|---|-----------------|
| 14.06.75 | NA265 Sabreliner (JT12A) | Watertown, USA | Engines | Franklin's gull - 260gm (<i>Larus pipixcan</i>) | 6/ 3 injured |
|----------|-----------------------------|-------------------|---------|---|-----------------|

Ingestion in both engines at rotation on take-off. Crash landed tearing off wings causing severe fire.

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|----------|---------------|--------------------|--------|--------------------|------------------------------|
| 12.11.75 | DC10 (CF6) | Kennedy NY, USA | Engine | Gulls+ (see below) | 139/ 11 minor injuries |
|----------|---------------|--------------------|--------|--------------------|------------------------------|

At about V1 speed Gulls [Great black-backed gulls (*Larus marinus* 1.7kg), Ring-billed gulls (*Larus delawarensis* 485g) and Herring gulls (*Larus argentatus* 1.1kg)] ingested in engine 3 which exploded, causing severe wing fire. Abandoned take-off, aircraft burnt out. All occupants were airline employees who knew emergency procedures.



An American birdstrike accident
DC 10 which ingested a large number of gulls into the No. 3 engine during take off on 12 November 1975. The disintegration of the engine as a result was followed by an emergency stop and over-run. The 139 persons on board escaped but the aircraft was gutted by fire.

Photo - National Transportation Safety Board, USA

20.11.75 HS125 Dunsfold, UK Engines Lapwing - 215gm 9/
 (Viper) (Vanellus vanellus) 6 third party fatalities

At about 75ft, during initial climb, Lapwings ingested in both engines, power loss, crash landed destroying car using road at end of airfield. Fire broke out but occupants escaped. Flight was at dusk.



Photo - Southern News Service, Guildford

06.02.76 Lear 24 Bari, Italy Engines Gulls - 280gm to 3/
 (CJ610) (Larus sp)

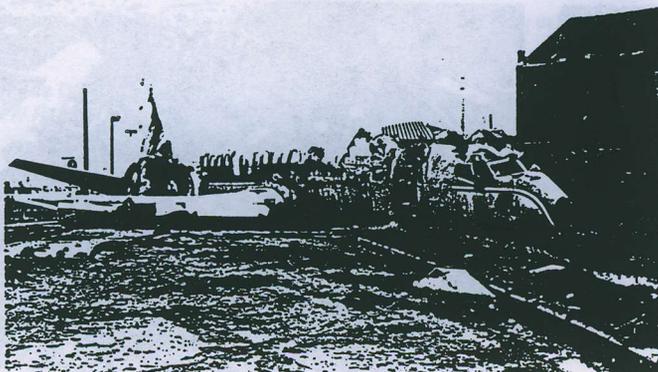
Gulls ingested in both engines at about 450ft, power lost and crashed in field.

12.11.76 Falcon 20 Naples Engines Ring-billed gulls - 11/
 (CF700) Florida, USA 485gm 11 injured
 (Larus delawarensis)

Both engines failed just after lift-off, causing aircraft to crash.

04.04.78 B737 Gossellies, Engine Wood pigeon - 3/
 (JT8D) Belgium 465gm
 (Columba palumbus)

Wood pigeon ingested during training touch and go, abandoned take-off beyond V1 and over-ran into industrial area. Burnt out. Left engine found with bird damage.



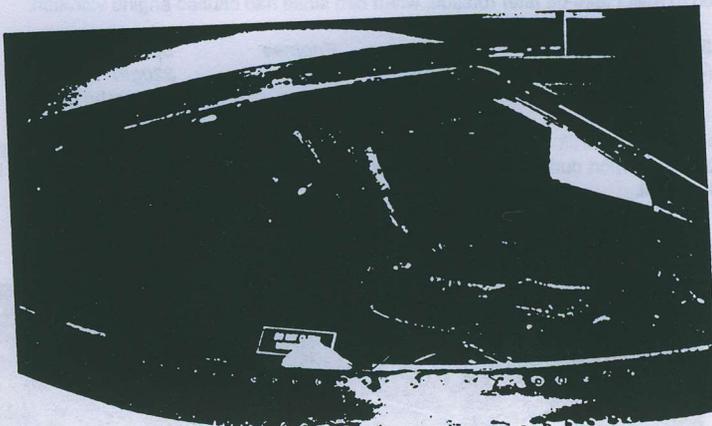
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|----------|------------------------------|-------------------|--------|--|------------------|
| 25.07.78 | Convair 580 (Allison 501) | Kalamazoo, USA | Engine | Sparrowhawk - 105gm (Falco sparverius) | 43/ 3 injured |
|----------|------------------------------|-------------------|--------|--|------------------|

Just above V1 speed, Sparrowhawk ingested in one engine on take-off, auto feathered, crashed in field.



