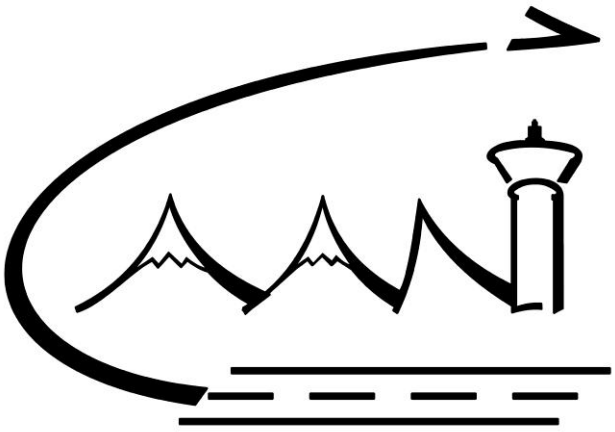

# Advisory Circular
# [AC/AD – 003]

# Guidance Material for Wildlife Hazards Management for Aerodrome Operator

**FIRST EDITION**
**1st September 2012**

**CIVIL AVIATION AUTHORITY OF NEPAL**

# LIST OF EFFECTIVE PAGES

# RECORD OF AMENDMENTS

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## REVISION HISTORY

| Edition | Date | Chapter/ Section | Details |
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| 001 | 1st Sept. 2012 | All | Advisory Circular : Guidance Material for Wildlife Hazard Management for Aerodrome Operator |
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# FOREWORD

Nepal as a Contracting State to the Convention on International Civil Aviation has an obligation to the international community to ensure that civil aviation activities under its jurisdiction are carried out in strict compliance with the Standards and Recommended Practices contained in the eighteen Annexes to the Convention on International Civil Aviation in order to maintain the required aviation standards.

As per the Civil Aviation Authority of Nepal (CAAN), Airport Certificate Regulation – 2061 (2004), the Aerodrome Manual requires to have a Wildlife Hazard Management System in place for any certified airport.

The regulatory Rules to be satisfied by the Aerodrome Operators for the certification of an aerodrome are specified in the CAAN Airport Certificate Regulation, 2061 (2004).

This Advisory Circular provides guidance to aerodrome operator(s) the requirements to be fulfilled under the Wildlife Hazard Management System.

Users of this Advisory Circular are reminded that the provisions of the Civil Aviation Authority Act 1996 (2053), CAAN Airport Certificate Regulations 2004 (2061) and other applicable regulatory documentation, rather than this Advisory Circular, determine the requirements of, and the obligations imposed by or under, the civil aviation legislation. Users should refer to the applicable provisions when any doubt arises.

It is also expected that the applicant of an Aerodrome Certificate will be benefited by this Advisory Circular as it provides an overall view of the Wildlife Hazard Management System.

This Authority may, without any prior notice, change the content of this Advisory Circular as appropriate.

……..
Director General
Civil Aviation Authority of Nepal
Babar Mahal, Kathmandu, Nepal 22nd August, 2012

# Chapter 1 Introduction

## 1.1 Purpose

The aim of this guidance material is for the development of a Wildlife Hazard Management System to minimize the hazard to aircraft operations created by the presence of birds and/or animals on or in the vicinity of the airport.

## 1.2 National Level Committee

The national level committee has been constituted to head " Airport Bird Control and Reduction Committee" headed by the Secretary, Ministry of Tourism and Civil Aviation with other stake holder as members.

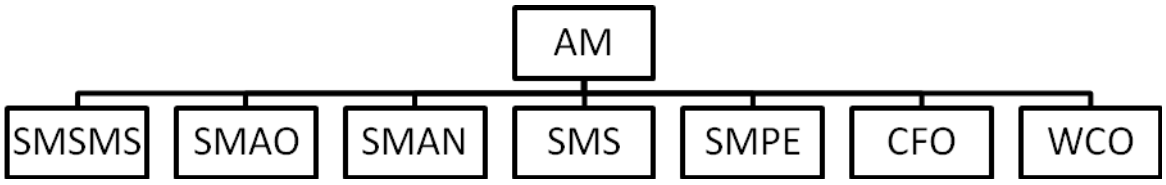
## 1.3 Legislation, Standards and Technical References

Regulation 20 of the CAAN Aircraft Certificate Regulation 2004 requires aerodrome operators to establish the wildlife hazard management procedures, including the following:

- wildlife monitoring and hazard assessment
- wildlife hazard notification
- wildlife mitigation methods

# Chapter 2 Role and Responsibilities of Key Personnel

The role that each person or section assigned to the program will take is crucial to its execution and should be specifically outlined. Once assigned a role in the program each person or section must recognize and accept responsibility for certain functions to be carried out in order to accomplish program goals. Responsibility and accountability are interlinked. Although individuals must be accountable for their own actions, managers and supervisors are accountable for the overall performance of the group that reports to them. Managers are also accountable for ensuring that their subordinates have the resources, training, and experience needed for the safe completion of their assigned duties. The following paragraphs set to outline the roles and responsibilities of the members of the Wildlife Hazard Management Program.



