



ICAO

UNITING AVIATION

# Wildlife Hazard Management ICAO EASA

**Albert de Hoon MSc**

*ICAO Wildlife Hazard Management Expert Group*



# FLIGHT PLAN

- Annex 14 – Aerodromes
- ICAO Doc 9981 – PANS Aerodromes
- ICAO Doc 9137 – WHM Manual
- EASA WHM





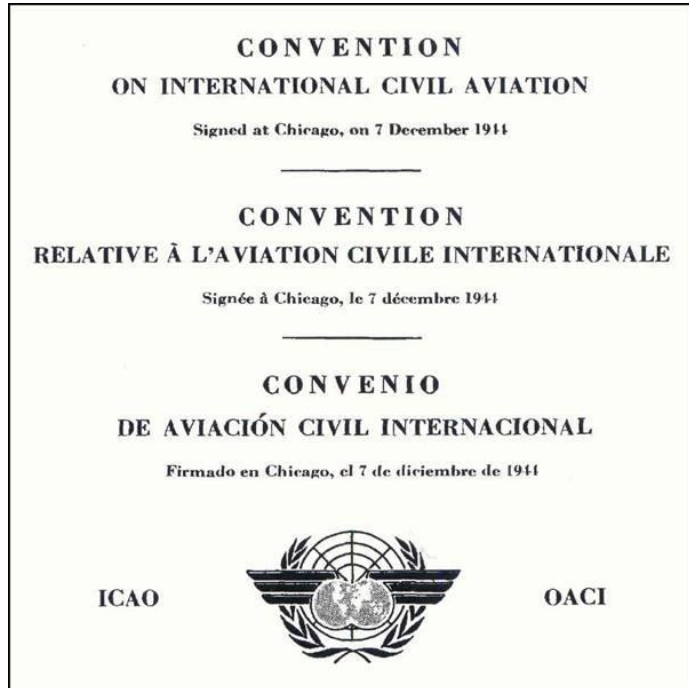
CONVENTION  
ON  
INTERNATIONAL  
CIVIL AVIATION  
DONE  
AT CHICAGO  
ON THE  
7<sup>TH</sup> DAY OF DECEMBER  
1944

*“create and preserve friendship and understanding among the nations and peoples of the world.”*



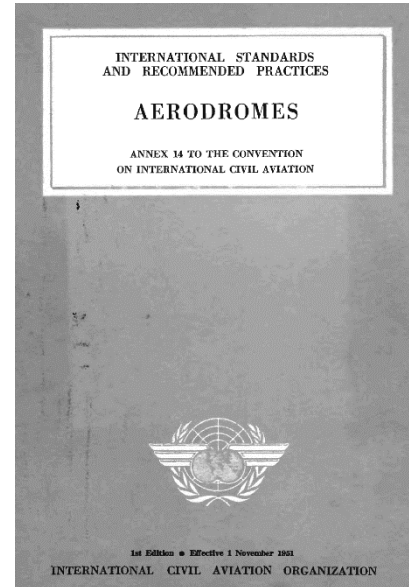


## 1944 - ICAO



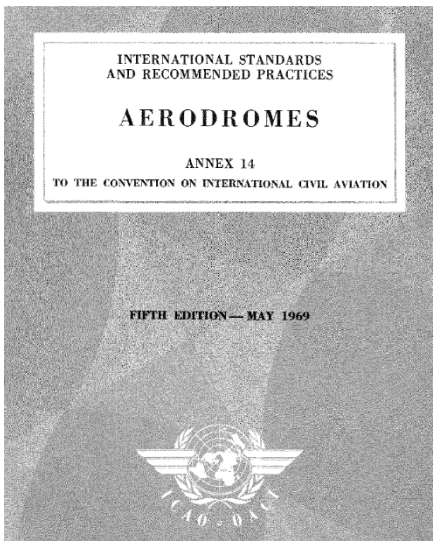
## 1951 – Annex 14

### AERODROMES





# 1969 – Annex 14 5th edition



## PART VII. — AERODROME SERVICES

### †† Chapter 1.—Rescue and Fire Fighting Services

*Introductory Note.—The principal objective of a rescue and fire fighting service is to save lives.*

*This contingency must assume at all times the possibility and need for the extinction of a fire which may occur either immediately following an incident or at any time during rescue operations.*

*For this reason, the provision of means of dealing with incidents on and in the immediate vicinity of aerodromes assumes primary importance because it is within this area that there are the greatest opportunities of saving life.*

*The most important factors bearing on effective rescue in survivable aeroplane*

†† See Part I, 2.4.

*crash rescue and fire incidents at aerodromes are the training received, the effectiveness of the equipment and the speed with which personnel and equipment designated to rescue and fire control duty, can be put into use.*

1.1 Rescue and fire fighting equipment and services shall be provided at aerodromes.

*Note 1.—Contracting States may, as appropriate, designate public or private organizations suitably located and equipped for giving prompt fire fighting and rescue assistance at the scene of an accident on or near aerodromes, and define the function of those organizations.*

*Note 2.—Guidance to assist the Competent Authority in providing rescue and fire fighting equipment and services is*

*given in Attachment C and in the Aerodrome Manual, Part 5, Volume I.*

### Chapter 2.—Bird Hazard Reduction Services

2.1 RECOMMENDATION.—  
*The Competent Authority should take action, as necessary, to decrease the number of birds constituting a hazard to aeroplane operations by adopting measures for discouraging their presence on or in the vicinity of aerodromes.*

*Note.—Guidance on effective measures for establishing whether or not birds, on or near an aerodrome, constitute a hazard to aeroplane operations and on methods for discouraging their presence is given in the Aerodrome Manual, Part 5, Volume II.*



1969

## Chapter 2.—Bird Hazard Reduction Services

2.1 RECOMMENDATION. —  
*The Competent Authority should take action, as necessary, to decrease the number of birds constituting a hazard to aeroplane operations by adopting measures for discouraging their presence on or in the vicinity of aerodromes.*

*Note.—Guidance on effective measures for establishing whether or not birds, on or near an aerodrome, constitute a hazard to aeroplane operations and on methods for discouraging their presence is given in the Aerodrome Manual, Part 5, Volume II.*

