



WILDLIFE HAZARD MANAGEMENT PLAN
JUBA INTERNATIONAL AIRPORT

Manual Number	Revision Number
JIA/WHM/001	One

November 2025



Wildlife Hazards Management Plan

WILDLIFE HAZARD MANAGEMENT

PLAN

PREFACE

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Wildlife Hazards Management Plan

0.1 FORWARD

In accordance with the provisions of ICAOA nnex14 and South Sudan Civil Aviation Authority Regulations (SCARS), Juba International Airport has established a Wildlife Management plan commensurate with the operations and other activities conducted thereat. The purpose of the plan is to assist the airport wildlife service in the implementation of the specifications and thereby ensure their uniform application.

The plan includes materials concerning wildlife activities that should be planned for a description of measures used commensurate with the hazards.

It is intended that the plan be kept up to date. Future editions will most likely be improved, on the basis of experience gained and of comments and suggestions received from stakeholders, therefore views, comments, and suggestions on the plan should be directed to the Wildlife Supervisor, Juba International Airport,

PO Box: *PO Box 123456*. clientcare@caa.co.za

This plan has been prepared in compliance with PART 26 of Civil Aviation (Aerodrome) Regulations

2019(Annex XXVI) establishing regulations governing civil aviation. This document forms part of the

Aerodrome manual for Juba International Airport.

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0.2 APPROVAL PAGE

Prepared on behalf of:

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Date:

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Manger of Aerodrome AGA – Standards & Safety

Accepted by:

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Date:

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Dr. Eng. Ayiei Garang Deng Ayiei

Director General

South Sudan Civil Aviation Authority

0.3 RECORD OF AMENDMENTS

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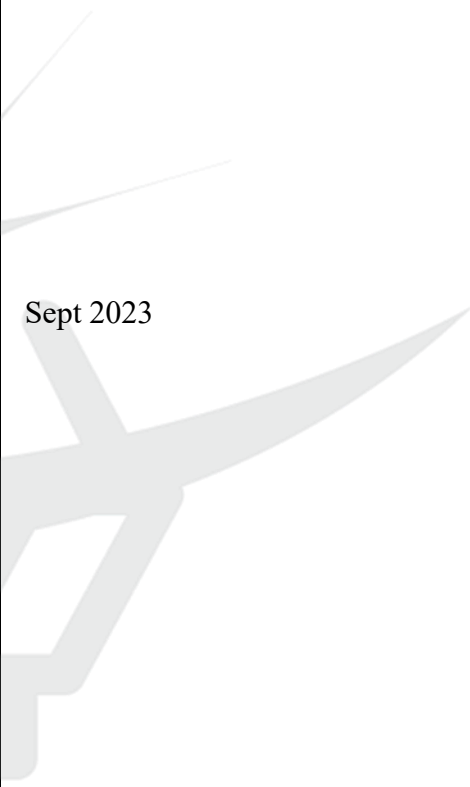
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1.	KICUKIRO DISTRICT	
2.	GASABO DISTRICT	
3.	MVK	
4.	AIRPORT OPERATIONS	
5.	RDF(RAF)	
6.	RNP (SAPU)	
7.	AIR OPERATORS	
8.	NYARUGENGE DISTRICT	
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1. GENERAL

Juba International Airport is permitted to operate as an aerodrome under a license issued by the Director General of the South Sudan Civil Aviation Authority.

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Wildlife Hazards Management Plan

In conformance with the requirements stipulated in the Aerodrome Licensing Requirements of South Sudan, Juba International Airport implements its Wildlife Hazard Management Plan.

This document describes the elements of the Wildlife Management Plan for Juba International Airport in terms of its structure and implementation.

This Wildlife Management Plan is issued under the authority of the Managing Director of the airport authority and is maintained by the Wildlife Supervisor.

Juba International Airport adopted a rigorous risk-based approach to develop this WHMP and established management procedures to ensure the WHMP is properly implemented in accordance with the relevant requirements of the South Sudan Civil Aviation Regulations (Part 26). The planning, implementation, and review structure is detailed in **SUBPART G**.

1.1 PURPOSE

The purpose of this Wildlife Hazard Management Plan (WHMP) is to document and define the risk that wildlife poses to air traffic at Juba International Airport and to set objectives, performance indicators, and procedures in place for the systematic management of that risk.

The Juba International Airport Management monitors and records, on a regular basis, the presence of wildlife on or in the vicinity of the aerodrome. The wildlife hazard management team under Airport Operations is responsible for the wildlife hazard control and reduction program.

The WHMP fulfills the requirements mandated by the South Sudan Civil Aviation Regulations and the provisions of 26.310-26.325, and Aerodrome Manual Part 4.41.

1.2 POLICY

The safety of aircraft and passengers at JIA is paramount. The Management is committed to ensuring the safety of aircraft using the airport.

It is not possible to prevent all wildlife strikes, the WHMP aims to reduce the frequency and severity of strikes by focusing management efforts on species and habitats that constitute significant hazards to aircraft that operate at JIA. All care is taken to ensure that the culling of birds and wildlife is a last resort and this option is only used after all other bird and animal deterrents and controls have been undertaken/implemented.

Juba International Airport Management is committed to ensuring the safety of aircraft using JIA.

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1.3 GOALS

The goal of this WHMP is to protect passengers, flight crews, aircraft and operational capability by reducing the frequency of collisions between aircraft and wildlife on and in the vicinity of the aerodrome.

1.4 OBJECTIVES

The objectives of the WHMP are to:

- a. Reduce infringements of critical airspace by high and moderate risk wildlife species.
- b. Ensure that adequate systems are in place to define roles, responsibilities and procedures for managing wildlife risks at JIA.
- c. Ensure compliance with all relevant airport operational and environmental legislation and regulations Define the methods by which wildlife hazards are managed at JIA
- d. Develop performance goals and targets for adaptive management of wildlife issues and outline how these will be assessed and reviewed.

1.5 REFERENCES

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- a. Wildlife study at JIA done by Endangered wildlife trust, November 2006.
- b. Aerodrome Manual.
- c. South Sudan Civil Aviation Regulations Part 26-Subpart G

1.6 DEFINITIONS

Wildlife Supervisor-This is the in charge of Wildlife Hazard Management activities at Juba

International Airport.

Wildlife Officer-This is the WHM team member who participate in wildlife control on daily basis.

Bird control Vehicle-This is the vehicle used in Bird scaring and patrol activities at the airport.

1.7 ACTIVE MANAGEMENT

Active management involves the dispersal through harassment, trapping and removal, or culling of wildlife. It is JIA policy to use all appropriate means of dispersal, leaving the option to cull as a last resort when harassment activities have not effectively managed the risk. Lethal control is occasionally used to reinforce non-lethal means. Active management methods employed at Juba International Airport include



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Prior to each landing and take-off movement, when traffic permits the WHMT inspects the runway for birds and wildlife on the Runway. When the WHMT encounters an animal or a bird likely to pose a risk to an Aircraft, dispersion techniques are employed.

1.9 HARASSMENT TECHNIQUES

Bird harassment and dispersal of birds from the runway and surrounding airfield remains the most effective and immediate tool in bird management. Harassment activities are based on a priority rating with a concentric approach from the runway. The runway and associated undershoots are the main priority to be clear of birds. The runway strips being the second priority, the surrounding area the third priority and so forth. A dedicated Wildlife Officer is rostered for 10 hours a day to concentrate on bird harassment and culling of specific problem species either likely to result in or involved in strikes.

The following harassment and dispersal methods are used at JIA:

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- a. Vehicle lights, sirens and horns.
- b. Pyrotechnic.
- c. Bird distress calls.
- d. Handheld Bird Deterrence laser

1.9.1. Pyrotechnics

Pyrotechnics include various ammunitions that are fired from shotguns or pistols. They include shell crackers, flares, firecrackers, rockets, and mortars. The loud and abrupt noise emitted by some pyrotechnics is similar to that of shotguns. Some pyrotechnics also involve flashes of light, providing a visual as well as an auditory deterrent. Some devices



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travel 25 to 300 metres before exploding in a flash of bright light. Others travel as far as 100 metres while emitting a continuous screaming or whistling noise.

1.9.2 Nest removal

Nests of birds identified as an aviation risk species on Airport grounds (Airside and Landside) will be removed and eggs destroyed in accordance with permits in place.

1.9.3 Handheld Bird Deterrence Laser

Birds perceive the Handheld Bird Deterrence laser spot as an approaching physical danger. Once they perceive the laser spot, they fly away in search of safer ground and, in contrast to conventional methods of bird deterrence, there will be no habituation. After consistent use of the Handheld, birds will perceive the controlled area as unsafe and will not return

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2 PLANNING

Juba International Airport has adopted a three-step approach to assessing and reducing the risk posed by wildlife to aircraft:

- a. Hazard identification** – broad assessment of the airport’s hazard profile, including aircraft movements, the habitat and activities that attract wildlife both on and off airport, the species most observed on and off airport, and the trends observed in wildlife strikes
- b. Risk assessment** – a risk assessment based on the information available on wildlife numbers, behavior, characteristics and/or strikes for each species encountered on and around the airport
- c. Wildlife Management Plan** – a plan comprising actions for each of the highest risk species, supported by a summary of their relevant characteristics, identified by key airport staff that help the airport reduce the degree of risk and meet its wildlife management goals and objectives.

2.1. HAZARD IDENTIFICATION

2.1.1 Aircraft movement and types

Generally, the more aircraft movements at an aerodrome the greater the chances of wildlife strike.

Different aircraft have different susceptibility to wildlife strikes. Large turbo fan aircraft tend to fly fast, have a large frontal surface area, have a great sucking power through their engines, rendering them more likely to strike wildlife than propeller driven aircraft. In South Sudan, Regular Passenger Transport aircraft are more likely to report a strike than general aviation aircraft. On the other hand, light aircraft are not subject to the same rigorous design standards imposed on commercial jet aircraft.

*Wildlife Hazards Management Plan***2.1.2 On airport hazards****2.1.2.1 Habitats**

Habitat types at Juba International Airport that can be attractive to wildlife are identified in Figure 1 on the following page and include:

- a. Managed Grassland
- b. Stagnant water at airside
- c. Building

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Wildlife is seen to inhabit the managed grassland near the runway for feeding. Black headed heron, African marsh harrier and pigeon commonly use the managed grasslands for feeding.

2.1.2.2 Activities

Activities at Juba International Airport that can be an attractant to wildlife include:

- a. Mowing: Exposes insect from habitat
- b. Airport Lights: Attract moths and insects which serve as a food source for some bird species
- c. Waste Disposal areas: Food scraps present as a food source for bird's species and vermin, such as mice and rats, which some bird species feed upon.

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- d. Lighting on construction site (projectors): attracts insects which serve as food source for some bird species.

2.1.2.3 Natural Phenomena

Natural phenomena that attract wildlife at Juba International Airport include:

Figure 02 : Off airport hazards

- a. High Rainfall seasons. Water lays around several potholes on service road and apron, as well as grassed areas, attracting Black kites and other wetland species.
- b. Anthills provide a food source for various wildlife species
- c. Large numbers of Grasshoppers have been recorded, providing a food source for various wildlife species.