## 2.1 Airport Manager(AM)

The AM is responsible to take any action deemed necessary to define and implement the wildlife management program and minimize wildlife hazards at the aerodrome. The AM must provide Executive leadership to enforce the importance of the program.

## 2.2 Senior Manager Safety Management Systems (SMSMS)

Roles and Responsibilities:

- Act as Wildlife Coordinator for the Aerodrome;
- Management and annual review of the Wildlife Hazard Management Plan on behalf of the AM;
- Conduct a wildlife hazard assessment at least every four years or sooner when required by triggering event or special circumstances;
- Ensure methods in place to monitor wildlife levels on a daily basis;
- Collect, analyze and submit required reports to higher authority of any instance of bird or wildlife strikes utilizing the form in Appendix I, Form 1 as well as inputting the appropriate information into the ICAO Bird Strike Information Database (IBIS);
- Ensure that staff are trained, qualified and competent to discharge their duties under the wildlife hazard management program;
- Liaise with all pertinent government agencies to facilitate wildlife control off site that could have potential effect on aerodrome operations;
- Organize participation and facilitate meetings of the wildlife hazards working group as needed and maintain the associated records and action items;

## 2.3 Senior Manager Airport Operations (SMAO)

Roles and Responsibilities:

- Make sure that all improvements and or modifications at aerodrome facilities are made in a timely fashion so buildings, structures, and storage areas do not provide shelter for wildlife;
- Ensure all culverts and water run-off areas remain clear and provide drainage of accumulated water;
- Ensure plants around any natural bodies of water are kept low and uninviting to visiting waterfowl;
- Ensure vegetation on aerodrome is of such species that it will not be an attractant to hazardous wildlife;
- Ensure grass is cut utilizing guidelines and policies set forth by wildlife coordinator;
- Ensure any trees or foliage within 10 feet of perimeter fence is cut down to the ground or removed where feasible;

- Ensure all newly assigned personnel receive training on runway inspection procedures and how to make wildlife observations;
- Collect daily inspection forms and turn in to wildlife coordinator weekly. Report any abnormal wildlife observances immediately to wildlife coordinator.

## 2.4 Senior Manager Air Navigation (SMAN)

Roles and Responsibilities:

- Act as Deputy Wildlife Coordinator and in the absence of the Wildlife Coordinator execute all applicable duties;
- Ensure constant monitoring of wildlife levels in aircraft manoeuvring area and its associated facilities and report any wildlife hazards to aircraft operations and wildlife coordinator immediately;
- Ensure methods in place for immediate and continuous update of wildlife hazard information to all pilots, making sure there is sufficient time from notification to ensure safe operation of aircraft;
- Attend meetings of the project implementation group and coordinate CAAN input on all construction projects which could have an impact on wildlife levels on aerodrome, paying particular attention to any projects in the obstacle limitation surfaces or within 13 km of the centre of the runway;
- Ensure all newly assigned personnel receive training on runway inspection procedures and how to make wildlife observations;
- Collect daily inspection forms from Air Traffic Controllers and turn in to wildlife coordinator weekly.

## 2.5 Senior Manager Security (SMS)

Roles and Responsibilities:

- Ensure breaches to the perimeter fence are identified immediately to wildlife coordinator and make every attempt to expedite repair or increase security patrols in the area until repair can be effected;
- Ensure any animal traps set out are monitored during security patrols and notify wildlife coordinator of any animals captured; Ensure airport remains in compliance with all regulations and requirements to secure appropriate permissions to perform lethal control of wildlife;
- Establish and maintain notification process to inform local law enforcement authorities of any instances of weapons discharge or use of explosive devices on aerodrome;
- Ensure all newly assigned personnel receive training on runway inspection procedures and how to make wildlife observations;
- Report any and all observances of hazardous wildlife during routine security patrols of the perimeter fence to airport operations or wildlife coordinator;
- React to and remove immediately any wildlife reported to be on any runway or taxiway on the aerodromes during airport operating hours.

## 2.6 Senior Manager Engineering and Projects (SMPE)

Roles and Responsibilities

- Make sure that all new construction, improvements and or modifications at aerodrome facilities are made in a timely fashion so buildings, structures, and storage areas do not provide shelter for wildlife;
- Ensure all culverts and water run-off areas remain clear and provide proper drainage of accumulated water;
- Ensure all newly assigned personnel receive training on runway inspection procedures and how to make wildlife observations;
- Collect daily inspection forms and turn in to wildlife coordinator weekly. Report any abnormal wildlife observances immediately to airport operations or wildlife coordinator.

## 2.7 Chief Financial Officer (CFO)

Roles and Responsibilities:

- Manage budgetary responsibilities for mitigation of wildlife;
- Ensure wildlife coordinator is notified of any new contracts for construction or repair that could have an impact on wildlife at the aerodrome.

## 2.8 Wildlife Control Officer (WCO)

Roles and Responsibilities:

- Assist wildlife coordinator with incorporating current scaring and deterrence techniques for wildlife which present a hazard to aircraft operations;
- Assist wildlife coordinator with developing trapping and removal procedures for hazardous wildlife on aerodrome:
- When deemed necessary by wildlife coordinator provide lethal control services for the Aerodrome;
- Establish and maintain training guidelines for qualification of all parties authorized to provide lethal control;
- Ensure proper documentation of all wildlife control activities and provide said documentation to wildlife coordinator for interpretation and filing.

