AVISURE

MITIGATING BIRD STRIKE RISK

MackayAirport

Wildlife Hazard Management Plan

Supplement: 1.4

July 2016

Summary

Wildlife, especially birds, are a threat to air safety, particularly when present on the airport and on or in the vicinity of runways. The aim of this Supplement for the Mackay Airport Wildlife Management Plan is to provide an update to the risk assessment and a general program review, including procedural updates. This document should be read in reference to the Mackay Airport Wildlife Hazard Management Plan (2012).

Avisure has helped guide Mackay Airport's wildlife management program since 2005. During this time, the strike risk has declined in response to the successful implementation of wildlife management strategies by airport staff, and the maturity of the wildlife management program.

The previous two years of the program has seen Avisure and Mackay Airport work together to progress the airport's autonomy and independence regarding the implementation of the wildlife management program, including associated evaluations and assessments. So far, noticeable improvements have been made in:

- bird identification
- strike handling and carcass identification
- monitoring and wildlife survey methods
- standard operating procedures
- data capture, handling, and analysis
- liaison with the Department of Environment and Heritage Protection regarding flying-foxes.

Record of Review

Details of all Wildlife Hazard Management Plan annual reviews are maintained as separate documents (e.g. this Supplement), and are referred to as part of any major review. Record of reviews outline the nature of the review, record any amendments, and review any key performance indicators.

This review will be attached to the current Wildlife Hazard Management Plan until the next major review.

Rev	Review Date	Review Type	Authorised	Signature
1.0	Feb. 2012	Wildlife Hazard Management Plan	Philip Clark Manager Aviation Operations	
1.0	Sep. 2012	Updates to: • Risk assessment • Species action plans	Philip Clark Manager Aviation Operations	
1.1	Sep. 2013	Updates to: • Culling and egg/nest removal • Risk assessments • Species actions plans	Philip Clark Manager Aviation Operations	
1.2	Jul. 2014	Updates to: • Risk assessment • Species management table • Species action plans	Philip Clark Manager Aviation Operations	
1.3	Jul. 2015	Updates to: • Risk assessment • Risk Characterisation • Landscaping Policy • Species action plans	Philip Clark Manager Aviation Operations	
1.4	Jul. 2016	Updates to: • Risk assessment • Risk Characterisation • Species Action Plans • Wildlife Count Procedure	Philip Clark Manager Aviation Operations	

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1. Introduction

1.1 Background

In July 2012, Mackay Airport Pty Ltd (MAPL) developed and implemented a Wildlife Hazard Management Plan (WHMP) that aimed to define the wildlife strike risk at Mackay Airport (YBMK) and to set objectives, performance indicators and procedures for the systematic management of that risk. YBMK contracted Avisure to complete an annual review of the WHMP in accordance with the review schedule *(*Appendix B).

1.2 Mackay Airport Wildlife Hazard Management Plan Annual Review

The annual review involved:

- On- and off-airport wildlife surveys to collect data for risk assessments and determining wildlife trends.
- Assessing the risk via industry-endorsed methodologies to determine current hazardous species.
- Assessing the currency and efficacy of Wildlife Hazard Management Procedures and Policies.
- Cross-checking program performance against WHMP Key Performance Indicators (Appendix A).

The WHMP Supplement Report 1.4 (this document) presents a summary of the findings along with recommendations for appropriate progression of the wildlife management program, and should be read in conjunction with the WHMP which remains the guiding document for the management of wildlife hazards at YBMK.

The annual review was limited by:

- a single round (morning, midday, afternoon and nocturnal) surveys conducted quarterly
- local climatic conditions on the day of surveys may have significantly influenced normal wildlife activity.

Despite these limitations, the annual review:

- updated the risk assessment to determine current hazards
- updated the Wildlife Count procedure
- reviewed and updated the scorecard to highlight programs trends
- provided recommendations for further progression of the wildlife management program.

1.2.1 Review Summary

The current YBMK strike rate is 11.08 strikes per 10,000 RPT aircraft movements[1]; making YBMK a high risk airport. No damaging strikes were reported between July 2015 and June 2016. YBMK achieved 100% of the WHMP Review Checklist with no non-compliances (Appendix A). 2015/16 as seen a seen a change in risk species, with 0 very high, 7 high and 18 moderate risk species.

Key program initiatives:

After completing the second year of a three-year program, MAPL staff have been trained in conducting wildlife surveys to a professional standard, more effective data management and analysis, improved critical thinking in addressing wildlife risk from a holistic point of view.

Year	Action	Completed	Outcome
2014/15	Advanced wildlife survey procedure training.	☑ Yes ☐ No ☐ Pending	Ability to conduct on- and off-airport surveys independently to Avisure standards.
	Advanced bird identification training.	☑ Yes ☐ No ☐ Pending	Ability to identify species using a dichotomous key.
2015/16	Advanced ecological event training.	☑ Yes ☐ No ☐ Pending	Ability to identify the changes in season, weather, flora, etc., and have the ability to think critically on how it might impact the risk.
	Data entry handling.	☑ Yes ☐ No ☐ Pending	Ability to enter data correctly into a database and make correct assumptions from the data.
2016/17	Audit MAPL.	☐ Yes ☐ No ☑ Pending	
	Analyse data.	☐ Yes ☐ No ☑ Pending	
	Generate monthly risks assessments.	☐ Yes ☐ No ☑ Pending	

[1] Movement data only available between July 2015 and May 2016, May-June 2016 movements calculated on average movement data.

Key wildlife risks and issues:

- Large flocks of Magpie Geese transiting the airfield in the morning and afternoon, with the greatest risk period typically within 30min of sunrise and sunset.

- Large flocks of Plumed Whistling-Ducks foraging on the airfield at night presenting a high risk due to their large mass. Their lack of eye shine at night makes detection difficult.

- Identification of *Gomphrena celosioides*, a naturalised plant species from Central and South America, throughout the airside grasslands providing a food source for Feral Pigeons.

2. Risk Assessment

Avisure conducted a combined risk assessment using strike data from YBMK and Australian Transport Safety Bureau (ATSB), and on-airport survey data collected during quarterly site visits, Table 1. Figures 1 and 2 provide the survey risk assessment results, and Table 2 provides the strike risk assessment result. Refer to Appendix B of the WHMP for risk assessment methods.

Table 1. Overall species risk rankings, July 2016, YBMK.

Rank	Overall Risk	Species	Survey Risk	Nocturnal Risk	Strike Risk
1	High	Plumed Whistling-Duck	Moderate	High	High
2	High	Unidentified Flying-fox	-	High	High
3	High	Bush Stone-curlew	-	High	Moderate
4	High	Magpie Goose	High	-	-
5	High	Galah	High	-	-
6	High	Australian White Ibis	High	-	-
7	High	Unidentified Bird	-	-	High
8	Moderate	Masked Lapwing	Moderate	-	Moderate
9	Moderate	Black Kite	Moderate	-	Moderate
10	Moderate	Feral Pigeon	Moderate	-	Low
11	Moderate	Cattle Egret	Low	-	Moderate
12	Moderate	Rainbow Lorikeet	Moderate	-	-
13	Moderate	Straw-necked Ibis	Moderate	-	-
14	Moderate	Torresian Crow	Moderate	-	-
15	Moderate	Pacific Black Duck	Moderate	-	-
16	Moderate	Gull-billed Tern	Moderate	-	-
17	Moderate	Radjah Shelduck	Moderate	-	-
18	Moderate	Eastern Great Egret	Moderate	-	-
19	Moderate	Scaly-breasted Lorikeet	Moderate	-	-
20	Moderate	Australian Pelican	Moderate	-	-
21	Moderate	Silver Gull	Moderate	-	-
22	Moderate	Little Black Cormorant	Moderate	-	-
23	Moderate	Magpie Lark	Moderate	-	-
24	Moderate	Eastern Curlew	Moderate	-	-
25	Moderate	Wandering Whistling-Duck	-	-	Moderate

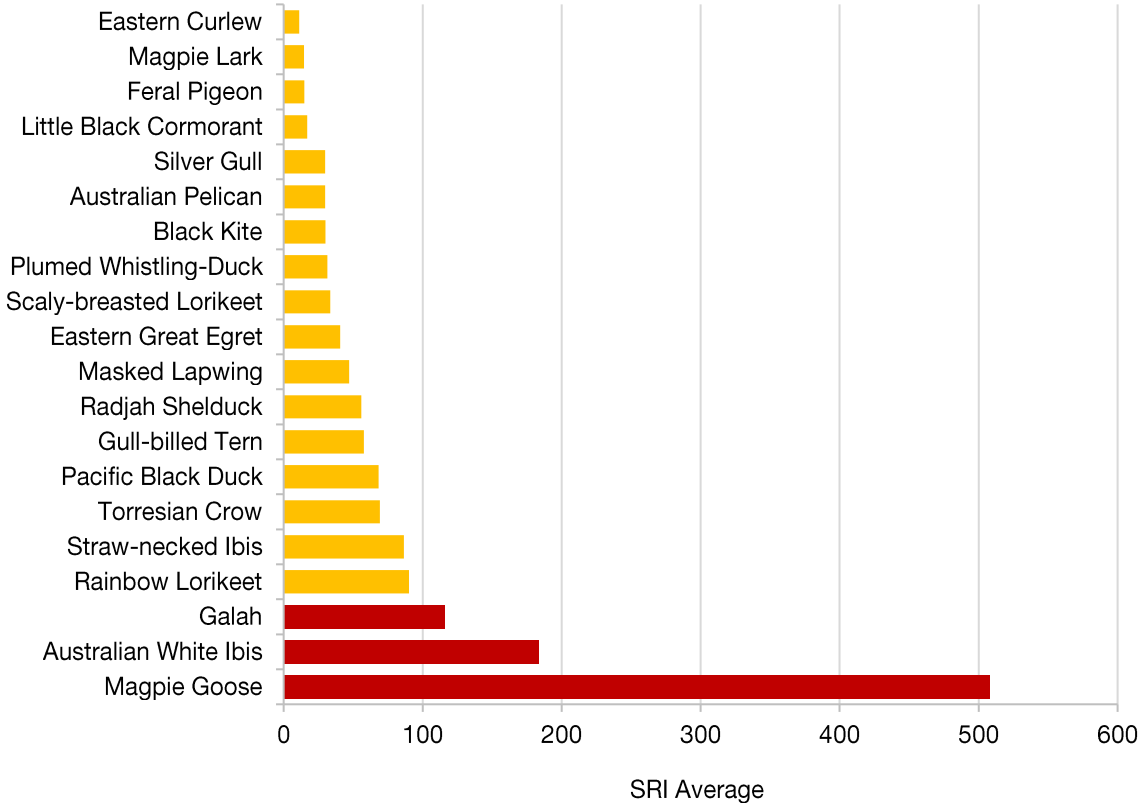

Figure 1. Species Risk Index (SRI) for species observed during diurnal surveys, July 2015 – June 2016, YBMK.

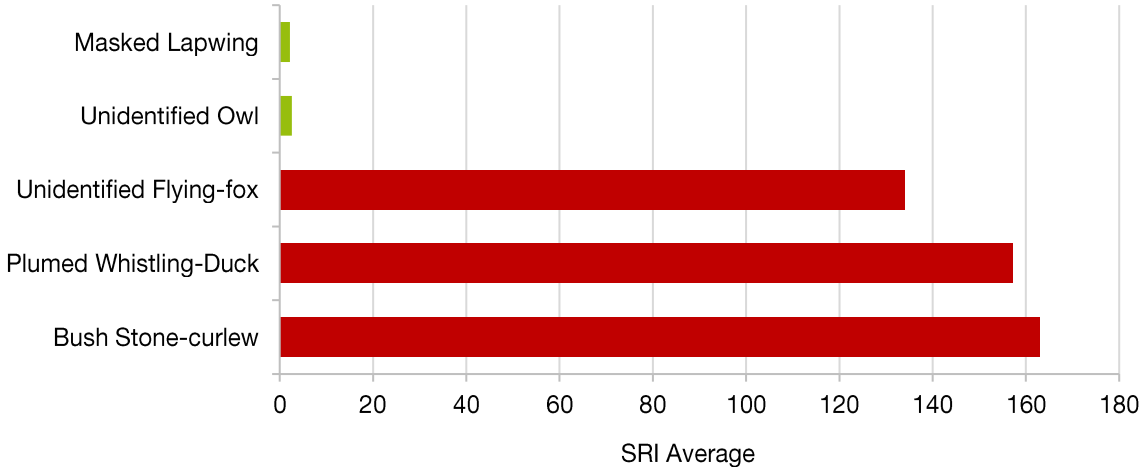

Figure 2. Species Risk Index (SRI) for species observed during the nocturnal survey, July 2015 – June 2016, YBMK.