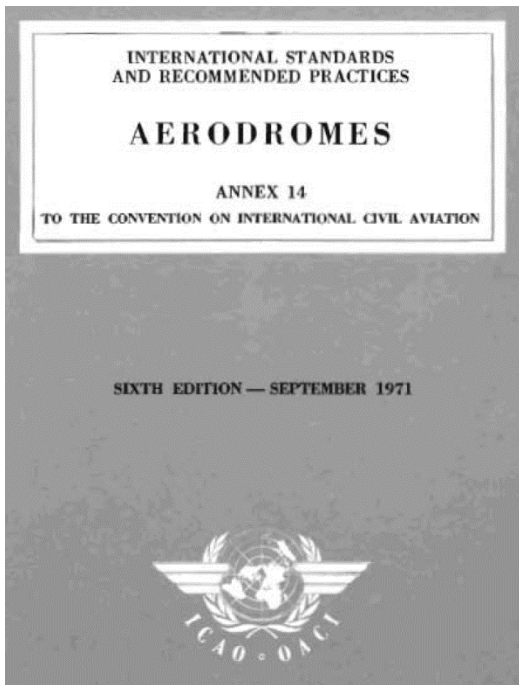
## Chapter 2. – Bird Hazard Reduction Services

2.1 Recommendation. –  
*The Competent Authority should take action, as necessary, to decrease the number of birds constituting a hazard to aeroplane operations by adopting measures for discouraging their presence on or in the vicinity of aerodromes.*

*Note. – Guidance on effective measures for establishing whether or not birds, on or near an aerodrome, constitute a hazard to aeroplane operations and on methods for discouraging their presence is given in the Aerodrome Manual, Part 5, Volume II*



# 1971 – Annex 14 6th edition



## PART VII. — AERODROME SERVICES

### †† Chapter 1.—Rescue and Fire Fighting Services

*Introductory Note.— The principal objective of a rescue and fire fighting service is to save lives.*

*This contingency must assume at all times the possibility and need for the extinction of a fire which may occur either immediately following an incident or at any time during rescue operations.*

*For this reason, the provision of means of dealing with incidents on and in the immediate vicinity of aerodromes assumes primary importance because it is within this area that there are the greatest opportunities of saving life.*

*The most important factors bearing on effective rescue in survivable aeroplane crash rescue and fire incidents at aerodromes are the training received, the effectiveness of the equipment and the speed with which personnel and equipment designated to rescue and fire control duty, can be put into use.*

†† See Part I, 2.4.

1.1 Rescue and fire fighting equipment and services shall be provided at aerodromes.

*Note 1.—Contracting States may, as appropriate, designate public or private organizations equipped for giving prompt fire fighting and rescue assistance at the scene of an accident on or near aerodromes, and define the function of those organizations. It is intended that the fire station housing these organizations be normally located on the aerodrome although an off-aerodrome location is not precluded provided the response time factor can be met.*

*Note 2.—Guidance to assist the Competent Authority in providing rescue and fire fighting equipment and services is given in Attachment C and in the Aerodrome Manual, Part 5, Volume I.*

1.2 RECOMMENDATION.—  
*Emergency access roads should be provided on aerodromes where terrain conditions permit their construction so as to facilitate achieving minimum response times. Particular attention should be given to the provision of emergency access roads in approach areas.*

*Note 1.—Aerodrome service roads may serve as emergency access roads when they are suitably located and constructed.*

*Note 2.—Guidance material on the characteristics of emergency access roads is contained in Attachment C and in the Aerodrome Manual, Part 5, Volume I.*

### Chapter 2.—Bird Hazard Reduction Services

2.1 RECOMMENDATION.—  
*The Competent Authority should take action, as necessary, to decrease the number of birds constituting a hazard to aeroplane operations by adopting measures for discouraging their presence on or in the vicinity of aerodromes.*

*Note.—Guidance on effective measures for establishing whether or not birds, on or near an aerodrome, constitute a hazard to aeroplane operations and on methods for discouraging their presence is given in the Aerodrome Manual, Part 5, Volume II.*



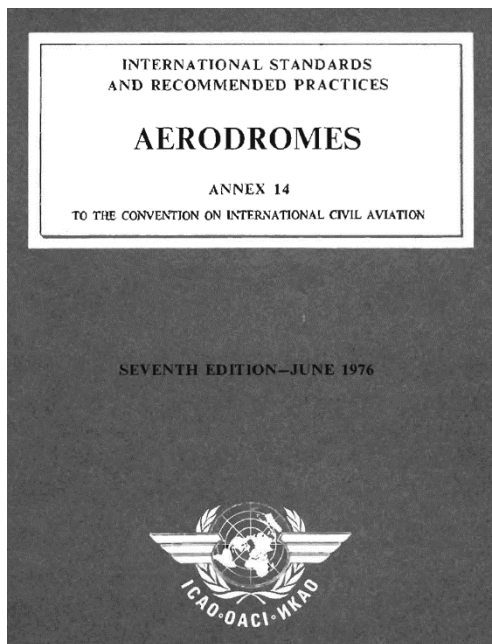
## **1975 – ICAO Doc 9137**

**1st edition**

**Bird Control and Reduction**



## 1976 – Annex 14 7th edition



### 8.4.—Fencing

#### *Application*

**8.4.1 Recommendation.**— *A fence or other suitable barrier should be provided on an aerodrome to prevent the entrance to the movement area of animals large enough to be a hazard to aircraft.*

### 9.3.—Bird hazard reduction

**9.3.1 Recommendation.**— *The Appropriate Authority should take action, as necessary, to decrease the number of birds constituting a hazard to aircraft operations by adopting measures for discouraging their presence on or in the vicinity of an aerodrome.*

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



1975 – ICAO Doc 9137

1st edition

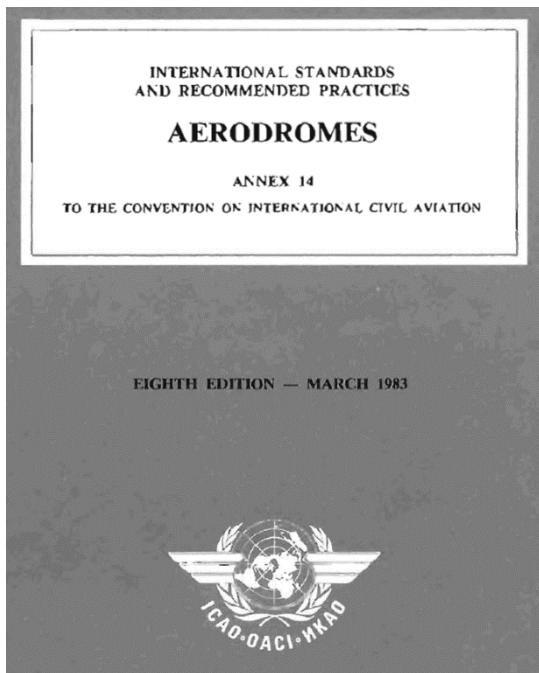
Bird Control and Reduction

**1978 – ICAO Doc 9137**

**2nd edition**

**Bird Control and Reduction**

## 1983 – Annex 14 8th edition



### *Application*

## 8.4 Fencing

**8.4.1 Recommendation.**— *A fence or other suitable barrier should be provided on an aerodrome to prevent the entrance to the movement area of animals large enough to be a hazard to aircraft.*