## 2.9 Wildlife Hazards Working Group

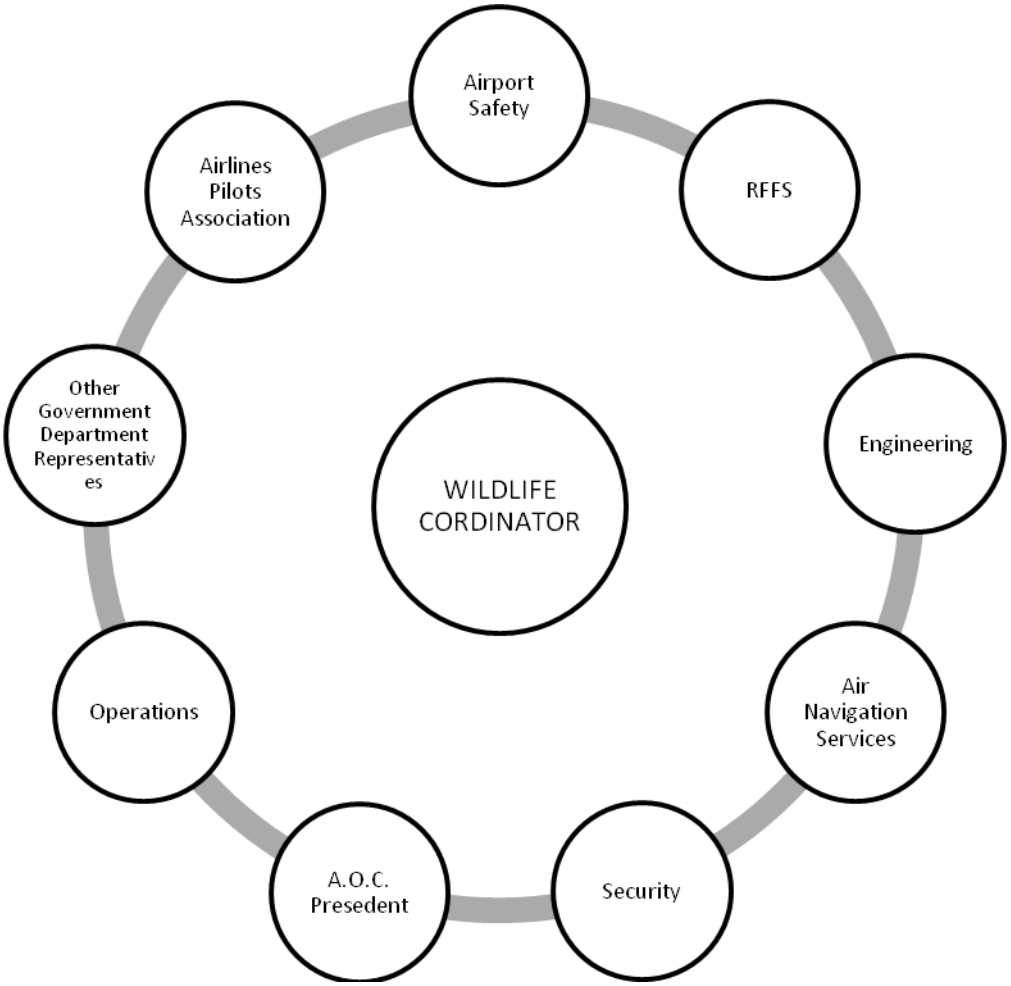
Roles and responsibilities:

- Assist Wildlife Coordinator in identifying hazardous wildlife attractants on or near the aerodrome;
- Assist Wildlife Coordinator in formulating mitigation strategies and policies to reduce the amount of hazardous wildlife present on the aerodrome;

- Assist Wildlife Coordinator in creating media releases to inform general public of wildlife mitigation strategies and effectiveness of same;
- Meet to review the airports Wildlife Hazards Management Plan at least annually;
- Meet as soon as possible following a Wildlife Hazard triggering event to review Wildlife Hazard Management Plan and recommend any immediate modifications or improvements to plan to CAAN;
- Prepare reports and make recommendations to CAAN for all wildlife matters.

This group will consist of representation from the following entities at a minimum:

- Airport Safety, Air Navigation Services, Operations, Engineering and Security departments;
- Airline Pilots Association;
- A.O.C. President;
- RFFS;
- Representatives from concerned Government Departments.