Table 2. Species strike risk matrix, July 2011 to June 2016, YBMK.

		Probability of strikes (5 year strike average for each species)				
		Very Low	Low	Moderate	High	Very High
Probability of damage	Very Low	Rainbow Lorikeet* Unidentified Micro Bat Unidentified Fairy-wren Unidentified Tern Red-capped Plover Horsfields's Bushlark	Fairy Martin* Magpie Lark	Australasian Pipit		
	Low	Black-shouldered Kite Feral Pigeon	Eastern Grass Owl Unknown Raptor	Nankeen Kestrel	Cattle Egret* Masked Lapwing*	
	Moderate			Bush Stone-curlew Black Kite	Unidentified Flying-fox* Unidentified Bird*	
	High	Wandering Whistling-duck		Plumed Whistling Duck*		
	Very High					
Low Risk: no further action beyond current management is required						
Medium Risk: review current management practices and options for additional action required						
High Risk: immediate action required to reduce the current risk						

* indicates elevation of strike risk rank due to multiple strike

Key Points:

- The three highest risk species are primarily surveyed at night, and are often involved in nocturnal strike events.
- The large body mass and flocking tendency of the Magpie Geese and Australian White Ibis contributes to their high risk.
- A significant proportion of the high and moderate risk species utilise the various adjacent habitats (i.e. beach, creek, mangroves, sports fields and farmland). Their regular transits to and from each site often intersect critical aircraft airspace, exacerbating the strike risk.
- Rainbow Lorikeets continue to present a significant risk in the morning and afternoon as they transit to and from adjacent off-airport foraging habitats.
- Although high risk, Galahs do not present a continuous risk because of their tendency to use the airside only for the duration of seeding by some local grass and weed species.

3. Strike and Survey Trends

3.1 On-airport Hazards

This section presents an analysis of strike data and professional survey data. YBMK and ATSB provided strike data, and Airservices Australia provided aircraft movement data.

3.1.1 Strike Data

Table 3. YBMK aircraft movement information

Aircraft Classification		Strike Susceptibility Level	Annual Movements 2015/16
1	136,000kg	High	0
2	7,000kg – 136,000kg	Moderate	12,797
3	Military	Moderate	187
4	Under 7,000kg	Low	8,952
5	Helicopter	Low	10,715

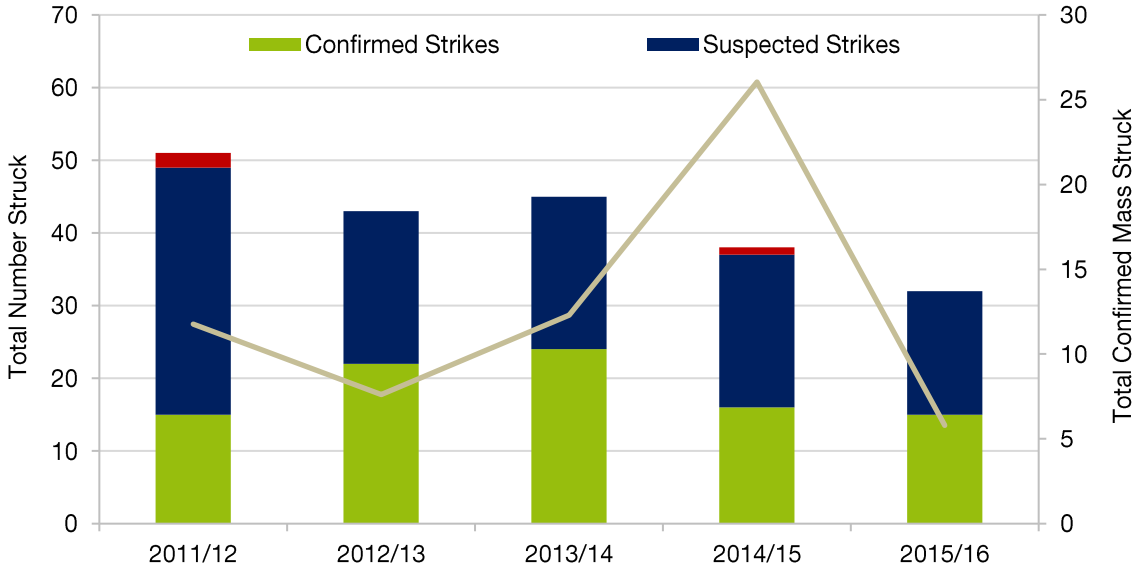

Table 4. Total reported wildlife strikes and mass struck by financial year and strike type, July 2011 – June 2016, YBMK.

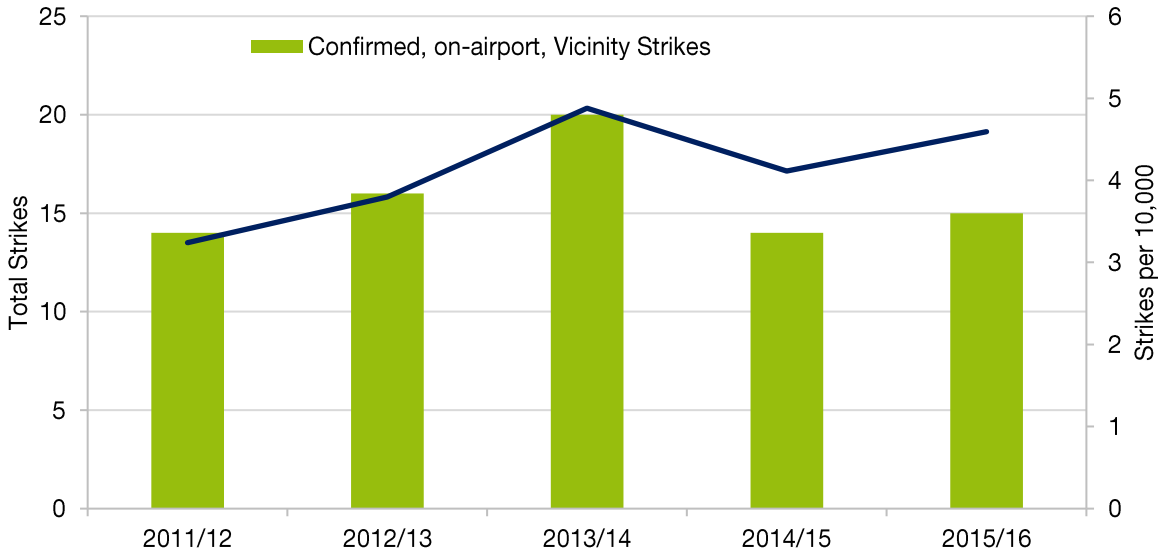

Figure 3. Total strikes, and total strikes per 10,000 aircraft movements for confirmed, on-airport and airport vicinity strikes by financial year, July 2011 – June 2016, YBMK.

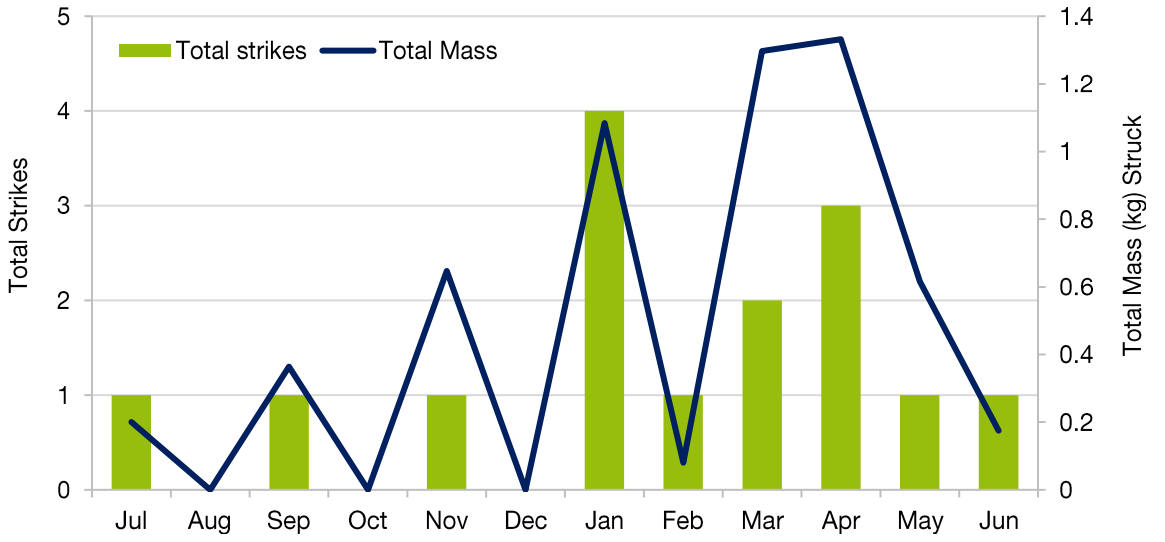

Figure 4. Total strikes and mass struck (kg) for confirmed, on-airport and airport vicinity strikes by month, July 2015 – June 2016, YBMK 2016.

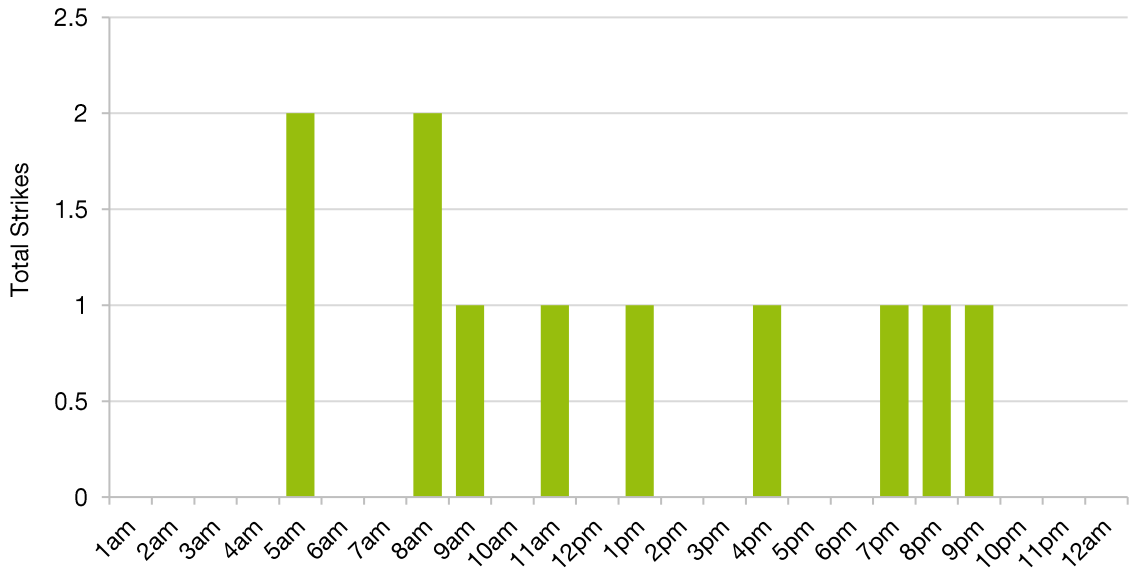

Figure 5. Total strikes by time of day, July 2015 – June 2016, YBMK (excluding strikes with an unknown time).

