

Expanding the Scope of Runway Safety: FOD and Bird Strikes

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Presentation Goal

- ▶ To present a case to expand the definition of “Runway Safety” to include:
 - Incursions
 - Excursions
 - +
 - **Foreign Object Damage**
 - **Wildlife (Bird) Strikes**

FOD and Bird Strikes: In Numbers

- ▶ Industry Cost: \$4 to \$13 billion/yr
- Airline Industry 2011
Forecast Net Profit: \$8.6 billion
- ▶ One Major US Carrier
Direct Cost: \$113 million/yr
- ▶ Bird Strike Costs
for US Carriers: \$600 million/yr

FOD and Bird Strikes: In Pictures



FOD: 25.07.00



Bird Strike: 22.09.95

Current Runway FOD Practices

ICAO

▶ Annex 14

- Surface clear of any loose stones or other objects

▶ Part 8 and Part 9

- Inspect regularly and at least every 6-hours and upon advice of pilots

Current Runway FOD Practices

Example:

- ▶ 3,000m x 60m runway
- ▶ Periodic visual inspections 4 times daily

= 10 to 15 minutes inspection time per day
or 1% of Runway Operating Time

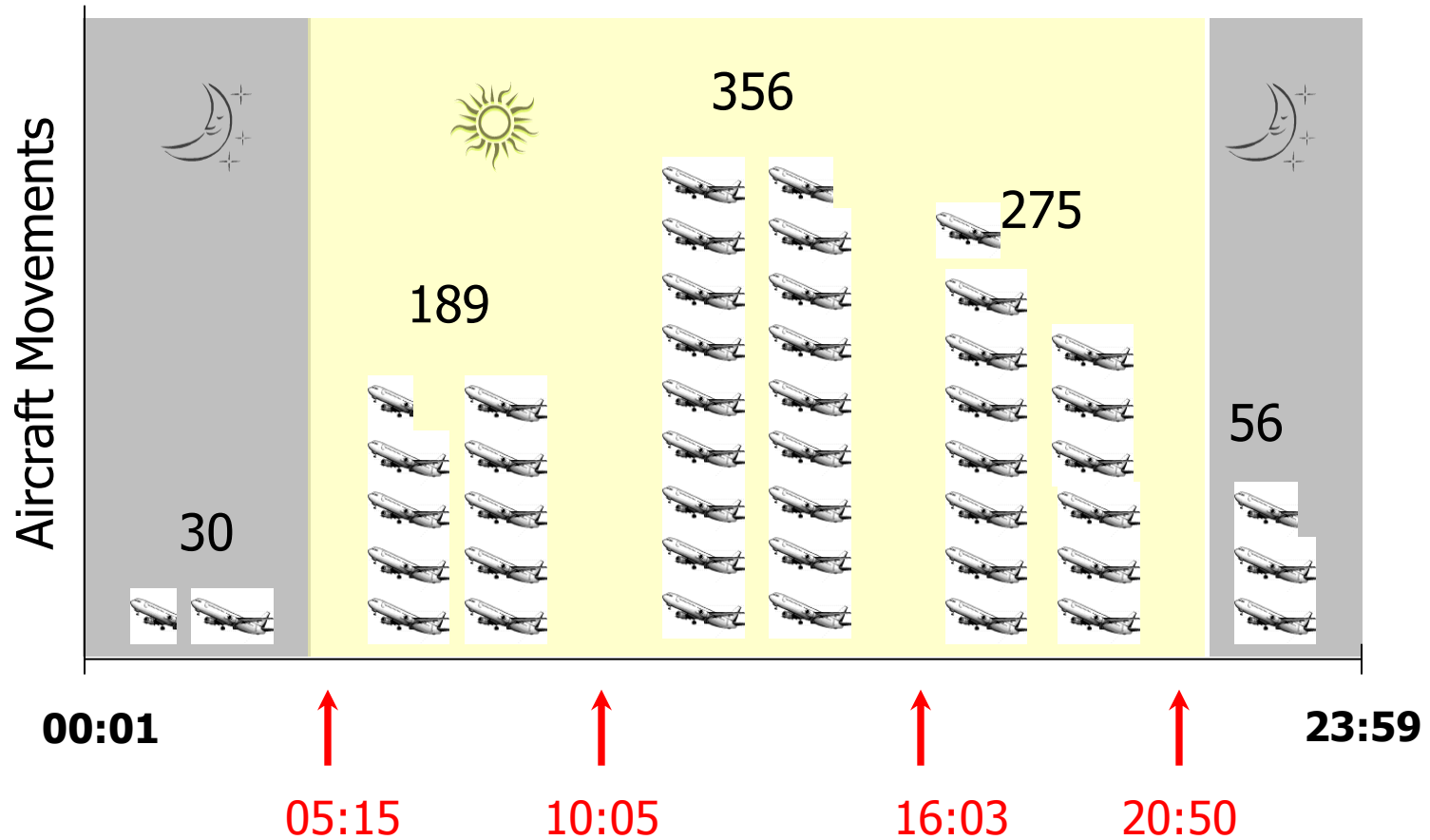
What business would accept only knowing the condition of its primary asset for 1% of its operating time?

Current Runway FOD Practices

Weaknesses of Periodic Visual Inspections:

- Frequency
- Timing
- Accuracy

Frequency and Timing



Accuracy

- ▶ Human Factors
 - Limitations of human vision
 - visual acuity, contrast sensitivity
 - light, weather conditions
- ▶ 1,333 m²/sec

Runway FOD Facts

YVR's Experience on Parallel Runways:

Periodic Visual Inspection: 3–5 pieces/mo

Automated Surveillance: 30–35 pieces/mo

Virtually all FOD will 'disappear' without human intervention given enough time.



Bird Strikes

- ▶ Success of pesticide bans and wildlife protection programs:
 - Population increases
 - Habitat changes – adjusting to urban environments
- ▶ Airports are commonly one of the last large open green spaces in their urban environment
- ▶ 1999–2008:

71 accidents
6 led to fatalities

Bird Strikes

- ▶ 90% of strikes occur at or in the vicinity of aerodromes
- ▶ 50% of strikes occur below 100'

Bird Strike Hazard Practices

▶ ICAO

- Part 3
- Annex 14
 - Take action to decrease the potential hazard on or in the vicinity of an aerodrome

Airport Wildlife Management Programs

- Data Driven: Monitor, Report, Assess Risk
- Habitat Management
- Wildlife Control

2/28/2009 7:46:47 AM

CAM ID: FS1Cam
FOD ID: 138843



SCALE: 8.4 feet
FOD RANGE: 856 feet

10/3/2009 7:09:32 AM

CAM ID: FS3Cam

FOD ID: 1877

SCALE: 6.3 feet

A Way Forward

- ▶ Fill the Data Gap
 - Verify the true costs and sources of Foreign Object Damage
 - by Air Carrier, by Airport, by Region, Globally
- ▶ Increase Scope of Local Runway Safety Teams
 - Risk Assessment of Current FOD and Wildlife Management Practices in light of New Technologies
 - Automated Runway FOD Detection, Avian Radar

A Way Forward

- ▶ Update guidance material and standards on Runway FOD and Wildlife Management
- ▶ Provide leadership, and the aviation perspective, on international co-operation and co-ordination for the management of migratory birds

Acknowledgements

- ▶ www.skybrary.aero
- ▶ *Runway Safety: FOD, Birds, and the Case for Automated Scanning*
Iain McCreary, Insight SRI
- ▶ *Aerodrome Bird Hazard Prevention and Wildlife Management Handbook*
Airports Council International
- ▶ Vancouver Airport Authority

Thank you

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