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Figure 1: – On airport hazards

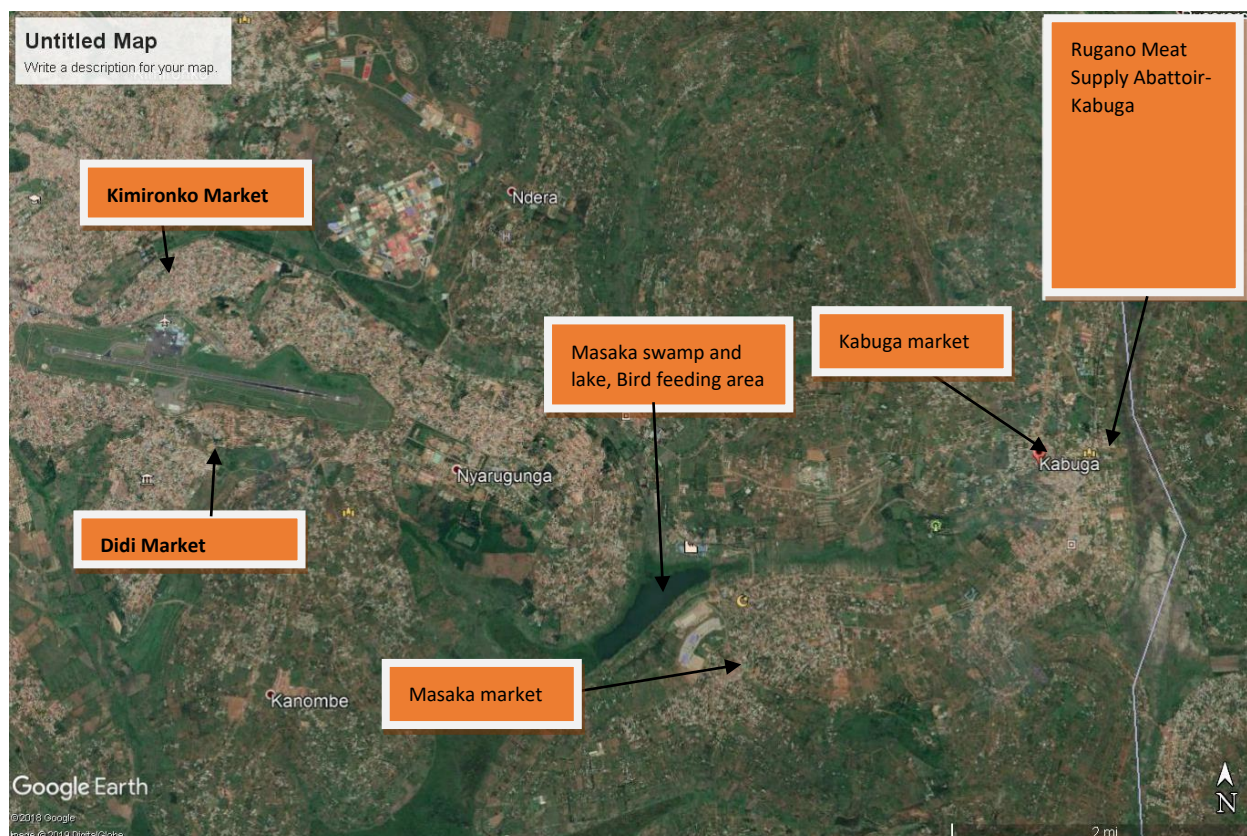


2.1.3 Off airports hazards

Habitat types and actives occurring in the vicinity of Juba international Airport that can be attractive to wildlife are identified Figure 02 on the following page and include:

Location	Proximity to JIA	Site Description	High & Moderate Risk species
swamp area	north–northwest of the runway 1 KM.	Open grassland with patches of bare ground, seasonal wetlands, drainage channels, and disturbed land associated with airport infrastructure.	High risk: Large flocking birds (e.g. marabou storks, vultures, egrets). Moderate risk: Kites, crows, herons, small ground-feeding birds.
Gabat neighborhood	East understanding of the runway, extending along the river corridor	Gabat residents, these areas support feeding, nesting, and loafing sites for water birds and other wildlife. Agricultural activity and fishing further enhance food availability.	High risk: Water birds such as pelicans, storks, ibises, herons, and geese. Moderate risk: Ducks, waders, raptors, and bats

Figure 2: – Off airport hazards



2.1.3 Wildlife strike history

Wildlife strike records are an important source of information for determining the hazards present at airports. The information collected allows an assessment of species struck and trends across years, seasons, months and time of the day.

At Juba International Airport there have been a total of 299 confirmed strikes recorded between 2007 and 2022. For 2022, total strikes reported per 10,000 aircraft movements have been calculated at 2.1. Damaging strikes to aircraft result in costs to operators, and potentially compromise safety. Therefore, these are the most important strikes to prevent. Between 2007 and 2022 a total of 05 strikes resulted in known damage or delay to aircraft. A summary of annual strike trends in Table 1, a more detailed analysis of strike data in Table 2, and charts showing strike trends are provided below.

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Table 1: - Juba International Airport annual wildlife strike trend summary

Year	Total No. Strikes	No. Strikes / 10,000 aircraft movements	Total No. Damaging Strikes	comments
2007	18	16.8	00	Most frequently struck species include black kite and black headed heron.
2008	24	11.24	00	Most frequently struck species include black kite, black headed heron and owl.
2009	25	22.5	00	Most frequently struck species include black kite, and black headed heron.
2010	12	8.12	00	Most frequently struck species include black kite.
2011	16	8.3	00	Most frequently struck species include black kite, black headed heron and owl.



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2012	28	13.8	01	Most frequently struck species include black kite, black headed heron, and owl.
2013	25	11.74	00	Most frequently struck species include black kite black headed heron.



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2014	10	4.52	00	Most frequently struck species include black kite and black headed heron.
2015	22	10.14	00	Most frequently struck species include black kite and black headed heron.
2016	30	13.3	2	Most frequently struck species include black kite and black headed heron.
2017	42	17.5	1	Most frequent struck species include black kite and black headed heron.
2018	22	9.0	0	Most frequent struck species include black kite and black headed heron.
2019	14	5	0	Most frequent struck species include black kite and plover



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2020	06	4	0	Most frequent struck species include black kite and black headed heron
2021	05	2.5	0	Most frequent struck species include black kite
2022	05	2.1	1	Most frequent struck species include black kite, pigeon, owl and African marsh harrier

Table 2: - Kigali International Airport detailed wildlife strike analysis summary

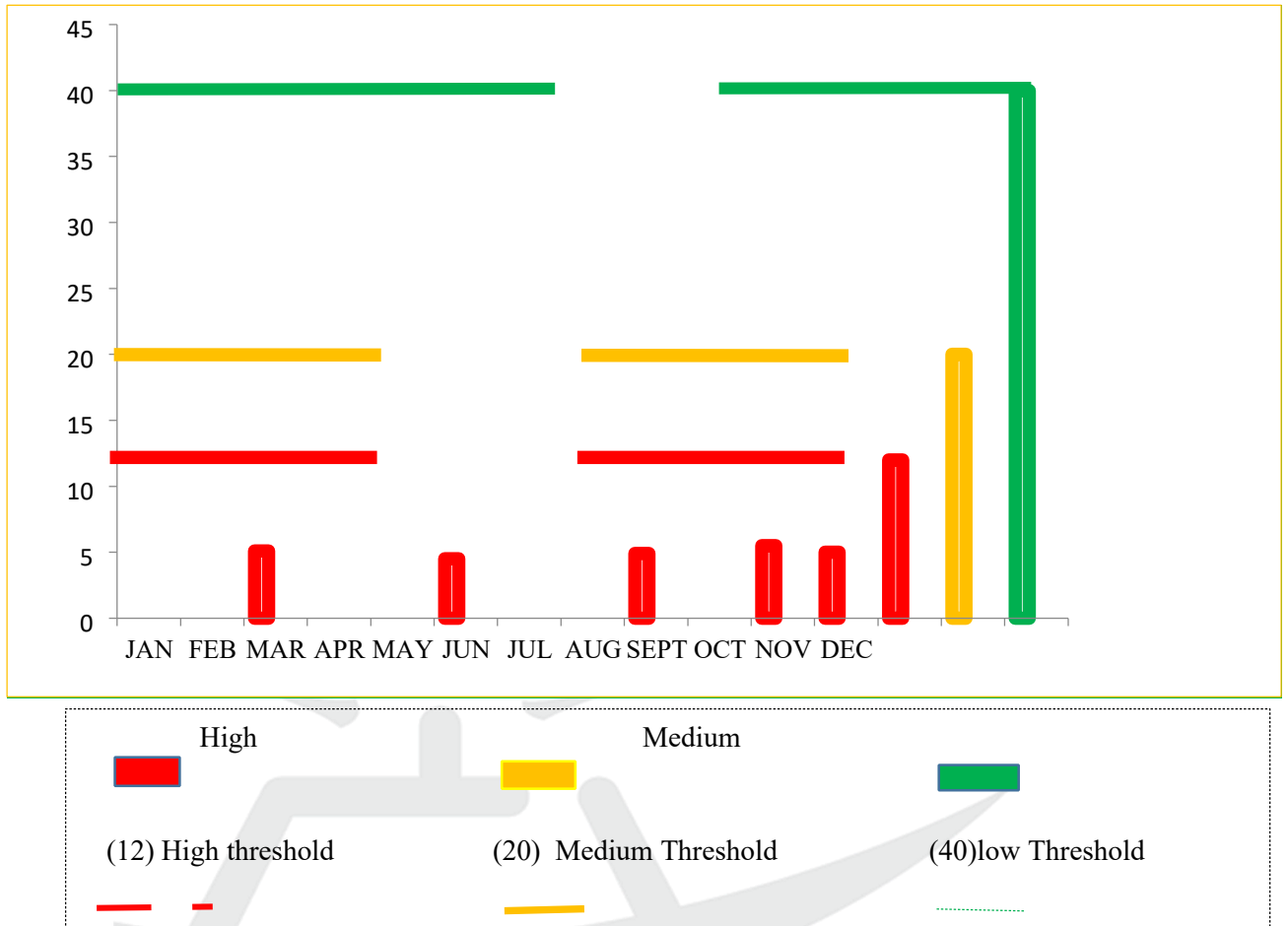
Species	Total No. Strikes in 2022	No. Strikes / 10,000 aircraft movements in 2022	Total Annual Strike Trend Average 2007-2022	When/Where Strikes Mostly Occur		
				Month/Season	Time(s) of Day	Location on Airport
Black kite	05	2.1	9.9	Feb, April, May, June, Aug, Sept, Oct and Nov/both rainy and Dry seasons	Morning, Afternoon and evening	77% at RWY28 23% at RW Y10
Black headed heron	0	0	1.4	Mar&Oct/rainy season and Jun/Dry season	Morning & evening	66.6% at RWY 28 33.4% at RWY 10
Sacred ibis	0	0	0.03	Nov/rainy season	morning	RWY 28
falcon	0	0	0.2	Nov/rainy season	morning	RWY28
OWL	0	0	0.58	Oct/rainy season	morning	RWY28
African Mash Harrier	0	0	0.04	Feb/rainy season	afternoon	RWY10



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Figure 3: – WILDLIFE STRIKE RATE KPIs 2022





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Figure 3.1- Species-Specific Trends

