



Australian Aviation Wildlife Hazard Group

Wildlife Hazard Education and Information Sharing Forum 2009

Brisbane Airport Case Study



AAWHG - 2009



AAWHG - 2009

Ultimate
Goal???



AAWHG - 2009

- What are the objectives?
 - Monitor, assess, manage using Risk Assessment methods to reduce the overall risk of bird (wildlife) strikes – Wildlife Hazard Management Strategy (WPMP);
 - Identify trends to focus priorities & ↓ lethal methods;
 - Wildlife Hazard Management forms an integral part of the overall operation and Risk Management of the Airport.
 - SAFE AIRPORT
 - ALL Stakeholders assist in reducing risk
 - ON/OFF Airport (Direct/Indirect)

AAWHG - 2009



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The F-111 was flying at 900m on a test bombing raid over Evans Head, in northern NSW, when the pelican struck the fibreglass nose and smashed the radome before being sucked into an engine (April 2008).

Identify Risk

- Risk Assessment currently based on likelihood/consequence system using 13 years of strike/count data;
- Greatest Risk Species:
 - Flying Fox spp.
 - Nankeen Kestrel;
 - Ibis spp. (Aust White & Straw-Necked);
 - Masked Lapwing (Plover).

Why at Airport?

- Flying Fox – transit patterns (dusk/dawn)
- Kestrel – food source (open mown grasslands)
- Ibis spp. – Loafing, food source, lifestyle!!
 - Different attractors for White and Straw necked?
 - Large numbers of White and more recently Straw Necked Ibis
 - No breeding colonies on Airport
- Masked Lapwing – habitat (open grassland)

Why at Airport?

- Influences:
 - ↑ construction activity (refer diagram)
 - Previous drought to high rainfall to more recent dry – seasonal changes
 - Changes in reporting structure & protocol from all stakeholders.

Why at Airport?

Construction Activity at Brisbane Airport 2008 to 2011



- LEGEND**
- 1 Expansion of Domestic Terminal involving construction of Hall 1 and 2nd floor, completed by construction start 2008 (in operation August 2011)
 - 2 Expansion of International Terminal and Apron development (2008)
 - 3 Expansion of Freeway Access Road - Bridge 1 completion (2008)
 - 4 Construction of Freeway Access Road - Bridge 2 completion (2008)
 - 5 Construction of Freeway Access Road - Bridge 3 completion (2008)
 - 6 Construction of Freeway Access Road - Bridge 4 completion (2008)
 - 7 Construction of Freeway Access Road - Bridge 5 completion (2008)
 - 8 Upgrade of Interstate Drive - Road 2 Drive to regional intersection completion (2008)
 - 9 Construction of Airside Access Road including bridge across Airport Drive completion (2008)
 - 10 Construction of Airside Access Road including bridge across Airport Drive completion (2008)
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Ibis – Straw Necked