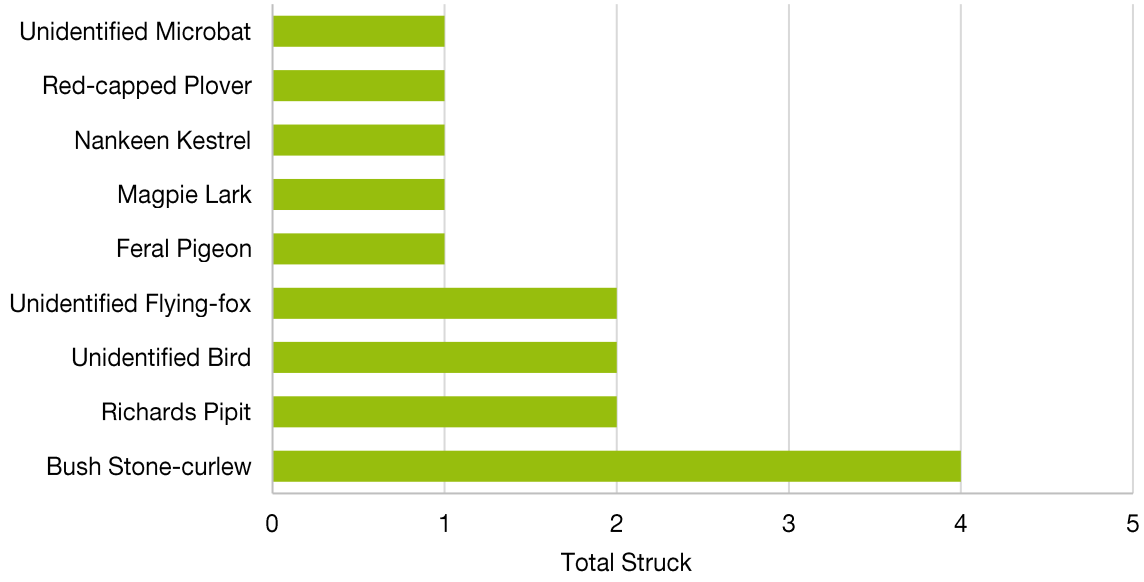

Figure 6. Species struck, July 2015 – June 2016, YBMK.

Comments:

- Total mass struck (Figure 3) spiked in 2014/15 after a light aircraft operating 25 NM south of YBMK struck approximately 50 Topknot Pigeons (0.525 kg each).
- Despite a slight increase in strikes per 10,000 aircraft movements across the five-year period (Figure 4), total confirmed, on-airport strikes remained consistent with previous years.
- Unidentified Flying-fox (0.65 kg) and Bush Stone-Curlew (0.647 kg) strikes in March and April 2016 contributed to the high mass struck in these months (Figure 5).

- Peak strike risk periods for YBMK occur at 5-9 am (5 strikes) and 7-9 pm (3 strikes) (Figure 6):
    - The morning strike risk is high due to increases in aircraft movements, coinciding with high bird activity. Species struck between 5-9 am were primarily Richards Pipit and Bush Stone-Curlew.
    - Evening strikes involve nocturnal species who transit, unpredictably, between foraging habitats (Red-capped Plover, unidentified flying-fox and unidentified Microbat).
- Three of four Bush Stone-Curlew strikes occurred at the RWY 14/32 thresholds, corresponding with critical flight phases at these positions. Curlews prefer to forage in open grass, often seeking edge habitats with a good view to surroundings[2].

[2] Marchant, S & Higgins, PJ (Eds) 1993. *Handbook of Australian, New Zealand and Antarctic Birds. Volume 2: Raptors to Lapwings.* Oxford University Press, Melbourne.

3.1.2 Survey Data

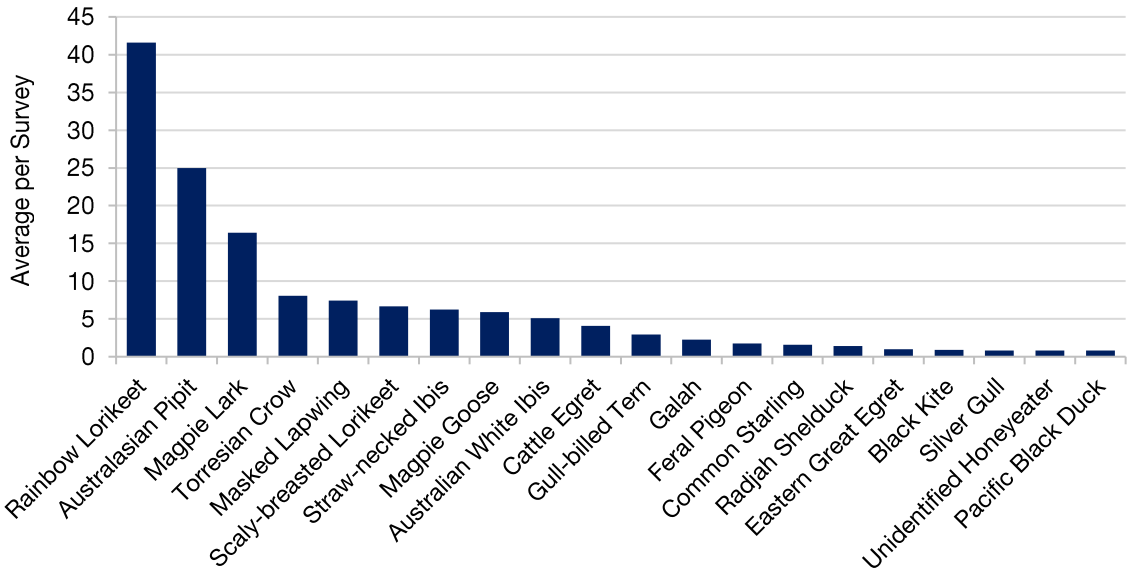

Figure 7. Average number of birds observed per survey, June 2015 – July 2016, YBMK.

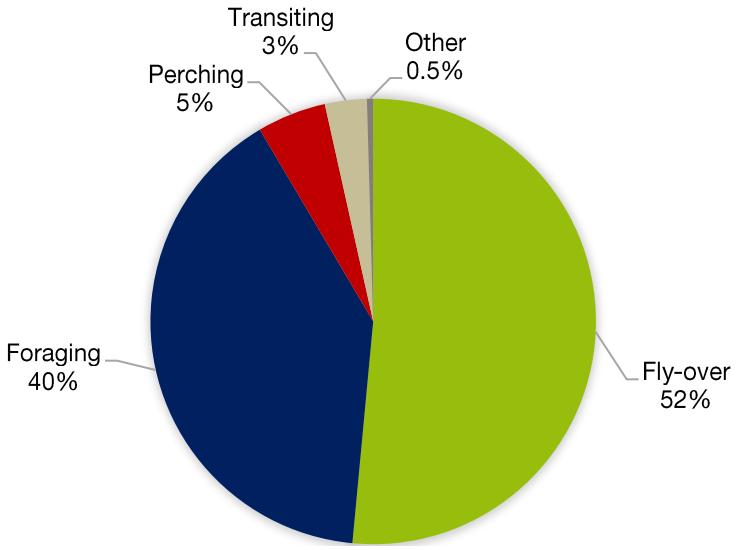

Figure 8. Proportion of bird behaviours observed, June 2015 – July 2016, YBMK.

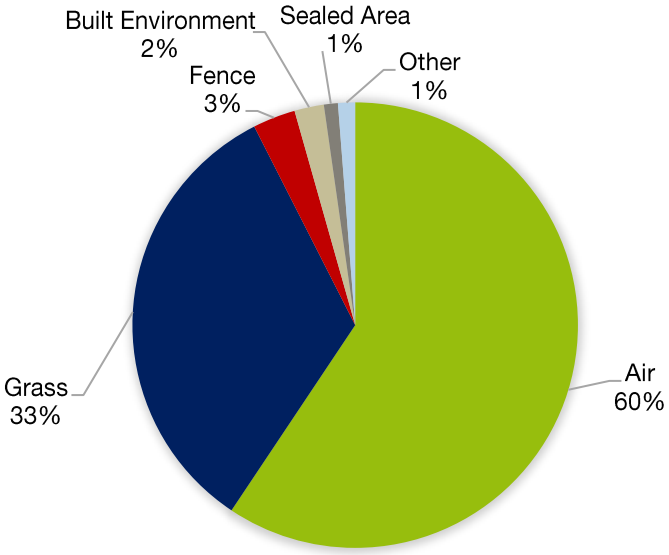

Figure 9. Proportion of habitat use by birds observed, July 2015 – June 2016, YBMK.

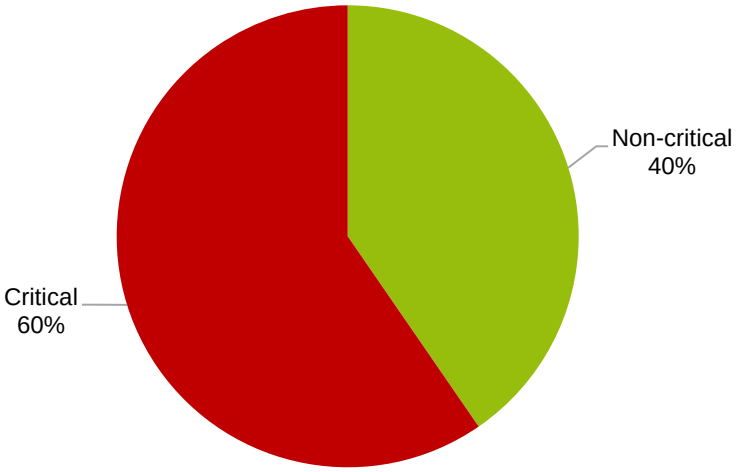

Figure 10. Proportion of birds observed in critical areas, July 2015 – June 2016, YBMK.

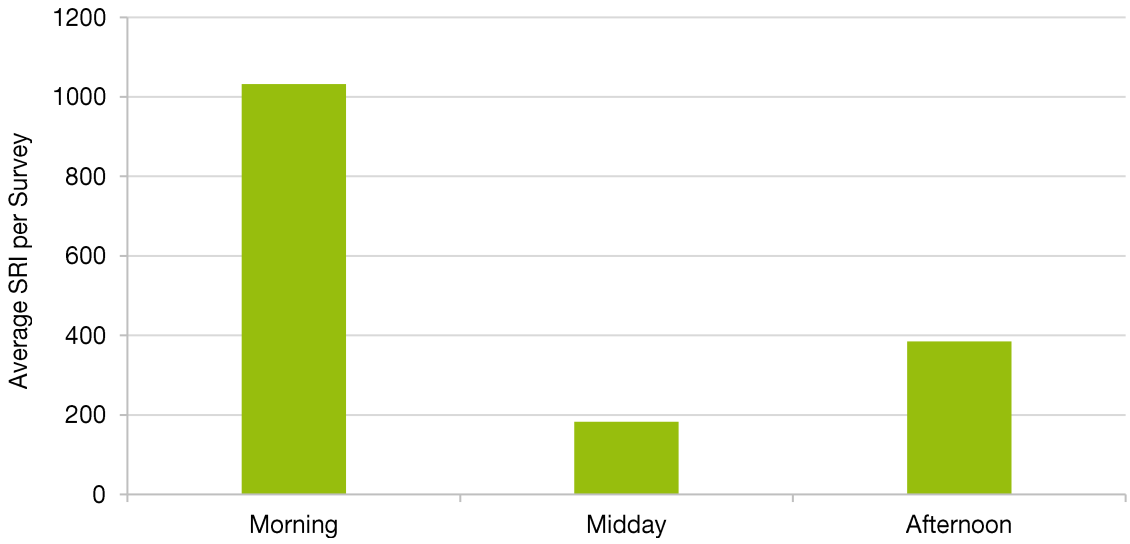

Figure 11. Airport Survey Risk Index by time of day, July 2015 – June 2016, YBMK.