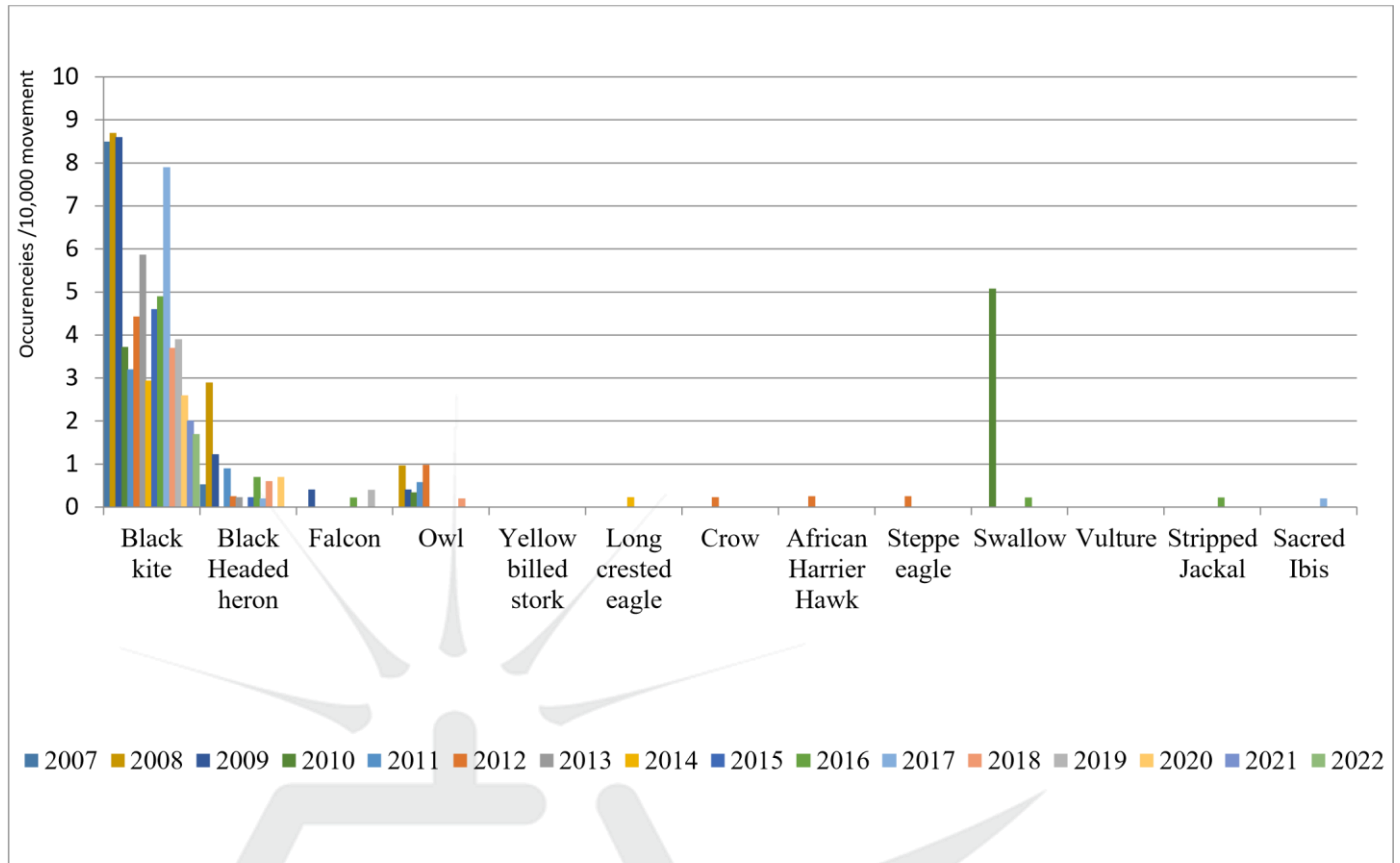
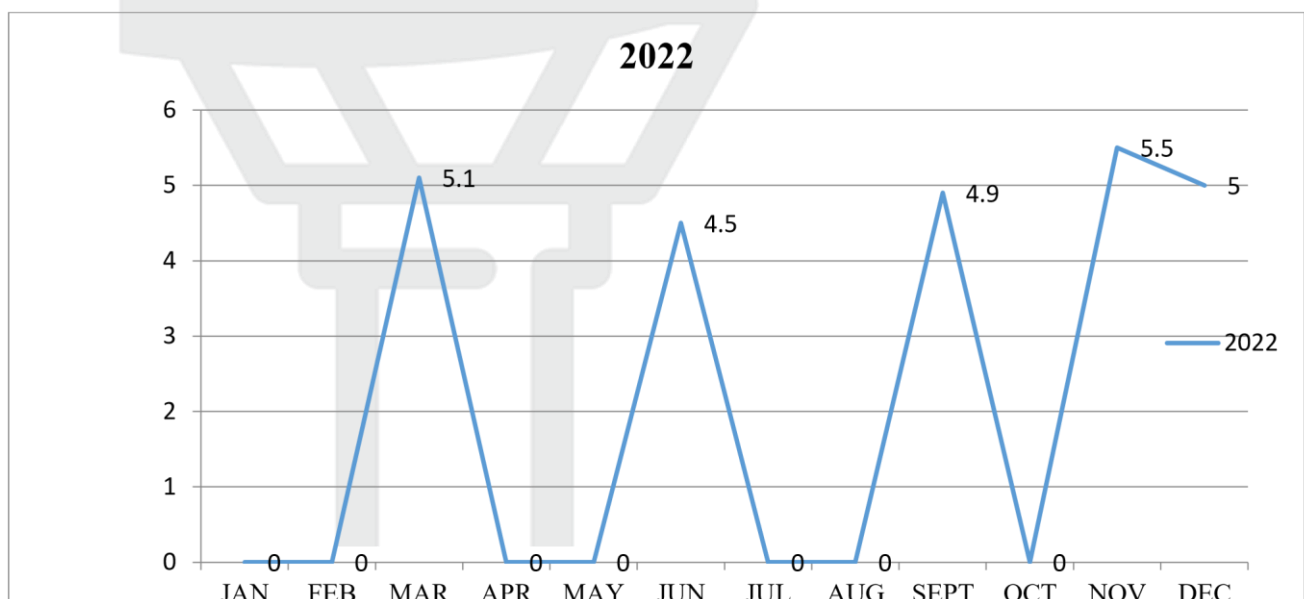


Figure 3.2 Monthly Strikes in 2022 per 10,000 movements





2.2 RANKING SPECIES BY RISK

There are several methods available to rank the species present at an airport in order of risk. Doing so allows for resources to be targeted at the species (and the habitats they prefer) that present the greatest threat to aviation and operations at Juba International Airport.

Typically, the outcome of a risk assessment is a probability versus consequence matrix, an example of which is provided in the table 3 below. The species found to exhibit the highest probability of being involved in a strike and potentially result in the greatest damage (consequence) to aircraft are then listed as an ‘extreme’ or ‘very high’ risk species in the upper left-hand boxes of the matrix.

2.2.1 Risk Assessment Method

The Juba International Airport has adopted the “Safety Management Risk Assessment Matrix” principle, which is endorsed by the JIA Bird and Wildlife Hazard Committee and uses historical strike data to assign a risk to specific bird species. Species are classed as high, moderate or low risk by using strike data from the past eleven years. Bird species are categorized in terms of their probability of being struck (using last five-years strike history from the airport), and the likelihood of damage should they be struck.

2.2.2 Risk Ranking

The result of the risk assessment for Juba International Airport is presented in risk matrix (Table 3) below. Based on the method used, the highest risk species are Black kite, Black Headed Heron, Yellow billed stork, Hooded Vulture, long crested eagle, Hawk, Steppe eagle, Falcon, Pied crow, Owl, and therefore, these are the priority targets of our wildlife management activities.

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Table 3: – Risk ranking of species for Juba International Airport

Risk Probability	Risk severity				
	Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent 5		Black kite Black headed heron,owl			
Occasional 4		Yellow Billed Stork, Steppe eagle, Hadada Ibis, Sacred Ibis, Hawk, Owl, African Marsh Harrier, Falcon, Common kestle, Long crested eagle			
Remote 3	Stripped Jackal, Hooded Vulture, Marabou stork, Grey Crowned crane				House matins, swallow
Improbable 2		Piedcrow, Dove,Hamerkop			
Extremely Improbable 1					Bishop



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Table 4: Safety risk tolerability

Safety Risk Index Range	Safety Risk Description	Recommended Action
5A, 5B, 5C, 4A, 4B, 3A	INTOLERABLE	Take immediate action to mitigate the risk or stop the activity. Perform priority safety risk mitigation to ensure additional or enhanced preventative controls are in place to bring down the safety risk index to tolerable.
5D, 5E, 4C, 4D, 4E, 3B, 3C, 3D, 2A, 2B, 2C, 1A	TOLERABLE	Can be tolerated based on the safety risk mitigation. It may require management decision to accept the risk.
3E, 2D, 2E, 1B, 1C, 1D, 1E	ACCEPTABLE	Acceptable as is. No further safety risk mitigation required.



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2.3 WILDLIFE MANAGEMENT PLAN

2.3.1 Elements of the Plan

The WMP consists of a number of elements which are detailed as follows.

- a. A habitat management programme to minimize the attraction of the Airport and its environs for birds.
- b. Continuous surveillance throughout operating hours of the Airport surface and the airspace overhead and immediately around the Airport for hazardous concentrations and movements of birds.
- c. Active dispersal of birds from the Airport by mobile patrols and portable dispersal devices
- d. Warnings passed to ATC from the Bird Control Officer of hazardous concentrations and movements of birds that cannot be immediately dispersed.
- e. Shooting birds and removing nests and eggs when non-lethal measures prove ineffective or require reinforcement to retain their effect.
- f. Intelligence gathering and utilization through record keeping, surveys of the local area, data analysis and reporting to maintain operational standards and produce a sound and current background of knowledge on which to base and update bird control mechanism.

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- g. A bird management plan agreed with the National Wildlife Committee and arrangements for consultation with other external stakeholders.

Table 5 below presents a summary of species with a high risk ranking for Juba International Airport and management actions proposed for each species.

Table 5: – Risk summary of species for Juba International Airport

Rank	Species	Description	Habitat	Strike history	Management actions
High	Stripped Jackal 	the sidestriped jackal primarily dwells in woodland and scrub areas. Weight 6.514 kg. They are usually seen during rainy season.	Side-striped jackals originate from outside the airport, they enter the airport through unprotected water ducts and unsecured fence and they are living in the water ducts inside the airport.	Strikes last 5 years – 0 Strikes last 12 months – 0 Damaging strikes – 0	Maintenance of the boundary fence for the airport, protected with mesh wire at both end of water duct and poisoning of stripped jackal when seen at the airport.
High	Marabou stork 	A massive bird, large specimens are thought to reach a height of 150 cm and weigh 6– 10.5 kg.	Marabous breed on the treetops, where they build large nests. Generally, not attracted to the airport habitats, but camp 4km to the west of the airport.	Strikes last 5 years – 0 Strikes last 12 months – 0 Damaging strikes – 0	Long term – Relocation of animal slaughter House which are within 13km radius. Short term – monitor and ensure intensive dispersal occurs when observed.



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High	Grey Crowned crane	- body s ize (3.5kg) few come t o airport looking for food.	Generally attracted to the airport habitats due to insects found at the Airport.	Strikes last 5 years – 0 Strikes last 12 months – 0 Damaging strikes – 0	Removal of grass after mowing near the runway. Disperse using distress calls and pyrotechnics To reduce food supply at the airside by elimina ting anthills and replacing lights that attracts insects at the airport.
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High	Steppe eagle 	Medium body size (3.5kg) few come to airport looking for food.	Generally attracted to the airport habitats due to insects and rodents found at the Airport.	Strikes last 5 years – 0 Strikes last 12 months – 0 Damaging strikes – 0	Removal of grass after mowing near the runway. Disperse using laser, distress calls and pyrotechnics To reduce food supply at the airside by eliminating anthills and replacing lights that attracts insects at the airport.
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High	HOODED VULTURE 	Medium body size (2.6 kg) few come to airport looking for food.	Generally attracted to the airport habitats due to insects found at the Airport. And abattoir surrounding the airport.	Strikes last 5 years – 0 Strikes last 12 months 0 Damaging strikes – 0	Removal of grass after mowing near the runway. Disperse using distress Calls and pyrotechnics To reduce food supply at The airside by eliminating anthills and replacing lights
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					that attracts insects at the airport, and proper animal waste management at a abattoir surrounding Airport.
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High	YELLOW BILLED STORK 	Medium body size (1.9 kg) few come to airport looking for food.		Strikes last 5 years – 0 Strikes last 12 months–0 Damaging strikes – 0	Removal of grass after mowing near the runway. Disperse using laser, distress calls and pyrotechnics To reduce food supply at the airside by eliminating anthills, replacing lights that attracts insects at the airport, and cutting trees used to be roosting area around the airport.
High	Long crested Eagle 	Medium body size (1.5 kg). Most of their diet is rodents; one survey found they made up 98% of their diet. Other prey includes small birds, lizards, arthropods and fish, and	Generally attracted to the airport habitats due to rodent found at the airport.	Strikes last 5 years – 0 Strikes last 12 months – 0 Damaging strikes – 0.	Disperse using distress calls and pyrotechnics

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		they are known to eat wild figs and mulberries.			
High	BLACK HEADED HERON 	Medium body Size (1.2 kg). Feeds on a variety of terrestrial invertebrates and Vertebrates. Invertebrates include insects.	Generally attracted to the airport habitats during grass cutting but not camp at the airport.	Strikes last 5 years – 04 Strikes last 12 months – 0 Damaging strikes – 0	Disperse using laser, distress Calls and pyrotechnics stop grass cutting activity 10 minutes before arrivals and departures. Monitor populations and inform stakeholders of elevated risks via NOTAM.

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High	Falcon 	Medium body size (1.5kg) few come to the airport looking for food.	Attracted to insects found at the airport	Strikes last 5 years – 1 Strikes last 12 months – 1 Damaging strikes – 0.	Removal of grass after mowing near the runway. Disperse using laser, distress calls and pyrotechnics To reduce food supply at the airside by eliminating anthills and replacing lights that attracts insects at the airport.
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High	Hawk 	Medium body size (1.4kg) few come to the airport looking for food.	Attracted to insects found at the airport.	Strikes last 5 years – 0 Strikes last 12 months – 0 Damaging strikes – 0.	Removal of grass after mowing near the runway. Disperse using distress calls and pyrotechnics
					To reduce food supply at the airside by eliminating anthills and replacing lights that attracts insects at the airport.