Ibis – Aust White



Kestrel



Brown Falcon



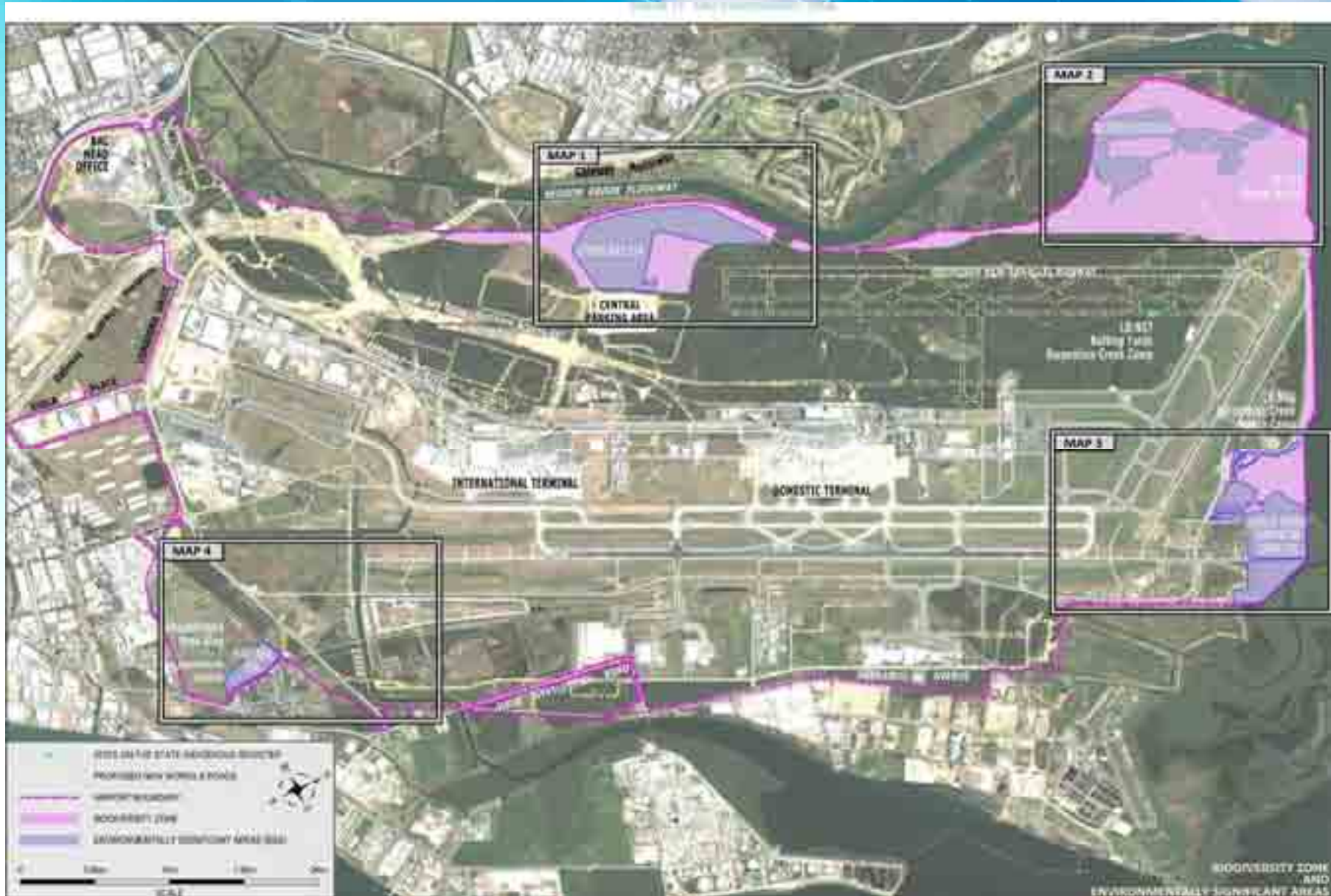
Brahminy Kite



Habitat/Vegetation Types/ Biodiversity



Habitat/Vegetation Types/ Biodiversity





Habitat/Vegetation Types/ Biodiversity

- ESA's (Mangrove Remnants etc.)
- BMS – Biodiversity Management Strategy
 - Aim of retaining/enhancing significant biodiversity assets whilst simultaneously reducing risk of wild life strikes.
 - BAC's AES (Airport Environment Strategy)



Wildlife Hazard Management Strategy

- Bird Counts/Monitoring
 - 3 times a week (high risk species 6 times/wk)
 - NOTAM/ERSA advisory info.
 - trending
- Bird Harassment (areas prioritised)
 - Vehicle lights , sirens/horns (↑Vigilance)
 - Pyrotechnic Charges (Birdfrite)
 - Liveshot
 - DMP & Return of Ops: approved species list & cull numbers
 - DMP 3 year application : Wildlife Property Management Plan under Nature Conservation Regs



Bird Count/Strike Forms

Bird and Wildlife Count Form

Date: _____
 Time: _____
 WXA-125 125.5 MHz
 RWY: _____
 Wind Direction: _____
 Wind Speed: _____
 Cloud Amount: _____
 Cloud Height: _____
 Temperature: _____
 QNH: _____
 Tide L / M / H: _____
 Rain last 24 hrs: _____
 AOCN: _____