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|----------|--------------------|-------------------------------|------------|-------------------------------|----------------------------|
| 07.04.81 | Lear 23 (CJ610) | Lunken, Cincinnati, USA | Windshield | Loon - 3.7kg (Gavia immer) | 2/ 1 fatal 1 injured |
|----------|--------------------|-------------------------------|------------|-------------------------------|----------------------------|

At 4000ft Loon penetrated right windshield killing co-pilot and injuring pilot. Windscreen debris damaged Engine 2 and was shutdown. Hydraulic and brake systems lost.



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|----------|---------------------|----------------------|-----|--|-----------------|
| 06.12.82 | Lear 35 (TFE731) | Le Bourget, Paris | Nil | Black-headed gulls - 275gm (Larus ridinbundus) | -/ 1 injured |
|----------|---------------------|----------------------|-----|--|-----------------|

Abandoned take-off above V1 after striking gulls. Over-ran, ILS installation which penetrated cockpit, injuring co-pilot. Engines were not damaged.



17.08.83 *Lear 25* *Wilmington,* *Engines* *Starlings - 80gm* *2/*
(CJ610) *USA* *(Sturnus vulgaris)*

At 500ft passed through starling flock. Both engines failed. Force landed after striking trees in industrial area.

29.09.86 *A300* *Madras, India* *Engine* *Black Kite - 780gm* *196/*
(Milvus migrans) *11 minor*

At about 150 kts a large bird was seen on the runway centreline, handling pilot rotated aircraft, at 5 to 8 degrees loud noise heard from right-hand side followed by severe vibration. Commander took control and initiated abort action. Reverse thrust and brakes applied, aircraft over-ran and sustained damage beyond repair. There was no fire and there were minor injuries during the evacuation. Cause has been attributed to wrong decision to reject take-off after rotation, when bird strike had caused engine vibration.

15.09.88 *Boeing 737* *Bahar Dar,* *Engines* *Speckled pigeon -* *104/*
(JT8D) *Ethiopia* *320gm* *35 fatal*
(Columba guinea) *21 injured*

Ingestion in both engines at lift off, surging, loss of power. Attempted circuit for return, both engines failed. Crashed 10Km from airport during attempted landing in open country but struck river bank and burned. Airport is 5800ft amsl.



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|----------|------|--------------------------|---|------------------------|---------------------|
| 25.07.90 | B707 | Addis Ababa, Ethiopia | - | Pigeon (Columba sp) | 2 serious injury |
|----------|------|--------------------------|---|------------------------|---------------------|

Take-off abandoned after V1, overran and damaged beyond economic repair.

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|----------|---------------|------------------|---------|---|----|
| 20.08.93 | Antonov An-12 | Slavgorod, RU | Engines | - | 6/ |
|----------|---------------|------------------|---------|---|----|

As the aircraft climbed through about 150ft, its No 2 and 4 engines failed. The crew attempted to return, however, a forced landing was made beyond the end of the runway. The aircraft touched down with its undercarriage retracted and slid for about 460m before it caught fire and was destroyed. At the time of the take-off a large flock of birds was reported in the vicinity of the runway and it is believed the engine failures may have resulted from multiple bird strikes.