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High	Sacred Ibis	Medium body size (1.35kg) few come to the airport looking for food.	Attracted to insects found at the airport.	Strikes last 5 years – 0 Strikes last 12 months –1 Damaging strikes – 0.	Removal of grass after mowing near the runway. Disperse using distress calls and pyrotechnics To reduce food supply at the airside by eliminating anthills and replacing lights that attracts insects at the airport.
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High	Hadada Ibis 	Medium body size (1.3kg) few come to the airport looking for food.	Attracted to insects found at the airport.	Strikes last 5 years – 0 Strikes last 12 months – 0 Damaging strikes – 0.	Removal of grass after mowing near the runway. Disperse using distress calls and pyrotechnics To reduce food supply at the airside by eliminating anthills and replacing lights that attracts insects at the airport.
High	BLACK KITE	Medium body size (0.9 kg). Large flocks come to the airport	Generally attracted to the airport habitats due to insects found at the airport.	Strikes last 5 years – 42 Strikes last 12 months – 05 Damaging strikes – 02	Removal of grass after mowing near the runway. Disperse using distress calls,



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		looking for food.			handheld laser, and pyrotechnics To reduce food supply at the airside by eliminating anthills, replacing lights that attract insects at the airport and stop grass cutting activity 10 minutes before arrivals and departures.
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High	African mash harrier 	Medium body size (0.65kg) few come to the airport looking for food.	Attracted to insects found at the airport.	Strikes last 5 years – 0 Strikes last 12 months – 0 Damaging strikes – 0.	Removal of grass after mowing near the runway. Disperse using laser, distress calls and pyrotechnics To reduce food supply at the airside by eliminating anthills and replacing lights that attracts insects at the airport.
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High	Owl 	Medium body size (0.7kg) few come to the airport looking for food during night.	Attracted to insects found at the airport.	Strikes last 5 years – 1 Strikes last 12 months – 1 Damaging strikes – 0.	Removal of grass after mowing near the runway. Disperse using laser, distress calls and pyrotechnics To reduce food supply at the airside by eliminating anthills and replacing lights that attracts insects at the airport.
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High	Common kestrel 	Medium body size (0.3kg) few come to the airport looking for food.	Attracted to insects found at the airport.	Strikes last 5 years – 0 Strikes last 12 months – 0 Damaging strikes – 0.	Removal of grass after mowing near the runway. Disperse using laser, distress calls and pyrotechnics To reduce food supply at the airside by eliminating anthills and replacing lights that attracts insects at the airport.
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Medium	Pied crow 	Medium body size (0.5kg) few come to the airport looking for food		Strikes last 5 years –1 Strikes last 12 months –0 Damaging strikes – 0.	Removal of grass after mowing near the runway. Disperse using laser, distress calls and pyrotechnics To reduce food supply at the airside by eliminating anthills and replacing lights that attracts insects at the airport. Make airport free from garbage.
Medium	Pigeon 	Medium body size (0.45kg) few come to the airport looking for food.	Attracted to insects found at the airport.	Strikes last 5 years –1 Strikes last 12 months –0 Damaging strikes – 0.	Removal of grass after mowing near the runway. Disperse using laser, distress calls and pyrotechnics To reduce food supply at the airside by eliminating anthills and replacing lights that

					attracts insects at the airport.
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Medium	Hamerkop 	Medium body size (0.4kg) few come to the airport looking for food	Attracted to insects found at the airport.	Strikes last 5 years – 0 Strikes last 12 months – 0 Damaging strikes – 0.	Removal of grass after mowing near the runway. Disperse using laser, distress calls and pyrotechnics To reduce food supply at the airside by eliminating anthills and replacing lights that attracts insects at the airport.
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Low	Swallow 	Small body size (0.06kg) few come to the airport looking for food.	Attracted to insects found at the airport	Strikes last 5 years – 0 Strikes last 12 months – 0 Damaging strikes – 0.	Removal of grass after mowing near the runway. Disperse using distress calls and pyrotechnics To reduce food supply at the airside by eliminating anthills and replacing lights that attracts insects at the airport.
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					anthills and replacing lights that attracts insects at the airport.
Low	Bishop 	Small body size (0.14kg) few come to the airport looking for food.	Attracted to insects found at the airport and hangars.	Strikes last 5 years – 0 Strikes last 12 months – 0 Damaging strikes – 0.	Removal of grass after mowing near the runway. Disperse using distress calls and pyrotechnics To reduce food supply at the airside by eliminating anthills and replacing lights that attracts insects at the airport.
Low	House martins 	Small body size (0.14kg) few come to the airport looking for food.	Attracted to insects found at the airport and hangars.	Strikes last 5 years – 0 Strikes last 12 months – 0 Damaging strikes – 0.	Removal of grass after mowing near the runway. Disperse using distress calls and pyrotechnics To reduce food supply at the airside by eliminating



Table 6: Summary of Active techniques

	Stripped Jackal	Marabou stork	Grey Crowned -crane	Steppe eagle	hooded vulture	yellow billed stork	Black kite	black headed heron	Falcon	Hawk	Sacred Ibis	Hadada Ibis	Long crested Eagle	African mash harrier	Owl	Common kestle	Pied crow	Pigeon	Swallow	House martin	Bishop
Laser							X	X	X	X	X	X		X	X	X	X	X	X	X	X
vehicle siren	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Bird distress call	x		x	x		x	x	x	x	x	x	x		x	x	x	x	x	x	x	x
Earthworm and snail sweeping							x	x	x	x	x	x		x	x	x	x	x	x		
Pyrotechnics		x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x		
Poisoning	X																				

If empty: This method does not apply.

3 IMPLEMENTATION

3.1 ROLES AND RESPONSIBILITIES

Director Airport Operations Department will be responsible for the overall coordination, supervision and management of the WHMP. This includes allocating resources, designating responsibility, coordinating training, reviewing performance of the Plan's implementation and chairing the AWHM Committee meetings.

Manager Juba International Airport will be responsible for Liaising with airport operators, local government and other stakeholders to assist in identifying and managing wildlife issues at Juba International Airport.

Airside Coordinator Oversee the implementation and review of the WHMP

Wildlife Supervisor will be responsible for implementing this WHMP at their site. This includes obtaining permits, providing training, monitoring bird numbers, collating strike data, auditing conformance to the WHMP, and drafting reports for review by Airport Wildlife Hazards Management Committee and senior management.

A detailed description of the roles and responsibilities of the staff at Juba International Airport (JIA) for managing wildlife hazards is provided in Appendix 2.

3.2 WILDLIFE MANAGEMENT MEASURES

Strategies for reducing the risk of strikes at JIA focus on managing wildlife populations on and surrounding the airport. Management measures, summarized in the sections below, can be classified into the following two categories:



- a. Proactive management – modifying habitats or other aspects of the environment to indirectly remove or reduce the number of birds in the risky areas; or
- b. Active management – directly removing or reducing the numbers of birds or animals in the risky areas.

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3.2.1 Proactive Measures

This procedure details the activities carried out by airport staff members whilst dealing with the implementation of pro-active wildlife hazard control measures at JIA.

The objective is to ensure that pro-active measures to prevent birds and other wildlife from visiting the airport are implemented on the airport to prevent the occurrence of aircraft wildlife strikes and wildlife interfering with airport operations.

In order to manage the wildlife hazard effectively on Juba International airport the following needs to be achieved:

- a. A thorough understanding needs to exist of the ecosystem in the area
- b. Wildlife supervisor must regularly review information regarding wildlife presence and abundance collected on the airfield
- c. A list of potential hazardous species must be compiled
- d. Ongoing monitoring and control measures must be carried out in order to understand these species in more detail.
- e. It may be necessary to carry out certain research projects to establish for example the food sources of hazardous bird species.
- f. Wildlife Supervisor as part of their duties monitor the habitat on the airfield to identify potential factors which may affect localized bird abundance (natural or human induced). These factors include:
 - i. Grass and vegetation height
 - ii. Drainage and standing water
 - iii. Temporary waste management
 - iv. Other attractants

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- g. It is the responsibility of the General Manager Juba International Airport to ensure that the necessary corrective action needed for any of the above factors is affected, through liaising with the necessary parties/departments and driving the process.

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- h. The Airport bird and wildlife committee meeting serves as a forum where these issues must be tabled for discussion and corrective actions implemented through the appropriate department or relevant stakeholder.

3.2.1.1 Grass or vegetation heights and associated management:

- a. The Wildlife Management staff members monitor grass/vegetation height and associated bird presence
- b. Grass/vegetation on the airfield is maintained at different heights for different areas on the airfield as prescribed in the grass and vegetation management plan.
- c. The aim is to establish a dense stand of medium height grass as close as possible to the runway/taxiway shoulder at a sufficient height to inhibit easy foraging by bird species such as plovers.
- d. The height at which the grass/vegetation is maintained must not obscure the visibility of runway lights, and or signage.
- e. Grass/vegetation at too tall a height also attracts other species of birds and wildlife and therefore poses a further safety hazard.
- f. Wildlife Hazard control staff should fill wildlife Hazard Control Logbook/sheet, all information regarding their observation and report to Wildlife Supervisor.

3.2.1.2 Standing water and associated drainage

- a. After heavy rain showers the designated staff member must identify the areas where runoff water collects.
- b. Standing water not only provides ideal conditions for insects and insect larvae but also attracts large numbers of birds, which rest, bathe or feed in the shallow water
- c. These areas must be recorded and indicated on the Grid Map of the airport and tabled for discussion at the ABWC Meeting or alternatively reported immediately to the maintenance unit for corrective measures.
- d. Where necessary, an emergency meeting may be called to investigate and rectify any emergency situation which may occur.
- e. At this meeting appropriate corrective and preventative action must be discussed and decided upon after which the relevant department will be tasked with implementation thereof



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- f. Any planned project or airfield works that may contribute to pooling of water needs to be evaluated and corrective measures taken prior to commencement.

3.2.1.3 Temporary waste management:

During airport inspections (see Appendix 12: Airport Hazard identification procedures), uncovered rubbish removal skips should be noted

- a. The E&M unit should be notified that waste must be covered at all times or removed immediately to ensure that scavenging birds or other wildlife is discouraged.
- b. It is recommended that existing temporary waste storage facilities be placed inside a covered shed so as to limit their attractiveness to birds.

3.3 OTHER WILDLIFE ATTRACTANTS

Periodic monitoring must be carried out of areas surrounding the airport by Wildlife team and Airport WHMC members (see: **Appendix 12: Airport hazard identification procedure**)

- a. The aim of these inspections will be to assess the surrounding habitat and land uses in terms of attractiveness to birds or other wildlife which may positively or negatively influence the presence of birds or wildlife on the airport.
- b. Manager JIA must regularly liaise with the local council to alert them to the potential threat of existing and proposed land uses such as waste disposal sites close to the airport
- c. Such land uses in the vicinity, as indicated above or otherwise, can only be allowed should an appropriate study indicate that these would not attract birds to the area.

3.3.1 Vegetation management plan

Vegetation management is critical to the successful control of bird populations on an airfield environment. Terrestrial bird species prefer short vegetation heights as this allows them to spot approaching predators more easily. It is therefore important that the grass height on the airfield be maintained at specific heights (dependent on the area) in order to make as much of the area as unsuitable to birds as possible but not impacting negatively on operational requirements.



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3.3.1.1 Equipment

Grass cutting equipment must be height adjustable. If conventional slasher mowers are to be used these must be modified in house or by the manufactures to be able to not only cut at a very short height but also at a taller height of at least 35cm. Where manual labour is used to cut the grass, they need to be briefed on the height requirements in particular areas.

Table 7: Grass cutting requirements table:

Area description	Height	Frequency
Area A Operational Areas i.e., Runway and taxiway strips 50m width; Runway end safety area (approach lights);	Maximum height of 20cm maintained at all times or cut as short as possible by hand slashers and cut grass in the area A must be removed	Once every two weeks during growth season or when grass height is above 20cm
Area B Non-operational airfield areas excluding area A above	Maximum height of 35cm.	Once per month during growth season.
General bush areas	Cut down tall trees and shrubs which could provide	As and when required

The following series of airfield aerial photographs provide an overview of the required grass cutting areas on the airfield in accordance with the

above table:

Runway 13 Threshold Area



Midfield A

Midfield B

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Runway 31 Threshold Area

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3.3.2 Removal of cut grass:

If mechanical mowing is to be used a risk exists that the windrows of cut grass are blown onto the runway surface posing a threat to aircraft as the grass cutting can be ingested into engines potentially causing damage. The windrows also provide an ideal habitat underneath which insect larvae will proliferate providing a food source for birds.

