

Regulation and Compliance

ICAO Standards and Recommended Practices

ICAO Annex 14

There are 18 ICAO Annexes.
The most important is
Annex 14

Other annexes may also have a bearing on aerodrome management and wildlife. For instance Annex 17 deals with security fencing, which also restricts animal access.

If an ICAO state wishes to do something different to the Standards and Recommended Practices in an ICAO Annex, it can file a '*Notification of Difference*'. Provided that it can be shown that this difference matches, or exceeds, the ICAO SARP, then it will probably be accepted.

ICAO Annex 14 (Volumes 1 and 2)

9.5 Bird hazard reduction

9.5.1

The bird strike hazard on, or in the vicinity of, an aerodrome shall be assessed through:

- a) the establishment of a national procedure for recording and reporting bird strikes to aircraft; and
- b) the collection of information from aircraft operators, airport personnel, etc. on the presence of birds on or around the aerodrome.
- Note.C The ICAO Bird Strike Information System (IBIS) is designed to collect and disseminate information on bird strikes to aircraft. Information on the system is included in the ICAO Manual on the ICAO Bird Strike Information System 157 (IBIS).

9.5.2

When a bird strike hazard is identified at an aerodrome, the appropriate authority shall take action to decrease the number of birds constituting a potential hazard to aircraft operations by adopting measures for discouraging their presence on, or in the vicinity of, an aerodrome.

- Note.C Guidance on effective measures for establishing whether or not birds, on or near an aerodrome, constitute a potential hazard to aircraft operations, and on methods for discouraging their presence, is given in the ICAO Airport Services Manual, Part 3.

9.5.3

Garbage disposal dumps or any such other source attracting bird activity on, or in the vicinity of, an aerodrome shall be eliminated or their establishment prevented, unless an appropriate study indicates that they are unlikely to create conditions conducive to a bird hazard problem.

Boston Electra – 4/10/1960, first major accident. 62 died after Starlings ingested into 3 of 4 engines

There were already concerns about the Electra's structural integrity after two disintegrated in flight, the cause being flutter from the outer engine nacelles

Passengers reported seeing a 'dark smudge' that 'passed through the propeller arc' before the aircraft crashed into Winthrop Bay and the fuselage split into two pieces which sank into the mud 600 yards from shore

As a result of the Electra crash, new safety standards for engines were introduced, and problems of birds at airports were examined further.



Aircraft was operating at its assigned altitude of 6,000'.

ATC advised '... there's been numerous reports of considerable amounts of ducks and geese around this area'. The crew acknowledged this and five minutes later the aircraft two Whistling Swans hit the aircraft. One caused superficial damage. The other punctured the left horizontal stabilizer, travelled through that and damaged the elevator as it exited. The structure was so weakened that it failed completely, making the aircraft uncontrollable. It crashed from 6,000' killing the crew and passengers.

As a direct result of this crash, aircraft tail areas were required to withstand impact with a 3.7 kg bird.



**United Airlines
Flight 297 –
23/11/1962.**

Peachtree

Machinery Buyers Corp Gates Learjet 26/02/1973 Peachtree Airport, Georgia.

When DeKalb County took control of the airport in 1960 they confirmed that they would 'take action to restrict the use of land adjacent to or adjacent to the airport to activities and purposes compatible with normal airport operations....'

In 1962 the County opened a landfill site close to the airport. In 1970, the FAA warned that the landfill increased the risk of bird-strikes. The county said that they would close it by August 1972.

On 26/02/1973, with the landfill site still operating, the Learjet took off, but by the time it crossed the airport boundary it was trailing smoke from the left engine. The tower contacted the pilot and informed him of the smoke. Captain Sellfors responded 'We just hit some birds' The tower asked if the was 'returning to land'. The reply was, 'Don't believe we're gonna make it' (remind you of Cactus 1549?). The aircraft climbed to 250 – 300 feet before crashing. All on board were killed (Two crew and five passengers). Captain Sellfors' widow sued, claiming that the air traffic controllers should have warned about the birds. Because the birds were not visible from the tower, the claim was rejected. However, importantly, a further action was brought which determined that **the airport manager could be held liable for failing to take precautions at his level to end bird hazards. The FAA then developed guidelines regarding exactly which facilities would be permitted near an airport**



Norwich Airport, United Kingdom

Fan Jet Falcon – Fred Olsen Airtransport Ltd – 12/12/1973.

