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Department of Transportation and Communications  
CIVIL AVIATION AUTHORITY OF THE PHILIPPINES  
OFFICE OF THE DIRECTOR GENERAL  
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# Advisory Circular

## AC 139-05-A

**ESTABLISHMENT OF  
WILDLIFE HAZARD MANAGEMENT  
AT AIRPORTS BY  
AERODROME OPERATORS**

**September 2012**

*"Revving Up. Soaring High"*

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**CAAP will generally accept that when the provisions of an Advisory Circular have been met, compliance with the relevant regulatory obligations has been satisfied.**

**Where an AC is referred to in a "Note" within regulatory documentation, the AC remains as guidance material.**

**ACs should always be read in conjunction with the referenced regulations.**

  
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## **1. REFERENCES**

**1.1** This Advisory Circular (AC) should be read in conjunction with:

- Civil Aviation Regulation Governing Aerodromes (CAR –Aerodromes) formerly known as A.O. 139
- Aerodrome Manual of Standards for Aerodromes (MOS),
  - Chapter 10: Operating Standards for Certified Aerodromes
  - Chapter 12: Operating Standards for Registered Aerodromes
- Airport Services Manual, Part 3 (Bird Control and Reduction)
- CAAP Memorandum Circular No. 10-10 (Bird Strike Reporting Form)
- CAAP Memorandum, dated September 1, 2009
  - Establishment of a Bird Strike Hazard Management Committee
- ICAO Communication Letter (REF: T 11/6.5 – AP 019/10 (AGA)
  - Amendment 10 to Annex 14 – Aerodrome Volume 1- Aerodrome Design and Operation (amendment introduces new provision in section 9.4 that includes replacing “bird strikes” with “wildlife” to cover both strikes by birds and other animals)
- ICAO Communication Letter ( REF: T 11/6.1 – AP 191/10 (AGA)
  - Wildlife Hazard Reduction at Airport
- Doc 9859, Safety Management Manual

## **2. PURPOSE**

**2.1** The purpose of this AC is to provide the aerodrome operators/airport managers general information and guidance for the establishment and implementation of a Wildlife Hazard Management Plan at airports in collaboration with air traffic service providers and air operators/aircraft owners.

## **3. STATUS OF THIS AC**

**3.1** This is the first AC on the subject of wildlife hazard management and it is numbered to reflect the regulatory basis – CAR Aerodromes (AO139) and the fifth AC issued concerning aerodromes.

## 4. DEFINITION OF TERMS

### 4.1 The following definitions explain various terms used throughout this Advisory Circular:

**Wildlife** – includes all birds, bats, and other animals as a practical definition.

**Wildlife strike** – When wildlife and a moving aircraft collide

**Confirmed wildlife strike** – A wildlife strike is confirmed in the following cases:

- When physical evidence of a wildlife strike is found on the runway or runway strip used by the aircraft involved (unless other reasons for the death of the wildlife can be found);
- When physical evidence of the strike is found on the aircraft involved following an inspection; and
- In any other instance where it can be reasonably proved from evidence that wildlife was struck as a direct result of a moving aircraft. e.g. aircrew report they saw or heard or smelt a wildlife strike.

**Suspected wildlife strike** – an event where a wildlife strike has been suspected by aircrew or ground personnel, but upon inspection:

- No carcass from the wildlife is found; and
- There is no physical evidence on the aircraft of the strike having occurred.

**Wildlife incident** – an event where it is likely that a strike could have resulted from a wildlife hazard, e.g. “near miss event”

**Wildlife Hazard Management Plan** – a plan which identifies the wildlife hazard risk and details the measures used to treat that risk.

**Hazard** – describes the source of potential harm to an aircraft caused by wildlife.

**Risk** – describes the likelihood of a wildlife strike occurring and the resultant consequences to the aircraft.

**Risk Mitigation** – describes the measures taken to reduce the likelihood of a wildlife strike occurring and/or the resultant consequence.

**Substantial damage** – means damage or structural failure incurred by an aircraft from a wildlife strike that adversely affects the structural strength, performance or

flight characteristics of the aircraft and that would normally require major repair or replacement of the affected component.