In areas along the runway and taxiways where the grass is cut down to 20cm all cut grass must be collected immediately after mechanical mowing activities. Preferably in such instances the grass must be baled and removed off site.

3.4 INSECT TREATMENT STRATEGY

The airfield grassland habitat is interspersed with termite mounds. It can therefore be concluded that there will be many termites elate swarms emerging especially during the rainy season. Termite elates are winged termites that swarm out of the nest shortly before or after rains. Birds favour these winged termites as a food source and even larger birds of prey e.g., Kites will feed on these flying termites. Termite mounds when identified through inspections are treated to render them inactive.

3.4.1 Recommended treatment strategy

In order to effectively treat and reduce the termite population on the airfield the EWT's poison working group was consulted with regard to the most effective products to use Thermidor was recommended.

Inspections must be carried out on a once weekly basis during the rainy season to identify termite nests and mark those for treatment by the contracted pest control operator.

3.4.2 Treatment area

It is strongly recommended that all area on the airfield where termite nests are identified be treated.

TERMIDOR □ 25 EC

Directions for use - use only as directed

- a. All applications must be made with suitable equipment, designed for applications for termite control that is in good working order and correctly calibrated to give the desired coverage for that particular method of application.

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- b. Do not apply TERMIDOR 25 EC to excessively wet soil. If more than 15 mm rain falls within 24 hours after application, the application should be repeated unless the treated soil was adequately protected.
- c. In all cases the treated soil surface should not be disturbed after treatment, as this may damage the treated barrier, allowing termites access to the structure through such areas.

3.4.3 Treatment of existing termite mounds/colonies

TERMIDOR 25 EC can be used to control existing active colonies by treating the nests. TERMIDOR 25 EC must be applied into the termite nest or mound.

- a. Application rate: Mix 50 m³ TERMIDOR 25 EC in 5 ³ water (1 ³ in 100 ³ water).
- b. Application method: Apply 5 ³ mixture to the termite nest in the following way:
- c. Termite mounds: Dig the mound with a hoe or small axe and remove queen ant then pour 5 ³ of the mixture into the termite nest.
- d. Compact the area that have been excavated

3.5 PERIMETER FENCE GUIDELINES

Animals on airside pose a serious risk for the safe operation of aircraft. The most effective method to address the presence of animals on an airfield is to ensure that a proper perimeter fence is in place. Reports of stray dogs, Jackals, and cats have been noted at KGL.

In order to make the perimeter fence effective in preventing animals from digging through underneath the fence it is imperative that a section of fence be buried underground and sloped outwards – it is recommended that the fence be buried at least 30cm underground and sloped outwards.

Ground
Level

An illustration of a fence carpeted outward to prevent animals from digging in through underneath it.

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3.5.1 Inspections

Fence patrols must be conducted biannual and maintenance must be undertaken immediately to rectify any holes in the fence.

3.5.1 Monitoring of birds and wildlife

This procedure details the activities to be carried out by the Juba International Airport staff members in their dealings with the monitoring of birds and other wildlife on the airport.

The objective is to ensure detailed recording of wildlife presence and abundance information to aid in the immediate and long-term management of the wildlife hazard to prevent the occurrence of aircraft bird and/or wildlife strikes.

As a prerequisite to wildlife monitoring being carried out on the airport, a bird and wildlife species list must be compiled by a wildlife expert. Wildlife officers will then use the species list to identify and monitor wildlife species on the airfield.

3.5.2 Bird and wildlife patrols

3.5.2.1 Time of patrols

- a. The Bird & wildlife patrol must be carried out on weekly basis.
- b. The time at which a bird patrol is carried out will be determined by aircraft traffic
- c. It is however recommended that the patrol be carried out during early morning to evening.

3.5.2.2 Equipment required for patrols

Prior to recording the presence and abundance of wildlife on the airfield the Wildlife Control Member must collect the following equipment from the office:

- a. The bird/wildlife identification guide
- b. Binoculars
- c. Airport grid map and
- d. Recording sheets monitoring

3.5.2.3 How to conduct patrols

- a. The staff member, driving the vehicle establishes radio contact with the ATC and informs them of their intention to carry out a dedicated bird monitoring patrol.



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- b. The patrol must follow a predetermined set route along the taxiways, runways to enable a thorough view of the entire airfield area surrounding the taxiways and runways.
- c. The staff member must record the time at which the patrol is started.
- d. Observations will be made while driving along at a slow speed of not more than 30km/hour.

Each time a bird/wildlife species is noticed he/she identifies the species and records the sighting according to the airfield grid map cell in which it was observed. If a flock of birds are for example observed they are identified and the number of individual birds are counted or in the case of a very large flock, the number estimated and recorded.

- e. The activity or behavior of the birds/wildlife is also noted i.e. feeding, flying, resting etc. Any other additional information of relevance to the observation is also recorded i.e. the birds were feeding in an area where grass cutting was taking place at the time.
- f. ATC must be informed that the patrol has been completed and that they have cleared the aircraft maneuvering area.
- g. The designated staff member records the time at which the patrol has ended.

3.5.2.4 Recording information from patrols

Upon returning to the Wildlife office the information collected is either filed for later analysis or it is highly recommended that a computer database system be used to capture the bird presence information.

3.5.2.5 Inspections for bird and wildlife attractants

During the patrol performed by the designated staff member he/she also notes the presence of FOD (Foreign Object Debris), standing water or any other potential attractants for birds or wildlife. Evidence indicating the presence of wildlife such as mounds of earth where moles are active is also noted. The designated staff member must advise the E&M



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Unit and Airside coordinator to take remedial action.

3.5.2.6 Wildlife assessment by wildlife hazard management consultant

Wildlife Assessments by Airport wildlife hazard management consultant shall be done and completed every 5 years.

GRID MAP.

Juba International Airport Bird and Wildlife Hazard Management Grid Map

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*Wildlife Hazards Management Plan***4 TRAINING**

The development and implementation of a staff training program in the core elements of the WHMP is a regulatory requirement. Furthermore, effective wildlife management is critically dependant on staff with the tools, knowledge and motivation to safely and effectively fulfil the requirements of JIA Plan.

Appendix 13 summarises the staff training program based on Juba International Airport training needs analysis process. Training records will be collated and maintained by Wildlife Supervisor.

4.1 REACTIVE MEASURES

This procedure describes all activities performed by airport staff members whilst carrying out re-active bird and wildlife control at Juba International Airport. The aim of the procedure is to ensure that by carrying out effective re-active bird and wildlife control on Juba International Airport, the safe operation of the airport is maintained through minimised bird strikes.

Re-active wildlife hazard management is carried out when wildlife is observed in an area on the airfield where their presence poses a potential aviation safety hazard.

This will be achieved through wildlife scaring patrols.

4.1.1 Wildlife scaring patrol

Wildlife scaring patrols on the airport carried out on the following schedule:

- a. Bird control patrols are carried out 24hrs on the airside.
- b. The scaring patrol is carried out prior to the landing and take-off when traffic permits.
- c. A wildlife scaring patrol can also be requested by Air Traffic Control through contacting the Bird control vehicle (BC) at any time.
- d. A wildlife scaring patrol can also be requested by Wildlife staff through contacting the Air Traffic Control at any time when bird/wildlife observed in the movement area.

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Wildlife scaring patrols on the airport must focus on the following areas: The general approach to bird & wildlife scaring patrols is as follows:

- a. The shotgun with thunder shots and live sounds and/or any other scaring devices will be collected from where they are stored. Only staff trained to use a firearm may make use of it.
- b. The WHM staff member contacts Air Traffic Control and informs them of his/her intention to do a wildlife scaring patrol.
- c. The Wildlife Scaring Patrol focuses on high-risk areas on the airfield



Wildlife Hazards Management Plan

- d. Typically, birds perched on the runway surface or in the runway / taxiway-strip can be considered as a potential threat and are scared away during the patrol.
- e. Always chase the birds away from the runway and maneuvering areas – also taking into consideration that the birds are most likely to take-off into the wind and then fly away following the current wind direction.
- f. Scaring techniques used involve chasing with the vehicle when the birds are perched on the runway surface or using the vehicle sirens when the birds are slightly further away in the runway/taxiway strip.
- g. When the above scaring proves ineffective, thunder shots or any other scaring device (pyrotechnics) can be used as a scaring technique. When firing a thunder-shot in the direction of the wildlife take care not to disrupt other airport activities. Prior to the firing of thunder shots ATC should be notified.
- h. In cases where large numbers of birds remain in the vicinity of the maneuvering area, the WHM staff member must remain in the area, keeping clear of the restricted area and continue to scare the birds away.
- i. Where the birds pose a threat to aviation the runway/taxiway must be closed and only re-opened once the area has been deemed safe.
- j. Only after the above methods have proved ineffective can the wildlife removal methods as described below be considered.
- k. Following the successful scaring of birds, the designated staff member must report this to ATC.
- l. A wildlife scaring patrol form must be completed after the patrol.

4.1.2 Auditory bird scaring devices

Birds are naturally wary of unfamiliar sounds and objects in their environment. Unfamiliar noises, for example, may put them at alert, or cause them to take flight. Loud and abrupt noises are initially most effective for many species of birds. Gradually, however, birds do become comfortable—or habituated—to all dispersal techniques. If

*Wildlife Hazards Management Plan*

birds repeatedly hear the same noise and do not associate the sound with actual danger, they will eventually stop responding.

The following is a brief list of auditory bird scaring devices used at Juba International Airport:

- a. Sirens – vehicle mounted
- b. Vehicle horn or hooter
- c. Pyrotechnics
- d. Distress calls

4.1.3 Pyrotechnics

Pyrotechnics include various ammunitions that are fired from shotguns or pistols. They include shell crackers, flares, firecrackers, rockets, and mortars. The loud and abrupt noise emitted by some pyrotechnics is similar to that of shotguns. Some pyrotechnics also involve flashes of light, providing a visual as well as an auditory deterrent. Some devices travel 25 to 300 metres before exploding in a flash of bright light. Others travel as far as 100 metres while emitting a continuous screaming or whistling noise.

4.1.4 Precautions to be taken in using pyrotechnics:

- a. Operators should wear eye and ear protection at all times.
- b. Shell crackers should be fired from open choke-type guns.
- c. Shell crackers may misfire, so gun barrels should be checked regularly for obstructions, particularly after a misfire.
- d. Cracker shells are corrosive, so guns should be cleaned daily.
- e. Pyrotechnics are fire hazards, and should not be used over dry vegetation.
- f. Pyrotechnics should not be fired from inside vehicles.
- g. Ammunition expiry dates must always be carefully monitored and adhered to.
- h. Never point the firearm at anyone, whether loaded or not. Keep the firearm pointed in a safe direction, usually straight upward.

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- i. Never keep the firearm loaded, even with the breech open.
- j. Examine the firearm and liner daily. If either appears to have a fault, report it as unserviceable immediately. Before firing a pistol, ensure the barrel is dry.
- k. Ensure that cartridges are handled carefully so as not to become distorted, damaged, or wet.
- l. Wear gloves and long sleeves for protection against possible skin burns should cartridges misfire.
- m. Whenever possible, avoid firing cartridges directly up-wind.
- n. Always pick up spent shells and, when doing so, be aware of the potential fire hazard of delayed second blasts.
- o. Avoid firing over runways.
- p. Always pick up FOD (foreign object debris). In general, volleys that explode in the air are more effective than those that explode near the ground. Use the minimum number of rounds required to achieve the desired results. The effect of additional rounds will only lead to habituation. The first shots flush the birds; closely following second shots often cause them to disperse.

Use of the scare cartridge, particularly with birds, requires cooperation between the user and ATC personnel so that birds are not dispersed into the path of oncoming aircraft. a series of carefully placed shots can direct the birds to safer areas, or off airport land entirely. A coordinated effort between two or more shooters can be highly effective.

4.2 WILDLIFE STRIKE INCIDENT

Wildlife strike incident is defined as follows

- a. A pilot reports striking one or more birds and/or other wildlife
- b. Aircraft maintenance personnel identify aircraft damage as having been caused by a wildlife strike
- c. Personnel on the ground report seeing an aircraft strike one or more birds or other wildlife

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- d. Bird and /or other wildlife remains, whether in whole or in part, are found within 60 meters of a maneuvering area, unless another reason for the animal's death is identified
- e. The animal's presence on the airport had a significant negative effect on a flight. (i.e. aborted take-off, go around, high-speed emergency stops, aircraft left pavement area to avoid collision with animal)

4.2.1 Reporting of wildlife strike occurrences on the airport

Reporting of wildlife strike occurrences on the airport is important for the following reasons

- a. To understand the risk which the presence of bird and /or wildlife may impose and to implement the necessary control measures
- b. A bird and /or wildlife incident report must be completed and filed when a wildlife strike incident occurs on the airport
- c. Reports regarding bird and/or wildlife presence and abundance must also be generated to aid in the establishment and assessment of both re-active and pro-active wildlife control measures

5 CHECKING AND REVIEW

5.1 MONITORING

Monitoring is a critically important tool in wildlife management at JIA. Effective monitoring provides essential information that assists staff to adapt the program, as required, to shifts in hazard and level of risk.