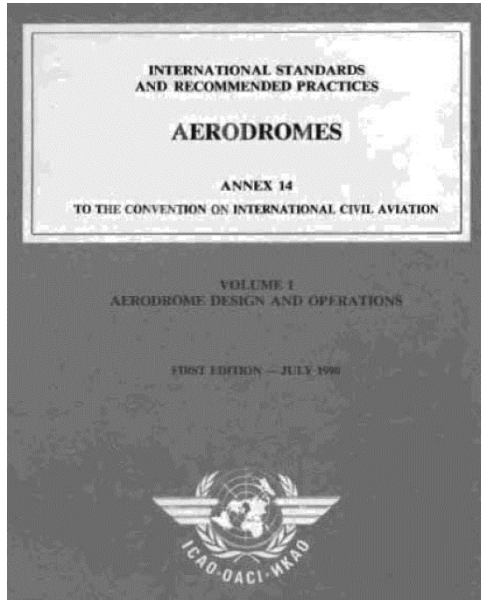
## 9.5 Bird hazard reduction

**9.5.1 Recommendation.**— *The Appropriate Authority should take action, as necessary, to decrease the number of birds constituting a hazard to aircraft operations by adopting measures for discouraging their presence on, or in the vicinity of, an aerodrome.*

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

## 1990 – Annex 14

### Volume I – 1st edition



#### 9.5 Bird hazard reduction

9.5.1 **Recommendation.**— *The bird strike hazard on, or in the vicinity of, an aerodrome should 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.*— *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 Manual on the ICAO Bird Strike Information System (IBIS).*

9.5.2 **Recommendation.**— *When a bird strike hazard is identified at an aerodrome, the appropriate authority should 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.*— *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 Airport Services Manual. Part 3.*

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

#### 8.4 Fencing

##### *Application*

8.4.1 **Recommendation.**— *A fence or other suitable barrier should be provided on an aerodrome to prevent the entrance to the movement area of animals large enough to be a hazard to aircraft.*



## 1990 – 4 Recommendations:

1. *Install a fence*
2. *Assess the bird strike hazard*
3. *Take action to discourage the presence of hazardous birds*
4. *Eliminate or prevent garbage dumps or any other source attracting hazardous birds.*



1975 – ICAO Doc 9137

1st edition

Bird Control and Reduction

**1991 – ICAO Doc 9137**

**3d edition**

**Bird Control and Reduction**

1978 – ICAO Doc 9137

2nd edition

Bird Control and Reduction

Doc 9137-AN/901  
Part 3

**AIRPORT SERVICES  
MANUAL**



**PART 3**

**BIRD CONTROL AND REDUCTION**

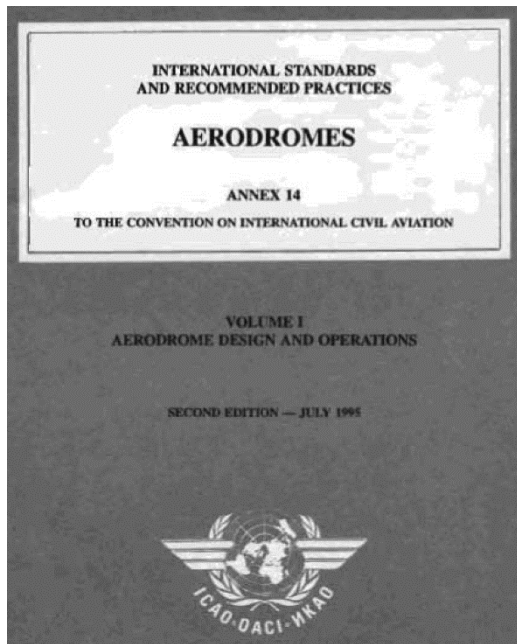
**THIRD EDITION — 1991**

*Approved by the Secretary General  
and published under his authority*

**INTERNATIONAL CIVIL AVIATION ORGANIZATION**

## 1995 – Annex 14

### Volume I – 2nd edition



#### 8.4 Fencing

##### *Application*

8.4.1 **Recommendation.**— *A fence or other suitable barrier should be provided on an aerodrome to prevent the entrance to the movement area of animals large enough to be a hazard to aircraft.*

#### 9.5 Bird hazard reduction

9.5.1 **Recommendation.**— *The bird strike hazard on, or in the vicinity of, an aerodrome should 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.*

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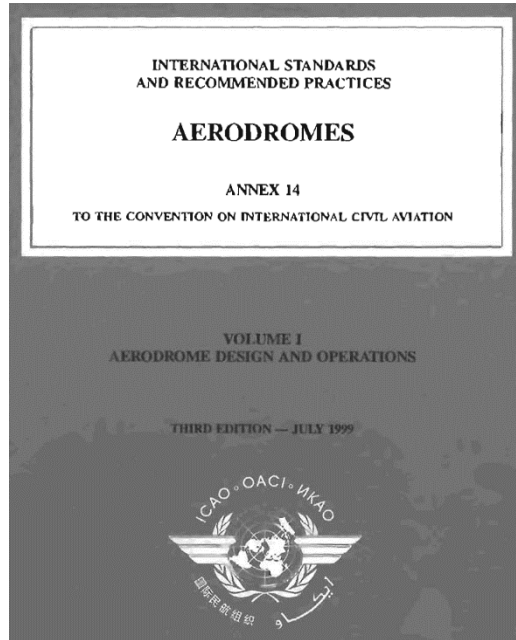
9.5.2 **Recommendation.**— *When a bird strike hazard is identified at an aerodrome, the appropriate authority should take action to decrease the number of birds constituting a potential hazard to aircraft operations by adopting measures for discouraging their presence on, or in the vicinity of, an aerodrome.*