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|----------|--------------------|-----------------------|--------|--|-----------------|
| 20.01.95 | Dassault Falcon 20 | Le Bourget, France | Engine | Lapwing - 215gm (Vanellus vanellus) | 10/ 10 fatal |
|----------|--------------------|-----------------------|--------|--|-----------------|

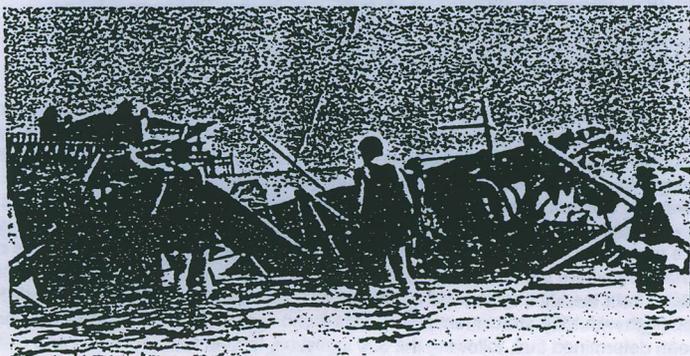
On take-off from Paris Le Bourget Airport, just after rotation, it encountered a flock of Lapwings and a number were ingested into the left engine. The aircraft climbed away but the pilot immediately reported that he was returning due to an engine fire. A tight left-hand circuit was flown at a height of about 500ft agl to land back on Runway 25. The aircraft impacted the ground just to the right of Runway 25, close to the threshold of Runway 21, was not lined up with the runway but on a heading diverging to the right by about 30°. The aircraft was destroyed by impact and post impact fire. During the circuit a number of witnesses saw the rear of the aircraft engulfed in flame. The initial investigation discovered 15 dead birds on the runway close to the point where the aircraft had become airborne. The rear cowl, exit guide vane and a number of fan blades from the left engine were found further along the runway, while the fan disk, with all its blades sheared off flush with their attachment points, was found some 500m to the side of the runway. It has apparently been determined that, following the bird ingestion, the fan had separated and exited the engine with shrapnel penetrating the rear fuselage, puncturing the feeder tanks and a fire had then immediately broken out in this area. The accident is still under investigation.

6 AEROPLANES OF 5700KG AND BELOW

| DATE | AIRCRAFT | LOCATION | PART STRUCK | BIRDS/WEIGHT | OCCUPANTS/ INJURY |
|------|----------|----------|-------------|--------------|----------------------|
|------|----------|----------|-------------|--------------|----------------------|

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|----------|---------------------|---------------------------|---|-----------------------------|---------------|
| 03.04.12 | <i>Wright Flyer</i> | Long Beach, Calif, USA | - | Gull (<i>Larus sp</i>) | 1/ 1 fatal |
|----------|---------------------|---------------------------|---|-----------------------------|---------------|

Struck gull while flying along the beach. Control jammed and aircraft crashed, killing pilot, Cal Rogers, the first man to fly across America.



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|----------|--------------|---------------|---|---|---------------|
| 10.02.29 | <i>Arado</i> | Madras, India | - | - | 1/ 1 fatal |
|----------|--------------|---------------|---|---|---------------|

Shortly after take-off struck large bird, aircraft crashed.

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|-------|---------------|-------------------------|----------|---------------------------------------|---------------|
| --.55 | <i>Cessna</i> | Aberdare Mtns, Kenya | Wing tip | Vulture (<i>Accipitriformes</i>) | 1/ 1 fatal |
|-------|---------------|-------------------------|----------|---------------------------------------|---------------|

En-route struck vulture, pilot attempted to avoid but bird hit wing tip, jamming ailerons.

| | | | | | |
|----------|---|--------------------------|---|--|---------------|
| 10.01.59 | - | Serengeti, Tanganyika | - | Griffon vulture - 5.4kg (<i>Gyps fulvus</i>) | 1/ 1 fatal |
|----------|---|--------------------------|---|--|---------------|

Struck Griffon vulture and crashed.

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|--------|-----------------|----------------------------|-----------|--|---------------|
| -03.63 | <i>Beech 35</i> | Bakersfield, Calif, USA | Tailplane | Common loon - 3.7kg (<i>Gavia immer</i>) | 1/ 1 fatal |
|--------|-----------------|----------------------------|-----------|--|---------------|

Struck Common loon which removed right-hand tailplane.

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|----------|------------------|----------------|---|-----------------------------|---------------|
| 01.02.64 | <i>Turbulent</i> | Nr Belfast, UK | - | Gull (<i>Larus sp</i>) | 1/ 1 fatal |
|----------|------------------|----------------|---|-----------------------------|---------------|

Spun in from low altitude after striking or avoiding gull. Dead gull found 60 yards away and avian blood on windscreen of open single seater aircraft.