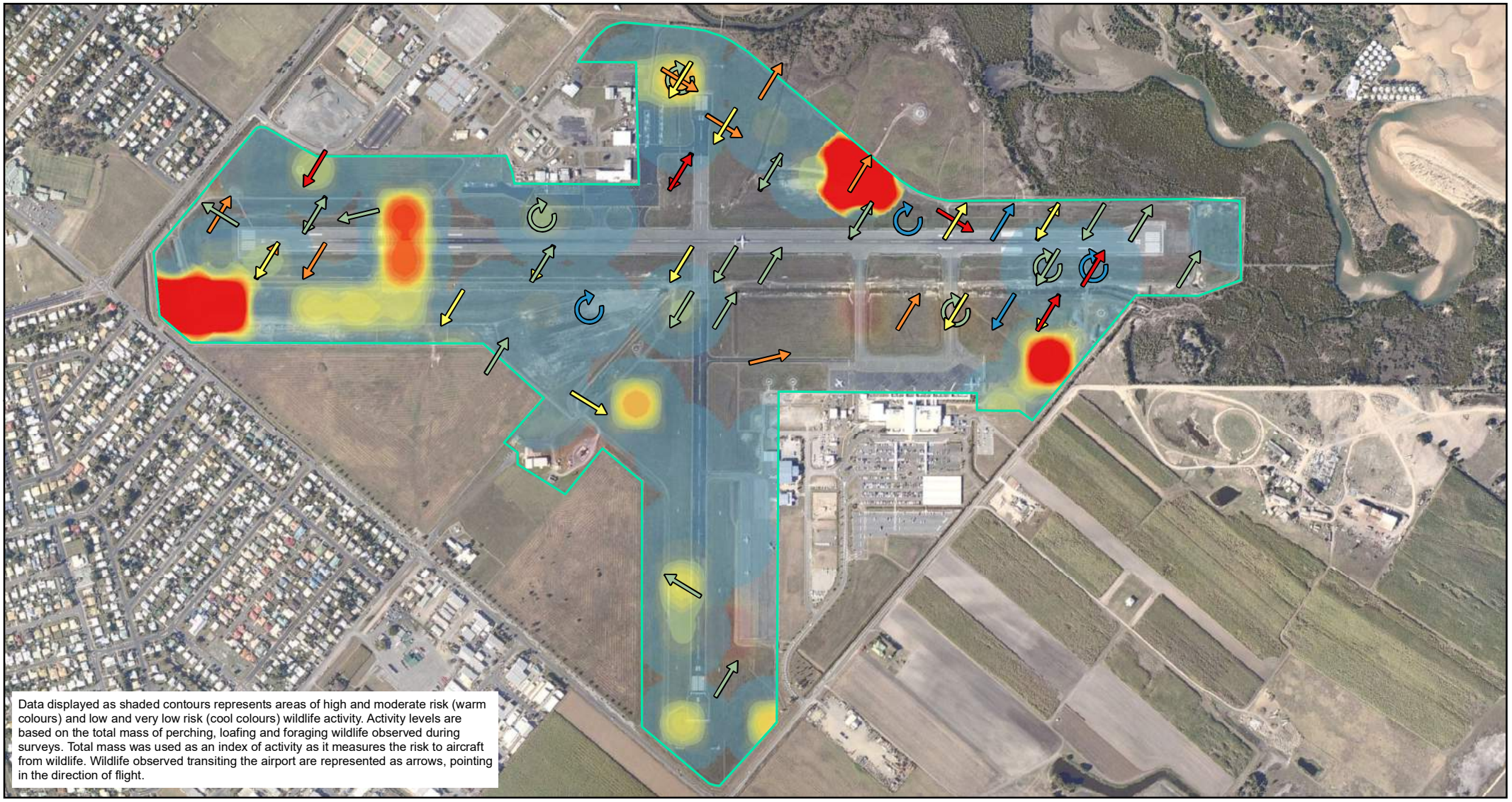

Figure 12: Airside survey density using mass (kg) June 2015

Mackay Airport Pty Ltd

Wildlife Management Program

Airport perimeter

Mass recorded in air (kg)

- Very low (< 0.140)
- Low (0.140 to 0.414)
- Moderate (0.415 to 0.696)
- High (0.697 to 1.407)
- Very high (>1.407)

Mass recorded onground (kg)

Very high: >1.407

Very low: <0.140

AVISURE MITIGATING BIRD STRIKE RISK

Job number: PR1531
Revision: 1
Author: ALM
Date: 30/06/2016

0 100 200 400 Metres

GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994
Units: Meter

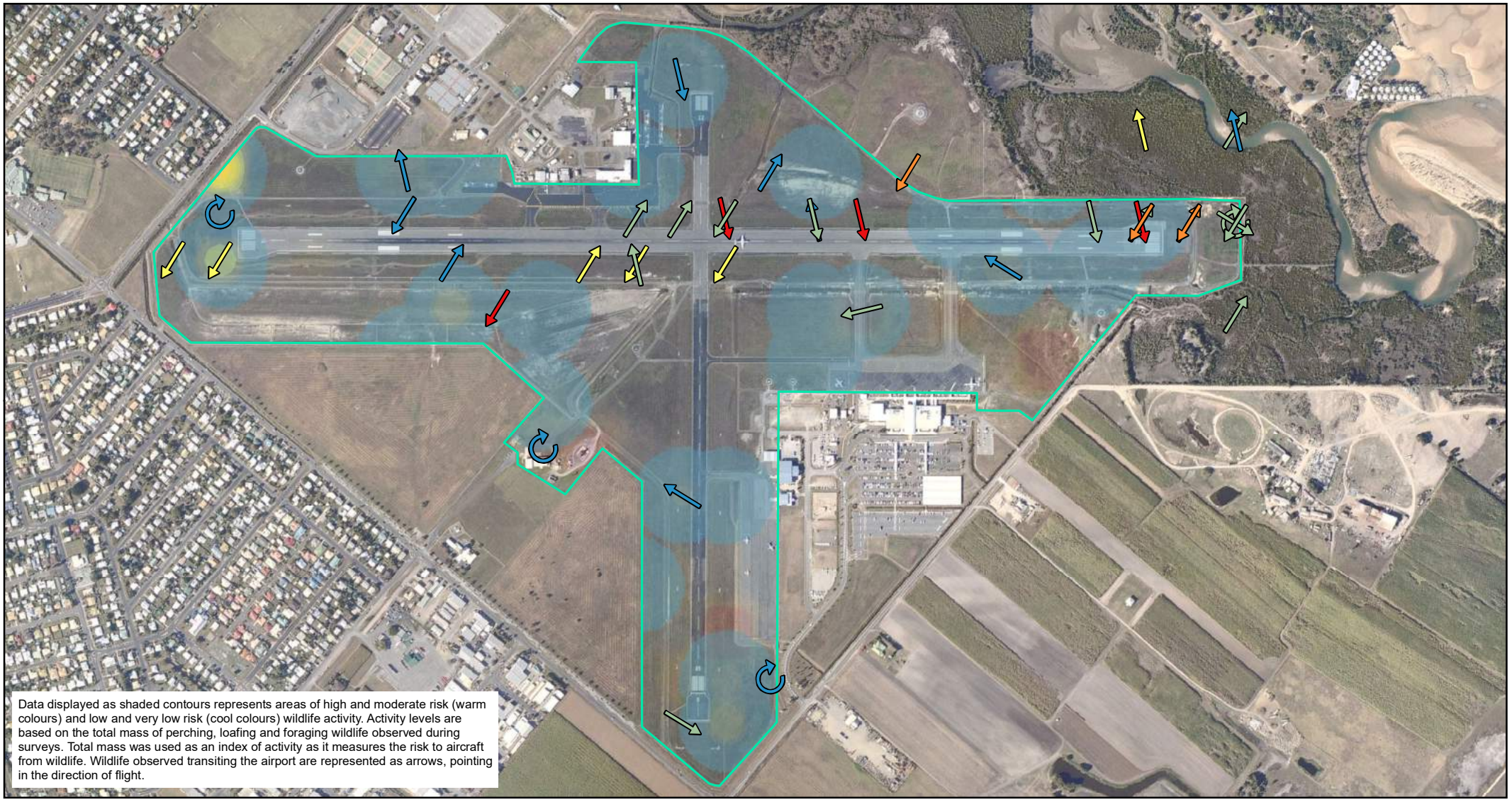

Figure 13: Airside survey density using mass (kg) September 2015

Mackay Airport Pty Ltd

Wildlife Management Program

Airport perimeter

Mass recorded in air (kg)

- Very low (< 0.140)
- Low (0.140 to 0.414)
- Moderate (0.415 to 0.696)
- High (0.697 to 1.407)
- Very high (>1.407)

Mass recorded onground (kg)

Very high: >1.407

Very low: <0.140

AVISURE
MITIGATING BIRD STRIKE RISK

Job number: PR1531
Revision: 1
Author: ALM
Date: 30/06/2016

0 100 200 400
Metres

GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994
Units: Meter

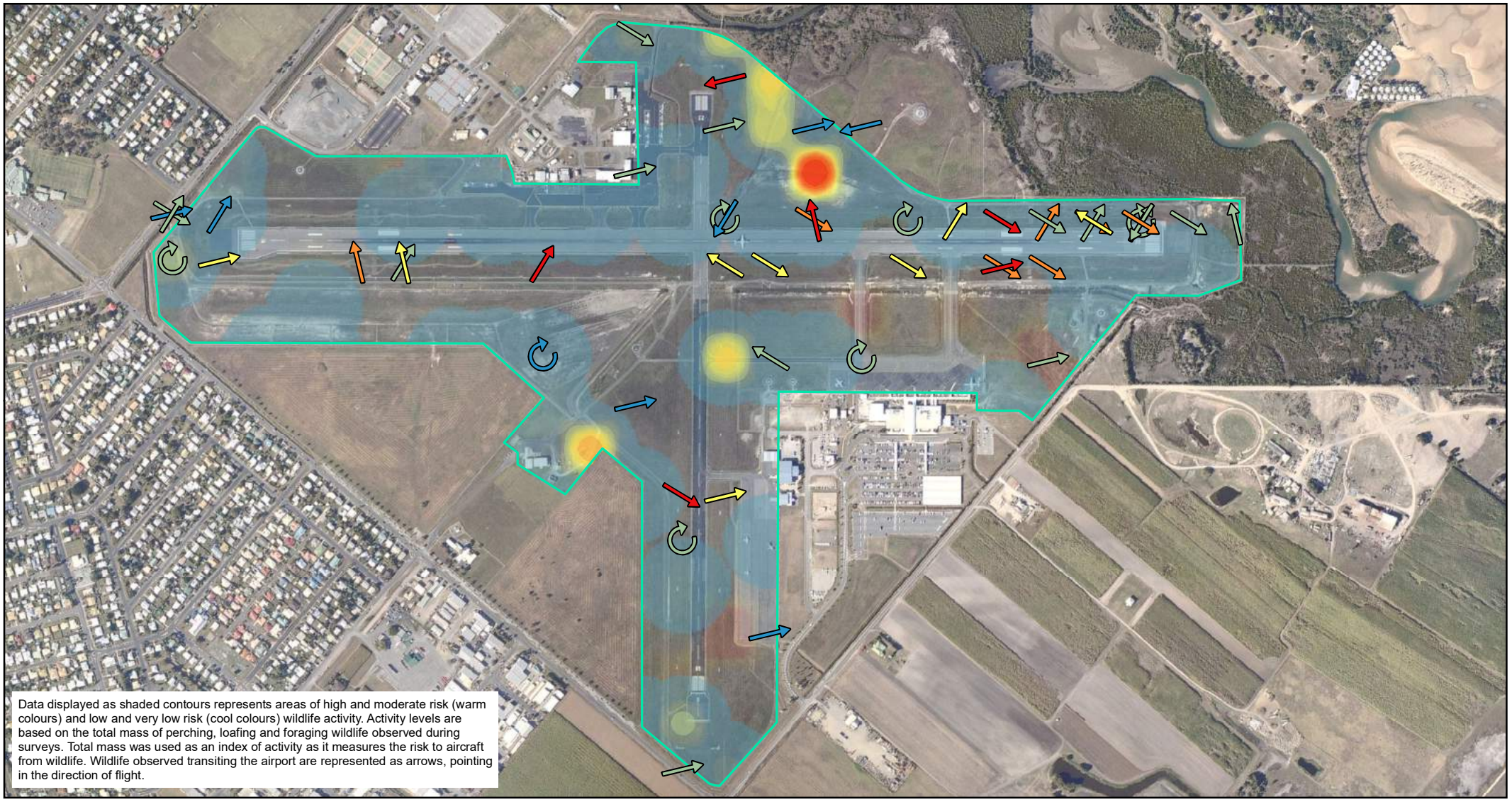

Figure 14: Airside survey density using mass (kg) January 2016

Mackay Airport Pty Ltd

Wildlife Management Program

Airport perimeter

Mass recorded in air (kg)

- Very low (< 0.140)
- Low (0.140 to 0.414)
- Moderate (0.415 to 0.696)
- High (0.697 to 1.407)
- Very high (>1.407)

Mass recorded onground (kg)