# Chapter 3 – Elements of the Management Program

The Wildlife Hazard Management Program consists of the following elements:

## 3.1 Wildlife Hazard Assessment

In accordance with its airport certification manual each certificate holder must take immediate action to alleviate wildlife hazards whenever they are detected. After any **triggering event** (as described in paragraph 3.2 below) or at any time deemed necessary by the airport manager, the certificate holder should conduct a wildlife hazard assessment given by a wildlife damage management biologist who has professional training and/or experience in wildlife hazard management at airports or an individual working under direct supervision of such an individual.
The wildlife hazard assessment must contain at least the following:

a) An analysis of the events or circumstances that prompted the assessment;
b) Identification of the wildlife species observed and their numbers, locations, local movements, and daily and seasonal occurrences;
c) Identification and location of features on and near the airport that attract wildlife;
d) A description of wildlife hazards to air carrier operations;
e) Recommended actions for reducing identified wildlife hazards to air carrier operations.

### 3.1.1 Triggering Events

The following is a list of triggering events that would call for a wildlife hazard assessment and a review of the procedures in the Wildlife Hazard Management Plan:

a) An aircraft experiences multiple wildlife strikes;
b) An aircraft experiences **substantial damage** from striking wildlife. As used in this paragraph, substantial damage means damage or structural failure incurred by an aircraft 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;
c) An aircraft experiences an engine ingestion of wildlife;
d) Wildlife of a size, or in numbers, capable of causing an event described in paragraphs a), b), or c) of this section is observed to have access to any airport flight pattern or aircraft movement area.

## 3.2 Surveillance

Intelligence gathering is an essential component of the wildlife hazard management program and involves the monitoring of all potential attractants, concentrations and movement patterns of hazardous species, both on and in the vicinity of the aerodrome. Physical inspections of the movement area and other areas critical to wildlife hazard management must be done sufficiently in advance of air carrier operations to allow time for wildlife mitigation to be effective. Coordination between the various groups and

organizations on an airport is essential for good wildlife control. Airport Operations, grounds and maintenance departments, airport fire service, airport restaurants, airport planners and air carriers all have a role to play in identifying and correcting wildlife problems. Surveillance for wildlife is to be maintained throughout Airport operating hours as follows:

### 3.2.1 Air Traffic Control

Air traffic control personnel must report any unsafe conditions, including hazardous wildlife on or near the Aircraft Operating Area to the Wildlife Coordinator anytime such conditions are observed and ensure a logbook entry is made to that effect.

### 3.2.2 Pilots and Aircrew

If an aircrew observes or encounters any bird activity while in flight, which could constitute a hazard, the aircrew are to contact ATC and request that the observed bird activity be passed on to the Wildlife Coordinator. The following information is necessary:

a) Call sign;
b) Location;
c) Altitude;
d) Time of sighting;
e) Type of bird (if known);
f) Approximate number of birds;
g) Behaviour of birds (soaring, flying to or from a location, etc)

### 3.2.3 Airport Tenants

Fixed-based operators, catering services, and airport concessionaires must ensure their actions do not create hazardous wildlife attractants. If at any time their actions create a hazardous wildlife situation they are to report this to the wildlife coordinator immediately and take steps to remedy the situation.

### 3.2.4 Aircraft Operators

It is the responsibility of the aircraft operators to participate in the wildlife control programmes since it is the aircraft and the travelling public that the airport authorities are protecting. Through the operating of wildlife control programmes, airport authorities are assisting in making air travel safer.

In some cases, it is believed that an absence of bird strike reports is not due to strikes not occurring but is because fixed base aircraft operators, and the general aviation community, are failing to report them. Efforts to increase the involvement of the aircraft operators in bird strike reporting programmes will help increase reported strikes.

## 3.3 Wildlife Identification

It is difficult to establish whether a species of bird is a hazard to aircraft. A general survey of the number of birds which pass over the site during migration, other bird populations and their movements in the area of the airport itself and in its vicinity should be carried out first as a baseline data and then on a regular manner. Bird species inhabiting the open landscape are a greater hazard to aircraft than species living mostly in woodland areas.

**3.3.1** Any bird, even a small one, has the potential to cause major damage to an aircraft. The larger the bird, the greater the damage is expected to be from a single strike. There is also a greater likelihood of a strike if there is a great number of birds of the same species. Birds that fly at high altitudes are still a threat since their point of arrival or departure may be near the airport site. Therefore, birds which represent a great threat to aircraft are large birds and flocking birds, while large, flocking bird species are the greatest threat.

**3.3.2** While it is difficult to drive all birds from an airport at all times, every reasonable effort to do so is crucial. Any bird is a potential hazard. This is especially true as bird numbers and bird size increase and as the faster and quieter new generation turbine-engine aircraft become more numerous. Airport personnel and committee members must examine bird strike records so that the determination of the high risk species at the site is possible.

**3.3.3** The collection of all available statistics for the site is important, including bird strike reports, type of aircraft, and number of aircraft movements. By analysing this data, the determination of the bird species most hazardous will occur. The reporting of bird strikes and the preparation of a summary of the reports must occur as well.

**3.3.4** In a large portion of bird strike reports, there is no mention of the species. This is often because no remains are found for identification. If a strike has occurred, the pilot can usually give some idea of the size of the bird involved be it small (sparrow), medium (gull), or large (goose). This information can assist in identifying the hazard. Identification of birds by an ornithologist is possible from even quite small specimens of feather. Universities and museums can usually assist in the identification of birds from the remains. It is therefore important for pilots, airport ground staff, aircraft maintenance staff, etc. to ensure that any remains, including feathers, are properly identified.

