



**Sudan Civil Aviation Authority**

**Aviation Safety Department – Aerodromes standards & safety Directorate**

# **Wildlife Management & Control**

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# Foreword

# Foreword



- ❖ Detailed instructions on the implementation of the requirements contained in Sudan Civil Aviation Regulations (SUCARs) Part 14, Subpart 1 (Aerodromes), on the control of wildlife in the vicinity of an aerodrome. It sets the regulatory framework applicable in Sudan for wildlife hazard assessment, the recording and reporting of wildlife strikes to aircraft as required under ICAO Annex 14 .

# Introduction



- ❖ This **presentation** specifies the requirements for the evaluation of the wildlife hazard by airport operators, the development, and implementation of wildlife control measures to minimize the likelihood of collisions between wildlife and aircraft.

Bird Strike (video)



# Bird Strike (video)

# Requirements for wildlife control



## ❖ Legal framework applicable in Sudan :-

- The Sudan Civil Aviation Act 2010 gives to Sudan Civil Aviation Authority (“the Authority”) the powers to set aerodromes standards [Article 4(b)].
- The aerodromes standards have been further specified in Sudan Civil Aviation Regulations (SUCAR) Part 14 and include the requirements for wildlife strike hazard reduction in the vicinity of aerodromes.
- SUCAR Part14 requires an aerodrome operator to evaluate the wildlife hazard in the vicinity of the aerodrome and adopt measures to minimize the likelihood of collisions between wildlife and aircraft.

# Requirements for wildlife control Cont.



- It also requires the development and implementation of a procedure for recording and reporting wildlife strikes to aircraft.
- The wildlife hazard assessment and control measures are required to be included in the aerodrome manual.

# Requirements for wildlife control Cont.



## ❖ **Duties & Responsibilities :-**

### A . Sudan Civil Aviation Authority :-

- The Authority is responsible for the development and issuance of the regulatory and guidance material applicable to aerodromes design and operations in Sudan, as well as its implementation.
- The Authority evaluates the aerodrome manual submitted by an aerodrome operator including the wildlife hazard assessment and the wildlife control measures to determine whether it complies with SUCAR Part 14 requirements and indicate whether the applicant will be able to operate and maintain the aerodrome properly.

# Requirements for wildlife control Cont.



- The Authority collects, through the Sudan Aviation Safety Reporting System information from aircraft operators, airport personnel, and other sources, on the presence of wildlife on or around the aerodrome constituting a potential hazard to aircraft operations.
- Finally, the Authority submits Wildlife strike reports to the ICAO Bird Strike Information System (IBIS) database.

# Requirements for wildlife control Cont.



## ❖ Duties & Responsibilities :-

### B. Aerodrome Operator :-

- The aerodrome operator is responsible for the conduct of a wildlife hazard assessment in the vicinity of the airport.
- The aerodrome operator is also required to include in the aerodrome manual, the wildlife hazard assessment and the measures adopted to control the identified hazards and minimize the likelihood of collisions between wildlife and aircraft.
- Finally, the aerodrome operator is obligated to report wildlife strikes to the Authority .

- **Initial Assessment** : An aerodrome operator must conduct for each aerodrome an initial assessment of the existence and level of hazard posed or likely to be posed by wildlife in the vicinity of the aerodrome .
- The initial Wildlife Hazard Assessment must be conducted by wildlife specialists, with proven knowledge of the types and behaviors of the wildlife species present or likely to be present in the area where the aerodrome is located.



# Wildlife Hazard Assessment Cont.



- ❖ **The initial Wildlife Hazard Assessment shall :-**
  - identify the wildlife species that have access to the airport .
  - describe the features that may attract wildlife .
  - assess the wildlife hazards or potential hazards to aircraft operating to or from the aerodrome, in terms of :
    - ✓ the likelihood of occurrence of a wildlife strike, and
    - ✓ its impact on the flight, and
  - recommend actions for reducing identified wildlife hazards to aircraft operating to or from the aerodrome, using one or more of the control measures prescribed in our Document.

# Wildlife Hazard Assessment Cont.



- ❖ The methodology used for the identification of wildlife species must be documented in a standardized procedure. As a minimum, it shall include the number and location of the survey points established, the duration of the observation, and how the selected duration allows for adequate assessment of the wildlife species and seasonal patterns.
- ❖ For each type of wildlife species, the following information must be provided :
  - ✓ methodology used for observation;
  - ✓ its scientific and local name;
  - ✓ estimated numbers and locations,
  - ✓ local movements, daily and seasonal occurrences.

