



Wildlife Strikes – an Overlooked Element in the Urban Air Mobility Concept?

An Update on the 2022 DICUAM Presentation “Flying in the Strike Zone”

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Presentation Goals

Let's Talk!

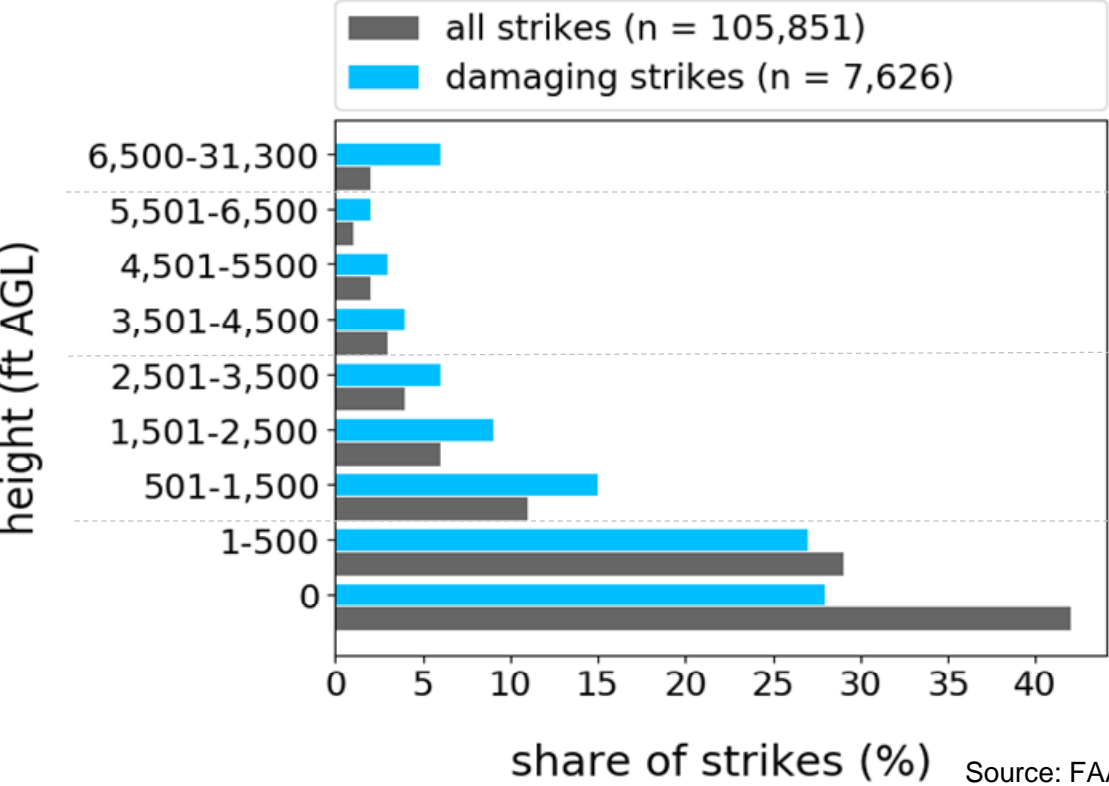
- Relationship between UAM operations and wildlife
- Consider current, adaptive, and new approaches to wildlife management to address UAM operation



*Encourage dialogue across disciplines
and stakeholder groups*

Wildlife Hazards and Risk Assessment – Where Strikes Occur

Cruising altitudes and strike likelihood



Aircraft type



Wildlife strike impact certification requirements

4 lbs (2 kg)



Individual birds: 2 lbs (1 kg)
Flocking birds: 1 lb (0.45 kg)

UAM and Wildlife Challenges

- **Strategic Challenges**

- Limited space for emergency/controlled landings
- Urban environments include hazardous wildlife
 - European Biodiversity Agenda!

- **Policy Challenges**

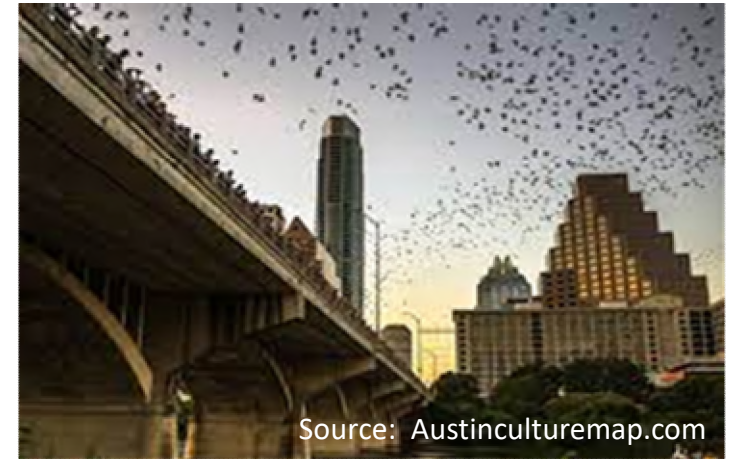
- Existing land uses are difficult to change/remove
- Historically, wildlife management policies focus on “safeguarding” areas close to airports (13 km)

- **Tactical Challenge**

- To avoid collisions with wildlife

UAM concerns encompass the entire flight route!