*Note.*— *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 Airport Services Manual, Part 3.*

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

# 1999 – Annex 14

## Volume I – 3d edition



### 8.4 Fencing

#### Application

8.4.1 **Recommendation.**— *A fence or other suitable barrier should be provided on an aerodrome to prevent the entrance to the movement area of animals large enough to be a hazard to aircraft.*

### 9.5 Bird hazard reduction

9.5.1 **Recommendation.**— *The bird strike hazard on, or in the vicinity of, an aerodrome should 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.*— *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 Manual on the ICAO Bird Strike Information System (IBIS).*

9.5.2 **Recommendation.**— *When a bird strike hazard is identified at an aerodrome, the appropriate authority should 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.*— *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 Airport Services Manual, Part 3.*

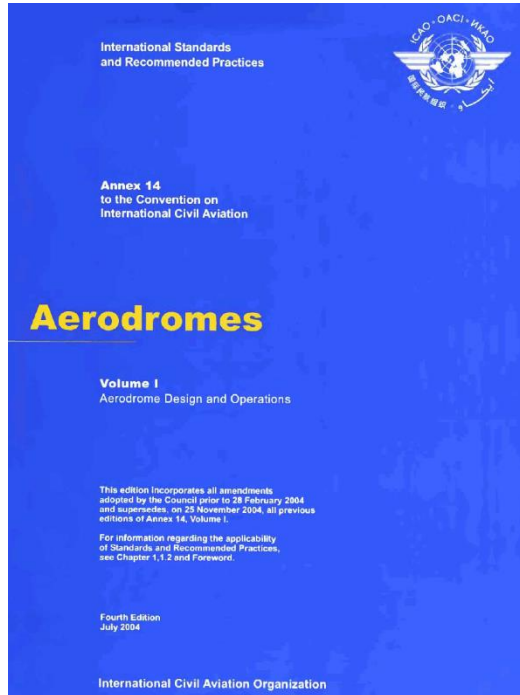
9.5.3 **Recommendation.**— *Garbage disposal dumps or any such other source attracting bird activity on, or in the vicinity of, an aerodrome should be eliminated or their establishment prevented, unless an appropriate study indicates that they are unlikely to create conditions conducive to a bird hazard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





# 2004 – Annex 14

## Volume I – 4th edition



### 9.10 Fencing

#### Application

9.10.1 **Recommendation.** A fence or other suitable barrier should be provided on an aerodrome to prevent the entrance to the movement area of animals large enough to be a hazard to aircraft.

### 9.4 Bird hazard reduction

9.4.1 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 constituting a potential hazard to aircraft operations.

*Note.*— See Annex 15, Chapter 8.

9.4.2 **Recommendation.** Bird strike reports should be collected and forwarded to ICAO for inclusion in the ICAO Bird Strike Information System (IBIS) database.

*Note.*— The IBIS is designed to collect and disseminate information on bird strikes to aircraft. Information on the system is included in the Manual on the ICAO Bird Strike Information System (IBIS).

9.4.3 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.

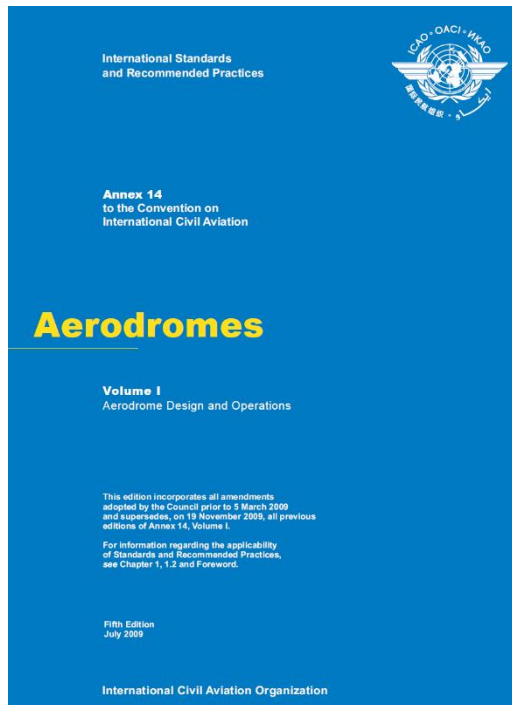
*Note.*— Guidance on effective measures for establishing whether or not birds, on or near an aerodrome, constitute a potential hazard to aircraft operations, and on methods for discouraging their presence, is given in the Airport Services Manual, Part 3.

9.4.4 The appropriate authority shall take action to eliminate or to prevent the establishment of garbage disposal dumps or any such other source attracting bird activity on, or in the vicinity of, an aerodrome unless an appropriate aeronautical study indicates that they are unlikely to create conditions conducive to a bird hazard problem.

*Note.*— Due consideration needs to be given to airport operators' concerns related to land developments close to the airport boundary that may attract birds/wildlife.



## 2009 – Annex 14 Volume I – 5th edition



### Annex 14 — Aerodromes

Volume I

#### 9.4 Wildlife strike hazard reduction

*Note.—The presence of wildlife (birds and animals) on and in the aerodrome vicinity poses a serious threat to aircraft operational safety.*

9.4.1 The wildlife 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 wildlife strikes to aircraft;
- b) the collection of information from aircraft operators, aerodrome personnel and other sources on the presence of wildlife on or around the aerodrome constituting a potential hazard to aircraft operations; and
- c) an ongoing evaluation of the wildlife hazard by competent personnel.

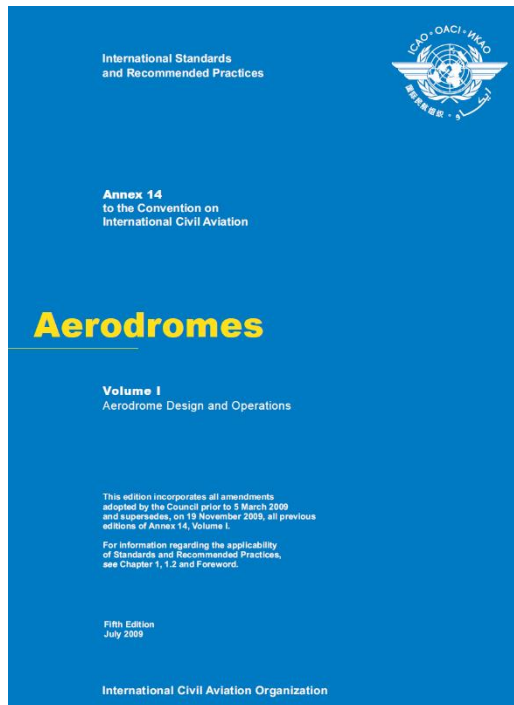
*Note.— See Annex 15, Chapter 8.*

9.4.2 Wildlife strike reports shall be collected and forwarded to ICAO for inclusion in the ICAO Bird Strike Information System (IBIS) database.