## ❖ Potential wildlife attractants may include: -

- ✓ waste disposal,
- ✓ water management facilities,
- ✓ wetlands,
- ✓ confined disposal facilities,
- ✓ agricultural activities (livestock, aquaculture, farming ..etc),
- ✓ landscaping, or
- ✓ any other specific land-use activities that may attract wildlife.

# Wildlife Hazard Assessment Cont.



- ❖ **The description of the potential wildlife attractants shall include :-**
  - ✓ name,
  - ✓ distance from the aerodrome reference point,
  - ✓ direction from nearest approach / take-off path,
  - ✓ dimensions,
  - ✓ type of activities,
  - ✓ seasonality (if applicable), and
  - ✓ wildlife species that may be attracted to it .

# Wildlife Hazard Assessment Cont.



- ❖ The wildlife hazards or potential hazards can be categorized on the basis of their probability and severity.
- ❖ An example of classification of the hazards is given in tables 2-1 to 2-3, indicating the probability of occurrence, its severity if it occurs and the combination of probability/severity.
- ❖ A colour coding may be used to indicate what is intolerable (**Red** – unacceptable under the existing circumstances), tolerable (**Yellow** – acceptable based on mitigation measures to control wildlife) or acceptable (**Green** – acceptable).

# Wildlife Hazard Assessment Cont.



**Table 2-1 Probability**

Qualitative Definition	Meaning	Value
Frequent	Likely to occur many times (has occurred frequently)	3
Occasional	Likely to occur some times (has occurred infrequently)	2
Remote	Unlikely, but possible to occur (has occurred rarely)	1

**Table 2-2 : Severity**

Qualitative definition	Meaning	Value
Major Damage	Aircraft may incur damage or structural failure that adversely affect the structure strength, performance, or flight characteristics and that would normally require major repair or replacement of the affected component, or make it inadvisable to restore aircraft to airworthy condition.	C
Damage	Aircraft may incur at least some damage (destroyed, substantial, minor, or unknown) from strike	B
Effect on flight	Aborted takeoff, engine shutdown, precautionary landing, or other	A

# Wildlife Hazard Assessment Cont.



Table 2-3 Probability /Severity

Probability		Severity		
		Major damage C	Damage B	Effect on flight A
Frequent	3	3C	3B	3A
Occasional	2	2C	2B	2A
Remote	1	1C	1B	1A





- ❖ **Nature and level of the hazards :** The review of the wildlife hazard assessment shall identify any changes in:
- ✓ wildlife species,
  - ✓ the features that may attract wildlife on, or in the vicinity of the aerodrome, or
  - ✓ the assessment of the wildlife hazards or potential hazards to aircraft operating to or from the aerodrome.

- ❖ **Effectiveness of the Control measures** : The review of the wildlife hazard assessment shall identify:
- ✓ new wildlife control measures that may be required of address newly identified hazards,
  - ✓ existing wildlife control measures that may need to be reinforced, and/or
  - ✓ wildlife control measures to be discontinued because they are no longer required or are ineffective.

# Hudson River accident

- ❖ **General** : The aerodrome operator shall demonstrate that the proposed wildlife control measures are adequate to reduce the risk posed by wildlife to aircraft operating to or from the aerodrome as identified in the wildlife hazard assessment or its subsequent review Examples of wildlife control measures are provided in 3.3 to 3.6.

❖ **Description of the control measures** : The description of the selected control measures shall include:

- ✓ type of control measures selected;
- ✓ wildlife species;
- ✓ potential wildlife attractants;
- ✓ actions to be implemented;
- ✓ periodicity, or season(s) where applicable;
- ✓ equipment to be used, where applicable; and
- ✓ personnel involved and the training requirements where applicable.



- ❖ **Wildlife removal** :if legally allowed for the species being considered , wildlife removal may include:
  - ✓ capturing,
  - ✓ destroying eggs and nests,
  - ✓ shooting,
  - ✓ oral or contact toxicants,
  - ✓ fumigants, or
  - ✓ lethal traps .

- ❖ **Repellent and harassment techniques** : Repellent and harassment techniques may be used to keep hazardous wildlife away from specific areas on or near an airport by affecting the animal's senses through chemical, auditory or visual means. Repellent and harassment techniques may include:
  - ✓ patrols of airside areas to disperse birds and other hazardous wildlife;
  - ✓ chemical repellents legally allowed for use in Sudan by the relevant national authorities;
  - ✓ audio repellents appropriate to the type of bird or mammal;  
or
  - ✓ visual repellents appropriate to the type of bird or mammal.