16.08.70 *Stampe biplane* *Nr Wicklow, Ireland* *Cockpit* *Jackdaw - 234gm (Corvus monedula)* *1 serious*

While filming aerial sequences the aircraft was flying low over a lake when a jackdaw passed through the propeller disc. Because of a camera fitted to the aircraft, there was no windshield. The pilot was struck in the face and almost knocked unconscious. In order to avoid hitting the water the pilot pulled the nose up, straight into power lines. There was a flash and the aircraft struck the water. Both occupants were able to escape, the pilot suffered severe cuts to his face needing 50 stitches.

02.07.71 *Cessna 180* *British Columbia, Canada* *-* *Bald eagle - 5kg (Haliaeetus leucocephalus)* *3/ 2 fatal*

En-route struck a Bald eagle.

16.04.72 *Mitsubishi MU2* *Atlantic City, USA* *Windshield* *Geese (Anser sp)* *3/ 3 fatal*

While in climb struck flock of geese, windshield destroyed incapacitating one or both pilots. Uncontrolled descent into the sea.

29.12.75 *Single engined* *Stockton, California* *-* *Goose (Anser sp)* *5 fatal*

Crashed shortly after take-off after collision with three geese.

30.08.76 *Saab MFJ15* *Nr Awassa, Ethiopia* *-* *Vulture (Accipitriformes)* *2/ 2 fatal*

Climbing through 200ft struck Vulture. Aircraft went out of control and crashed vertically.

23.04.77 *Aero Commander 690* *Meigs Field, Chicago, USA* *Engine* *Gull (Larus sp)* *4/ 4 fatal*

Gull ingested in one engine, causing loss of power, emergency procedures improperly executed and aircraft spun into the water.

19.10.79 *Swearingen Merlin* *Palo Alto, Calif, USA* *Engine* *Gulls (Larus sp)* *4/ 2 fatal 1 injured*

During approach, a flock of gulls clogged an engine intake (engine not damaged). Pilot attempted go-around but lost control crashing inverted into parking area destroying or damaging 7 other aircraft.

06.08.81 *Cessna 402* *Near Musiars, Kenya* *Windshield* *Ruppell's griffon vulture - 7.5kg (Gyps ruepellii)* *1/ 1 fatal*

Suffered bird strike with a Ruppell's griffon vulture which penetrated the windshield, killing the pilot instantly, the aircraft was destroyed.

--.81 *Callair A9* *Australia* *Strut/top surface wing* *Black kite - 780gm (Milvus migrans)* *1/ 1 minor injury*

While towing a glider, a Black kite became lodged between the strut and the top surface of the left wing causing loss of aileron control. The aircraft was forced into a turn descending into woodland where it struck trees. The aircraft was destroyed by fire.

11.07.83 *Boeing Stearman* *Webb, Texas, USA* - - *1 Serious*

Just before flying under wires during a dusk agricultural spray run, a bird struck and broke a plastic fuel gauge located under the centre section of the upper wing. Fuel sprayed on to the windshield and pilot's face, restricting his forward visibility. In an effort to miss the power lines, the aircraft struck trees. The pilot suffered serious injuries and the aircraft was destroyed. (Source NTSB)

21.07.84 *Piper PA18* *Seboomook Lake, USA* *Windshield* *Cormorant - up to 2.4kg (Phalacrocorax sp)* *1 Minor*

On final approach for a water landing a bird, believed Cormorant, hit the windshield causing cuts to the pilot's face as a result of his glasses impacting his eyebrows. The stunned pilot came to in the water and after releasing himself he escaped from the inverted, submerged aircraft. A nearby boat rescued the pilot (Source NTSB)

30.08.84 *Boeing Stearman* *Kalispell, Minnesota, USA* *Canopy* *Red tailed hawk - 1.1kg (Buteo jamaicensis)* *1 Fatal*

The pilot was completing a turn on to an agricultural spray run when at 15 ft and 65 mph he struck a bird, believed Red tailed hawk. The force of impact broke the canopy and distracted the pilot. The aircraft struck the ground and overturned killing the pilot. (Source NTSB)