*Note.— The IBIS is designed to collect and disseminate information on wildlife strikes to aircraft. Information on the system is included in the Manual on the ICAO Bird Strike Information System (IBIS) (Doc 9332).*



## 2009 – Annex 14 Volume I – 5th edition



9.4.3 Action shall be taken to decrease the risk to aircraft operations by adopting measures to minimize the likelihood of collisions between wildlife and aircraft.

*Note.— Guidance on effective measures for establishing whether or not wildlife, on or near an aerodrome, constitute a potential hazard to aircraft operations, and on methods for discouraging their presence, is given in the Airport Services Manual (Doc 9137), Part 3.*

9.4.4 The appropriate authority shall take action to eliminate or to prevent the establishment of garbage disposal dumps or any other source which may attract wildlife to the aerodrome, or its vicinity, unless an appropriate wildlife assessment indicates that they are unlikely to create conditions conducive to a wildlife hazard problem. Where the elimination of existing sites is not possible, the appropriate authority shall ensure that any risk to aircraft posed by these sites is assessed and reduced to as low as reasonably practicable.

9.4.5 **Recommendation.**— *States should give due consideration to aviation safety concerns related to land developments in the vicinity of the aerodrome that may attract wildlife.*

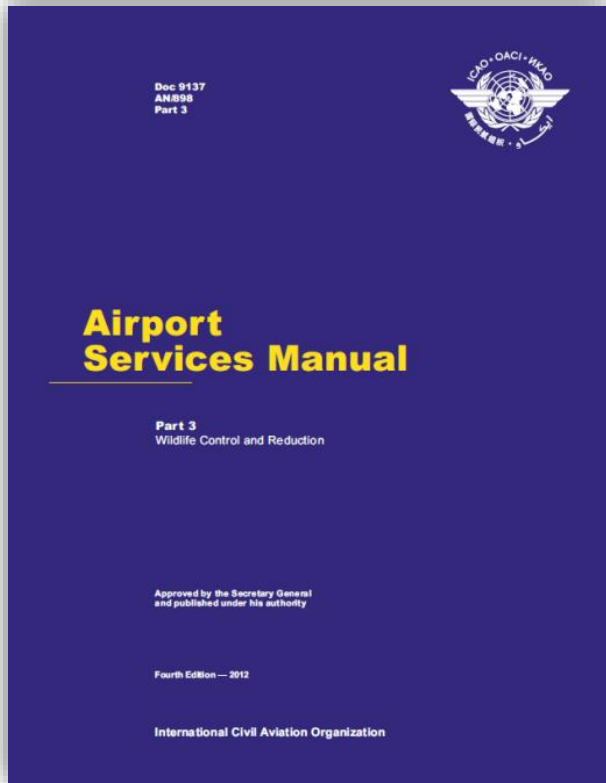
### 9.10 Fencing

#### *Application*

9.10.1 A fence or other suitable barrier shall be provided on an aerodrome to prevent the entrance to the movement area of animals large enough to be a hazard to aircraft.



ICAO | UNITING AVIATION



2012

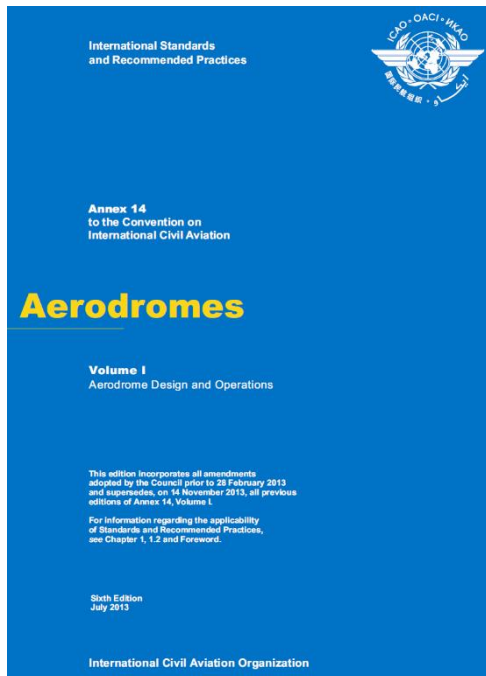
ICAO Doc 9137

fourth edition

Wildlife Control and Reduction



# 2013 – Annex 14 Volume I – 6th edition



Chapter 9

Annex 14 — Aerodromes

9.4 Wildlife strike hazard reduction

*Note.—The presence of wildlife (birds and animals) on and in the aerodrome vicinity poses a serious threat to aircraft operational safety.*

9.4.1 The wildlife 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 wildlife strikes to aircraft;
- b) the collection of information from aircraft operators, aerodrome personnel and other sources on the presence of wildlife on or around the aerodrome constituting a potential hazard to aircraft operations; and
- c) an ongoing evaluation of the wildlife hazard by competent personnel.

*Note.— See Annex 15, Chapter 8.*

9.4.2 Wildlife strike reports shall be collected and forwarded to ICAO for inclusion in the ICAO Bird Strike Information System (IBIS) database.

*Note.— The IBIS is designed to collect and disseminate information on wildlife strikes to aircraft. Information on the system is included in the Manual on the ICAO Bird Strike Information System (IBIS) (Doc 9332).*

9.4.3 Action shall be taken to decrease the risk to aircraft operations by adopting measures to minimize the likelihood of collisions between wildlife and aircraft.

*Note.— Guidance on effective measures for establishing whether or not wildlife, on or near an aerodrome, constitute a potential hazard to aircraft operations, and on methods for discouraging their presence, is given in the Airport Services Manual (Doc 9137), Part 3.*

9.4.4 The appropriate authority shall take action to eliminate or to prevent the establishment of garbage disposal dumps or any other source which may attract wildlife to the aerodrome, or its vicinity, unless an appropriate wildlife assessment indicates that they are unlikely to create conditions conducive to a wildlife hazard problem. Where the elimination of existing sites is not possible, the appropriate authority shall ensure that any risk to aircraft posed by these sites is assessed and reduced to as low as reasonably practicable.