*Aerodrome vicinity* – includes any facility, site or area which is identified as contributing to the risk at the aerodrome.

## 5. BACKGROUND

5.1 Aviation safety statistics demonstrated that wildlife can pose a significant hazard to the safe conduct of aircraft operations. According to data, the vast majority of wildlife strikes occur either on or within the immediate vicinity of an aerodrome.

5.2 In many wildlife strike events, damage is sustained to the aircraft involved and/or the aircraft is delayed to allow for an inspection of possible damage. In more serious cases, the damage from a strike could result in the aircraft being unable to maintain safe operations.

5.3 It is important that all reasonable action is taken by aerodrome operators/airport managers to manage the wildlife hazard at the aerodrome. The recommended approach is to:

- Identify and monitor the wildlife hazard;
- assess the hazard and rank wildlife species in their order of risk;
- identify suitable risk mitigation options;
- develop a Wildlife Hazard Management Plan (WHMP) that is appropriate to address the hazard;
- implement the WHMP and monitor its effectiveness; and
- review and update the WHMP regularly.

5.4 Aerodrome operators/airport managers of certified aerodromes are required to monitor and record the presence of wildlife on or in the vicinity of the aerodrome. Where this monitoring confirms the existence of a wildlife hazard, the aerodrome operator must develop a WHMP.

5.5 Aerodrome operators/airport managers of registered aerodromes are required to monitor wildlife activity during their serviceability inspections. It is recommended that the operators of these aerodromes also consider the development of a WHMP, in the form of written procedures, where wildlife is found to exist.

- 5.6 For aerodromes required to secure a Permit to Operate (PTO), it is recommended that the wildlife hazard is assessed and that appropriate action is taken to manage the risk.
- 5.7 The scope of the WHMP and the actions taken to manage the hazard should be commensurate with the responsibilities of the aerodrome operators/airport managers.
- 5.8 When assessing the wildlife hazard, individual species should be identified and prioritized in order of risk. The mass of the wildlife species and its behavioral characteristics (i.e. herding, flocking, etc.) should be considered as this will affect the likelihood of a strike occurring and the resultant consequence.
- 5.9 When assessing the wildlife hazard, the aerodrome operators/airport managers should consider the number of confirmed and suspected strikes as well as any wildlife incidents that have occurred in the aerodrome/airport. The practice in recording wildlife incidents is hence recommended as such events can indicate with potential to cause an actual wildlife strike.
- 5.10 Where required, advice should be sought from a suitable qualified person when assessing and mitigating the wildlife risk.
- 5.11 For wildlife hazards in the aerodrome vicinity which contribute to the risk but are outside the control of the aerodrome operator/airport manager (i.e. on land located outside the aerodrome boundary), it is expected that the aerodrome operator/airport manager will:
- advise the relevant land owner(s) or controlling authority of both the nature of the wildlife hazard and the resultant impact on the aerodrome ; and
  - work with the relevant land owner(s) or controlling authority to manage the wildlife hazard.

*Note: Mechanism in dealing with conflicting interest between land use authorities and aerodrome operators is contained in CAAP AC 139-06-A Land Use At or Near the Airports.*

**5.12** Wildlife strikes must be reported to the Aerodrome and Air Navigation Safety Oversight Office (AANSOO) of the Civil Aviation Authority of the Philippines (CAAP). More information on reporting requirements can be found in Sections 10 and 11 of this Advisory Circular.

**5.13** Aerodrome operators/airport managers are encouraged to actively engage with the aircraft operators and other relevant stakeholders including the sharing of wildlife hazard and strike information.

## **6. WILDLIFE HAZARD MANAGEMENT AT CERTIFIED AERODROMES**

**6.1** The following section details the requirements, guidelines and recommendations for the operators of certified aerodromes with regard to wildlife hazard management.

### **6.2 Aerodrome Serviceability Inspection**

**6.2.1** Aerodrome serviceability inspections are visual checks used to assess the safety of the aerodrome at a particular point in time. Wildlife hazard identification plays an important role in the conduct of these inspections and as a minimum must include the following:

- the condition of the fences surrounding the aerodrome (particularly in critical areas)
- climatic or seasonal considerations, such as the presence of:
  - wildlife at certain times of the year; and
  - the depth of water in drainage ponding areas, etc.
- possible shelter provided by aerodrome infrastructure (such as buildings, equipment, and gable markers);
- wildlife hazard management procedures (as incorporated in the environmental management procedures for the aerodrome);
- off-airport attraction sources (such as animal sales centers, picnic areas, aeration facilities, waste disposal and landfill areas, etc.); and
- The use of dispersal/harassment procedures where applicable.