25.11.84 *Ercoupe 415* *Wixom, Minnesota, USA* - - *1 Fatal*
1 Serious

Flying into a low sun as the aircraft turned final a large flock of birds flew in front of the aircraft, the pilot dived to avoid them and collided with power lines. The aircraft crashed killing the pilot whose blood alcohol level was 0.11%. (Source NTSB)

29.01.87 *Cessna 150* *Vancouver, Washington, USA* - - *2 Fatal*

While returning from an instructional flight the aircraft passed through an area of heavy bird activity and the student made a nose down avoidance manoeuvre. The instructor took control with a rolling pull-up which over-stressed the right wing. (Source NTSB)

-.08.87 *Hanglider* *Flinders Ranges, Australia* *Wing tip* *Wedge tailed eagle - 3.5kg (Aquila audax)* *1 serious injury*

While thermalling at 2700 ft agl an eagle attacked the glider. On its third attack it dislodged the wing tip tensioner, thus releasing all tension to one wing. The hang glider spiralled down and was wrecked, the pilot was hospitalised. There had been previous attacks in the area by eagles.

17.09.87 *Schweizer 164* *Welner, Arizona, USA* *1 Fatal*
1 Serious

During an agricultural flight to chase birds from a rice field, the aircraft struck a large flock of birds. The pilot allowed the wheels to contact the crop and the aircraft overturned. Both occupants were unrestrained, the passenger, of the single seat aircraft, was found dead outside the cockpit. Several dead birds were found at the accident site. (Source NTSB)

24.11.87 **Osprey Homebuild** **Cape Liptrap, Windshield - 1/**
Australia

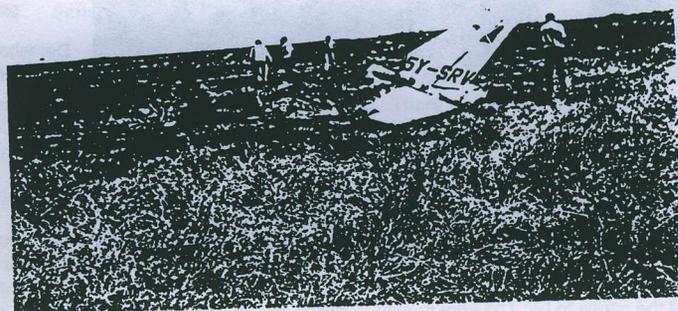
At 70 kts just after take-off struck a bird, shattering windshield, pilot vision impaired by wind blast. After landing and shutting down found back of aircraft on fire, vacated before aircraft was destroyed. Believe bird damaged fuel line allowing fuel to spray on hot exhaust.

11.02.88 **Cessna 172P** **East - - 1 Fatal**
Hampton, NY,
USA

Shortly after departure the pilot radioed that he had struck some birds and couldn't maintain control. The aircraft crashed in the sea about 1 mile off shore, killing the pilot. (Source NTSB)

26.12.91 **Piper PA31 Navajo** **Musiara Windshield White headed 9/**
(5Y-SRV) **Aerodrome, vulture - about 9 fatal**
Maasi-Mara, 5.4kg
Kenya (Gyps africanus)

A DC3 had suffered a collapsed landing gear and over-ran the runway. The PA31 flew over the site (not its destination) probably to show the passengers, at about 250ft at fairly high cruise speed. The aircraft struck a bird, oscillated, banked and pitched down uncontrollably, crashed and burned just beyond the end of the runway, killing all the occupants. Witnesses had seen a black object fall from the aircraft and the remains were found of a White headed vulture, together with shattered parts of the windscreen. The autopsy revealed pre-impact spinal injuries.



Burnt out wreckage

| | | | | | |
|----------|------------------------|----------------------|----------|--|---------------|
| 25.01.92 | Cessna 401 (5Y-BGW) | Maasi-Mara, Kenya | Wing tip | believed Marabou stork - 5.9kg (<i>Leptoptilos crumeniferus</i>) | 7/ 7 fatal |
|----------|------------------------|----------------------|----------|--|---------------|

While in the cruise another aircraft heard a radio transmission 'I have been hit by a large bird and I'm having difficulty flying it, I can hardly control the aircraft'. The aircraft crashed killing all occupants. Witnesses had seen objects falling from the aircraft. The wing tip fuel tank and aileron were found about one mile from the main wreckage. Avian blood was found on the wing leading edge.