Very high: >1.407

Very low: <0.140

AVISURE MITIGATING BIRD STRIKE RISK

Job number: PR1531
Revision: 1
Author: ALM
Date: 30/06/2016

0 100 200 400
Metres

GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994
Units: Meter

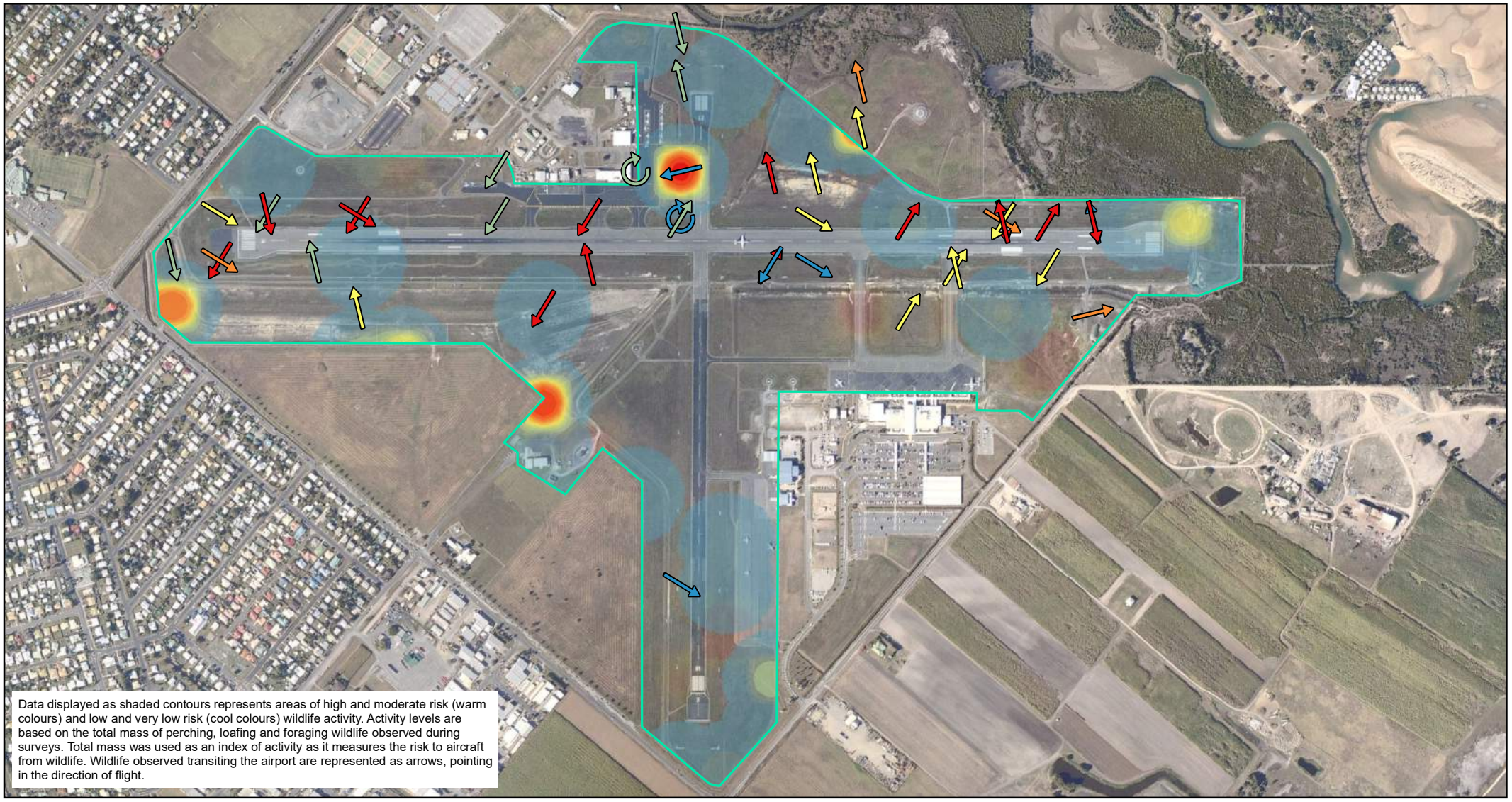

Figure 15: Airside survey density using mass (kg) April 2016

Mackay Airport Pty Ltd

Wildlife Management Program

Airport perimeter

Mass recorded in air (kg)

- Very low (< 0.140)
- Low (0.140 to 0.414)
- Moderate (0.415 to 0.696)
- High (0.697 to 1.407)
- Very high (>1.407)

Mass recorded onground (kg)

Very high: >1.407

Very low: <0.140

AVISURE
MITIGATING BIRD STRIKE RISK

Job number: PR1531
Revision: 1
Author: ALM
Date: 30/06/2016

0 100 200 400
Metres

GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994
Units: Meter

Comments:

- 99% of Rainbow Lorikeets were observed flying over YBMK (Figure 8) and accounted for 32% of birds observed in air (Figure 10).
- No high risk species (Table 1) were observed foraging, perching or breeding at YBMK in 2015/16 (Figure 9).
- High and moderate risk species (Table 1) observed foraging in the critical area (Figure 11) include Masked Lapwing, Magpie Lark, Cattle Egret, Gull-billed Tern and Black Kite.
- 'Other' behaviours include loafing, thermalling, breeding and transiting (Figure 9) and 'Other' habitats include dirt, creek, drain and ponded water (Figure 10).
- 82% of birds observed in the air were flying over YBMK and not using airside habitat or resources (Figure 10), contributing 77% of the critical area infringements (Figure 11).
- Flocks of 8 to 29 Straw-necked Ibis were observed foraging on airside grass in June 2015, resulting in the very high mass (dark red) in these areas (Figure 12).

3.2 Off-airport Hazards

Off-airport wildlife populations can contribute significantly to the strike risk at an airfield. Their movements may intersect aircraft flight paths either over the airfield, in the approaches or in areas used for low-level circuit operations. In addition, regional and local wildlife populations may fluctuate in response to seasonal, climatic or other environmental variables, increasing the strike hazard.

Avisure identified five hazardous off-airport sites within 3 km of YBMK and zero within 8 km and 13 km that attract wildlife (Table 3 and Figure 17).

Table 5. Summary of YBMK high and moderate risk species observed at key off-airport hazardous sites, average per surveys, July 2015 – June 2016, YBMK.

Site	Site Risk	Avg. / Survey			
		Australian White Ibis	Eastern Curlew	Magpie Goose	Wandering Whistling-Duck
Manzelmanns	High	6	0	82	1
Illawong Beach	Moderate	0	18	0	0
Shellgrit Creek	Low	<1	0	0	0
Sportsfields	Low	1	0	0.5	0
Off-airport Drains	Very Low	0	0	0	0
Annual Total		26	71	329	4

Comments:

- Manzelmanns continues to contribute the greatest strike risk due to:
    - The provision of loafing and foraging habitat for high risk species (Australian White Ibis and Magpie Goose) at a close proximity to the YBMK.
    - It's location immediately south of YBMK, whereby flocks of birds travelling north along the coastline or to Pioneer River must cross YBMK airspace en-route.

Figure 16: Off-airport survey locations

Mackay Airport Pty Ltd
Wildlife Management Program

- Off airport location
- Airport perimeter
- Distance from runway (3, 8 and 13 km)

AVISURE
MITIGATING BIRD STRIKE RISK

Job number: PR1531
Revision: 1
Author: ALM
Date:04/07/2016

0 0.75 1.5 3
Kilometres

GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994
Units: Meter

4. Recommendations

This section provides recommendations to improve management of wildlife hazards at YBMK and reduce the strike risk.

Table 6. YBMK wildlife hazard management recommendations, July, 2016.

Component	Responsibility	Timeframe	Recommendation
Data Management	AAO	July 2016 onwards	Digitise data forms, including: • bird count • wildlife strike • dispersal log.
			Send YBMK monthly bird count data to Avisure for quarterly analysis.
Passive Management	ARO and Maintenance	ASAP	Conduct an airside review of *Gomphrena celosioides* hotspots and implement an eradication plan.
Communication	MAO	ASAP	Update the ERSA entry to include information on 2015/16 high risk species, with a particular focus on: • Magpie Geese frequently flying over the airport and airport vicinity peak fly-overs within 30mins of sunrise and sunset. • Whistling-ducks present a hazard at night time, particularly after rainfall.
Staff development and resourcing	MAO and Wildlife Consultant	2016/17 financial year	Provide formal wildlife hazard management training for all AROs.
WHMP	AAO	July 2016 ongoing	Undertake a monthly internal review of bird counts and strikes.

5. Species Action Plans

This section details the actions required to manage moderate to very-high risk species.

Species Action Plans (High Risk):

- Plumed Whistling-Duck
- Unidentified Flying-fox
- Bush Stone-curlew
- Magpie Goose
- Galah
- Australian White Ibis

Species Action Plans (Moderate Risk):

- Masked Lapwing
- Black Kite
- Feral Pigeon
- Cattle Egret
- Rainbow Lorikeet
- Straw-necked Ibis
- Torresian Crow
- Pacific Black Duck
- Gull-billed Tern
- Rajah Shelduck
- Eastern Great Egret
- Scaly-breasted Lorikeet
- Australian Pelican
- Sliver Gull
- Little Black Cormorant
- Magpie Lark
- Eastern Curlew
- Wandering Whistling Duck

Plumed Whistling Duck

Dendrocygna eytoni

HIGH RISK

KEY IDENTIFICATION FEATURES

Elongated flank-plumes that project above the body line

SIZE

Weight (g):	1000
Length (cm):	40-60
Wingspan (cm):	75-90

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes:	2
Multiple Strikes:	2
Strikes/10000 RPT Movements:	0.29
Damaging Strike Rate:	0%

AIRSIDE ATTRACTANTS

Food:
Grasses and seeds.

Habitat:
Prefers grasslands in vicinity of water bodies.

Activity Hotspots:
Transits over YBMK between adjacent foraging and roosting habitats.
They often use the airfield at night, creating a increased hazard due to low detection.

HAZARD DESCRIPTION

Short grass, access to food and water, and lack of predators, make airports particularly attractive to Plumed Whistling Ducks. Their relatively large body size, coupled with their tendency to form small groups, create a serious strike risk when left unmanaged. They will often use airports at night to forage, venturing into open grassed areas adjacent aircraft movement areas to forage on grasses and seeds.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips, particularly at night, for individuals and groups, report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal and disperse during early evening periods to prevent them settling for the night.
- Consider employing the use of a dog trained to disperse ducks if conventional dispersal methods are ineffective
- Apply lethal control in circumstances where individuals are presenting a serious and immediate strike risk.

Passive Management:

- Remove, or restrict access to, permanent or semi-permanent water sources on-airport (e.g. retention ponds, drains etc.).
- Maintain airside grass height at 200-300mm, including the regular removal of seed heads.
- Where possible, schedule flight operations to avoid peak activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J	F	M	A	M	J	J	A	S	O	N	D
■	■	■									■

PRESENT ON AIRPORT

J	F	M	A	M	J	J	A	S	O	N	D
■	■	■	■	■	■	■	■	■	■	■	■

Unidentified Flying-fox

Pteropus species

HIGH RISK

KEY IDENTIFICATION FEATURES

Medium - large bats with fox-like facial features.

SIZE

Weight (g):	300-1000
Length (cm):	100-290
Wingspan (cm):	up to 1000

STRIKE HISTORY ([insert date range])

Total Strikes:	8
Multiple Strikes:	1
Strikes/10000 RPT Movements:	1.16
Damaging Strike Rate:	0%

AIRSIDE ATTRACTANTS

Food:
Primarily fruits and nectar of native trees and shrubs, particularly eucalypts and fig species.

Habitat:
Rainforest, mangroves, paperbark swamps, open forests.

Activity Hotspots:
Transits over YBMK between foraging habitats and camps.

HAZARD DESCRIPTION

Their large body mass and flocking behaviour present a considerable strike risk which is exacerbated by their nocturnal behaviour, making detection difficult. Airports themselves are rarely a source of attraction, however flocks of flying-foxes transiting through airport air space and aircraft flight paths, particularly during the nightly exodus from their daytime camps, are a serious hazard.

HAZARD MANAGEMENT

Active Management:

- NIL

Passive Management:

- Monitor flight strips for individuals or flocks and report hazard to aircraft operators.
- Remove trees and shrubs from airside and landside areas whose fruits and flowers attract flying-foxes.
- Develop a landscaping policy that provides guidance on appropriate plant species use.
- During high risk periods encourage delayed take-offs and landings.
- Monitor flying-fox camps in the vicinity of the airport to identify local population trends.
- Where possible, schedule flight operations to avoid peak activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J F M A M J J A S O N D

PRESENT ON AIRPORT

J F M A M J J A S O N D

Bush Stone-curlew

Burhinus grallarius

HIGH RISK

KEY IDENTIFICATION FEATURES

White lines over the top of the eye. Will often remain motionless when disturbed.