It also provides evidence of

- a. Conformance to regulatory and other standards (see Appendix 3), and
- b. Efficacy of the WHMP in minimizing wildlife strike risk to aviation.

5.1.1 Routine Hazard Monitoring

Routine detection of hazards in the field is achieved through regular runway and runway strip inspections and during airside wildlife surveillance. Both aspects are important to

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ensure early detection of wildlife hazards in airside areas, particularly inside runway strips. The below) is a matter of professional judgment by the Wildlife Supervisor or frequency of wildlife monitoring (beyond the activities detailed in Table 6 and depends on wildlife numbers, species composition, weather and aircraft activity at the time.

Table 8: wildlife monitoring Frequency

Task	Description	Frequency	Responsible	Procedure/Reference
Wildlife patrols (routine)	Conduct airside wildlife management and surveillance patrols	Daily ongoing	Wildlife officer	Wildlife patrol procedure—section 5.1.1
Wildlife patrols (post-strike)	Conduct airside wildlife management and surveillance patrols	When bird strike happens.	Wildlife officer	Strike reporting Procedure—section 6.5.2
Wildlife patrols data management	Record all strikes, management,	Daily ongoing	Wildlife officer	Wildlife hazard surveillance procedure—section 5.1.1



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	surveillance and inspection actions in relevant logs and forms			Strike reporting procedure – section 6.5.2
Wildlife monitoring	Conduct wildlife monitoring	Weekly	Wildlife officer or Wildlife Supervisor	Wildlife monitoring procedure – Appendix 01.
Wildlife monitoring data management	Maintain electronic records of wildlife monitoring and review monthly to assess changes in populations	Ongoing	Wildlife Supervisor	WHM Monthly report

Wildlife management and surveillance patrols are conducted on the runway by WHMT prior to every movement and following reports of a strike. Data is entered into the Daily Log Book.



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Bird Monitoring are conducted once a week by the Wildlife Officer on duty and Wildlife Supervisor and includes areas of the airport patrolled numbers, location and species of birds/wildlife seen, action taken to disperse the birds/wildlife, results of the action. More general information such as the name of the officer on duty, time on and off duty, weather conditions etc. are recorded at the start of a duty period. Wildlife strike data is logged as described in section 6.5.2 Strike Reporting Procedure.

5.1.2 Other Hazard Monitoring

Non-routine hazard monitoring is achieved through review of on and off airport development proposals and changes to land use to assess the possible creation of undesirable wildlife habitat or attraction and its associated risk to aviation.

Assessment of off airport land use planning and development proposals for compatibility with airport operations involves ongoing liaison with a number of external stakeholders (Section 6.6)

5.2 BIRD AND WILDLIFE STRIKE REMAINS

- a. A bird/wildlife remains is stored in a separate plastic bag in a freezer at the wildlife office.
- b. The wildlife hazard control supervisor and wildlife control officer must complete the form and place it with the bird remains in the plastic bag before freezing. See Appendix 4-bird remain report form.
- c. A copy of the form is kept for reference and filing purposes
- d. The report is placed inside a second plastic bag inside the bag with the remains, not on the outside as it will become detached and get lost.
- e. When a sufficient quantity of bird and/or wildlife remains and/or carcasses have accumulated they can, be collected and analyzed staff from the RDB (conservation) in order to identify what the birds was feeding on the airfield.

*Wildlife Hazards Management Plan***5.3 PERFORMANCE INDICATORS**

Performance indicators will be established to help effectively assess how well JIA is conforming to the requirements of this WHMP and, thereby, determine the need for making adjustments to how hazards are managed and/or amending the Plan.

Leading Indicators	Lagging Indicators
7665 hours per year of patrol hours performed by wildlife team	4 bird strikes of high-risk bird strikes per 10,000 movements
Two meetings of Airport wildlife committees' meetings in a year.	16 bird strikes of medium risk bird per 10,000 movements
52 bird monitoring in a year.	Zero damaging strike reported at Juba International Airport.
Two inspections of wildlife hazards identification within 13km radius of airport in a year.	20% reduction of bird strike compared to the previous year bird strikes.
12 wildlife hazard identification inspections within airport boundary in a year.	25% reduction of bird population compared to the previous year bird population.
2 Fence patrols in a year	

5.4 RECORD KEEPING

JIA recognizes the strength of its monitoring program is in good record keeping. Records of the above monitoring activities are kept in relevant logs, spreadsheets and database to provide evidence of management actions and to demonstrate WHMP processes are in place to routinely detect and, where feasible, remove hazards. All records are legible, accessible and stored in a secure environment that prevents loss or damage.

5.5 COMMUNICATIONS

In the event of identified risk on or in the vicinity of the airport steps will be taken to remove, or alternatively advise pilots of the hazard. (See Table 10)



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Where a wildlife hazard is present that cannot be effectively managed by the Supervisor Wildlife, Air Traffic Control is notified to inform pilots of additional risk levels. Where there is a significant increase in risk the Director Responsible for Wildlife Hazard Management arranges a NOTAM to be issued. The NOTAM must provide specific information on species, period of risk, likely location and flight path.

5.5.1 Reporting

Routine reporting ensures that all staff and managers are equipped with the information needed to adapt hazard management activities and the WHMP when required. The following regular reports will be generated as follows

- a. Monthly Bird/wildlife Condition Report
- b. Monthly Bird Strike occurrence report
- c. Annual Bird/wildlife Report

5.5.2 Reporting of bird/wildlife occurrences and presence

The objective is to ensure the implementation of a structured action and reporting process regarding wildlife strike occurrences and the proper reporting on bird and/or other wildlife presence and abundance data as collected on the airport.

Reporting of bird and/or wildlife presence and abundance information:

The current bird and/or wildlife hazard situation on the airport will dictate which types of reports will need to be generated and the staff member responsible for wildlife control can draw reports off the electronic database system for specific species which at the time pose the greatest threat to safe operations.

- a. Before the commencement of an Airport Bird and Wildlife Committee Meeting the designated staff member draws a report indicating the observed time series fluctuations for the most hazardous bird species
- b. Trend graphs and grid maps indicating potential problem species and problem areas can be generated to aid in the decision-making process regarding the establishment and effectiveness of both pro- and re-active control measures

Recommended actions and reporting procedure following a wildlife strike incident:

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- a. The occurrence of a bird and/or wildlife strike is reported to the wildlife supervisor by wildlife control officer on ground and an airline through ATC.
- b. The wildlife supervisor must assess the situation and if necessary, declares an emergency phase.
- c. In cases where an emergency is not declared, the wildlife supervisor will immediately dispatch the Wildlife officer to perform a runway/taxiway inspection to search for and remove any wildlife remains.
- d. The designated wildlife officer must contact ATC and inform them of the intention to carry out a runway/taxiway inspection in search of wildlife remains following the reported occurrence.
- e. Should bird and/or wildlife remains be found on the runway/taxiway during a normal inspection event, though no incident was reported, the designated wildlife control officer should carry out the activities detailed immediately above
- f. The wildlife remains must be identified where possible.
- g. For each wildlife strike / near strike incident an occurrence report must be completed and logged on an electronic database for analysis purposes. A paper report form for interim reporting is also available – see Juba International Airport Bird Strike Report Form.
- h. Following the occurrence of a serious bird and/or wildlife strike occurrence, an investigation can be initiated by the airport to determine possible causes for the presence of birds and/or wildlife. This process also involves a review of the bird scaring patrols prior to the occurrence together with activities such as grass cutting in close proximity to where the occurrence took place. A form has been made available to capture details pertinent to the investigation. See Juba International Airport Bird Strike Investigation Report Form.
- i. A monthly report detailing the bird and/or wildlife strike incidents which took place during the previous calendar month is drawn up by a designated staff member and must be tabled at the Airport Bird and Wildlife Committee.
- j. Once all information is available occurrences must be classified according to the following groupings:

Level 1 – Reported and Confirmed incident

Bird and/or Wildlife Strike reported by ATC, Airline, Engineers or other authority bird remains found either on airfield, on aircraft OR on both



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Level 2 – Reported incident

Bird and/or Wildlife Strike reported by ATC, Airline, Engineers or other authoritative bodies. No Bird remains found on the airfield OR on the aircraft

Level 3 – Unreported incident

Bird and/or Wildlife Remains found on the airport in predefined area, no report of strike received from ATC, Airline, Engineers or other authoritative body

Level 4 – Bird and /or Near Strike

Close encounter with wildlife reported by ATC or Airline.

5.5.3 Annual reporting of the ABWC

The ABWC Chairman shall compile an annual report, which shall be presented and approved by the ABWC. The said report shall cover, but will not be restricted to the following aspects:

- a. Number of meetings held during the year.
- b. Activities of the ABWC during the year
- c. Report on ABWC performance in relation to action plan.
- d. Outstanding issues or activities.
- e. Bird hazard statistics (e.g., bird strikes, bird presence, etc.)
- f. Financial report
- g. Problems experienced.
- h. Recommendation

5.5.4 Auditing of the WHMP

Auditing is recognized as an essential component to an effective WHMP. An internal audit is to be completed on an annual basis (Refer to auditing procedure in SMS Manual).

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*Wildlife Hazards Management Plan***Table 9 – Wildlife hazard reporting**

Task	Description	Frequency	Responsible	Procedure/Reference
Reporting hazard (immediate)	Notify ATC to inform pilots of additional risk levels. The Director Airports Operations is also notified.	As required	Wildlife Supervisor	NA
Reporting hazard via NOTAM	Issue NOTAMs where risks are significantly increased.	As required	Managing Director	NA

5.6 STAKEHOLDER CONSULTATION

The Airport Wildlife Management Committee is an important avenue for sharing information, identifying risks and ensuring stakeholders are engaged in collaborative management of these risks. JIA conducts Wildlife Management Committee meetings on a bi-annual basis. Wildlife issues and management are included in the agenda of these meetings. Relevant on and off airport stakeholders are invited to participate in these meetings. See Appendix 14 -WHMC terms of reference.

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6 APPENDICES

APPENDIX 1: WILDLIFE MONITORING PROCEDURE

To collate information on the species of birds that frequent the airport and to identify areas that birds are attracted to, to determine appropriate bird management strategies.

Wildlife Officer and Wildlife Supervisor

Once a week, morning, midday and evening, on every Tuesday.

Vehicle, Binoculars, Grid map, Bird Monitoring form and a pen.

Consistent application of the Wildlife Monitoring Procedure is essential for obtaining quality data to be used for analyzing for trends. If hazardous conditions are identified during the course of a monitoring, it will allow for its timely removal using active dispersal techniques.

1. The person doing wildlife monitoring must always follow the same route.
2. The aerodrome is divided into three (3) Wildlife monitoring Areas.
3. Within each Area, stop the vehicle at the same marked location each time and scan the entire Area
4. Record all species and numbers observed on a Wildlife Monitoring Form. Information to be recorded

Objective

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Responsibilities

Frequency

Equipment

Procedure using

binoculars.

included:

- a. Date
- b. Name of observer
- c. Time of commencement and completion of the count
- d. Weather conditions
- e. Species and number observed
- f. Area recorded (including birds transiting the airfield)
- g. Special notes such as mowing or ponded water that may cause additional attractions

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5. The form includes frequently observed bird species and allows room for additional species and as well as unidentifiable bird types. Mammals such as rabbits, hares, or wallabies are also recorded.

Note: Bird dispersal, if required during a monitoring, should not influence the number of birds entered onto the Bird/Animal monitoring Form. The number of birds on that area prior to dispersal is to be entered on to the form.