**6.2.2** The aerodrome serviceability inspection should support wildlife monitoring at the aerodrome.

### **6.3 Wildlife Monitoring**

**6.3.1** Operators/airport managers of certified aerodromes are required to monitor on a regular basis the presence of wildlife on the aerodrome. The requirement also extends to the aerodrome vicinity where wildlife hazards outside the aerodrome boundary are found to impact on the safe operation of the aerodrome. The recommended practice for monitoring wildlife hazard can be found in Section 8 of this Advisory Circular.

**6.3.2** Monitoring personnel should be suitably trained to be able to:

- Perform an initial identification of the wildlife species;
- Assess the wildlife's population and describe their behavior; and
- Demonstrate an understanding of the recording and reporting process.

**6.3.3** To perform their respective roles properly, it is recommended that the monitoring personnel have access to wildlife identification materials and equipment such as aerodrome layouts, binoculars, etc.

**6.3.4** Records of the results from wildlife monitoring must be maintained.

### **6.4 Wildlife Hazard Management Plan (WHMP)**

**6.4.1** Where monitoring confirms the existence of a wildlife hazard to aircraft operations, the operator/airport manager of a certified aerodrome must produce a WHMP.

**6.4.2** The WHMP must be prepared by a suitable qualified person in close coordination with ornithologists, biologists or someone with demonstrated expertise in the management of the wildlife hazard.

**6.4.3** The scope and complexity of the WHMP should be commensurate with the wildlife hazard at the aerodrome. The content of the plan must address the following as a minimum:

- Hazard assessment (including monitoring action and analysis);
- Pilot notification (reporting);
- Liaison and working relationships with land use planning authorities;
- On-airport sources of wildlife attractants (i.e. food, water, shelter, etc.);
- Suitable dispersal methods; and
- An on-going strategy for wildlife hazard reduction (i.e. provision for appropriate fencing).

**6.4.4** For more information on Wildlife hazard assessment, please refer to Sections 5.8, 5.9 and 5.10 of this Advisory Circular.

**6.4.5** The responsibilities for wildlife hazard management and the roles of key personnel should be clearly defined in the WHMP.

**6.4.6** Once the WHMP have been established, it should be subjected to continuous review and improvement to ensure it remains commensurate with the wildlife hazard at the aerodrome.

**6.4.7** The following events should trigger an immediate and urgent review of the WHMP:

- When an aircraft experiences multiple wildlife strikes;
- When an aircraft experiences substantial damage following a wildlife strike;
- When an aircraft experiences an engine ingestion of wildlife; and
- When wildlife is observed on the aerodrome in size or in numbers that are capable of causing the events described above.

**6.4.8** For aerodromes/airports with significant wildlife hazard, a Wildlife Hazard Management Committee should be formed to coordinate the efforts of the aerodrome operator/airport manager with other key stakeholders.

## **6.5 Integration with the Aerodrome Safety Management System**

**6.5.1** To ensure a consistent approach to hazard identification and risk management, the WHMP should be integrated with the Aerodrome Safety Management System (SMS).

- 6.5.2 Both confirmed and suspected wildlife strikes as well as any wildlife incidents should all be considered when assessing the wildlife strike risk through the SMS.
- 6.5.3 Any investigations into a wildlife strike, wildlife incident, etc., should follow the relevant investigation procedures in the SMS.
- 6.5.4 The WHMP should also be subject to review and audit functions of the SMS.