SIZE

Weight (g):	647
Length (cm):	55-59
Wingspan (cm):	80-105

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes:	8
Multiple Strikes:	0
Strikes/10000 RPT Movements:	1.2
Damaging Strike Rate:	0%

AIRSIDE ATTRACTANTS

Food:
Insects, molluscs, small lizards, seeds and occasionally small mammals.

Habitat:
Short grass to forage and loaf. Sealed areas, particularly at night, to forage on insects that are attracted by apron and runway lights.

Activity Hotspots:
Forages in the grass in the runway undershoots. Often observed at night in grass and on sealed areas.

HAZARD DESCRIPTION

Airside lighting attract insects which in turn attract Bush Stone-curlews into aircraft movement areas such as aprons, taxiways and runways. It is their presence in these critical areas that contribute to the strike risk. Because they are active at night, they are often difficult to detect by aircrews and wildlife control personnel. When disturbed they will often lay down flat, legs tucked in with their head and neck laying flat in front of their body. They will remain in this position motionless even when approached at close range before quickly fleeing.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips, particularly at night, for individuals and report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal.
- Apply lethal control in circumstances where individuals are presenting a serious and immediate strike risk.
- Locate and destroy ground nests.
- Consider employing the use of a dog trained to disperse curlew if conventional dispersal methods are ineffective.

Passive Management:

- Maintain airside grass height at 200-300mm.
- Turn off-runway lights when not in use to reduce insect activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J	F	M	A	M	J	J	A	S	O	N	D
■						■	■	■	■	■	■

PRESENT ON AIRPORT

J	F	M	A	M	J	J	A	S	O	N	D
■	■	■	■	■	■	■	■	■	■	■	■

Magpie Goose

Anseranas semipalmata

HIGH RISK

KEY IDENTIFICATION FEATURES

Orange-yellow legs. Black and white plumage. Distinctive cranial knob.

SIZE

Weight (g):	2400
Length (cm):	70-79
Wingspan (cm):	165

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes: 0

AIRSIDE ATTRACTANTS

Food:
Grass seeds in wet season, sedge rhizomes in dry season with grass when swamps dry out.

Habitat:
Habitat and distribution is largely determined by the presence of surface water. Open grassed areas (e.g. airports, ovals etc.) provide ideal habitat due to the presence of surface water and grass.

Activity Hotspots:
Transits through critical areas between adjacent off-airport habitats.

HAZARD DESCRIPTION

Magpie Geese present a serious strike risk because of their large body mass and tendency to form large flocks. Outside of the breeding season, they are gregarious and can form colonies of up to 50,000 individuals. Although generally crepuscular, they may also feed throughout the day.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for individuals, report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal and disperse during early morning periods to prevent them settling for the day.
- Consider employing the use of a dog trained to disperse geese if conventional dispersal methods are ineffective.
- Apply lethal control in circumstances where individuals are presenting a serious and immediate strike risk.

Passive Management:

- Remove, or restrict access to, permanent or semi-permanent water sources on-airport (e.g. retention ponds, drains etc.).
- Maintain airside grass height at 200-300mm, including the regular removal of seed heads. Do not exceed heights of 300mm.
- Where possible, schedule flight operations to avoid peak activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J	F	M	A	M	J	J	A	S	O	N	D

PRESENT ON AIRPORT

J	F	M	A	M	J	J	A	S	O	N	D

Galah

Eolophus roseicapillus

HIGH RISK

KEY IDENTIFICATION FEATURES

Pink and grey plumage.

SIZE

Weight (g):	300-350
Length (cm):	34-38
Wingspan (cm):	50

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes: 0

AIRSIDE ATTRACTANTS

Food:
Seeds mostly from grasses and weeds. Also fruits and nuts from trees.

Habitat:
Short grass to forage and loaf. Buildings and other airport infrastructure to perch and roost.

Activity Hotspots:
Flies over YBMK between adjacent habitats.

HAZARD DESCRIPTION

Although relatively small in size, Galah are particularly hazardous to aircraft because they can form flocks of hundreds of individuals. They are attracted to short grass on airports, particularly where it has seeded, and their erratic flight whilst on-airport creates serious hazards for aircraft.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for flocks and report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal.
- Apply lethal control in circumstances where individuals are presenting a serious and immediate strike risk.
- Consider employing the use of a dog or raptor trained to disperse galahs if conventional dispersal methods are ineffective.

Passive Management:

- Maintain airside grass height at 200-300mm.
- Limit the availability of irrigated and manicured grassland.
- Monitor airport habitat for emerging weeds that may attract large numbers of galahs.
- Install anti-perching devices on airport infrastructure such as signs, light poles and buildings.
- Remove non-essential infrastructure (e.g. posts and poles) to limit perching opportunities.
- Implement a roost management program for any identified roosts. Program may consist of dispersal, habitat modification, and egg and nest removal.
- Where possible, schedule flight operations to avoid peak activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J	F	M	A	M	J	J	A	S	O	N	D

PRESENT ON AIRPORT

J	F	M	A	M	J	J	A	S	O	N	D

Australian White Ibis

Threskiornis mollucca

HIGH RISK

KEY IDENTIFICATION FEATURES

Black bald head. Downward curved black bill. Exposed scarlet skin under the wing.

SIZE

Weight (g):	1400-2500
Length (cm):	65-75
Wingspan (cm):	110-125

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes: 0

AIRSIDE ATTRACTANTS

Food:
Primarily small aquatic prey; fish, frogs, crustaceans. Also crickets, earthworms, beetles and sometimes snakes.

Habitat:
Terrestrial wetlands, sheltered marine and estuarine habitat. Also landfills and urban parks and gardens.

Activity Hotspots:
Generally flies over YBMK between adjacent habitats. Occasionally observed foraging in airside grass.

HAZARD DESCRIPTION

Because of their preference for short-grass for foraging, airports are very attractive to ibis. Airports not only offer large areas of short-grass where they can safely forage whilst being vigilant to predators, they also offer a relatively predator-free environment thanks to the tall perimeter fence and general activity of aircraft and vehicles. Ibis transiting through airport airspace to access adjacent habitats, such as wetlands and landfills, present a serious strike risk because of their large body mass.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for flocks and report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal.
- Apply lethal control in circumstances where individuals are presenting a serious and immediate strike risk.
- Consider employing the use of a dog trained to disperse ibis if conventional dispersal methods are ineffective.

Passive Management:

- Maintain airside grass height at 200-300mm.
- Limit the availability of irrigated and manicured grassland.
- Restrict access to airside and landside waste receptacles (bins and skips).
- Where possible, schedule flight operations to avoid peak activity.
- Mow at night, at least in the flight strip, to reduce the insect attraction.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.
- If local breeding colonies are identified, liaise with local government and land users to develop a regional ibis management program that may include options such as: landfill management, roost management and breeding restriction programs (i.e. egg and nest removal).

BREEDING SEASON

J	F	M	A	M	J	J	A	S	O	N	D
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PRESENT ON AIRPORT

J	F	M	A	M	J	J	A	S	O	N	D
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Masked Lapwing

Vanellus miles

MODERATE RISK

KEY IDENTIFICATION FEATURES

Yellow wattle in front of the eyes.
Thorny spur on the wings.

SIZE

Weight (g):	315
Length (cm):	30-37
Wingspan (cm):	78-85

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes:	3
Multiple Strikes:	1
Strikes/10000 RPT Movements:	0.43
Damaging Strike Rate:	0%

AIRSIDE ATTRACTANTS

Food:
Molluscs, crustaceans, worms, centipedes, millipedes, insects; occasional seeds, frogs, leaves.

Habitat:
Short grass to nest, forage and loaf. Sealed areas, particularly at night, to forage on insects that are attracted by apron and runway lights.

Activity Hotspots:
Forages throughout the airport, predominantly in areas of short grass.

HAZARD DESCRIPTION

Because of their preference for short-grass to establish their breeding and foraging territories, airports are very attractive to Masked Lapwings. Airports not only offer large areas of short-grass where they can safety forage whilst keeping an eye out for predators, they also offer a relatively predator-free environment thanks to the tall perimeter fence and general activity of aircraft and vehicles. Lapwings are highly territorial during the breeding season, and will aggressively defend their nests and young against all potential predators, including aircraft. It is this behaviour that makes them a particularly hazardous strike risk.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for individuals and report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal.
- Apply lethal control in circumstances where individuals are presenting a serious and immediate strike risk.
- Locate and destroy ground nests.
- Consider employing the use of a dog trained to disperse lapwings if conventional dispersal methods are ineffective.

Passive Management:

- Maintain airside grass height at 200-300mm.
- Mow at night, at least in the flight strip, to reduce the insect attraction.
- Turn off-runway lights when not in use to reduce insect activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J F M A M J J A S O N D

PRESENT ON AIRPORT

J F M A M J J A S O N D

Black Kite

Milvus migrans

MODERATE RISK

KEY IDENTIFICATION FEATURES

Black wing tips. Forked tail.

SIZE

Weight (g):	570-600
Length (cm):	45-55
Wingspan (cm):	120-140

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes:	7
Multiple Strikes:	0
Strikes/10000 RPT Movements:	1
Damaging Strike Rate:	0%

AIRSIDE ATTRACTANTS

Food:
Opportunistic scavenger who forages on carrion, but will also hunt insects, reptiles, other birds and small mammals.

Habitat:
A variety of urban and natural habitats.

Activity Hotspots:
Flies over YBMK between adjacent habitats, occasionally thermals and forages above airport grasses and sealed areas.

HAZARD DESCRIPTION

Black Kites are a strike risk because of their large body mass, their aerial hunting and thermalling activity, and their tendency to occupy urban areas, particularly locations close to farming activities and landfill operations. They will also follow mowers on airfields to forage on disturbed insects.

HAZARD MANAGEMENT

Active Management:

- Monitor critical airspace for thermalling, hunting or transiting individuals, report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques, including the use of long-range pyrotechnics.
- Immediately remove carcasses from airfield and roads on or around the airport.
- In a vehicle, cicle under thermalling kites to obscure the foraging area.
- Apply lethal control in circumstances where individuals are presenting a serious and immediate strike risk.
- Do not allow individuals to settle, apply persistent dispersal.
- In cooperation with local environment authorities, relocate nests from airport structures.

Passive Management:

- Install anti-perching devices on airport infrastructure such as signs, light poles and buildings.
- Remove non-essential infrastructure (e.g. posts and poles) to limit perching opportunities.
- Implement airside vertebrate pest control to manage populations of rodents, rabbits and hares.
- Create a ‘false burn’ to attract birds away from the airspace. Consider wind direction to avoid visual problems for aircraft.
- Mow at night to reduce the insect attraction.
- Where possible, schedule flight operations to avoid peak activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J F M A M J J A S O N D

PRESENT ON AIRPORT

J F M A M J J A S O N D

Feral Pigeon

Columba livia

MODERATE RISK

KEY IDENTIFICATION FEATURES

Typically blue-grey, with purplish/ green sheen on neck. However colours and patterns can be varied.

SIZE

Weight (g):	308
Length (cm):	33-36
Wingspan (cm):	50-67

STRIKE HISTORY (2010-2015)

Total Strikes:	1
Multiple Strikes:	1
Strikes/10000 RPT Movements:	0.14
Damaging Strike Rate:	0%

AIRSIDE ATTRACTANTS

Food:
Predominantly granivorous, however in an urban setting a large proportion of food can be derived from human waste.

Habitat:
Buildings, grain installations, bridges, rail yards, wharves, streets, parks, open woodlands, paddocks, dunes, beaches, cliffs.

Activity Hotspots:
Flies over YBMK between adjacent habitats, occasionally forages in airside grass.

HAZARD DESCRIPTION

Feral Pigeons are a hazard to aircraft primarily due to their flocking tendency which can result in large numbers transiting airport flight paths. They fly in dense flocks up to several hundred birds, high above the ground as a territorial display to other groups of pigeons. They have history of being kept and released for sport, escaped or lost animals have been the major source for wild populations which are now well developed in most major cities. Buildings with ledges and perches, aircraft hangers, and other built structures can provide attractive areas for birds to shelter and breed.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for flocks and report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal.
- Apply lethal control in circumstances where individuals are presenting a serious and immediate strike risk.
- Locate and destroy ground nests.
- Consider employing the use of a dog trained to disperse pigeons if conventional dispersal methods are ineffective.