9.4.5 **Recommendation.**— *States should give due consideration to aviation safety concerns related to land developments in the vicinity of the aerodrome that may attract wildlife.*

## 9.10 Fencing

### Appucation

9.10.1 A fence or other suitable barrier shall be provided on an aerodrome to prevent the entrance to the movement area of animals large enough to be a hazard to aircraft.

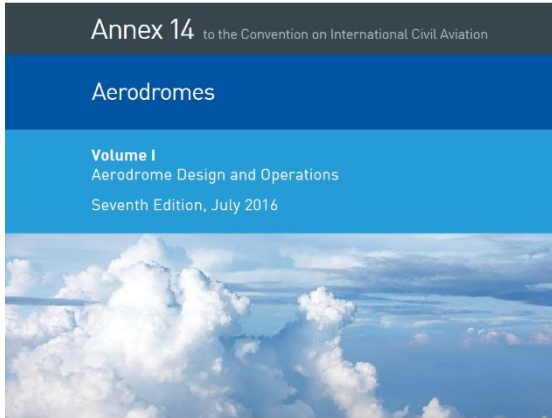


# 2016 – Annex 14 Volume I – 7th edition



ICAO

International Standards  
and Recommended Practices



Annex 14 to the Convention on International Civil Aviation

Aerodromes

Volume I  
Aerodrome Design and Operations

Seventh Edition, July 2016

This edition supersedes, on 10 November 2016, all previous editions of Annex 14, Volume I.

For information regarding the applicability of the Standards and Recommended Practices, see Chapter 1, 1.2 and the Foreword.

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Chapter 9

Annex 14 — Aerodromes

### 9.4 Wildlife strike hazard reduction

*Note.—The presence of wildlife (birds and animals) on and in the aerodrome vicinity poses a serious threat to aircraft operational safety.*

9.4.1 The wildlife 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 wildlife strikes to aircraft;
- b) the collection of information from aircraft operators, aerodrome personnel and other sources on the presence of wildlife or around the aerodrome constituting a potential hazard to aircraft operations; and
- c) an ongoing evaluation of the wildlife hazard by competent personnel.

*Note.— See Annex 15, Chapter 8.*

9.4.2 Wildlife strike reports shall be collected and forwarded to ICAO for inclusion in the ICAO Bird Strike Information System (IBIS) database.

*Note.— The IBIS is designed to collect and disseminate information on wildlife strikes to aircraft. Information on the system is included in the Manual on the ICAO Bird Strike Information System (IBIS) (Doc 9332).*

9.4.3 Action shall be taken to decrease the risk to aircraft operations by adopting measures to minimize the likelihood of collisions between wildlife and aircraft.

*Note.— Guidance on effective measures for establishing whether or not wildlife, on or near an aerodrome, constitute a potential hazard to aircraft operations, and on methods for discouraging their presence, is given in the Airport Services Manual (Doc 9137), Part 3.*

9.4.4 The appropriate authority shall take action to eliminate or to prevent the establishment of garbage disposal dumps or any other source which may attract wildlife to the aerodrome, or its vicinity, unless an appropriate wildlife assessment indicates that they are unlikely to create conditions conducive to a wildlife hazard problem. Where the elimination of existing sites is not possible, the appropriate authority shall ensure that any risk to aircraft posed by these sites is assessed and reduced to as low as reasonably practicable.

9.4.5 **Recommendation.—** States should give due consideration to aviation safety concerns related to land developments in the vicinity of the aerodrome that may attract wildlife.

### Appucation

9.10.1 A fence or other suitable barrier shall be provided on an aerodrome to prevent the entrance to the movement area of animals large enough to be a hazard to aircraft.

### 9.10 Fencing

9.4.3 Action shall be taken to decrease the risk to aircraft operations by adopting measures to minimize the likelihood of collisions between wildlife and aircraft.

**Note.—** Guidance on effective measures for establishing whether or not wildlife, on or near an aerodrome, constitute a potential hazard to aircraft operations, and on methods for discouraging their presence, is given in the

**Airport Services Manual (Doc 9137), Part 3.**



# 2018 – Annex 14

## Volume I – 8th edition



International Standards  
and Recommended Practices



This edition supersedes, on 8 November 2018, all previous editions of Annex 14, Volume I.

For information regarding the applicability of the Standards and Recommended Practices, see Chapter 1, 1.2 and the Foreword.

INTERNATIONAL CIVIL AVIATION ORGANIZATION

### Chapter 9

### Annex 14 — Aerodromes

#### 9.4 Wildlife strike hazard reduction

*Note.— The presence of wildlife (birds and other animals) on, or in the vicinity of an aerodrome poses a serious threat to aircraft operational safety.*

9.4.1 The wildlife 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 wildlife strikes to aircraft;
- b) the collection of information from aircraft operators, aerodrome personnel and other sources on the presence of wildlife on or around the aerodrome constituting a potential hazard to aircraft operations; and
- c) an ongoing evaluation of the wildlife hazard by competent personnel.

*Note.— See Annex 15, Chapter 5.*

9.4.2 Wildlife strike reports shall be collected and forwarded to ICAO for inclusion in the ICAO Bird Strike Information System (IBIS) database.

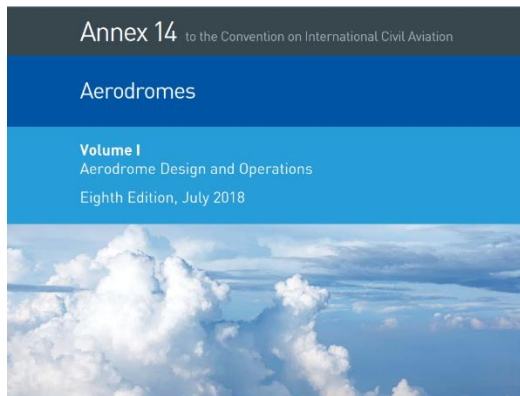
*Note.— The IBIS is designed to collect and disseminate information on wildlife strikes to aircraft. Information on the system is included in the Manual on the ICAO Bird Strike Information System (IBIS) (Doc 9332).*



## 2018 – Annex 14 Volume I – 8th edition



International Standards  
and Recommended Practices



This edition supersedes, on 8 November 2018, all previous editions of Annex 14, Volume I.  
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INTERNATIONAL CIVIL AVIATION ORGANIZATION

9.4.3 Action shall be taken to decrease the risk to aircraft operations by adopting measures to minimize the likelihood of collisions between wildlife and aircraft.