BY OUTLINE, BIRD/ANIMAL STRIKE ZONE

| Species + | Zones + | 1 | 2 | 4 | 6 | 7 | 8 | 9 | 10 | 11 |
|----------------------------|---------|---|---|---|---|---|---|---|----|----|
| Bee-eater, rainbow | | | | | | | | | | |
| Bittern, black | | | | | | | | | | |
| Comorant, little black | | | | | | | | | | |
| Comorant, little pied | | | | | | | | | | |
| Comorant, pied | | | | | | | | | | |
| Crow, lammas | | | | | | | | | | |
| Cuckoo | | | | | | | | | | |
| Cuckoo, spotted-turtle | | | | | | | | | | |
| Duck, sarthead | | | | | | | | | | |
| Duck, sarthead black | | | | | | | | | | |
| Duck, wood | | | | | | | | | | |
| Fairy tern | | | | | | | | | | |
| Egret, great | | | | | | | | | | |
| Egret, intermediate | | | | | | | | | | |
| Falcon, brown | | | | | | | | | | |
| Fox | | | | | | | | | | |
| Fox | | | | | | | | | | |
| Fairy tern, spotted | | | | | | | | | | |
| Fairy tern, swamp | | | | | | | | | | |
| Flycatcher, purple wing | | | | | | | | | | |
| Gull, strait | | | | | | | | | | |
| Gull, white-faced | | | | | | | | | | |
| Gull, straw-necked | | | | | | | | | | |
| Gull, white | | | | | | | | | | |
| Kestrel, nankin | | | | | | | | | | |
| Kite, black-shouldered | | | | | | | | | | |
| Kite, brahminy | | | | | | | | | | |
| Kite, whistling | | | | | | | | | | |
| Magpie, australian | | | | | | | | | | |
| Martin, fairy | | | | | | | | | | |
| Ouzel | | | | | | | | | | |
| Pheasant (magpie-like) | | | | | | | | | | |
| Petrel, australian | | | | | | | | | | |
| Pig bird | | | | | | | | | | |
| Pigeon, feral | | | | | | | | | | |
| Pigeon, rock | | | | | | | | | | |
| Plover (masked lapwing) | | | | | | | | | | |
| Red-tailed, white | | | | | | | | | | |
| Spurcuckoo, english | | | | | | | | | | |
| Spurcuckoo, royal | | | | | | | | | | |
| Starling, common | | | | | | | | | | |
| Tail, black-winged | | | | | | | | | | |
| Swallow, welcome | | | | | | | | | | |
| Tern, black | | | | | | | | | | |
| Tropicbird, white | | | | | | | | | | |
| Wattlebird, white-breasted | | | | | | | | | | |

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AERODROME OPERATOR BIRD / ANIMAL STRIKE REPORT

Incident Details

Date of Occurrence: _____
 Time of Strike: _____
 Aerodrome Name: _____
 Runway Used: _____
 Weather at Time: _____
 Time Strike Reported to Tower: _____

Operator Particulars

Aircraft Registration: _____
 Aircraft Type/Model: _____
 Aircraft Operator: _____
 Pilot Name: _____

Bird/Animal Strike

Species of Bird/Animal: _____
 Number Struck: _____
 Number of Passengers Injured: _____

Harassment/Control Information

Bird/Animal Activity: _____
 Source of Attraction: _____
 Control Method: _____
 Control Effect: _____

Weather Conditions

Wind Direction: _____
 Wind Speed: _____
 Visibility: _____
 Cloud Height: _____
 Cloud Amount: _____
 Precipitation: _____
 Temperature: _____

Additional Info

Additional Info: _____
 Aircraft Damage: _____
 Damage Description: _____
 Effect on Flight: _____

Other Information Relevant to the Event

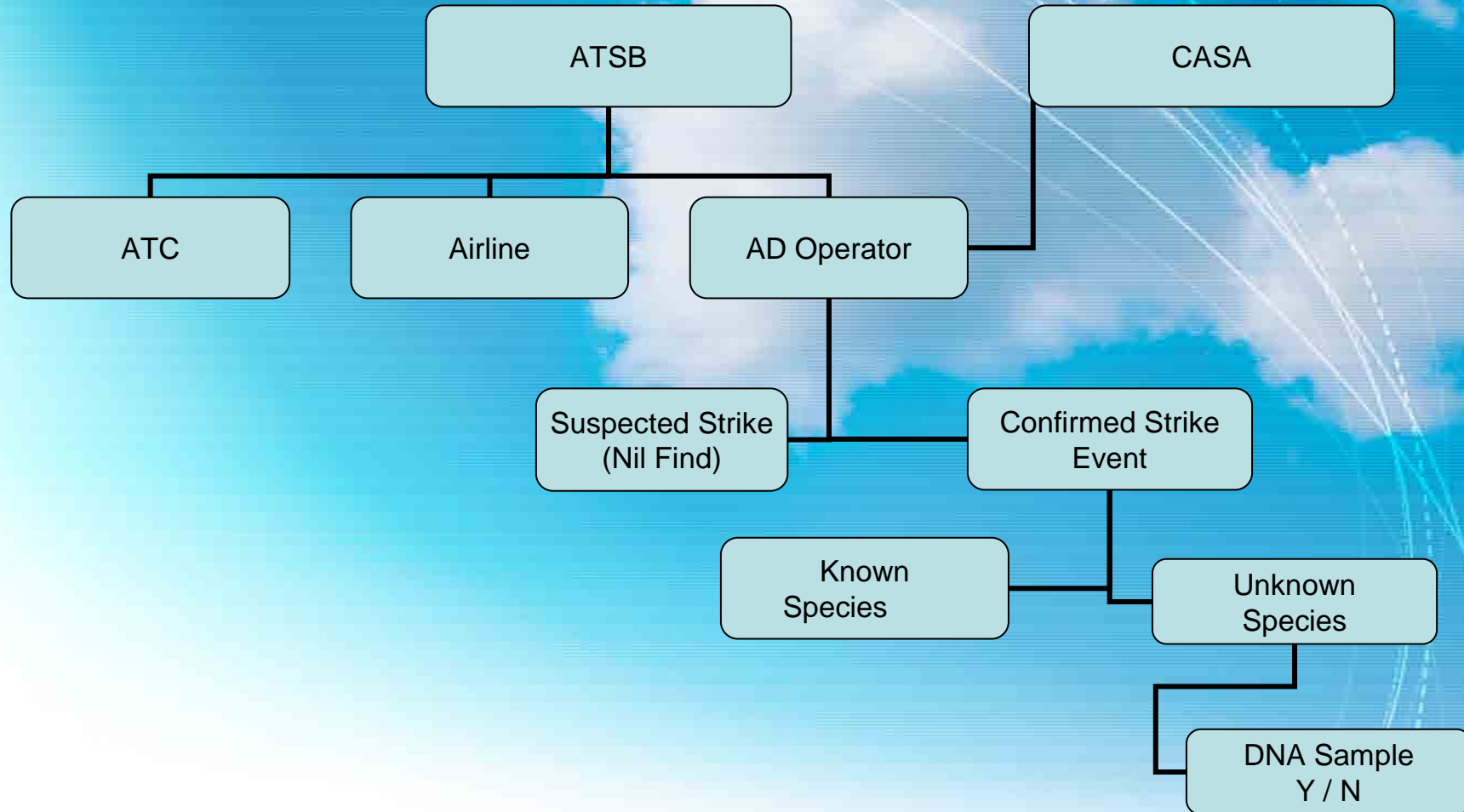
Other Information: _____
 Flight Rules: _____
 Flight Conditions: _____
 Light Conditions: _____
 Type of Operation: _____
 Purpose of Flight: _____

