International Civil Aviation Organization

Seventh Meeting of the Aerodrome Safety, Planning & Implementation Group

(ASPIG/7) ***(Riyadh, Saudi Arabia, 6-10 April 2025)***

Agenda Item 2: Regional Performance Framework for Aerodrome Safety

WILDLIFE HAZARD MANAGEMENT IN THE MIDDLE EAST: URGENT NEED FOR REGIONAL COORDINATION

(Presented by the World Birdstrike Association – WBA)

SUMMARY

This paper presents the requirement of ICAO MID WHM Working Group.

Action by the meeting is at paragraph 3.

REFERENCES

- WBA online references : Ref1, Ref2, Ref3 and Ref4.

1. INTRODUCTION

The Middle East serves as a critical bottleneck for the Central Asian migratory bird populations, presenting unique challenges for aviation safety. Climate-driven ecological shifts are intensifying wildlife-aircraft collision risks, as evidenced by the Jeju Air Flight 2216 crash in December 2024. Despite ICAO data suggesting minimal risks, actual threats remain significantly underreported. This paper highlights the urgency of regional coordination to address escalating wildlife hazards and proposes actionable strategies to mitigate future risks.

2. DISCUSSION

Migratory Bottlenecks Demand Specialised Monitoring

The Middle East hosts three primary avian migratory choke points:

1. Red Sea Coast & Bab-el-Mandeb Strait – Over 50% of tracked Egyptian vulture migration time is concentrated here.
2. Suez Canal Zone – A critical passage for more than 20% of migratory bird routes.
3. Gulf of Iskenderun – A high-density flight corridor for multiple species.

Currently, none of these bottlenecks have protected status, leaving aviation stakeholders vulnerable to erratic bird movements. Additionally, climate change is compressing migratory windows and altering

fly way paths. Urgent actions include monitoring, reporting and data analysis and including implementing capacity building, habitat modification strategies to mitigate wildlife strike risks.

To address these risks, regional climate-adaptive Wildlife Hazard Management (WHM) strategies and guidance must be developed and tailored to shifting habitats. Underreporting increases Risk Levels

Despite ICAO data indicating negligible strike incidents in the MID region, evidence suggests otherwise:

- Airports with WHM programs report 7x higher strike detection rates.
- Studies indicate aircraft damage costs stem from unreported strikes.
- Operational concerns often suppress pilot and ATC reporting.

Adopting capacity building in way of forming a Reginal WHM working group will improve strike reduction with proactive management.

For the ease reference, the meeting may wish to note the **Bird Flyways** presented at **Appendix A.**

2.1 Economic Imperative for Proactive WHM

The financial implications of inaction are severe and a major concern for Airside safety:

- The Jeju Air crash resulted in 217 fatalities and over $360 million in losses and on-going.
- Airports lacking WHM programs face 7 times higher annual strike costs.

Airports with structured WHM programs report:

- $2.1 million in annual strike-related cost savings.
- 12% fewer operational delays.

A regional WHM working group mechanism should be established to provide a good platform for cost-effective prevention measures for all MID regional airports, particularly providing a platform for discussing challenges and adoption of collective guidance tasks by the working group and stakeholder engagement.

2.2 Fragmented Expertise Requires Coordination

Key gaps Assumptions in current WHM efforts include:

- Only 22% of MID airports conduct ICAO-recommended habitat mapping.
- Severe staffing shortages: Fewer wildlife controllers than mandated.
- Have MID Airport operators implemented fit to purpose technology systems for wildlife activity monitoring, data analysis and AI predictive analysis.

2.3 **Proposed solutions include:**

- Adopt a WHM Working Group (WHM WG) platform similar to the ICAO APAC WHM WG which have resulted in positive outcomes in reporting and proactive WHM which in turn contributes to strike reduction
- Developing regional wildlife Assessment and Training certification programs.
- Adoption of fit to purpose technology Application systems which will be demonstrated in a presentation.