Passive Management:

- Maintain airside grass height at 200-300mm.
- Limit the availability of irrigated and manicured grassland.
- Install anti-perching devices on airport infrastructure such as signs, light poles and buildings.
- Remove non-essential infrastructure (e.g. posts and poles) to limit perching opportunities.
- Implement a roost management program for any identified roosts. Program may consist of dispersal, habitat modification, and egg and nest removal.
- Mow at night, at least in the flight strip, to reduce the insect attraction.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J	F	M	A	M	J	J	A	S	O	N	D
■	■					■	■	■	■	■	■

PRESENT ON AIRPORT

J	F	M	A	M	J	J	A	S	O	N	D
■	■	■	■	■	■	■	■	■	■	■	■

Cattle Egret

Ardea ibis

MODERATE RISK

KEY IDENTIFICATION FEATURES

Small all white egret. When breeding they develop orange on the crown, neck and chest.

SIZE

Weight (g):	365
Length (cm):	48-53
Wingspan (cm):	90

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes:	2
Multiple Strikes:	1
Strikes/10000 RPT Movements:	0.29
Damaging Strike Rate:	50%

AIRSIDE ATTRACTANTS

Food:
Prefers grasshoppers, but will eat a range of invertebrates, frogs, lizards, and small mammals.

Habitat:
Cattle paddocks, pastures, croplands, landfill, wetlands, tidal mudflats.

Activity Hotspots:
Small flocks (<11) forage in airside grass, mostly during the morning.

HAZARD DESCRIPTION

Short grass, access to food and water, and lack of predators, make airports particularly attractive to egrets. Their relatively large body size, coupled with their tendency to form small groups, create a serious strike risk when left unmanaged. They can be difficult to disperse, often relocating only short distances on the airfield when harassed, making persistence a key attribute of successful active management. Airports with cattle grazing activity in close proximity to airfield can elevate the strike risk.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for individuals, report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal and disperse during early morning periods to prevent them settling for the day.
- Consider employing the use of a dog trained to disperse egrets if conventional dispersal methods are ineffective.
- Apply lethal control in circumstances where individuals are presenting a serious and immediate strike risk. Do not apply lethal control to species of legislative or conservation significance.

Passive Management:

- Remove, or restrict access to, permanent or semi-permanent water sources on-airport (e.g. retention ponds, drains etc.).
- Locate and fill low-lying areas on the airfield that temporarily accumulate water after rainfall.
- Maintain airside grass height at 200-300mm.
- Mow at night to reduce the insect attraction.
- Remove any refuges, such as small islands in the middle of water bodies, dense reeds and aquatic vegetation.
- Where possible, schedule flight operations to avoid peak activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J	F	M	A	M	J	J	A	S	O	N	D
■	■	■							■	■	■

PRESENT ON AIRPORT

J	F	M	A	M	J	J	A	S	O	N	D
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Rainbow Lorikeet

Trichoglossus haematodus

MODERATE RISK

KEY IDENTIFICATION FEATURES

Bright coloration. Loud call.
Gregarious behaviour.

SIZE

Weight (g):	120-130
Length (cm):	30
Wingspan (cm):	46

STRIKE HISTORY ([insert date range])

Total Strikes:	1
Multiple Strikes:	1
Strikes/10000 RPT Movements:	0.14
Damaging Strike Rate:	0%

AIRSIDE ATTRACTANTS

Food:
Primarily nectar and pollen of native trees and shrubs, but also fruits, seeds and insects.

Habitat:
Native woodlands, urban parks and gardens.

Activity Hotspots:
Transits over YBMK, at various heights and bearings, during early morning and late afternoon periods.

HAZARD DESCRIPTION

Although relatively small in size, lorikeets are particularly hazardous to aircraft because they can form large flocks. Native trees, such as eucalypts and melaleucas, can attract very high numbers of lorikeets during flowering seasons, presenting a significant strike risk when located in close proximity to airports and aircraft flight paths.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for individuals or flocks and report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal.

Passive Management:

- Remove trees and shrubs from airside and landside areas whose fruits and flowers attract lorikeets.
- Develop a landscaping policy that provides guidance on appropriate plant species use.
- Install anti-perching devices on airport infrastructure such as signs, light poles and buildings.
- Remove non-essential infrastructure (e.g. posts and poles) to limit perching opportunities.
- Implement a roost management program for any identified roosts. Program may consist of dispersal and habitat modification.
- Where possible, schedule flight operations to avoid peak activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J	F	M	A	M	J	J	A	S	O	N	D

PRESENT ON AIRPORT

J	F	M	A	M	J	J	A	S	O	N	D

Straw-necked Ibis

Threskiornis spinicollis

MODERATE RISK

KEY IDENTIFICATION FEATURES

Black bald head. Downward curved black bill. Yellow throat plumes. Glossy black back.

SIZE

Weight (g):	1100-1500
Length (cm):	60-70
Wingspan (cm):	100-120

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes: 0

AIRSIDE ATTRACTANTS

Food:
Insects such as grasshoppers, beetles, caterpillars and spiders.

Habitat:
Grasslands, terrestrial wetlands, farmland.

Activity Hotspots:
Often transits over YBMK through critical areas, occasionally forages in short grass around the airfield.

HAZARD DESCRIPTION

Because of their preference for short-grass for foraging, airports are very attractive to ibis. Airports not only offer large areas of short-grass where they can safely forage whilst being vigilant to predators, they also offer a relatively predator-free environment thanks to the tall perimeter fence and general activity of aircraft and vehicles. Ibis transiting through airport airspace to access adjacent habitats, such as wetlands and agricultural fields, present a serious strike risk because of their large body mass.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for flocks and report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal.
- Apply lethal control in circumstances where individuals are presenting a serious and immediate strike risk.
- Consider employing the use of a dog trained to disperse ibis if conventional dispersal methods are ineffective.

Passive Management:

- Maintain airside grass height at 200-300mm.
- Limit the availability of irrigated and manicured grassland.
- Where possible, schedule flight operations to avoid peak activity.
- Mow at night, at least in the flight strip, to reduce the insect attraction.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.
- If local breeding colonies are identified, liaise with local government and land users to develop a regional ibis management program that may include options such as: roost management and breeding restriction programs (i.e. egg and nest removal).

BREEDING SEASON

J	F	M	A	M	J	J	A	S	O	N	D
							■	■	■	■	■

PRESENT ON AIRPORT

J	F	M	A	M	J	J	A	S	O	N	D
■	■	■	■	■	■	■	■	■	■	■	■

Torresian Crow

Corvus orru

MODERATE RISK

KEY IDENTIFICATION FEATURES

All black plumage and black bill.
Light blue eye.

SIZE

Weight (g):	440-670
Length (cm):	46-51
Wingspan (cm):	100-110

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes: 0

AIRSIDE ATTRACTANTS

Food:
Omnivorous: fruit, seeds, insects, carrion, putrescible waste, invertebrates and small vertebrates.

Habitat:
Forests and woodlands. Common in urban parks and gardens.

Activity Hotspots:
Common throughout YBMK, forages in grass, perches on fences and built environment. Often transits across YBMK through critical areas.

HAZARD DESCRIPTION

Torresian Crows are generally observed singularly or in pairs and small groups, however large flocks can form during the non-breeding season. Although generally wary of aircraft moving on airfields, crows can cause a strike risk and their relatively large body can result in aircraft damage.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for individuals and flocks and report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal.
- Immediately remove carcasses from airfield and roads on or around the airport.
- Apply lethal control in circumstances where individuals are presenting a serious and immediate strike risk.

Passive Management:

- Install anti-perching devices on airport infrastructure such as signs, light poles and buildings.
- Remove non-essential infrastructure (e.g. posts and poles) to limit perching opportunities.
- Restrict access to airside and landside waste receptacles (bins and skips).
- Maintain airside grass height at 200-300mm.
- Mow at night, at least in the flight strip, to reduce the insect attraction.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J	F	M	A	M	J	J	A	S	O	N	D

PRESENT ON AIRPORT

J	F	M	A	M	J	J	A	S	O	N	D

Pacific Black Duck

Anas superciliosa

MODERATE RISK

KEY IDENTIFICATION FEATURES

Facial stripes around the eye. Green-blue speculum feathers (located on the posterior side of the wing).

SIZE

Weight (g):	1045
Length (cm):	47-60
Wingspan (cm):	80-100

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes: 0

AIRSIDE ATTRACTANTS

Food:
Variety of water plants, insects, crustaceans and molluscs.

Habitat:
Any suitable water, temporary or permanent. Prefers large, permanent, well-vegetated waterbodies and waterways.

Activity Hotspots:
Transits over YBMK between off-airport habitats. Forages in grass at the north-western corner of the airfield.

HAZARD DESCRIPTION

Drains, water retention areas, access to food, and lack of predators, make airports particularly attractive to Pacific Black Ducks. Their relatively large body size, coupled with their tendency to form small groups, create a serious strike risk when left unmanaged. Short grassed areas adjacent water bodies provide safe loafing areas with easy access to water when disturbed. Densely vegetated waterbodies provide an additional refuge.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for individuals, report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal and disperse during early morning periods to prevent them settling for the day.
- Consider employing the use of a dog trained to disperse ducks if conventional dispersal methods are ineffective.
- Apply lethal control in circumstances where individuals are presenting a serious and immediate strike risk.

Passive Management:

- Remove, or restrict access to, permanent or semi-permanent water sources on-airport (e.g. retention ponds, drains etc.).
- Locate and fill low-lying areas on the airfield that temporarily accumulate water after rainfall.
- Maintain airside grass height at 200-300mm, including the regular removal of seed heads.
- Where possible, schedule flight operations to avoid peak activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON (varies in response to rainfall and food availability)

J F M A M J J A S O N D

PRESENT ON AIRPORT

J F M A M J J A S O N D

Gull-billed Tern

Gelochelidon nilotica

MODERATE RISK

KEY IDENTIFICATION FEATURES

Short, thick gull-like bill. Black crown from bill to nape of the neck, however this is largely absent when breeding.

SIZE

Weight (g):	150-292
Length (cm):	33-42
Wingspan (cm):	76-91

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes:	0

AIRSIDE ATTRACTANTS

Food:
Opportunistic, although mostly insects. Also small reptiles, frogs, and small fish.

Habitat:
On-airport: water retention areas, and drains. Off-airport: estuaries, lagoons, mudflats, sewage treatment ponds, irrigation canals, inland rivers and lakes.

Activity Hotspots:
Transits over the airfield in search of food, particularly following rain events.

HAZARD DESCRIPTION

This non-breeding migrant can present a strike risk because of its body mass and aerial activity. Movement through airport airspace and aircraft approach and departure paths, is often linked to their use of off -airport hazards, particularly wetlands.

As a proected species under Australia's international migratory bird agreement; China-Australia Migratory Bird Agreement (CAMBA), lethal control is not permissible.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for individuals, report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal.

Passive Management:

- Remove, or restrict access to, permanent or semi-permanent water sources on-airport (e.g. retention ponds, drains etc.).
- Maintain airside grass height at 200-300mm.
- Install anti-perching devices on airport infrastructure such as signs, light poles and buildings.
- Remove non-essential infrastructure (e.g. posts and poles) to limit perching opportunities.
- Where possible, schedule flight operations to avoid peak activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J F M A M J J A S **O N D**

PRESENT ON AIRPORT

J F M A M J J A S O N D

Radjah Shelduck

Tadorna radjah

MODERATE RISK

KEY IDENTIFICATION FEATURES

Mostly white, dark wing tips, distinctive dark collar.

SIZE

Weight (g):	930
Length (cm):	49-61
Wingspan (cm):	90-99

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes: 0

AIRSIDE ATTRACTANTS

Food:
Molluscs, insects, sedges and algae.

Habitat:
Prefer mangrove and paperbark swamps, but will also utilise lagoons, billabongs and other waterbodies and flooded grassland.

Activity Hotspots:
Small flocks (<5) fly south over YBMK to access foraging and roosting habitats.

HAZARD DESCRIPTION

Drains, water retention areas, access to food, and lack of predators, can make airports attractive to Radjah Shelducks. Their relatively large body size, coupled with their tendency to form small groups, create a serious strike risk when left unmanaged. Short-grassed areas adjacent to water bodies provide safe loafing areas with easy access to water when disturbed. Densely vegetated waterbodies provide an additional refuge.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for individuals, report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal and disperse during early morning periods to prevent them settling for the day.
- Consider employing the use of a dog trained to disperse ducks if conventional dispersal methods are ineffective.