*Note.— Procedures on the management of wildlife hazards on and in the vicinity of an aerodrome, including the establishment of a wildlife hazard management programme (WHMP), wildlife risk assessment, land-use management and personnel training, are specified in the PANS-Aerodromes (Doc 9981), Part II, Chapters 1 and 6. Further guidance is given in the Airport Services Manual (Doc 9137), Part 3.*

9.4.4 The appropriate authority shall take action to eliminate or to prevent the establishment of garbage disposal dumps or any other source which may attract wildlife to the aerodrome, or its vicinity, unless an appropriate wildlife assessment indicates that they are unlikely to create conditions conducive to a wildlife hazard problem. Where the elimination of existing sites is not possible, the appropriate authority shall ensure that any risk to aircraft posed by these sites is assessed and reduced to as low as reasonably practicable.

9.4.5 **Recommendation.**— *States should give due consideration to aviation safety concerns related to land developments in the vicinity of the aerodrome that may attract wildlife.*

### 9.10 Fencing

#### *Application*

9.10.1 A fence or other suitable barrier shall be provided on an aerodrome to prevent the entrance to the movement area of animals large enough to be a hazard to aircraft.





## **In the meantime....**

**2015:**

**Aerodrome Design and Operations Panel (ADOP):**

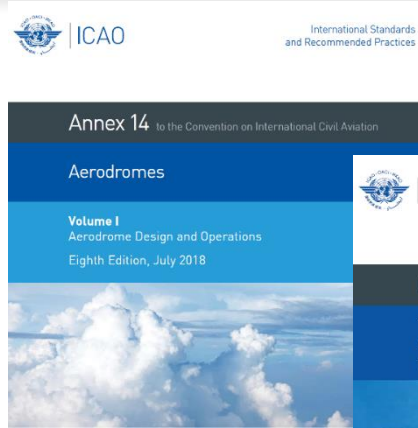
**Job card 15:**

- 1. Write WHM procedures for Doc 9981 (PANS Aerodromes)**
- 2. Update Doc 9137**



# FLIGHT PLAN

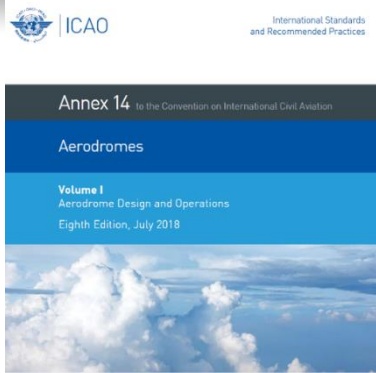
- Annex 14  
Aerodromes
- ICAO Doc 9981  
PANS Aerodromes
- ICAO Doc 9137  
WHM Manual





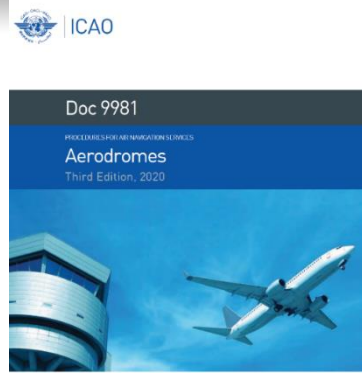
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**Annex 14:**  
- Standards  
- Recommended practices

Adopted by Council



**PANS:**  
**Procedures for Air Navigation Services**

Approved by Council



**Manual:**  
**Guidance**

Approved by and published under the authority of the Secretary General



*ICAO Wildlife Hazard Management Expert Group*



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## Wildlife management EASA view

Klikken om een ondertitel toe te voegen

**Your safety is our mission.**

An agency of the European Union 

TE.GEN.00409-001



## Essential requirements for WHM

- Annex VII of Regulation (EC) No 1139/2018
  - The aerodrome operator shall establish and implement an appropriate aerodrome wildlife risk management programme directly or through arrangements with third parties
  - Hazards related to human activities and land use and the risks caused by them shall be assessed and mitigated as appropriate:
    - The creation of areas that might encourage wildlife activity in the surrounding of the aerodrome movement area



## Approach to wildlife management

### ➤ Shared responsibilities between:

#### ➤ Member States

- National Regulations for land use planning
- Certification and oversight of aerodromes

#### ➤ EASA

- Preparation of regulations and adoption of AMC/GM
- Standardisation inspections

#### ➤ Aerodrome operators

- Establishment of a wildlife management programme



## Approach to wildlife management

- **Aerodrome operator**
  - Assess the wildlife hazard on, and in the surrounding of the aerodrome
  - Establish means and procedures to minimise the risk of collisions between wildlife and aircraft
  - Notify the appropriate authority if assessment demonstrates that conditions in the surroundings of the aerodrome increase wildlife risk



## Approach to wildlife management

- ▶ The “How”
  - ▶ Risk assessments
    - » Part of the aerodrome SMS
  - ▶ Recording and reporting wildlife strikes
  - ▶ Assignment of accountable persons
    - » Programme manager
    - » Manager of daily activities
  - ▶ Trained and competent personnel
    - » Initial, recurrent and refresher training
  - ▶ Procedures
    - » To be included in the aerodrome manual
  - ▶ Mitigating measures considering local conditions





## Approach to wildlife management

- Further information and legal text can be found under the following link:

<https://www.easa.europa.eu/document-library/general-publications/easy-access-rules-aerodromes-regulation-eu-no-1392014>

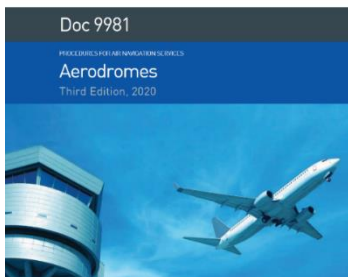


## PANS Aerodromes

2015: 1<sup>st</sup> edition

2016: 2<sup>nd</sup> edition

2020: 3<sup>d</sup> edition



## The PANS

1. Are complementary to Standards and Recommended Practices
2. Specify in greater detail procedures to be applied

## Chapter 6. Wildlife hazard management

### 6.1 General

### 6.2 Objectives

### 6.3 Operational practices

Appendix 1 to chapter 6:

Wildlife control training

Appendix 2 to chapter 6:

Wildlife incident reporting criteria

Attachment to Chapter 6:

Land use on and around aerodromes



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Doc 9137

Airport Services Manual

Part 3 — Wildlife Hazard Management  
Fifth Edition, 2020



Approved by and published under the authority of the Secretary General

INTERNATIONAL CIVIL AVIATION ORGANIZATION

**2020**

**ICAO Doc 9137**

**fifth edition**

**Wildlife Hazard Management**



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## Chapter 1. Introduction

1.1 What is a wildlife hazard?

1.2 Historical background

1.3 Fundamentals of wildlife hazard management



Chapter 1. General





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## Chapter 2. Stakeholders

2.1 Introduction

2.2 Aerodrome operators

2.3 Stakeholders within the aerodrome

2.4 Identifying external stakeholders in the community

2.5 Civil aviation authorities (CAAs)

2.6 Methods of communication

2.7 Establishment of a national committee or forum



Chapter 2.  
Establishment of a  
national committee

Various paragraphs





### Chapter 3. Aerodrome wildlife safety risk assessment

- 3.1 Introduction to safety risk management
- 3.2 Estimating the probability of a strike
- 3.3 Estimating the severity of a strike
- 3.4 Estimating the safety risk of wildlife species



Chapter 6.  
Assessment of the risk of  
bird/wildlife strikes.

Severity			Higher	→
Likelihood	←		Lower	
↑				
More		Acceptable with Mitigation		
Less				
↓				



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## Chapter 4. Habitat management

4.1 General

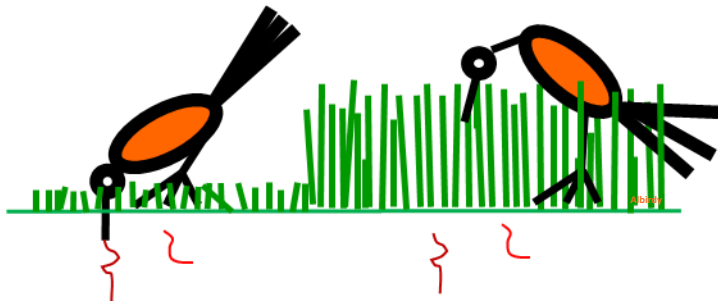
4.2 Attractants

4.3 On-aerodrome management

4.4 Off-aerodrome management



Chapter 7.  
Habitat management and  
site modification





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## Chapter 5. Management of hazardous wildlife

5.1 The importance of understanding animal behavior

5.2 Patrols and observations

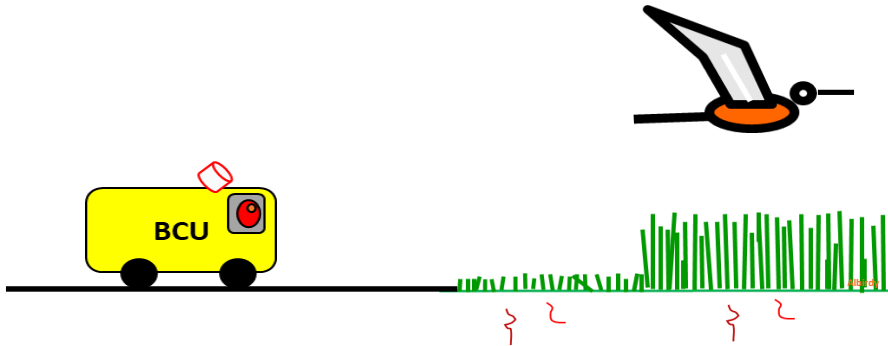
5.3 Repellents



Chapter 8.  
Repellent techniques



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## Chapter 6. Advancements in technology

### 6.1 General

### 6.2 Satellites for land use monitoring

### 6.3 Geographical information system (GIS)

### 6.4 Detection systems

### 6.5 Remotely piloted aircraft systems (RPAS) and drones

### 6.6 Pulse lights on aircraft and aerodrome use of flashing light patterns

### 6.7 Database



## Chapter 12. Emerging technology and communications procedures





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## Chapter 7. Training

7.1 Training requirements

7.2 Content of a training plan



Paragraph 4.9

Staff training

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## Chapter 8. Operational notifications

### 8.1 General

### 8.2 Automatic terminal information service (ATIS)

### 8.3 Notice to airmen (NOTAM)

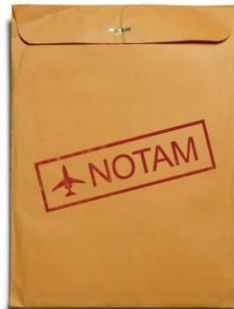
### 8.4 Pilot report

### 8.5 Aeronautical information publication (AIP)



Paragraph 12.3

Communications and procedures



## Chapter 9. Wildlife hazard management programme

9.1 Aerodrome wildlife hazard management programme (WHMP)

9.2 Wildlife hazard management programme evaluation

9.3 CAA evaluation of wildlife hazard management programme effectiveness

9.4 CAA evaluation of their safety oversight system for wildlife hazard

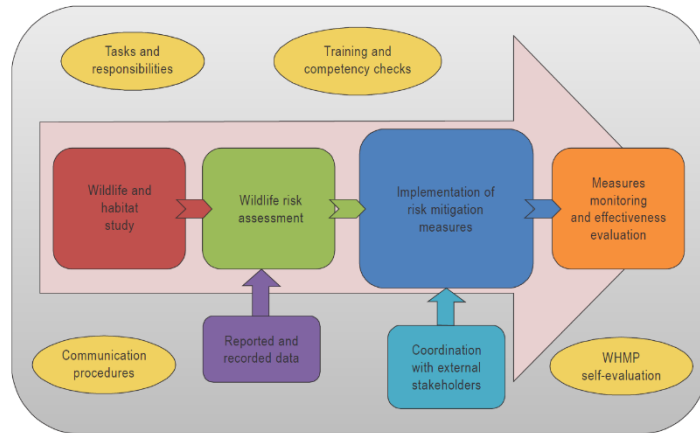


Chapter 3.

Roles and responsibilities within a bird/wildlife strike control programme

Chapter 4.

Organization of an airport bird/wildlife strike control programme





THANK YOU!