- ❖ **Aircraft schedule modification:** The flight schedules of some aircraft may be adjusted to minimize the chance of a strike with a wildlife species that has a predictable pattern of movement.



# Regulatory Framework

- Appendix 1 of certification manual-Particulars to be included in certification manual.
- 1.3 Wildlife Hazard Management:
  - The Initial certification of the rescue and fire fighting services includes checks on wildlife hazard management which are also reviewed during the audit of the aerodrome operator's procedures:
    - a) The required equipment is provided;
    - b) Fences are provided as required;



- c) The aerodrome operator has a procedure describing the actions taken for discouraging the presence of wildlife, including:
- who is in charge of those actions and what their training is;
  - how and when these actions are carried out, including reporting and filing of these actions;
  - what equipment is used to conduct these actions;
  - analyses of the aerodrome vicinity and the preventive actions to be taken subsequently to discourage wildlife;
  - monitoring of these actions, including, where applicable, the conduct of appropriate wildlife assessments;
  - coordination with ATS.



- d) The aerodrome operator has a procedure to:
- record and analyse the incidents involving wildlife;
  - collect the wildlife's remains;
  - monitor the corrective actions to be taken subsequently; and
  - report to the Authority incidents involving wildlife.



- Part 5 Aerodrome Administration and Safety Management System. The Aerodrome Wildlife Management Plan is a part of SMS and reference to AWMP should be made in SMS.
- In SUCAR 14 subpart 1 , there are no standards except that section 9.4 Bird hazard reduction, recommends assessing the bird strike hazard & if present, to try and alleviate and to eliminate any garbage dumps in the vicinity.

**Airport Operator  
Responsible for  
Operating a Safe  
Facility**

**'Duty of Care'  
for airport users  
by providing safe  
operating  
environment**

**'Duty to Warn'  
users of  
hazards**

**Occupiers Liability  
Airport has invited  
airline to use site and is  
therefore responsible  
for managing a safe  
facility**

# The A/WHMP



- Should apply System Safety Approach involving all stake-holders
- The tree components of wildlife-strike risk management are:
  - Reducing overall exposure to wildlife hazards
  - Reducing the probability of wildlife strikes
  - Reducing the severity of wildlife strikes

# Four Means to Manage Wildlife



- Managing habitat so that the aerodrome does not attract wildlife.
- Excluding wildlife by fences or other means.
- Dispersing wildlife from the premises.
- Removing wildlife either dead or alive.

# Contents of an A/WHMP



- Ecological Survey: site setting, habitats, species of concern (mammals, birds)
- Mammal & Bird Strike Information: incident reports, strike trends
- Risk Analysis: wildlife/aircraft interaction
- Control Program ( short, medium, long term): habitat alteration, structural changes, dispersal, removal, wildlife inventory, data collection

# Contents of an A/WHMP



- Roles & responsibilities: who does what
- Training of personnel
- Awareness program: stakeholders and public

**RASG-MID SAFETY ADVISORY – 13**  
**(RSA-13)**



**RASG-MID SAFETY ADVISORY – 13**  
**(RSA-13)**

# Recording and Reporting Wildlife Strikes



## Recording

- Aerodrome operators shall maintain a log of wildlife strikes containing the date, types and numbers of birds or animals, and aircraft involved. The procedure for recording the wildlife strikes must be documented in the aerodrome manual.

## Reporting

- A wildlife strike reporting form is made available to aircraft operators, airport personnel, and air traffic controllers to report wildlife strikes. The guidelines for such reporting are provided in the Operational Policy – Aviation safety Reporting System.

## Submission of Wildlife Strike reports to ICAO

- Upon receiving a wildlife strike reporting form, DASS transmits the information to ICAO for incorporation into the IBIS database. Detailed instructions for processing wildlife strike reports and transmission to ICAO are contained in the Manual for Aviation safety Reporting System and the Aerodromes Inspector handbook.

# Recording and Reporting Wildlife Strikes Cont.



## ❖ DASS-FORM-028

- Check list for the review of a wildlife hazard assessment.

## ❖ DASS-FORM-029

- IBIS wildlife strike reporting form.

# Aviation Safety Reporting System



[WWW.scaa-ors.sd](http://WWW.scaa-ors.sd)

○ Login :

Username : **admin**

Password : **admin**

# Conclusion

# Conclusion



- ❖ What can you say about bird strikes to a/c?
- ❖ What is the best long term method of controlling wildlife?
- ❖ Who is ultimately responsible for controlling wildlife hazard at an aerodrome?
- ❖ State the main elements of an effective A/WHMP?

**thank you!**