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APPENDIX 2. ROLES AND RESPONSIBILITIES

Position or entity	Responsibilities
RAC Managing Director	Endorse the final version of the WHMP
Director Airports Operations Department	Invite relevant external stakeholders to biannual AWHM Committee and chair meetings to assist with wildlife management at off airport sites.
	Ensure the resources for implementing the WHMP are provided
JIA Manager	Liaise with airport operators, local government and other stakeholders to assist in identifying and managing wildlife issues at Juba International Airport.
Airside coordinator	Oversee the implementation and review of the WHMP
Wildlife	Supervise the implementation of WHMP

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Supervisor

Ensure that Juba International Airport Aerodrome Wildlife Officers are trained in the functions required for wildlife hazard management, including bird counts, bird and animal identification, bird harassment and reporting techniques

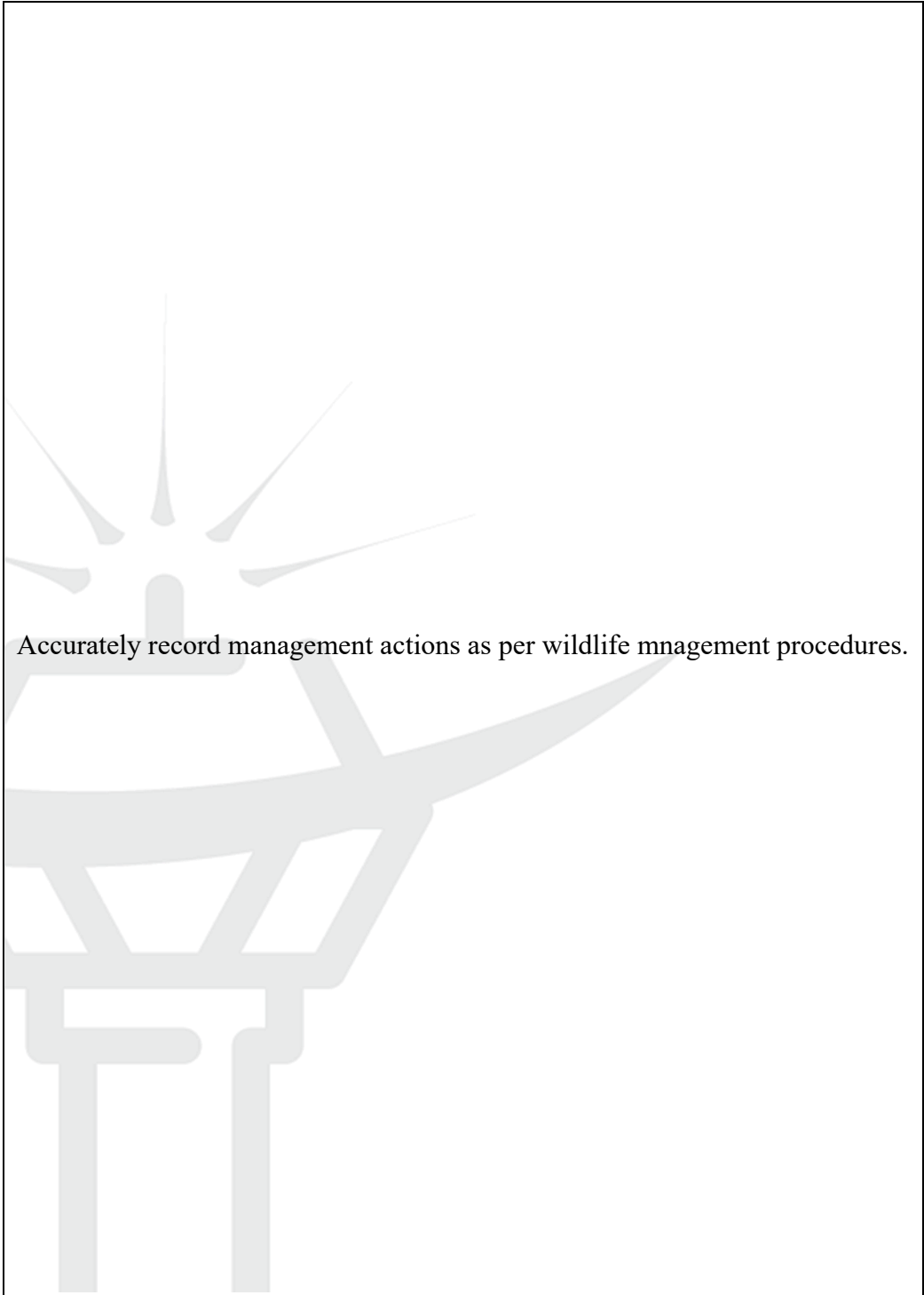
Ensure the WHMP and procedures are issued to relevant staff and applied where necessary.

Ensure Aerodrome Wildlife Officers monitor, inspect, assess, record and report as described in the WHMP.

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	Ensure Aerodrome Wildlife Officers and other relevant Juba International Airport staff deal with wildlife and their habitats as described in the WHMP.
	Engage an airport wildlife biologist or airport wildlife hazard management consultant to conduct a review of the wildlife hazard at Juba International Airport every five (5) years.
	Update and apply data collected as part of the WHMP to assess trends and hazards.
	Ensure the relevant section of the WHMP is reflected in the aerodrome manual.
	Provide information regarding bird and animal hazard and its management at Juba International Airport to regulatory department and operational publications as required
	Undertake professional risk-based surveys at Juba International Airport and surrounding bird attractions on biannual basis.
	Conduct an annual audit of the WHMP to report on the updated results from data analysis and risk assessments.
	Provide recommendations to improve the Juba International Airport WHMP
Bird control Officer	Count, survey, inspect, assess, record and report as described in the relevant sections of the WHMP and any procedures
	Deal with birds, animals and their habitats as described in the relevant sections in the WHMP and adhere to wildlife management procedures.
	Attend bird and animal hazard management training as required
	Use, store and maintain firearms and ammunition as required by Juba International Airport's firearms policy

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	 Accurately record management actions as per wildlife mnagement procedures.
Aerodrome Maintenance Manager	Ensure waste is disposed of appropriately and bins and other waste storage facilities are maintained with closed lids or other suitable covering wherever practicable

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	Ensure Grass cutting and Anthills are managed appropriately as stipulated in contract and WHMP.
Aircraft Operators	Require air and ground crews to promptly inform Aerodrome Wildlife Officer on duty or Wildlife Supervisor of all bird and animal strikes or hazardous conditions
	Require ground staff to relay evidence of strikes including damage, carcasses, feathers, or other material to Aerodrome Wildlife Officer on duty or wildlife Supervisor for collection.
	Provide copies of strike records to Wildlife Supervisor for inclusion in the Juba International Airport database.
	Annually review the WHMP and forward

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	recommendations to Wildlife Supervisor.
	Where appropriate, consider changing operations to avoid times and locations where consistent bird hazards occur
	Attend quarterly AWHM Committee meetings and provide feedback on wildlife management issues at Juba International Airport.
K International Airport tenants	Ensure waste is disposed of appropriately and bins and other waste storage facilities are maintained with closed lids or other suitable covering wherever practicable
	Promptly report observations of bird nesting in hangers to Juba International Airport Wildlife Supervisor
Kicukiro District, Nyarugenge District and Gasabo district	Consider the potential for bird and wildlife attraction when developing land use strategies.
	Review and discuss with Juba International Airport management all proposals for land use changes within 13 radius kilometres of Juba International Airport, giving due consideration to potential bird and wildlife hazards. Where necessary, ensure such proposals are modified to ensure that the risk posed by birds to aircraft is not increased.
RDB(Wildlife Department)	Consider the safety imperative when assessing the application by Juba International Airport for permits to cull birds.
	Assist Juba International Airport to determine the appropriate actions where rare or threatened species become an aviation hazard.



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APPENDIX

3: BIRD AND WILDLIFE MONITORING PATROL FORM

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Date: _____ Observer name: _____

Kms: _____

Weather: No Cloud ☐ Some Cloud ☐ Overcast ☐ Raining ☐ Wind Calm ☐ Wind Strong ☐Route Travelled: ☐ Runway & Taxiways ☐ Perimeter Road ☐ Runway & Taxiways and**Birds Recorded:**

Species	Qty. Seen	Behavior:		Grid	Comments
		Flying,	Feeding, Perched		

Time Out: _____

Time In: _____

Vehicle: _____



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APPENDIX

Perimeter Road

4: BIRD REMAINS REPORT FORM

PLEASE DEEP FREEZE THIS BAG AND ITS CONTENTS IMMEDIATELY

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Date of retrieval of remains	
Time of day incident occurred:	
Grid reference of retrieval site:	
Flight number (if known):	
Name of Person reporting:	
Suspected identity of bird:	
Cause of death (Description)	

INSERT THIS REPORT ON THE INSIDE OF THE CARCASS

PLEASE

BAG



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APPENDIX

5: JUBA INTERNATIONAL AIRPORT BIRD STRIKE REPORT FORM

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/ Time: ☐ UTC ☐ LocalReporting Source: Pilot ☐ Bird strike details:Other: Number of birds:

Name: Seen Struck

1 ☐ ☐☐ 2-10 ☐ ☐☐ 11-100 ☐ ☐☐ 100+ ☐ ☐Light Condition Size of Bird:☐ Dawn ☐Medium (dove - goose or 200g – 3kg) ☐☐ Day ☐Large (goose - ostrich or 3kg – 75kg) ☐☐ Dusk ☐Species:Wind strong ☐ calm ☐ Night ☐☐ Black headed Heron ☐ Hadedda Ibis☐ Sacred Ibis ☐ Crow☐ Pigeon / Dove ☐ Owl☐ Kite / Falcon / Hawk ☐ Swallow

Operator: Reg.....

Aircraft Make / Model.....

Speed (IAS)..... Lights: ☐ On ☐ Off

Other:

Flight No: (Please specify species, or provide description below)

From: To:

Height (AGL) :..... Bird Hazard: Bird strike ☐Phase of Operation: Bird near strike ☐Takeoff Run ☐Climb ☐Parts of Aircraft: Struck Damaged

Date: /



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Weather:

Sky Condition

No Cloud

Some Cloud

Overcast

Precipitation

Small (< dove or < 200g)

Fog

Rain

Snow

Aircraft:

The Flight:



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En Route	☐	radome	☐	☐	
Approach	☐	windshield	☐	☐	
Descent	☐	nose (excluding above)	☐	☐	
Landing Roll	☐	engine no.	1	☐	☐
Taxi	☐		2	☐	☐
Parked	☐		3	☐	☐
If En Route, Distance from airport.....			4	☐	☐
Lat:..... Long:.....		propeller	☐	☐	
		wing/rotor	☐	☐	
Effect on Flight:		fuselage	☐	☐	
None	☐	landing gear	☐	☐	
Aborted take-off	☐	tail	☐	☐	
Returned	☐	lights	☐	☐	
Diverted	☐	other (specify)		☐	☐
Precautionary Landing	☐				
Engines ingestion	☐	<u>Pilot warned of birds:</u> Yes ☐ No ☐			
Vision obscured	☐				
Other.....		<u>Scaring Devices.....</u>			
The Airport:		<u>Bird Strike:</u> Level 1 ☐ Level 2 ☐			
Name:		Level 3 ☐ Level 4 ☐			
Runway:		<u>Bird Activity</u> (on airport encounter)			
Grid reference:.....		Flying across airport	☐		
		Flushed from airport grounds	☐		
Comments:					
.....					
.....					



Wildlife Hazards Management Plan

APPENDIX 9: DAILY RUNWAY INSPECTION PROCEDURE

To ensure the runway is free from FODs and wildlife for the safe movement of an aircraft.

Responsibilities

Wildlife Officer and Wildlife Supervisor

Runway Inspection is conducted on daily basis, every 15 minutes before landing and take-off, and when requested by ATC or wildlife officer.

Two Vehicles with below items in each vehicle:

- (a) Binoculars
- (b) Grid map
- (c) Logbook
- (d) Red pen
- (e) Blue pen
- (f) Bird deterrence laser
- (g) Flare gun
- (h) Flares

Consistent application of the Runway Inspection Procedure is essential for ensuring safe movement of an aircraft on the runway . If hazardous conditions are identified during the course of runway inspection, it will allow for its timely removal using active dispersal techniques if it is a wildlife or picking of FODs.