## **7. WILDLIFE HAZARD MANAGEMENT AT REGISTERED AERODROMES**

- 7.1 The following section details the requirements and recommendations for the operators of registered aerodromes with regard to wildlife hazard management.
- 7.2 The serviceability inspection checklist used at a registered aerodrome must include the wildlife activity both on and in the vicinity of the aerodrome.
- 7.3 If the inspection identifies the existence of wildlife hazard, operators of registered aerodromes should be able to demonstrate that they are discharging their duty of care in providing a safe facility for aircraft operations. Registered aerodromes should develop a simplified WHMP, in the form of written procedures, where a wildlife hazard is found to exist.
- 7.4 If appropriate, managing of wildlife hazard should include or cover monitoring, assessment and mitigation of wildlife hazard.
- 7.5 Operators of registered aerodromes are further required to issue Notice to Airmen (NOTAM) to the same standard as required for certified aerodromes.

## **8. WILDLIFE HAZARD MONITORING**

- 8.1 Before a wildlife hazard can be effectively treated, it must first be identified through a monitoring process. The personnel selected to conduct monitoring should be suitably trained.
- 8.2 Wildlife monitoring must involve:

- Wildlife presence and behavior on the aerodrome; and
- Wildlife activity in the vicinity of the aerodrome.

### **8.3 Wildlife monitoring on the aerodrome**

**8.3.1** The following is a suggested practice for monitoring wildlife on the aerodrome:

- The aerodrome should be divided into separate monitoring zones. It is reasonable to expect that the aerodrome operator/airport manager will select these zones based on:
  - Geographical size;
  - Specific environment factors within the zone such as terrain, soil type, flora, land use, and etc.;
  - The operational use of the zone by aircraft such as take-off, approach etc.
- A trained person should monitor and record wildlife populations and behavior within each zone; and
- Any wildlife that transit across the zone, either by ground or by air, should be included.

**8.3.2** Wildlife monitoring should be conducted regularly and the frequency should correlate to the severity of the wildlife hazard. The greater the wildlife hazard, the more frequent monitoring should be conducted.

**8.3.3** The timing of wildlife monitoring should be such that it provides a complete coverage of wildlife activity, day or night, as appropriate to the aerodrome.

### **8.4 Wildlife monitoring in the vicinity of the aerodrome**

**8.4.1** The monitoring of wildlife in the vicinity of the aerodrome should cover any obvious concentration of wildlife and/or sources of wildlife attractants (i.e. habitat, migratory routes, feeding and breeding areas, etc.) which contribute to the risk at the aerodrome.

**8.4.2** Monitoring in the vicinity of the aerodrome could include, but not limited to:

- Area used for waste, recycling, offal or sewage;
- Wetlands, marshes, areas of water discharge and open waterways;

- Areas containing significant food sources for high risk species; and
- National parks, wildlife reserves/animal sanctuaries and other significant wildlife corridors.

**8.4.3** The identification of these areas could be achieved by:

- The observation of wildlife transiting across the aerodrome between separate sources of attractants;
- The physical observation of land uses in the aerodrome environment; and
- Any wildlife hazard report received from pilots, authorities and/or the general public.

**8.4.4** The outcome of the wildlife monitoring must be recorded. These records should be maintained in order to provide a detailed history of wildlife population and behavior over time.

**8.4.5** Once monitoring has identified a wildlife hazard, its risk should then be assessed. Please refer to Sections 5.8, 5.9, and 5.10 of this Advisory Circular.

## **9. WILDLIFE HAZARD CONTROL MEASURES**

**9.1** Once the wild life hazard has been identified, monitored and assessed, the aerodrome operator/airport manager should implement appropriate controls to manage the risk. Given the wide variety of wildlife species, it is likely that more than one control measure will be required.

**9.2** In order to determine what appropriate and effective control measures are, it is recommended that the aerodrome operators/airport managers seek guidance from one or more of the following sources:

- Ornithologists, zoologist, and other wildlife experts; and
- Other aerodrome operators/airport managers with experience in treating similar wildlife hazard.

**9.3** Priority should be given to addressing those wildlife species that were identified as being the highest risk. The control measure options generally fall into two categories being Pre-emptive and Active.

**9.4 Pre-emptive Control Measures.** These are generally applied to the aerodrome environment and can include but are not limited to:

- Provision for appropriate fencing around the aerodrome boundaries;
- Removal of food and habitat sources;
- Covering of open water sources, drains, etc.;
- Use of spikes, wires, nets and /or mesh to prevent roosting;
- Selection of plant species with reduced attractant qualities;
- Maintenance of grass at set lengths above the ground;
- Removal of covering of exposed sources of waste, sewage, offal, etc.; and
- The use of appropriate landscaping techniques.