Safeguarding is not enough!



UAM and Wildlife Challenges

- **Business Challenges**

- Regulatory requirements
- Whole life costs and business interruptions
- Risk of disputes and settlement costs

- **Community Challenges**

- Absence of key stakeholder support
- Need for integrated planning and decision-making to avoid loss of opportunities

Engage early with local communities!

*Wildlife strikes are foreseeable –
avoid the consequences!*

Lessons and Opportunities to Enhance Safety

Safeguard Vertiports &
Flight Corridors

Aircraft Operations &
Air Traffic Control

Stakeholder
Involvement



Siting Considerations
for Vertiports &
Flight Corridors

Aircraft Certification
& Conspicuity

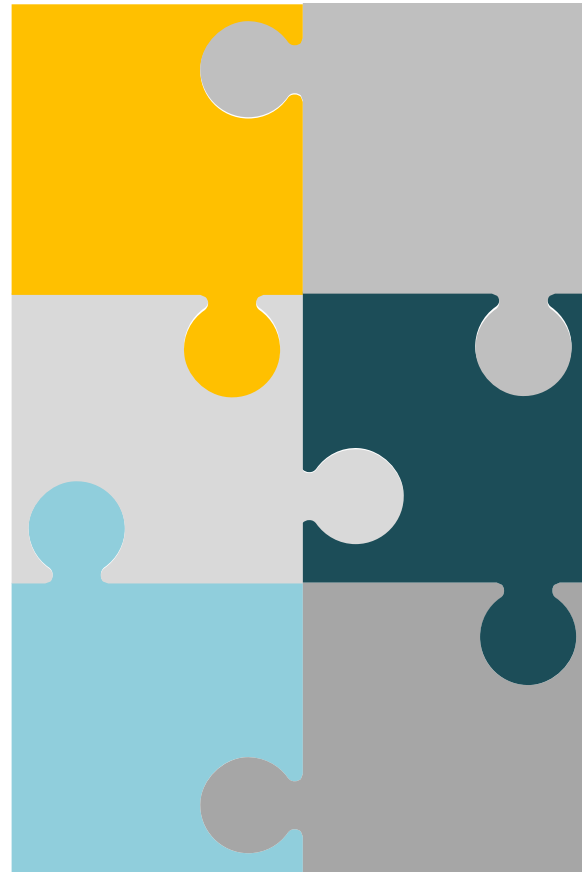
Strategic & Tactical
Strike Mitigation

Lessons and Opportunities to Enhance Safety

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& Flight Corridors**

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Lessons and Opportunities to Enhance Safety

Safeguard Vertiports & Flight Corridors against wildlife strikes

- **Implement a collaborative approach to safeguarding**
 - Raise awareness amongst ALL key stakeholders
 - Develop local safeguarding forums
 - Distribute standardised codes of practice for design, build and management of property
 - Employ a rigorous practice of safeguarding design risk assessments and regular monitoring of safeguarding performance



within (at least) 1.5km of vertiports AND flight corridors



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Lessons and Opportunities to Enhance Safety

Siting Considerations for Vertiports and Flight Corridors

- **Lessons and Solutions**

- Identify/cross-reference WHM guidance in forthcoming vertiport design guidance
- Develop guidance for vertiport operators
- Adapt and incorporate WHM programs at vertiports (similar to airports)
- Consider the **entire** corridor during siting efforts



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Lessons and Opportunities to Enhance Safety

Involve Air Traffic Control

Fast-time feasibility study (fixed-wing only)