The Falcon with two crew and six passengers began take-off at 15.37 local. Just as they became airborne half way down the runway, they saw birds. Just above the ground. The co-pilot increased the climb rate but then saw another flock of birds directly in their path. He lowered the nose and the aircraft passed underneath them. However, at around 150' agl they saw another flock which was both below, ahead and above them. Unable to avoid them, there was a multiple bird-strike. The engine rpm wound down and speed dropped from 150 knots to 135 knots. To maintain air speed the Captain lowered the nose. A forced landing was made in a field directly ahead of them. They missed trees at the edge of the field but tore off the undercarriage legs. Once again, the controllers were not found liable as that part of the airfield was not visible from the tower. The bird management personnel had previously advised getting better equipment, but this was turned down.

During subsequent litigation, Mr Justice Tudor Evans said that an 'inadequate inspection system and haphazard and lax attitude to bird control were entirely to blame for the forced landing.

ONA DC10 and Air France Concorde

New York City – DC10 – Overseas National Airways 12/11/1975

The DC10 was taking off from JFK when gulls were ingested into the right engine. The pilot aborted the take-off and tried to decelerate, but the number 3 engine exploded. Heavy braking blew the tyres, the right undercarriage collapsed and then the right wing was torn off. The aircraft skidded for several hundred metres, finally stopping in soft mud near the end of the runway. With a full fuel load, the aircraft caught fire and was destroyed. By luck, all of the passengers were airline employees and knew how to exit an aircraft in an emergency. Only 30 suffered any injuries. The NTSB report noted that 'the bird control programme at JFK did not effectively control the bird hazard at the airport'. A complex legal battle followed, involving the aircraft owners (the Bank of America), ONA, FAA, Port Authorities of New York and New Jersey, New York City and several aviation companies. **The city was involved because there were two landfill sites near the airport which could have attracted birds. Settlement was finally reached in 1985, nine years after the accident.**

New York City – Concorde – Air France – 03/06/1995

An Air France Concorde ingested Canada Geese while landing. The birds were ingested into the number 3 engine, which suffered an uncontained fan failure. Shrapnel from this engine destroyed the number 4 engine and severed control and hydraulic lines. **The French Aviation Authority sued the Port Authority of New York and New Jersey. This was eventually settled out of court for \$5.3 million.**



All of the preceding incidents have laid the ground rules for regulation and compliance regarding bird hazards to aviation. Note that the regulations for airframe and engine strength and for aerodrome procedures have all been arrived at following incidents or accidents.

From an aerodrome operator's point of view, it is essential to be able to show that all necessary efforts have been made to:

- 1) Avoid a bird hazard where possible (13 km safeguarding circle, habitat management etc.)
- 2) Detect and disperse birds from the aerodrome and other areas where they may be a hazard
- 3) Warn aircrew in a timely manner (Air Traffic Control reports, ATIS, NoTAM etc.)
- 4) Document that all of this has been done.

United Kingdom CAA

CAP 738 – 13 km Safeguarding Circle

The UK CAA require that each licenced aerodrome produces a 13 kilometre safeguarding circle.

In practice, few seem to understand that this is **not always** a simple circle. If the runway is greater than 1800 metres in length, then this will elongate the circle into an oval.

The zone is based on a statistic that 95% of bird strikes occur below 2000ft, and that an aircraft approaching an aerodrome on a normal approach would descend below 2000ft approximately 13km from the runway.

NoTAM / BirdTAM

• Locations:

Sort By: Default Report Effective Date

• **EETN**

• **Data Current as of: Wed, 06 Dec 2017 13:42:00 UTC**

• EETN LENNART MERI TALLINN

• [Back to Top]

• A2550/17 NOTAMN

• Q) EETT/QOBCE/IV/M /A /000/999/5925N02450E005

• A) EETN B) 1712060730 C) 1712061630

• E)

• EXCAVATOR IN STRIP AREA AT PSN 592444.9N 0245112.8E, MAX ELEV 155FT

• AMSL. UNLIGHTED.