Detached wing tip
and aileron

| | | | | | |
|----------|------------------------|---|--------|---|---------------------------|
| 10.08.92 | Cessna 441 Conquest | Nr Lee Gilmer Memorial Ap, Georgia, USA | Engine | - | 1/ 1 serious injury |
|----------|------------------------|---|--------|---|---------------------------|

On take-off, as the aircraft climbed through about 50ft, it encountered a flock of birds. Power was lost on the right engine, however, the pilot reportedly then failed to feather the right propeller or retract the aircraft's undercarriage or flaps. The Cessna lost height and crashed about 1.5 miles beyond the end of the runway. The NTSB determined the cause to be: The poor in-flight decision by the pilot in that after a partial loss of power, he shut down the wrong engine, did not follow the emergency checklist, did not raise the flaps and did not retract the undercarriage. A factor in the accident was the in-flight collision with birds during the take-off climb.

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|----------|----------------|-------------------------|------------|---|---------------|
| 24.02.94 | Piper PA28-160 | Lake Ontario, Canada | Windshield | - | 1/ 1 fatal |
|----------|----------------|-------------------------|------------|---|---------------|

The pilot was on a flight to Hamilton Airport, Ontario, he told ATC that something had come through his windshield, that he could hardly see, could not see the instruments and was disoriented. Six minutes later he made his last radio call and the aircraft was observed on radar to fly an 'S' pattern east-bound over Lake Ontario before it disappeared from radar at 13.45 hours 14 miles NE of Hamilton airport. The pilot, who had over 17,000 hours, much of it on low level pipeline patrols and the aircraft are still missing. An aviation witness on the ground saw the aircraft and reported the weather as sunny, visibility unlimited, cloud base approximately 5000ft.

6 HELICOPTERS

| DATE | AIRCRAFT | LOCATION | PART STRUCK | BIRDS/WEIGHT | OCCUPANTS/ INJURY |
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| 02.03.81 | Bell 206 | Vancouver State, Canada | Windshield | Raven - 1.2kg (<i>Corvus corax</i>) | 4/ 4 killed |
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The helicopter went missing on a low altitude sheep count and was not found until 3 months later. When found, at least one raven had struck the plexiglass front windshield and probably entered the cockpit area. The helicopter crashed as a result, killing all 4 on board.

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| 29.01.83 | Bell 47 | Riverview, Florida, USA | Door area | - | 1 Minor |
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The helicopter was flying at about 50 mph, 15ft above the water, when a bird came through the door opening, striking the pilot on the right temple. The pilot lost control and it crashed into the ocean, the pilot was uninjured, the passenger suffered minor injuries. The helicopter was written off. (Source NTSB)

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| 21.01.85 | Hughes 369 | Honolulu, USA | Rotor system | - | Nil |
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While flying over the water at about 400 ft, ½ mile from the shore, the pilot saw a large flock of birds, but was unable to avoid them. An extreme vibration developed, the pilot ditched the helicopter whereupon it rolled over and sank. The pilot was able to swim ashore. (Source NTSB)

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| 30.05.90 | Schweizer 269C | Tallahatchee, Louisiana, USA | Tail boom | - | Nil |
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While en-route at 800 ft a flock of birds was struck. There was severe vertical vibration and the pilot made a precautionary landing. During the flare the main rotor blade flexed and struck the tail boom causing the helicopter to become uncontrollable. The helicopter rolled on to its side. (Source NTSB)

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| 15.03.95 | Hiller UH12E | Aber Falls, N Wales, UK | - | Mallard - 1kg (<i>Anas platyrhynchos</i>) | 1 serious |
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While on underslung work in a river valley, the helicopter struck power cables and was destroyed when it fell into the river valley. The body of a Mallard duck with severed wing was found in the wreckage trail but injury not thought to be consistent with impact sufficient to cause significant damage to the helicopter. Pilot had seen three ducks but could not remember avoiding action, which had been seen by ground witnesses.