- High safety potential
- Prerequisite: Reliable bird movement prediction

Real-time feasibility study with controllers

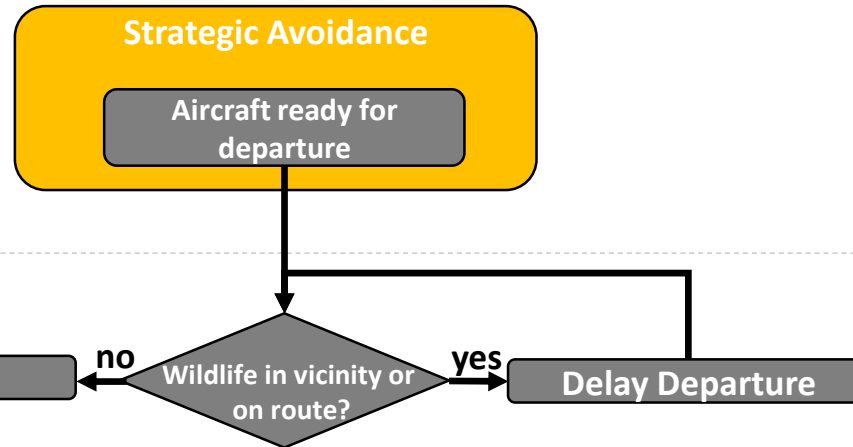
- Appreciation for wildlife risk information
- Active use for UAM and conventional traffic
- No negative impact on workload, situational awareness or capacity



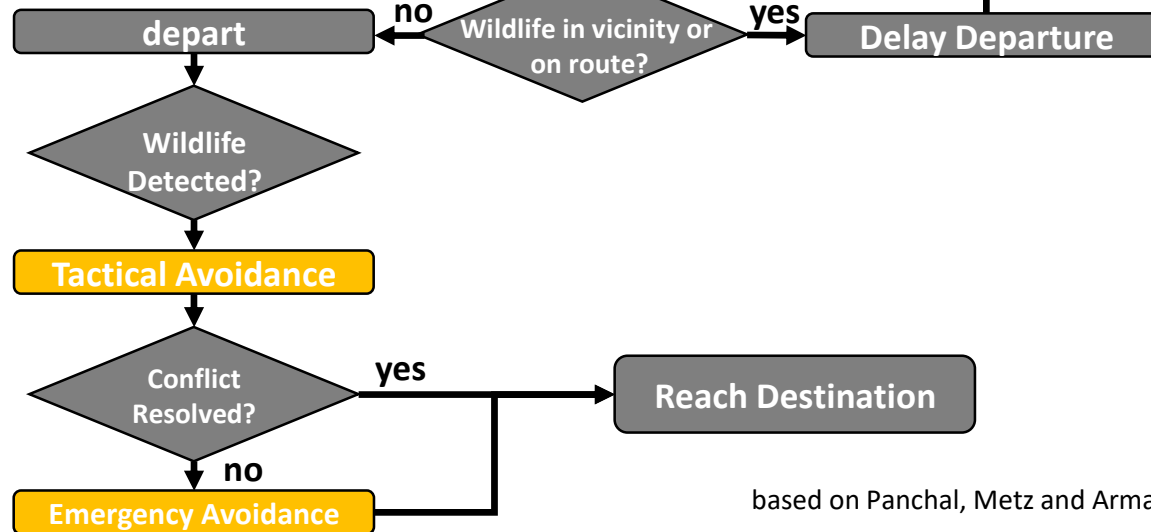
Lessons and Opportunities to Enhance Safety

Involve the Aircraft Operators

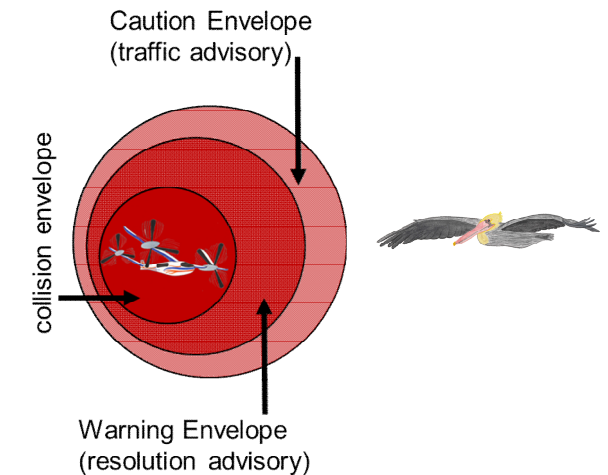
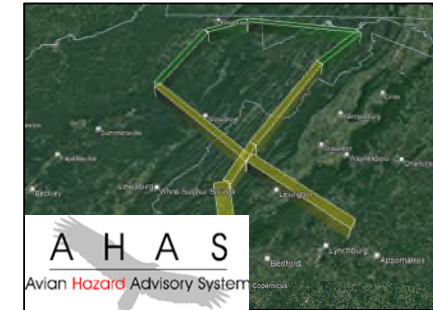
Prior to Flight



During Flight



based on Panchal, Metz and Armanini, 2022



Benefits of Wildlife Hazard Management



Thank you.

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Stay tuned!



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