Personal Particulars of Reporter

Reported By: _____
 Signature: _____
 Address: _____
 Telephone: _____
 Facsimile: _____
 Email: _____

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Strike Reporting



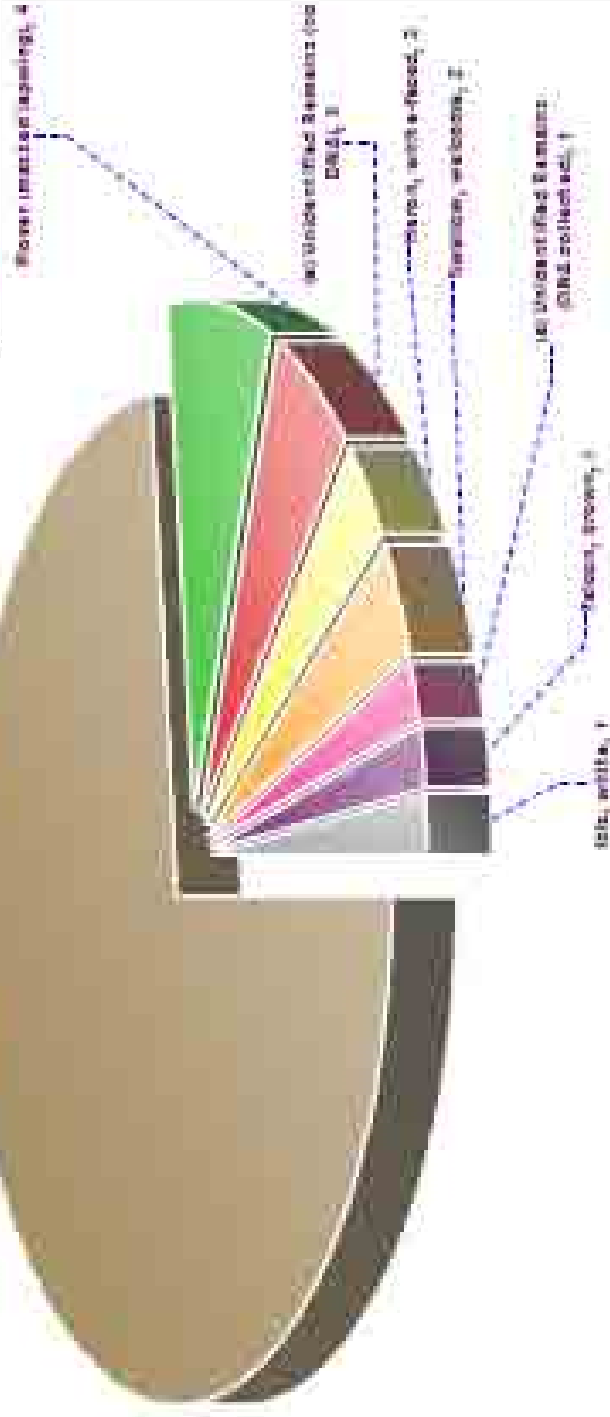


Strike Reporting

- ALL strikes recorded in database
- Report generated and emailed to “notification group” including ATSB & major airlines to improve consistency in reporting of strike data
- Delineate “nil finds” & “confirmed” - Airlines
- Strike & Count databases analysed quarterly & annually
- Independent Trend Analysis – GU
 - Reviewing as BAC data collection improving
 - Improve trending over time to assess and improve risk management strategies – realtime data