**9.5 Active Control Measures.** These are generally applied to the actual wildlife hazard and could include but are not limited to:

- The use of scare tactics such as horns, sirens, loud hailers, gas cannons, pyrotechnics, arm waving and chasing;
- The simulation of threat to wildlife such as lure dogs, distress call generator, etc.; and
- The use of capture or culling practices.

**9.6** Appropriate approval should be obtained from the relevant authorities before the selected control measure commences. Personnel should be properly trained and qualified in the application of the control measure.

## **10. REPORTING REQUIREMENTS FOR CERTIFIED AND REGISTERED AERODROMES**

**10.1** A good wildlife control programme depends upon good reporting. It is the basis of any wildlife control programme. Data may come from animal strikes, sightings and maintenance problems. Reporting must also involve pilots and aircraft operators. Review of this data identify problems on and in the vicinity of the aerodrome and may indicate the effectiveness of the wildlife hazard control measures. The report of near-misses and mis-approaches and aborted take-offs due to wildlife hazards are important as well since it can represent a situation as serious as an actual strike.

**10.2** Determination of the reporting procedures should be coordinated by the aerodrome operator/airport manager with other concerned stakeholders so that there is proper review.

**10.3** The reporting procedures should be familiar to all concerned stakeholders.

**10.4 Reporting of Wildlife Strikes and Wildlife Incidents to the Aerodrome and Air Navigation Safety Oversight Office (AANSOO), CAAP.**

**10.4.1** The Aerodrome and Air Navigation Safety oversight Office (AANSOO), of the CAAP, is one recipient of wildlife strike/incidents information to be used for analysis and for submission to ICAO Bird Strike Information System (IBIS).

**10.4.2** Aerodrome operators/airport managers of certified and registered aerodromes are required to furnish AANSOO a copy of reported wildlife strikes/incidents occurring at their aerodrome/airport.

**10.4.3** If the wildlife strike results in the death or injury of a person and/or serious damage to the aircraft, reports must be made available immediately to the AANSOO.

**10.4.4** Reports to the CAAP/AANSOO can be made via e-mail at [www.anso.caap@gmail.com](mailto:www.anso.caap@gmail.com) and/or by phone/fax (02)8799-118.

**10.4.5** Reports to the CAAP/AANSOO must include the following information by the person making the report:

- The name and contact details of the reporter;
- The date and time (local) of the animal strike;
- Aircraft part(s) damaged (if any):
- The location of the strike
- Airline Company involved

**10.4.5.1** For Bird strikes, reports to the CAAP/AANSOO must include the following information:

- The runway designation number used during aircraft operations;
- The number of birds struck;
- The species involved
- The size of the actual bird (large ,medium, small)

- Details of any engine ingestion

10.4.5.2 For Animal strikes, reports to the CAAP/AANSOO must include the following information:

- Specific location (taxiway, runway, etc)
- The size of the animal (large ,medium, small)
- The species involved

## **10.5 Wildlife hazard reports through Notice to Airmen (NOTAM)**

**10.5.1** Certified and registered aerodromes/airports are required to report to CAAP NOTAM Office any significant increases or concentrations in wildlife both on and in the vicinity of the aerodrome. This practice ensures that pilots and aircraft operators can continuously assess the wildlife hazard at the aerodrome.

## **11. REPORTING OF WILDLIFE STRIKES/INCIDENTS BY AOC HOLDERS**

**11.1** In reference to the Memorandum Circular No. 10-10, all AOC holders are also required to report a wildlife strike involving their aircraft to the CAAP/AANSOO.

**11.2** In reporting animal strikes, all AOC holder shall use the Bird Strike and other Wildlife Reporting Forms found in the Airport Services Manual (Part 3: Bird Control and Reduction).

**11.3** Designated boxes of the Wildlife Reporting Form should be appropriately filled up and duly signed by the person who makes the report. It is recommended that the person making the report indicates statements such as “NONE”, “N/A” or “NOT KNOWN” to designated boxes having no detailed information.