## 3.4 Habitat Management and Site Modification

Controlling the attractiveness of an airport to birds and other wildlife is fundamental to good wildlife control. In fact, it is probably more important than dispersal techniques in terms of controlling the overall risk. If the reason for frequenting the airport is not removed or diminished the wildlife will continue to try and return no matter the consequence. Therefore it is necessary to first identify the species that represent a hazard and learn about their habits and seasonal trends. At the same time a survey of the aerodrome should be performed under scientific conditions to identify what attractants

are causing the species to continue to frequent the aerodrome and a plan for mitigation must be prepared. Habitat improvement, such as improving drainage, and modifying vegetation cover is frequently expensive and may take a number of years to fully implement, and the benefits of which are not always immediately apparent. Commitment to the process from senior managers is therefore essential and all must understand the program goals and long term objectives. In the meantime wildlife will find their way to the airport for a number of reasons. Sometimes those reasons are obvious and sometimes not so obvious. However, the most prevalent reasons can be as simple as the essentials for life such as **food, water** and **shelter.**

**3.4.1 Food**- It would be very difficult to remove all food sources on an aerodrome. As grass is the common vegetation on an aerodrome, grassland management has an important influence on the amount of animals and insects present either looking for food or providing a food source. All measures such as mowing and digging must be closely monitored and executed in a timely fashion not to act as an attractant during critical aircraft movement times. Projects such as refuse dumps and wildlife preserves should be studied carefully to determine their feasibility and the effect they will have on existing wildlife levels at the aerodrome.

**3.4.2 Water**- Surface water is attractive to all species, and on airport property it should appear as little as possible. In cases where large bodies of water are present it is possible to cover them with wires or netting or floating balls to make them less attractive to visiting birds. Drainage ditches or culverts can clog up with vegetation or eroded soil therefore impeding the flow of water. Insect and aquatic-life flourish in clogged ditches. Clearing the ditches and culverts on a regular basis is important to reduce this from occurring. They should also be properly graded to draw water away from the runway surfaces as rapidly as possible. Grass and other vegetation should be cut on the sloping banks.

**3.4.3 Shelter**- Many forms of wildlife often seek shelter on airport property, whether it is a few hours a day or a few days a week this can present a serious hazard to aircraft safety. The most obvious attractant is the fact that an aerodrome provides a flat, well-groomed area which affords a clear view in all directions. Wildlife can search for food and often have great visibility on any approaching predators. The asphalt from the operating surfaces also provides a nice warm brooding area in the evening hours. The type of trees, shrubs, and landscaping plants used on the aerodrome can also act as an attractant especially in the case of fruit trees. It is a very typical practice to control the height of grass present on the aerodrome in order to make the aerodrome less attractive to birds. Most birds dangerous to aircraft prefer short grass. That is why it is recommended that grass be maintained at a height of 20 cm or more. By allowing grass to grow to a height of 20 cm or more, birds do not have good visibility and feeding is hindered.

**3.4.4 Grass Management**- The most effective habitat control measure that can be applied on an aerodrome is the management of the grassed areas. Short grass can provide security by enabling smaller birds to see over the wider spaces of the aerodrome for early warning of approaching dangers. It also increases populations of invertebrate animals on which many bird species rely for food. Short grass therefore does not deter most species of aerodrome birds and should be avoided.

Conversely, long grass (typically above 40 cm) that falls over because it cannot support itself also has the potential to attract birds. Grass maintained at a height of 15 to 20 cm makes it difficult for birds to locate prey at or below the surface, spoils the security effect, and reduces populations of soil invertebrate food sources.

## 3.5 Hazardous Wildlife Dispersal Methods

Habitat modification can be a very slow process. For the most part a few quick changes will produce results but in the long run the majority of the habitat modifications will have to take place over extended periods of time. Even when all facets of habitat modification are in place or completed there will still be a need to deter wildlife from the aerodrome. There are various dispersal methods and they all carry different levels of success. Even the most useful methods at a certain time will not work at other times. And **if used too often the same dispersal method can become totally ineffective**. In most cases it is effective to use a combination of more than one method and by varying the approach used and the combination of scare techniques its effectiveness can be increased. In the case of birds for instance, continual harassment has been found to drastically reduce the amount of bird population on the aerodrome. The following paragraphs are a description of some widely used and accepted dispersal methods.

**3.5.1 Auditory Deterrents-** include both natural and man-made sounds to scare the wildlife away. When deploying any of these tactics it should be noted that well devised strategies should be thought out first to avoid scaring the birds or other wildlife into the path of the airplanes. Some methods include; gas cannons, pyrotechnics, distress calls, and calls of predators.

**3.5.2 Visual Deterrents**- are props or replicas of the real predators. It should be noted that while this is a good method for transient birds it would not work for very long. Habituation is the real problem here. The wildlife or birds get used to seeing the visual deterrent and therefore it no longer has the same effect. Some examples include; scarecrows, flags and streamers, lights, predator models, hawk kites, and gull models.