Birds May-July 2006

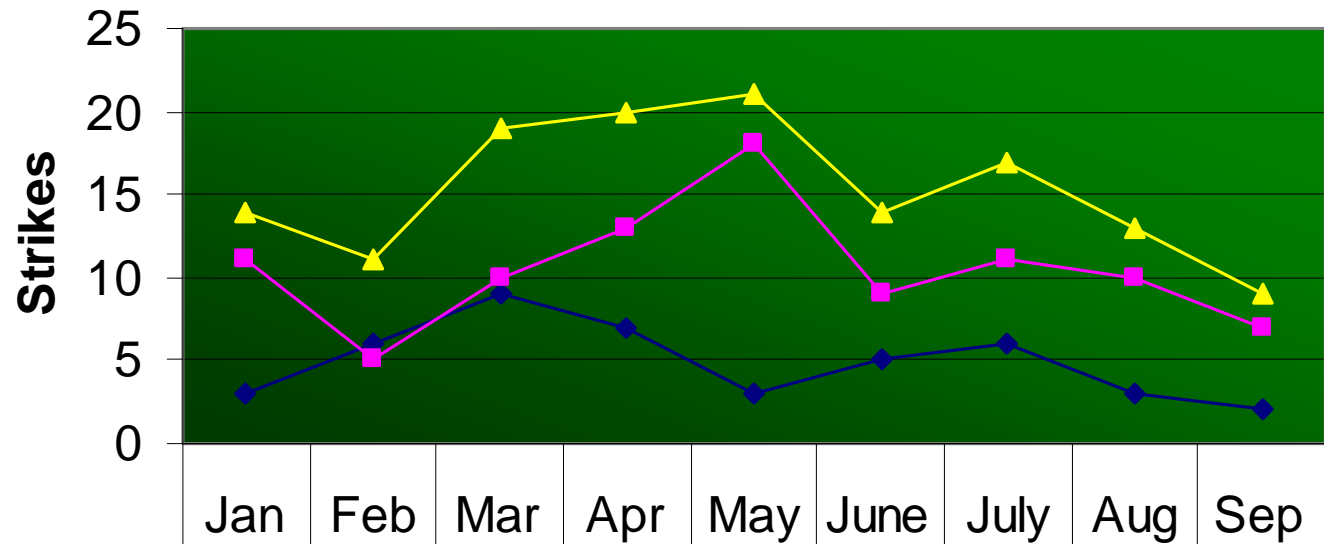
(a) NI Found (Suspected Strike) 38



| Species | Strikes |
|--|-----------|
| (a) NI Found (Suspected Strike) | 38 |
| Plover (masked lapwing) | 4 |
| (a) Unidentified Remains (no DNA) | 3 |
| Heron, white-faced | 2 |
| Swallow, welcome | 2 |
| (a) Unidentified Remains (DNA collected) | 1 |
| Falcon, brown | 1 |
| Ibis, white | 1 |
| Total | 52 |