In this regard, the meeting may wish to note the importance of data collection, as presented at **Appendix B**, to effectively manage the Wildlife Hazards.

2.4 The meeting may wish to agree on the WBA proposal of the establishment of the MID WHM WG in accordance with the Terms of Reference to be developed during the first meeting of the WG and present it to the upcoming MIDANPIRG/22-RASG-MID/12 Meeting for endorsement.

2.5 Accordingly, the meeting may wish to agree on the following Draft Decision:

Why	to endorse the establishment of the MID WHM WG
What	MID WHM WG
Who	RASG-MID/12
When	Q2 2025

DRAFT DECISION 7/1: ESTABLISHMENT OF THE MID WILDLIFE HAZARD MANAGEMENT WORKING GROUP (MID WHM WG)

That, the MID Wildlife Hazard Management Working Group (MID WHM WG) be established, with its Terms of Reference to be developed and agreed on during its inaugural meeting

3. ACTION BY THE MEETING

3.1 The meeting is invited to agree to the Draft Decision under paragraph 2.5 of this working paper.

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Why Wildlife Hazard Management Matters?

- ✓ Wildlife strikes pose a significant risk to aviation safety.
  - ➢ it helps prevent bird and animal strikes that can endanger aircraft, passengers, and crew.
  - ➢ Effective management minimizes the risk of collisions, ensures operational safety, and reduces financial losses due to aircraft damage.
  - ➢ By using data-driven strategies, airports can identify high-risk species, seasonal patterns, and mitigation measures to enhance aviation safety.
- ✓ It is absolutely essential to have proactive mitigation measures in place.
- ✓ Data collection and analysis are crucial for effective wildlife hazard management.
  - ➢ Data enables aviation authorities to identify high-risk species, track seasonal and migratory patterns, assess the effectiveness of mitigation measures, and predict potential wildlife hazards.
  - ➢ By leveraging reliable data, airports can implement proactive strategies, reducing the likelihood of bird strikes and improving overall aviation safety.

Understanding Wildlife Strikes

Key Statistics:

Over 100,000 bird strikes reported worldwide in the last decade.

Annual damages exceed $1.2 billion globally.

Majority of incidents occur below 3,000 feet during take off and landing.

Cost of Wildlife Strike – A recent Incident

Cost of Wildlife strike (bird) - DQ – FAD (B- 737 MAX) - 22 Jan 2025

- **Direct Engineering Cost** (Actual)
  - Replacement of 3 LH Blades @ USD $179,000
  - Cost of 3 Engine Blades = USD $ 537,000
- **Indirect Costs**
  - 3 to 5 times the direct costs. On an average = USD $ 2 Million
  - Total Cost = USD $ 537,000 + USD $ 2 Million = USD $ 2.5 Million
  - To be conservative each strike with just 3 blade replacement involves a cost of USD $ 2 million

Role of Data in Wildlife Hazard Management

- **Identification of High-Risk Areas** – Mapping locations with frequent wildlife activity.
- **Species Identification** – Recognizing species involved in strikes for targeted mitigation.
- **Seasonal Patterns** – Understanding migration and breeding cycles.
- **Effectiveness of Mitigation Strategies and Action Plans** – Adoption and Evaluating effectiveness of the WHMP, different strategies, dispersal methods employed in relation to behavioural modification of each species and habitat.

Recommendations & Next Steps

Enhance Data Collection Methods: Use technology for real-time monitoring.

Standardise Reporting Systems: Encourage global data-sharing frameworks.

Analyse using machine Language: Leverage AI for predictive analysis and mitigation strategies.

Use of Technology : Equip teams with right applications and tools.

Engage Stakeholders: Collaboration between aviation and environmental experts.

Conclusion

- Data is a critical tool in mitigating wildlife hazards.
- Accurate and timely information enhances aviation safety.
- Continuous improvement and innovation are necessary for effective wildlife hazard management.
- **Together, we can make our skies safer!**

ASPIG/7 – WP/11

Appendix B