**3.5.3 Barriers-** since airports often contain the necessities of life- food, water, and shelter- any way of restricting access to any of these bare essentials would have the effect of causing the wildlife to find a different place to go where they are available unrestricted. Some examples include; netting, fencing and guards, and nail strips.

**3.5.4 Traps-** In the case of protected species or species with a high public profile it is better to capture the wildlife alive for transport to a release area off the airport. The main drawback is that live trapping can be very costly and time consuming. Trapping many species of wildlife requires knowledge of the animals' habits and skill in placement of the traps and use of baits.

**3.5.5 Falconry-** The use of predatory birds such as falcons, hawks, or owls to drive away rodents and birds from the aerodrome. The technique is considered highly

expensive and requires a lot of training, planning and strategy. It also comes with the risk of the bird actually becoming a hazard.

**3.5.6 Canine Harassment-**

The use of a trained dog, released on the airside surfaces to chase and harass birds.

**3.5.7 Lethal Control**- When all other methods fail and time before flight is critical it is time to take action. Lethal control or culling is highly effective because of the deterrent effect it has on the surviving birds and it can also enhance the effect of other control techniques like scaring using the air cannons. Lethal control is best used to remove individual birds which do not depart in response to scaring action, either because of sickness or disability, or because of aberrant behavior. This method of dispersal shall be performed under the strictest rules of marksmanship with full permission from airport manager. As with any of the dispersal methods used proper documentation of all actions must be made.

## 3.6 Aircraft Flight Schedule Modification

Although not generally practical for regularly scheduled commercial traffic on larger airports, flight schedule adjustments might be possible in some situations. Such changes can lessen the chance of a strike with a wildlife species that has a predictable pattern of movement (i.e. - nocturnal feeding habits of large birds).

Air traffic control personnel may also not allow departures or arrivals around the peak bird traffic times of sunrise and sunset. While seemingly practical, this technique may be very disruptive to airports where traffic is constant and even a short-period runway closure would cause substantial delays.

## 3.7 Land Use around Airports

Regulations should be placed on the use of lands surrounding airports to reduce their attractiveness to birds and other types of wildlife. Airports should conduct an inventory of bird attracting sites within the ICAO 13Km bird circle, paying particular attention to sites close to the airfield and the approach and departure corridors. Where laws permit, airports, or airport authorities, should seek to have an input into planning decisions and land use practices within the 13Km bird circle for any development that may attract significant numbers of hazardous birds/ wildlife. By definition an "on airport" birdstrike is that which occurs between 0 to 60 m (inclusive) on landing and 0 to 150 m (inclusive) on take-off.

Land use which have caused specific problems at airports are: fish processing, garbage dumps and landfill sites, theatres and food outlets, wildlife refuges, artificial and natural lakes and ponds, golf courses, animal farms and slaughter houses. Prior planning is necessary to ensure that incompatible land uses are not allowed to become established. It is clear that robust habitat management and active bird control measures employed within airports need to be used beyond the airport boundary. Farmers need to carefully consider the air safety impact that particular land use choices may have.

### 3.8 Risk Management of Wildlife Hazards

Before any risk assessment can be conducted with any degree of accuracy, the level of ambient wildlife risk, which is the level and type of wildlife activity that would occur in the absence of any monitoring or control measures, should be determined. This level provides a measure against which to assess the effectiveness of the plan. Details of existing wildlife locations and wildlife movements relative to those locations and the aerodrome will need to be ascertained, both to establish an accurate database and to keep the information flow current. A risk assessment should therefore be conducted initially to provide a quantifiable benchmark and repeated thereafter on a periodic basis.

A typical risk assessment process may involve:

a) A detailed hazard description, identifying wildlife species and associated habitats that influence the size and behavior of the species populations in the area;

b) An assessment of the probability of a wildlife strike with a particular species, taking into consideration the current mitigation procedures in place and seasonal factors;

c) Consideration of the species involved including size and numbers, an assessment of the likely severity of the outcome of a wildlife strike;

d) An assessment of the frequency of serious multiple strikes;

e) The determination of the acceptability of the level of risk by summing the probability and severity, based on a probability/severity matrix, such as illustrated in the figure below;

f) The identification of further risk management options available; and

g) The development or modification of an action plan to eliminate, reduce or mitigate unacceptable risks.

## Chapter 4 - Animal Hazards

**4.1** Animals are normally prevented from entering airside by keeping gates shut and maintaining the integrity of the boundary fence. However, if animals do gain entry to airside, Control Tower should be advised immediately and the animals removed as soon as possible. Should the problem be beyond the scope of airport staff, then special assistance will be called e.g. staff of specialist animal organizations or an appropriate commercial organization.

**4.2** Airport staff pursuing animals adjacent to aircraft movement areas will take reasonable steps to ensure that their actions do not frighten animals into the path of an approaching aircraft.

**4.3** Firearms will be used only as a last resort to harass animals away from the movement area. Public and airport staff sensitivities are always to be considered and animals will not be destroyed unless there is immediate danger to essential facilities or to the safety of an aircraft.