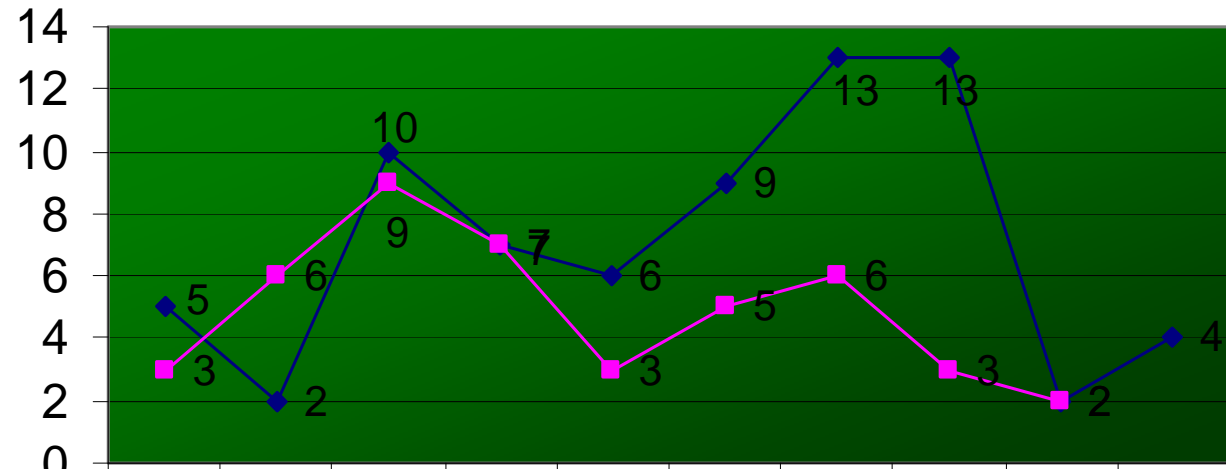
Bird Strikes - Trending



| | | | | | | | | | |
|-------------------------|----|----|----|----|----|----|----|----|---|
| ◆ 2009 - Confirmed (UR) | 3 | 6 | 9 | 7 | 3 | 5 | 6 | 3 | 2 |
| ■ 2009 - Nil Find | 11 | 5 | 10 | 13 | 18 | 9 | 11 | 10 | 7 |
| ▲ 2009 - Total | 14 | 11 | 19 | 20 | 21 | 14 | 17 | 13 | 9 |

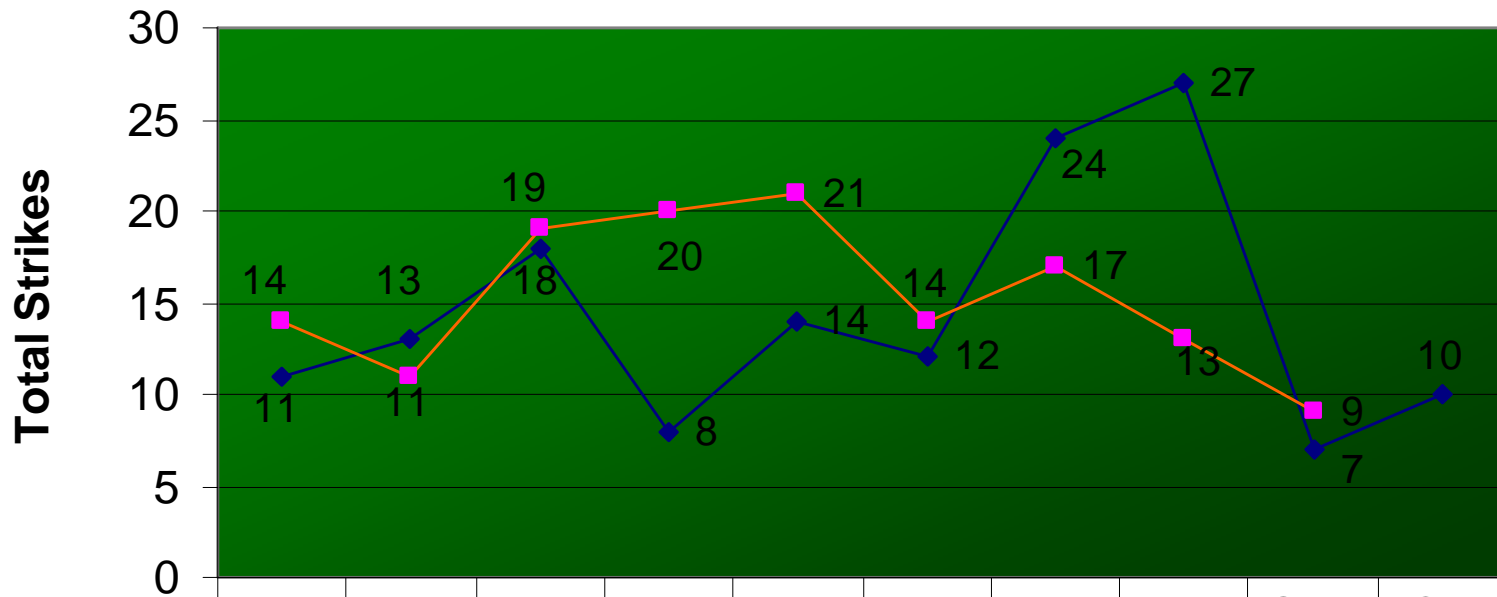
Bird Strikes Trend 2008/2009

Confirmed Strikes (UR)