Objective

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Frequency

Equipment

Procedure

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1. The person doing runway inspection must always use runway or service road when runway is
2. ATC shall request bird scaring vehicles to do runway inspection before landing and take-off of an
3. Wildlife officer on duty shall request runway inspection to ATC using a radio when he/she sees a threat on the runway or runway strip being wildlife or FODs and when he/she feels necessary to do
4. When bird scaring vehicles enter the runway shall report to ATC that they have entered the
5. During runway inspection, operators of bird scaring vehicles should inspect the runway and strip thoroughly and make sure there is no FODs on the runway and wildlife in the mentioned areas
6. Pick the FODs when found on the runway or runway strip and must be logged in the wildlife indicating nature of FODs, location, time and date.
7. Use available active dispersal techniques to scare birds away of runway and runway strip when seen in those areas.
8. When bird scaring vehicles asked to vacate the runway by ATC or decide to vacate the runway, operator of bird scaring vehicle must report to ATC that runway is vacated.
9. When a threat continues despite of the effort made by wildlife officers on ground, wildlife officer

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engaged.

aircraft.

an inspection.

runway. runway

logbook

wildlife

the

on

ground can advise ATC to hold take-off or landing till the threat is neutralized.

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10. When FODs found should be recorded in the logbook with red pen and reported to Wildlife Supervisor for further action.



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Route to be used by wildlife control officer during bird scaring and
runway inspection

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Route to be used by wildlife control officer during bird scaring and runway

inspection

Appendix 10: AIRPORT FENCE INSPECTION PROCEDURE

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Wildlife Hazards Management Plan

To ensure the airport fence is well maintained and no holes where animal can pass through and enter the movement area.

Responsibilities

Wildlife Officer and Wildlife Supervisor

Airport fence Inspection is conducted biannual basis.

- (a) One Vehicle.
- (b) Grid map
- (c) Note book
- (d) Blue pen
- (e) Camera
- (f) Procedure

1. The person doing airport fence inspection must always inform RG and accompanied by RG staff.
2. Airport fence inspection shall be conducted inside the outer fence.
3. Wildlife officer must inspect thoroughly the whole fence, looking for holes, and if the fence is buried underground.
4. After the inspection, wildlife officer who conducted an inspection must make a report and submit it to Wildlife supervisor or airside coordinator for further action.

Objective

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Frequency

Equipment

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Appendix 11: AIRPORT HAZARD IDENTIFICATION PROCEDURE

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Wildlife Hazards Management Plan

To ensure the airport is free from wildlife related hazards or attractants that may attract birds and animals to the airport.

Responsibilities

Wildlife Officer and Wildlife Supervisor

Airport hazard Identification Inspection is conducted on weekly basis.

- (a) One Vehicle.
- (b) Weekly hazard identification form
- (c) Blue pen
- (d) Camera
- (e) Binocular
- (f) Procedure

1. The person doing airport hazard identification should inform wildlife supervisor or Airside
2. Airport hazard Identification inspection shall be conducted inside the airport.
3. Wildlife officer must inspect thoroughly the whole airport, looking for wildlife related hazards as listed in the Weekly hazard identification Form.
4. After the inspection, wildlife officer who conducted an inspection must fill the form and submit it to Wildlife supervisor for further action.

Objective

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Frequency

Equipment

coordinator.

Appendix 12: OFF AIRPORT HAZARD IDENTIFICATION PROCEDURE

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Wildlife Hazards Management Plan

To ensure the Area surrounding the airport is free from wildlife related hazards or attractants that may attract birds and animals to the airport.

Responsibilities

Wildlife team and Airport WHMC members.

Airport hazard Identification Inspection is conducted on biannual basis.

- (a) One Vehicle.
- (b) Note book
- (c) Blue pen
- (d) Camera
- (e) Binocular
- (f) Procedure

1. The Wildlife supervisor before doing off airport hazard identification should request Managing Director through memo to be facilitated in terms of transportation to different areas surrounding the
2. Airport hazard I identification inspection shall be conducted in areas within 13km radius from the
3. The team must inspect thoroughly the whole area surrounding the airport, looking for wildlife related hazards.
4. After the inspection, wildlife officer who head the team conducted an inspection must make a report to be addressed to RAC Managing Director for approval and copies to be distributed to the administrators of areas concern for implementation of proposed hazard mitigating measures.

Objective

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Frequency

Equipment

airport. airport.

Appendix 13: WILDLIFE HAZARD MANAGEMENT TRAINING PROGRAM

Induction wildlife hazard management training Program for New staff

Training contents	Position	Frequency	Method of Training Delivery
An understanding of the nature and extent of the aviation wildlife management problem, and local hazard identification	New wildlife officer	Once	Theory& Practical



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An understanding of the national and local regulations, standards, and guidance material related to aerodrome wildlife management programs (use of best-practice models)	New wildlife officer	Once	Theory
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Appreciation of the local wildlife ecology and biology, including (where applicable) the importance of good airfield grass management policies, and the benefits they can deliver to wildlife management	New wildlife officer	Once	Theory & Practical
The importance of accurate wildlife identification and observations, including the use of field guides	New wildlife officer	Once	Theory & Practical
Local and national laws and regulations relating to rare and endangered species, and species of	New wildlife officer	Once	Theory
special concern, and the aerodrome operator's policies relating to them			
Wildlife strike remains collection, and identification policies and procedures	New wildlife officer	Once	Theory & Practical



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Long-term (passive) management measures, including on and off aerodrome habitat management, including identification of wildlife attractions, vegetation policies, air navigation aids protection, and drainage system, and water body management practicalities	New wildlife officer	Once	Theory & Practical
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Short-term (active) tactical measures, using well established effective wildlife removal, dispersal, and management techniques	New wildlife officer	Once	Theory & Practical
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Documentation of wildlife activities and management measures, and reporting procedures (the aerodrome wildlife management plan)	New wildlife officer	Once	Theory & Practical
Firearms and field safety, including the use of personal protective equipment	New wildlife officer	Once	Theory & Practical
Wildlife strike risk assessment and risk management principles, and	New wildlife officer	Once	Theory & Practical



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how these programs integrate with the aerodrome's safety management system.			
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Wildlife hazard Management On-job training Program

Training Content	Position	Frequency	Method of Training Delivery
Surveillance and Wildlife Control Patrols	New wildlife officer	once	Theory& Practical
Strike reporting	New wildlife officer	once	Theory & Practical
Bird/mammal Identification	New wildlife officer	once	Theory & Practical
Dispersal/Inspection	New wildlife officer	once	Theory & Practical
Radio communication	New wildlife officer	once	Theory & Practical

Refresher wildlife hazard management training Program for experienced staff

Training contents	Position	Frequency	Method of Training Delivery
An understanding of the nature and extent of the aviation wildlife management problem, and local hazard identification	Experienced wildlife officer	Annual	Theory& Practical
An understanding of the national and local regulations, standards, and guidance material related to aerodrome wildlife management programs (use of best-practice models)	Experienced wildlife officer	Annual	Theory
Appreciation of the local wildlife ecology and biology,	Experienced	Annual	Theory & Practical



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including (where applicable) the importance of good airfield grass management policies, and the benefits they can deliver to wildlife management	wildlife officer		
The importance of accurate wildlife identification and observations, including the use of field guides	Experienced wildlife officer	Annual	Theory & Practical



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Local and national laws and regulations relating to rare and endangered species, and species of special concern, and the aerodrome operator's policies relating to them	Experienced wildlife officer	Annual	Theory & Practical
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Wildlife strike remains collection, and identification policies and procedures	Experienced wildlife officer	Annual	Theory & Practical
Long-term (passive) management measures, including on and off aerodrome habitat management, including identification of wildlife attractions, vegetation policies, air navigation aids protection, and drainage system, and water	Experienced wildlife officer	Annual	Theory & Practical
body management practicalities			
Short-term (active) tactical measures, using well established effective wildlife removal, dispersal, and management techniques	Experienced wildlife officer	Annual	Theory & Practical



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Documentation of wildlife activities and management measures, and reporting procedures (the aerodrome wildlife management plan)	Experienced wildlife officer	Annual	Theory & Practical
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Firearms and field safety, including the use of personal protective equipment	Experienced wildlife officer	Annual	Theory & Practical
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Wildlife strike risk assessment and risk management principles, and how these programs integrate with the aerodrome's safety management system.	Experienced wildlife officer	Annual	Theory & Practical
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APPENDIX 14: AIRPORT WILDLIFE HAZARD MANAGEMENT COMMITTEE ToR.

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AIRPORT WILDLIFE HAZARD MANAGEMENT COMMITTEE TERMS OF REFERENCE

Introduction

The Airport Bird and Wildlife Committee (ABWC) is a committee of Airport that considers matters of Bird and wildlife hazard management in the airport and within 13 km radius from the airport. It monitors the implementation of the Airport Wildlife Hazard management plan. The Committee will be chaired by the Director Airports Operations Unit. The committee is chaired by the Director Airports Operations, in his absence Manager JIA will chair the meeting. A quorum shall be $\frac{3}{4}$.

Purpose

The ABWC will ensure that all relevant parties, the RAC, other stakeholders and specialist groups, participate, are made aware of and have an opportunity for comment regarding actions taken on the airport regarding bird and wildlife control to ensure a safer operating environment for aircraft.

The ABWC will ensure comprehensive reporting of all bird and wildlife strike incidents and provide an opportunity to discuss the incidents in more detail and evaluate the effectiveness of mitigation measures.

Objectives

To identify and deliberate on bird strike and bird/wildlife control related issues and to formulate, evaluate and implement corrective and/or preventative measures to ensure and promote a safer airport environment.

Mandate

- a. The ABWC, as a body or individual members as members of the body, shall have no executive or jurisdictional powers.

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b. The decisions of the ABWC shall be limited to issues at the airport and its surroundings relating to:

- i. Bird and Wildlife control measures;
- ii. Habitat / Environmental management

None of the decisions or recommendations adopted by the ABWC or actions arising there from shall be such as to:

- a. alter any provision applicable to an act, law, regulation or legal instruction
- b. extend their powers beyond the physical or jurisdictional boundaries of the
- c. refuse local application of individual airline or organisational policies
- d. result or cause to result in any danger, threat, or risk to any person, aircraft or equipment, or other safety related issues

Responsibilities

The Committee shall be responsible for identifying the various factors that play a role in bird strike reporting and bird control on the airport and within 13 km radius from the airport, also shall be responsible for:

- a. Develop and monitor the implementation of wildlife hazard management plan.
- b. Identify the root cause of the existence of wildlife
- c. Reviewing the wildlife or bird strike trends and proposed measures to mitigate.
- d. Communicating to management of all stakeholders about any change likely to increase wildlife hazard at the airport in a timely manner.
- e. Advise RAC management on the wildlife hazard management.
- f. Doing research or using available research information to propose means to mitigate against wildlife hazard at Juba International Airports.
- g. Conduct awareness workshops and seminars to local communities including businessmen, agriculturalist, schools, and hospitals.

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- h. Monitoring the implementation of the wildlife hazards management program.
- i. Making annual reports on the status of wildlife in the airport as well as in the vicinity of the airport. **Reporting**

The reports will be submitted to the Managing Director South Sudan Airports Company.

Meetings

- a. The Airport Bird and Wildlife Committee shall meet at least two (2) times.
- b. A JIA Vice-Chairman will be appointed by the ABWC.
- c. The Chairman or, in his absence, the Vice-Chairperson, shall preside at every meeting of the ABWC.
- d. Secretarial services of the ABWC shall be provided by the JIA.
- e. The presence of $\frac{3}{4}$ of the regular membership shall constitute a quorum.
- f. Where a quorum is present a majority of the members present will be necessary to make a decision.
- g. All ABWC meetings shall be duly minuted. Minutes should include a monthly bird strike summary report as well as bird presence summary report.
- h. Subject to the discretion of members, any person whose presence might contribute to the conclusion of any item on the agenda may be invited to attend a meeting.
- i. An emergency situation may necessitate the calling of an emergency meeting of the ABWC by the chairman.



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Membership

The airport Bird and Wildlife Committee is composed:

- a. Manager Airport Operations Department
- b. JIA Manager (Vice-chairman)
- c. Airport Wildlife Supervisor (secretary)
- d. Juba City Council
- e. Juba Na Bari Area
- f. South Sudan Airforce
- g. SSNPS
- h. Airport Engineering and Maintenance Manager
- i. ATC



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Amendment

- a. Any amendments to the terms of reference will be subject to prior proposal at a formal ABWC meeting. Voting on proposed amendments will not take place until the following meeting of the ABWC.
- b. A majority vote of the full membership of the ABWC shall be required to adopt the proposed amendment to these terms of reference. In this respect proxy voting shall be allowed.





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APPENDIX 15: WILDLIFE RISK ASSESSMENT

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CHANGE HISTORY





AWHMP no.	Effective Date	Significant Changes	Previous AWHMP no.