## Chapter 5 - Livestock Transfers

**5.1** The provisions of the following instructions will be applied for the safe transfer of livestock between the landside of Airport and an aircraft, or vice versa. These requirements do not apply to domestic pets normally consigned through freight companies or airline check-in.

5.1.1 For livestock transfer where stock is not containerized, only positions designated by the Airport Operations Supervisor will be approved. In such cases livestock transfers will wherever possible be remote from other aircraft operations.

5.1.2 For all livestock transfers the Senior Operations Officer will be the contact point for the aircraft ground handler. The Senior Operations Officer will notify other Operations Officers as appropriate.

5.1.3 The airline operator or aircraft ground handling agent shall inform the Senior Operations Officer of any proposed livestock transfer, giving reasonable prior notice. Written notification must notification must include shipment and flight details.

5.1.4 Where the livestock transfer to/from airline containers is to take place on the Airport, this activity should be confined to a landside area. Where this is not possible for any reason, the operator or agent must provide a secure race to convey livestock between the land transport and the aircraft door, to minimize the risk of livestock escaping airside.

5.1.5 Where this method of transfer is to be used the operator or agent is to provide details of the proposed equipment and procedures. These details must be faxed to the Senior Operations Officer at least 7 days prior to the proposed shipment. The Airport Operations Officer will impose any conditions required to maintain the safety of aircraft operations.

5.1.6 An Operations Officer will be present during the loading or unloading of such livestock to or from aircraft. He will maintain radio contact with Control Tower at all times.

5.1.7 Should livestock escape either on airside or landside the operator/agent shall immediately notify the Airport Manager, and take immediate action to recapture it. If airside this is to be under supervision of the Operations Officer, who will provide assistance. If landside, the operator/agent shall take immediate action to ensure the safety of the public. The Airport Manager, will provide assistance wherever possible, and issue any directions considered necessary.

5.1.8 On completion of the livestock transfer, the Operations Officer is required to ensure that the operator/agent leaves the apron and loading areas in a clean and serviceable condition.

5.1.9 Operator/agent are required to ensure compliance with all relevant non-aviation legislative requirements for the handling and transport of livestock.

# Chapter 6- Training for Airport Personnel Actively Involved in Implementing Wildlife Hazard Management Plans

## 6.1 Training Requirement Outline.

The goal of the training course must be to provide the knowledge, skills, and abilities needed by airport personnel to safely, accurately, and effectively implement relevant portions of an approved Wildlife Hazard Management Plan. That should include:

6.1.1 General survey of wildlife hazards to aviation based on the most recent annual Wildlife Strike Database Report.

6.1.2 Review of wildlife strikes, control actions, and observations at the airport over at least the past 12 months

6.1.3 Review of the airport's Wildlife Hazard Assessment is to include:

a) Existing wildlife hazards and trends in wildlife abundance

b) Status of any open or unresolved recommended action items for reducing identified wildlife hazards to air carrier operations within the past 12 months

6.1.4 Review of the airport's Wildlife Hazard Management Plan, to include the following:

a) Airport-specific wildlife attractants, including man-made and natural features and habitat management practices of the last 12 months.

b) Review of other airport-specific items:

c) Wildlife hazard management strategies, techniques, and tools:

(i) Flight schedule modification

(ii) Habitat modification, exclusion

(iii) Repelling methods

(iv) Wildlife population management

d) Responsibilities of airport personnel for:

(i) Reporting wildlife strikes, control actions, and wildlife observations

(ii) Communicating with personnel who conduct wildlife control actions or who see wildlife hazards and air traffic control tower personnel and others who may require notification, such as airport operations or maintenance departments

(iii) Documenting and reporting wildlife hazards seen during patrols and inspections and follow-up control efforts

(iii) Documenting and reporting when no hazards are seen during patrols and inspections

e) Basic bird and mammal identification, stressing local hazardous and rare or endangered species of concern

f) For any airport personnel using pyrotechnic launchers or firearms, training on the following topics from a qualified individual/institute:

(i) Safety, parts, and operation of pyrotechnic launchers

(ii) Fundamentals of using pyrotechnics to safely and effectively disperse wildlife

(iii) Personnel protective equipment

(iv) Cleaning, storage, and transport of firearms and pyrotechnic launchers

(iv) Applicable local regulations on firearms, pyrotechnic launchers, and pyrotechnics

(v) Live fire training with pyrotechnic launchers including strategies for dispersing wildlife away from runways and aircraft movement corridors

(vi) For any airport personnel using firearms, local regulations applies but this training is not a requirement for this training program.

## Chapter 7- The Wildlife Control Programme Evaluation

**7.1** The following questions are directed at airport management — specifically the airport manager — and are designed to assist in determining if there is an effective wildlife control programme in place at an airport.

1. Has a wildlife control programme been developed?

2. Has the wildlife control programme been implemented?

3. Has a wildlife control officer at the site been appointed and responsibilities assigned?

4. Has a training programme been developed to train those involved in the wildlife control programme?

5. Has a wildlife control co-ordinating committee been established with well defined responsibilities?

6. Has a reporting procedure been developed covering all aspects of the wildlife control programme?

7. Has a land use plan been established with regard to effective land use on and off the airport as it pertains to the bird control programme?