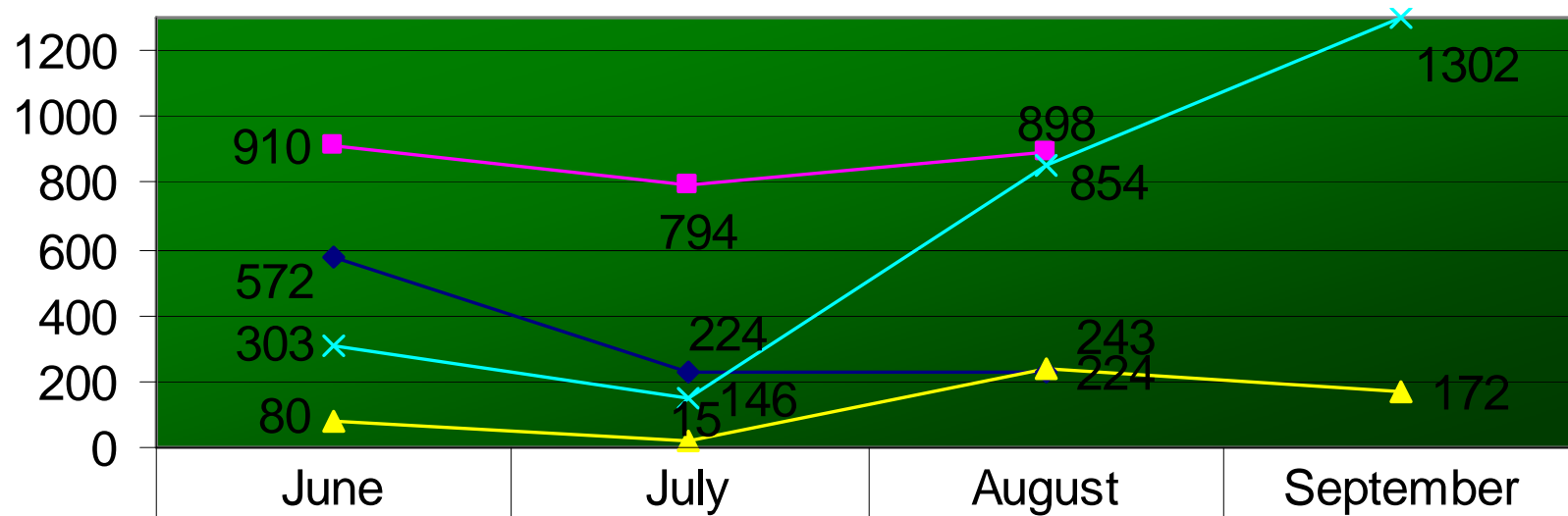
| | Jan | Feb | Mar | Apr | May | June | July | Aug | Sep | Oct |
|---------------------------|-----|-----|-----|-----|-----|------|------|-----|-----|-----|
| —◆— 2008 - Confirmed (UR) | 5 | 2 | 10 | 7 | 6 | 9 | 13 | 13 | 2 | 4 |
| —■— 2009 - Confirmed (UR) | 3 | 6 | 9 | 7 | 3 | 5 | 6 | 3 | 2 | |

Bird Strikes Trend 2008/2009



| | | | | | | | | | | |
|----------------|----|----|----|----|----|----|----|----|---|----|
| ◆ 2008 - Total | 11 | 13 | 18 | 8 | 14 | 12 | 24 | 27 | 7 | 10 |
| ■ 2009 - Total | 14 | 11 | 19 | 20 | 21 | 14 | 17 | 13 | 9 | |