• **A2499/17 NOTAMN**

• **Q) EETT/QFAHX/IV/NBO/A /000/999/5925N02450E005**

• **A) EETN B) 1711241212 C) 1712081430**

• **E) CONCENTRATION OF BIRDS ON MANEUVERING AREA AND VICINITY OF AD.**

• **TYPE OF BIRDS - GULLS.**

• **BIRD WEIGHT - MORE THAN 1800 GRAMS.**

• **MAX FLOCK SIZE - 100 BIRDS.**

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• **A2498/17 NOTAMN**

• **Q) EETT/QFAHX/IV/NBO/A /000/999/5925N02450E005**

• **A) EETN B) 1711241211 C) 1712081430**

• **E) SEASONAL BIRDS ACTIVITY AT AD, HGT UP TO 500FT AGL.**

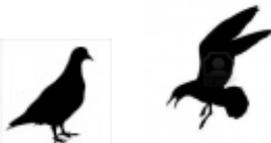
• **TYPES OF BIRDS - SWANS.**

• **MAX FLOCK SIZE - 50 BIRDS.**

• **BIRD WEIGHT - UP TO 8000 GRAMS.**

• **MAIN MOVING DIRECTION - S, SW AND W.**

- A BIRDTAM is based on observed bird activity, be it human observation or radar analysis, and predicted bird movement. Activity location is identified by use of a two letter grid reference assigned to a one degree by one degree area. A BIRDTAM will contain the following information:
- •Originator's Sequence Number
- •Effective Time - date and time in Coordinated Universal Time (UTC)
- •Expiration Time - date and time in UTC
- •Intensity Level - intensity level is assigned a numeric value between 0 and 8. Only values of 5 or higher are reported. The risk levels assigned to reportable numeric values are:
 - 5 - Fairly Great
 - 6 - Great
 - 7 - Very Great
 - 8 - Extremely Great
- •Affected Area - the affected area(s) will be listed by grid reference
- •Low Altitude - the base height of the bird activity (surface (SFC) or Mean Sea Level (MSL) reference as appropriate)
- •High Altitude - the upper level (reference MSL) of the activity
- A typical BIRDTAM is as follows:
 - **BIRDTAM NUMBER: 0280**
 - **EFFECTIVE TIME: 10 MAR 16:16**
 - **EXPIRATION TIME: 10 MAR 20:30**
 - **INTENSITY LEVEL: 5**
 - **AFFECTED AREA: MC**
 - **LOW ALTITUDE: SFC**
 - **HIGH ALTITUDE: 6000**
- Current BIRDTAM information, as issued by the German Bundeswehr Geoinformation Office and approved by the United States Air Forces in Europe (USAFE), can be found online at the FAA NOTAM website. This site includes a graphic showing both the coverage area and the grid identification system and also highlights the areas affected by the BIRDTAM(s) currently in effect.

		Small birds (Swallow, Sparrow, Wagtail)	Medium-Sized Birds (Plover, Gull, Crow)	Large Birds (Stork,Vulture, Goose)
		> 75 grams 	76 - 700 grams 	701 grams + 
	Large / Very large numbers or flocks	MODERATE High probability of birdstrike Possibly damaging	SEVERE High probability of multiple birdstrike. Likely to be damaging	SEVERE High probability of multiple birdstrike Likely to cause significant damage
	Medium numbers	LOW Medium likelihood of birdstrike Not likely to be damaging	MODERATE Medium probability of birdstrike Quite possibly damaging	SEVERE High possibility of birdstrike Likely to cause damage
	Small Numbers / Individual Birds	LOW Low probability of birdstrike Not likely to be damaging	LOW Low probability of birdstrike. Potentially damaging if does occur	MODERATE Low likelihood of birdstrike. Probably damaging if it does occur

Elmendorf