8. Has a list of all wildlife attractants at the site been completed?

9. Has a list of all wildlife attractants surrounding the airport been completed?

10. Have wildlife control methods been researched and implemented at the airport?

**7.2** If the answer to any one of these questions is "NO", an effective wildlife control programme may not be in place at the airport.

_____

**Bird / Wildlife Strike Report Form- 1** **Appendix- I**

| TYPE | **O** Bird Strike | **O** Mammal Strike | DATE | LOCAL TIME |
|---|---|---|---|---|
| | **O** Bird Near Miss | **O** Mammal Near Miss | | |

| REPORTING SOURCE | **O** Pilot | **O** Museum | OPERATOR | HEIGHT (AGL. Feet) | SPEED (IAS knots) |
|---|---|---|---|---|---|
| | **O** Site | **O** Others | | | |
| | **O** Airlines | | | | |

**AIRCRAFT INFORMATION**

| Model | Registration | Engine Type |
|---|---|---|
| Make | Flight No. | Engine Make |

| Airport | Name | Code | City | Region | Runway |
|---|---|---|---|---|---|
| | | | | | |

PHASE OF OPERATION

**O** Take-off **O** Approach **O** Taxi

**O** Climb **O** Decent **O** Parked

**O** Landing Roll **O** En-route (Distance from Airport)

| PART(S) STRUCK/DAMAGED | | |
|---|---|---|
| | Struck | Damaged |
| Radome | | |
| Windshield | | |
| None | | |
| Engine 1 | | |
| Engine 2 | | |
| Engine 3 | | |
| Engine 4 | | |
| Propeller | | |
| Wings | | |
| Fuselage | | |
| Landing Gear | | |
| Tail | | |
| Lights | | |
| Pitot Static | | |
| Tail Roter | | |
| Other | | |

| EFFECT(S) ON AIRCRAFT/FLIGHT | |
|---|---|
| None | |
| Aborted Take | |
| Precautionary Landing | |
| Engine (s) Shut Down | |
| Forced Landing | |
| Fire | |
| Penetration of Airframe | |
| Vision Obscured | |
| Engine Uncontained Failure | |
| Other | |

| LIGHT CONDITION | |
|---|---|
| Dawn | |
| Day | |
| Dusk | |
| Night | |

| SKY CONDITION | |
|---|---|
| No Cloud | |
| Some Cloud | |
| Overcast | |

| PRECIPITATION | |
|---|---|
| Rain | |
| Fog | |
| Snow | |
| Other | |

**Bird/Mammal Information Form-2**

| SPECIES -COMMON NAME | SIZE OF BIRDS | NUMBER OF BIRDS | Seen | Struck |
|---|---|---|---|---|
| | O Small | 0 | | |
| | | 1 | | |
| SCIENTIFIC NAME | O Medium | 2 - 10 | | |
| | | 11 -100 | | |
| | O Large | More / plus | | |

| BIRD REMAINS SUBMITTED FOR IDENTIFICATION ? | PILOT WARNED OF BIRDS ? |
|---|---|
| O Yes | O Yes |
| O No | O No |

**Bird/Wildlife Strike Report Form-3**

**INFORMATION ON ENGINE DAMAGE STRIKES**

| Reason for Failure/Shutdown | Engine Motor No. | | | | Comments |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | |
| Engine Uncontained failure | | | | | |
| Fire | | | | | |
| Shutdown – Vibration | | | | | |
| Shutdown –Temperature | | | | | |
| Shutdown - Fire Warning | | | | | |
| Shutdown - Other (specify) | | | | | |
| Shutdown Unknown | | | | | |
| Estimated % of Thrust Lost | | | | | |
| Estimated Number of Birds Ingested | | | | | |

| ADDITIONAL INFORMATION |
|---|
| |

| COST INFORMATION | | DAMAGE CATEGORY |
|---|---|---|
| Aircraft Time Out of Service<br>.....<br>Hours | Estimated Cost of Repairs of Replacement<br>NRs./Us $ .....<br>(In thousands) | Estimated Other Cost (e.g. Long of Revenue, Hotels)<br>NRs./Us $ .....<br>(In thousands) |

| REMARKS | |
|---|---|
| | |
| REPORTED BY: ..... | Date : ..... |
| Organization : ..... | Telephone # :..... |

**Daily Log of Wildlife Control Activity Form-4** **Appendix- II**

Date: .....

**Name of responsible person : .....**
**Designation:.....**

| | Summary of<br>1. Civil works (Fencing, Grass cutting, thinning trees, installing nettings, pavement maintenance, etc)<br>2. Inspection of Airport by Hunters, etc.<br>3. Use of Pesticides<br>4. Public Awareness Activity, etc. |
|---|---|
| 1. | |
| 2. | |
| 3. | |
| And so on | |

[Add pages if required]

**Daily Log of Wildlife Detection Form-5** **Appendix-III**

**Airport …….**

| Date | Time | Location | Wildlife | | Control method | Results/comments | Initials |
|---|---|---|---|---|---|---|---|
| | | | Species | No. | | | |
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