IBIS Count Trends

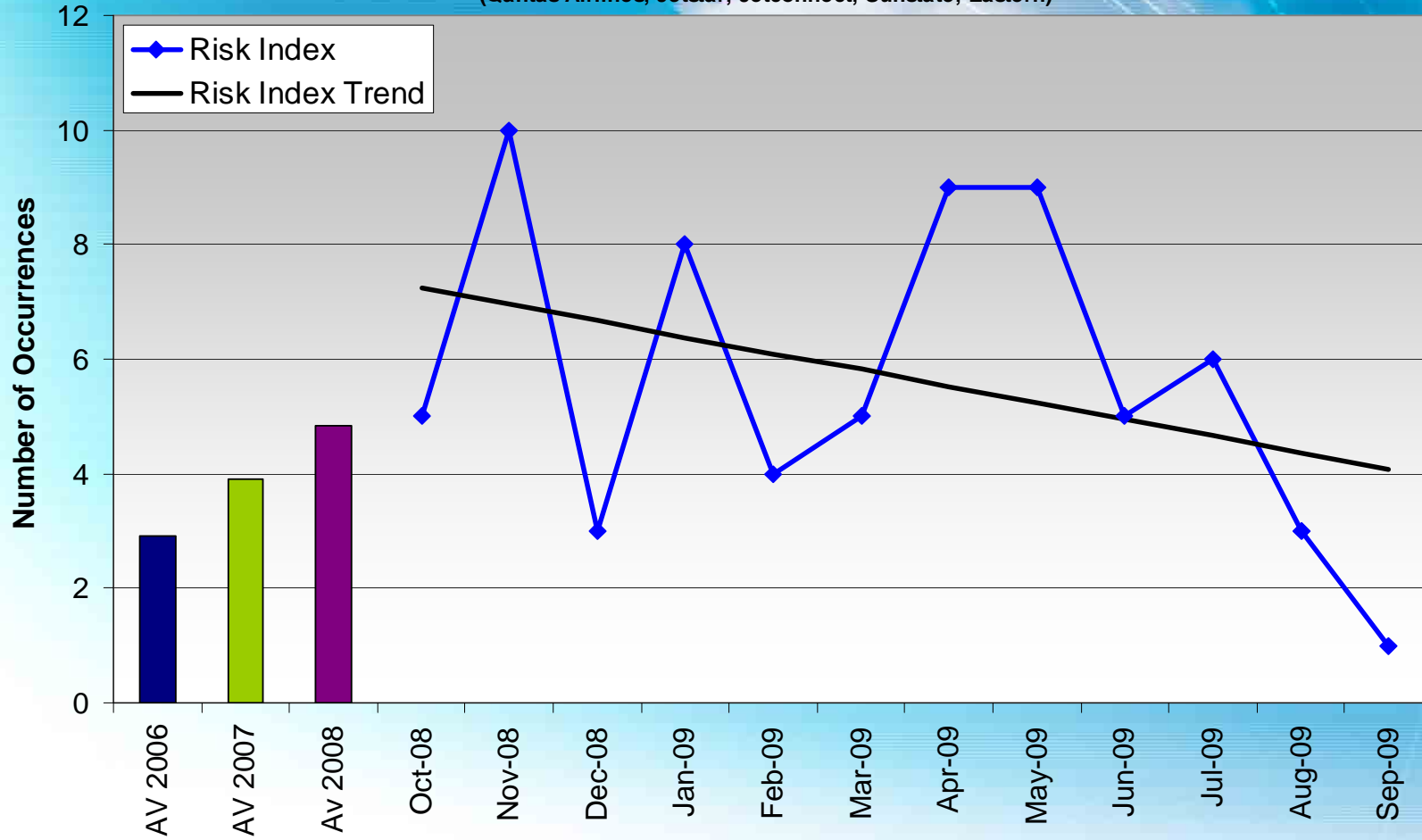


| | | | | |
|---------|-----|-----|-----|------|
| ◆ WI-08 | 572 | 224 | 224 | |
| ■ SN-08 | 910 | 794 | 898 | |
| ▲ WI-09 | 80 | 15 | 243 | 172 |
| × SN-09 | 303 | 146 | 854 | 1302 |



QF Data – BNE Ref:L.Taylor QF

Qantas Group Wildlife Strikes Risk Index - Brisbane
(Qantas Airlines, Jetstar, Jetconnect, Sunstate, Eastern)



Strike Rates

Using Confirmed Strike data and RPT (GA not included) aircraft movements (2008 data)

| Period | Strike Rate per 10000 RPT movements |
|--|-------------------------------------|
| January – December 2008 (99 Confirmed Strikes) | 5.97 |
| January – June 30 2008 (39 confirmed strikes) | 4.7 |
| January – June 30 2009 (34 confirmed strikes) | 4.1 |

- Recent Trend ↓ (Good!!)

AOO Training

- **Critical** to ↑ data quality and effective risk management – integrated, goal based
- Bird ID training & famils
- Education to make aware the importance of AOO role and contribution to overall risk management
- Appropriate resources
 - Field kits, PPE, Binoculars, firearm training
- Simple & Efficient Procedures

Management Strategy – What are we doing?

- On Airport
 - ↑Vigilance & Harassment!!!
 - Adequate fencing (physical controls)
 - Grass height policy
 - 30-50cm (QUT Study)
 - Fireweed & operational issues (fire, visibility MAGs)
 - Drainage Management (↓surface water, ponding)
 - MAG Sign Spikes trial
 - Landscaping:
 - Review/List “bird unfriendly” tree species eg: casuarina not Moreton Bay Figs



Management Strategy – What are we doing?

- On Airport (cont)
 - DCPs: design controls to ↓ roosting/nesting sites across whole of airport
 - Rubbish Bin Lid Policy
 - Bird Feeding Signage (landside)



Management Strategy – What are we doing?

- Off Airport
 - Consultant Management of 2 identified Ibis roosting sites, Aquarium Passage & Metroplex (DERM & BCC). Egg oiling & nest removal.
 - ↑ real time data analysis to assess effectiveness of strategies and prioritisation eg- Straw Neck Ibis
 - ↑ consultancy with councils – landfill management practices
 - IMCG (BNE & GC Region)
 - Data sharing & holistic approach



Summary

- Offsite risk management critical for overall effectiveness of ↓wildlife strike risk
- ICAO identify as integral part of wildlife management
- Holistic/integrated approach involving all levels of government & stakeholders is essential to ensure effective wildlife management
 - Offsite land use planning and management
 - Integration of regs with council development guidelines
 - Sharing bird count information to identify trends on a larger SE seaboard scale



Thank You

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