Passive Management:

- Remove, or restrict access to, permanent or semi-permanent water sources on-airport (e.g. retention ponds, drains etc.).
- Locate and fill low-lying areas on the airfield that temporarily accumulate water after rainfall.
- Maintain airside grass height at 200-300mm, including the regular removal of seed heads.
- Where possible, schedule flight operations to avoid peak activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J F M A **M J J A** S O N D

PRESENT ON AIRPORT

J F M A M J J A S O N D

Eastern Great Egret

Ardea modesta

MODERATE RISK

KEY IDENTIFICATION FEATURES

Largest of the white egrets. Length of the neck is greater than the length of the body. Black legs. Yellow bill when non-breeding, which extends slightly behind the eye.

SIZE

Weight (g):	700-1500
Length (cm):	76-100
Wingspan (cm):	150

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes: 0

AIRSIDE ATTRACTANTS

Food:
Small fish, frogs, birds and various invertebrates.

Habitat:
Wetland systems; terrestrial, estuarine and littoral. Also, flooded grasslands, swamps, mudflats, and mangrove forests.

Activity Hotspots:
Transits through critical areas between adjacent habitats.

HAZARD DESCRIPTION

Short grass, access to food and water, and lack of predators, make airports particularly attractive to egrets. Their relatively large body size, coupled with their tendency to form small groups, create a serious strike risk when left unmanaged. They can be difficult to disperse, often relocating only short distances on the airfield when harassed, making persistence a key attribute of successful active management. As a proected species under Australia's international migratory bird agreement; China-Australia Migratory Bird Agreement (CAMBA), lethal control is not permissible.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for individuals, report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal and disperse during early morning periods to prevent them settling for the day.
- Consider employing the use of a dog trained to disperse egrets if conventional dispersal methods are ineffective.

Passive Management:

- Remove, or restrict access to, permanent or semi-permanent water sources on-airport (e.g. retention ponds, drains etc.).
- Locate and fill low-lying areas on the airfield that temporarily accumulate water after rainfall.
- Maintain airside grass height at 200-300mm, including the regular removal of seed heads.
- Remove any refuges, such as small islands in the middle of water bodies, dense reeds and aquatic vegetation.
- Where possible, schedule flight operations to avoid peak activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J	F	M	A	M	J	J	A	S	O	N	D
		■	■	■					■	■	■

PRESENT ON AIRPORT

J	F	M	A	M	J	J	A	S	O	N	D
■	■	■	■	■	■	■	■	■	■	■	■

Scaly-breasted Lorikeet

Trichoglossus chlorolepidotus

MODERATE RISK

KEY IDENTIFICATION FEATURES

Mostly green with yellow ‘scales’ on the breast and neck. Red bill. Red-orange underwings. Loud call.

SIZE

Weight (g):	86
Length (cm):	22-24
Wingspan (cm):	49

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes: 0

AIRSIDE ATTRACTANTS

Food:
Primarily nectar and pollen of native trees and shrubs, but also fruits, berries, insects and insect larvae.

Habitat:
Native woodlands, forests and heathlands, as well as urban parks and gardens.

Activity Hotspots:
Transits over YBMK through critical areas, particularly during the morning period.

HAZARD DESCRIPTION

Although relatively small in size, lorikeets are particularly hazardous to aircraft because they can form large flocks. Native trees, such as eucalypts and melaleucas, can attract very high numbers of lorikeets during flowering seasons, presenting a significant strike risk when located in close proximity to airports and aircraft flight paths.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for individuals or flocks and report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal.

Passive Management:

- Remove trees and shrubs from airside and landside areas whose fruits and flowers attract lorikeets.
- Develop a landscaping policy that provides guidance on appropriate plant species use.
- Install anti-perching devices on airport infrastructure such as signs, light poles and buildings.
- Remove non-essential infrastructure (e.g. posts and poles) to limit perching opportunities.
- Implement a roost management program for any identified roosts. Program may consist of dispersal and habitat modification.
- Where possible, schedule flight operations to avoid peak activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J	F	M	A	M	J	J	A	S	O	N	D
■	■						■	■	■	■	■

PRESENT ON AIRPORT

J	F	M	A	M	J	J	A	S	O	N	D
■	■	■	■	■	■	■	■	■	■	■	■

Australian Pelican

Pelecanus conspicillatus

MODERATE RISK

KEY IDENTIFICATION FEATURES

Unique Australian Pelican species. Very large size. Long pink bill with bill-pouch.

SIZE

Weight (g):	4000-6000
Length (cm):	160-180
Wingspan (cm):	230-250

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes: 0

AIRSIDE ATTRACTANTS

Food:
A broad opportunistic carnivore and scavenger. Usually feeds on fish, but also insects, crustaceans, small birds and mammals.

Habitat:
Primarily wetland habitats (marine and freshwater). They often use thermals over airports, in approach and departure paths.

Activity Hotspots:
Occasionally observed flying-over YBMK between adjacent habitats.

HAZARD DESCRIPTION

Thermalling and transiting pelicans present a significant strike risk primarily due to their very large body mass. The consequence of a pelican strike can be catastrophic, with two RAAF F111 pilots killed after striking three pelicans while completing low-level exercises over water in north-east NSW in 1977. Because of their scavenging behaviour, they often prevalent at landfills, fish cleaning areas, and areas where people feed birds such as parks and gardens. When airports operate in close proximity to these types of land uses, the pelican strike risk is significant.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for individuals or flocks transiting or thermalling over the airfield and report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques, including long-range pyrotechnics.
- Apply lethal control in circumstances where individuals are presenting a serious and immediate strike risk.

Passive Management:

- Limit access to waterbodies through netting or infilling.
- Limit perching opportunities or employ anti-perching devices near water sources.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J F M A M J J A S O N D

PRESENT ON AIRPORT

J F M A M J J A S O N D

Silver Gull

Chroicocephalus novaehollandiae

MODERATE RISK

KEY IDENTIFICATION FEATURES

Light grey wings with black tips.
Bright orange-red legs and bill.

SIZE

Weight (g):	265-315
Length (cm):	36-44
Wingspan (cm):	91-96

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes: 0

AIRSIDE ATTRACTANTS

Food:
Will scavenge on a wide range human derived food and rubbish, and will also eat worms, fish insects and crustaceans.

Habitat:
Any watered habitat; natural or manmade, permanent or temporary.

Activity Hotspots:
Occasionally transits over YBMK.

HAZARD DESCRIPTION

Silver Gulls are considered hazardous to aircraft primarily due to their flocking tendency which can result in large numbers transiting the airport or flight paths. They will often use airfields as a temporary refuge during inclement weather, occasionally congregating in hundreds. Grasslands inundated with water following rainfall is also a significant attractant on airports.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for flocks and individuals, report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal.
- Apply lethal control in circumstances where individuals are presenting a serious and immediate strike risk.
- Consider employing the use of a dog trained to disperse gulls if conventional dispersal methods are ineffective.

Passive Management:

- Remove, or restrict access to, permanent or semi-permanent water sources on-airport (e.g. retention ponds, drains etc.).
- Maintain airside grass height at 200-300mm.
- Install anti-perching devices on airport infrastructure such as signs, light poles and buildings.
- Restrict access to airside and landside waste receptacles (bins and skips).
- Monitor weather activity for off-shore stormy weather to proactively anticipate their arrival over the airfield.
- Where possible, schedule flight operations to avoid peak activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J	F	M	A	M	J	J	A	S	O	N	D

PRESENT ON AIRPORT

J	F	M	A	M	J	J	A	S	O	N	D

Little Black Cormorant

Phalacrocorax sulcriostris

MODERATE RISK

KEY IDENTIFICATION FEATURES

All black bird with dart-like flying pose, often seen with wings extended for drying.

SIZE

Weight (g):	520-1210
Length (cm):	55-65
Wingspan (cm):	95-105

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes: 0

AIRSIDE ATTRACTANTS

Food:
Mostly fish and crustaceans caught by diving.

Habitat:
Wetlands, sheltered coast waters, mangroves, rives, dams, fish farms and sewage treatment banks.

Activity Hotspots:
Infrequently flies over YBMK.

HAZARD DESCRIPTION

Little Black Cormorants are known to form large flocks for flights and where food resources are abundant near large water sources with high fish populations. This flocking behaviour presents a high hazard to aircraft operations, especially at dawn and dusk. For airports that support water bodies on, and adjacent to, the airfield, cormorant activity can be high.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for individuals, report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal.

Passive Management:

- Remove, or restrict access to, permanent or semi-permanent water sources on-airport (e.g. retention ponds, drains etc.).
- Maintain airside grass height at 200-300mm.
- Remove non-essential infrastructure (e.g. posts and poles), fallen trees and logs, to limit perching opportunities.
- Where possible, schedule flight operations to avoid peak activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J F M A M J J A S O N D

PRESENT ON AIRPORT

J F M A M J J A S O N D

Magpie Lark

Haliastur sphenurus

MODERATE RISK

KEY IDENTIFICATION FEATURES

Black and white plumage.
Noticeably smaller than Australian Magpies.

SIZE

Weight (g):	85
Length (cm):	27
Wingspan (cm):	51

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes:	2
Multiple Strikes:	0
Strikes/10000 RPT Movements:	0.29
Damaging Strike Rate:	0%

AIRSIDE ATTRACTANTS

Food:
Mostly invertebrates, mainly small insects and their larvae; occasionally small vertebrates and seeds of grasses.

Habitat:
A wide variety of open and lightly timbered habitats and grasslands, almost always near or associated with water.

Activity Hotspots:
Forages in short grass airport-wide.

HAZARD DESCRIPTION

Because of their preference for short-grass to establish foraging territories, airports are very attractive to Magpie Larks. Airports not only offer large areas of short-grass where they can safety forage whilst keeping an eye out for predators, they also offer a relatively predator-free environment thanks to the tall perimeter fence and general activity of aircraft and vehicles. They are highly territorial during the breeding season, and will aggressively defend their nests and young against all potential predators.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for individuals and report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal.
- Apply lethal control in circumstances where individuals are presenting a serious and immediate strike risk.
- Consider employing the use of a dog trained to disperse larks if conventional dispersal methods are ineffective.

Passive Management:

- Maintain airside grass height at 200-300mm.
- Mow at night, at least in the flight strip, to reduce the insect attraction.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J	F	M	A	M	J	J	A	S	O	N	D

PRESENT ON AIRPORT

J	F	M	A	M	J	J	A	S	O	N	D

Eastern Curlew

Numenius madagascariensis

MODERATE RISK

KEY IDENTIFICATION FEATURES

Long downward curved bill. Long legs.

SIZE

Weight (g):	565-1150
Length (cm):	60-66
Wingspan (cm):	110

STRIKE HISTORY (2011/12 - 2015/16)

Total Strikes: 0

AIRSIDE ATTRACTANTS

Food:
Small crabs and molluscs.

Habitat:
Intertidal mudflats and sandflats, estuaries, mangrove swamps, bays, harbours lagoons.

Activity Hotspots:
Transits through critical areas between adjacent foraging and loafing habitats.

HAZARD DESCRIPTION

They are the largest migratory wader, who generally occupy coastal areas, but can be problematic for airports located close to intertidal areas. Waders, including curlews, occasionally use coastal airports as high tide roosts. At these times, large flocks may be loafing on the airfield, presenting a serious strike risk. As a proected species under Australia's international migratory bird agreements with Japan, China and the Republic of Korea (JAMBA, CAMBA, ROKAMBA), lethal control is not permissible.

HAZARD MANAGEMENT

Active Management:

- Monitor flight strips for individuals, report hazard to aircraft operators.
- Remove the immediate hazard using active dispersal techniques.
- Do not allow individuals to settle, apply persistent dispersal and disperse during early morning periods to prevent them settling for the day.
- Consider employing the use of a dog trained to disperse curlews if conventional dispersal methods are ineffective.

Passive Management:

- Maintain airside grass height at 200-300mm, including the regular removal of seed heads.
- Remove any refuges, such as small islands in the middle of water bodies.
- Where possible, schedule flight operations to avoid peak activity.

Additional Responses:

- Issue a Wildlife Hazard Notification or NOTAM if the hazard is likely to remain high for a definable period.
- Where regular monitoring identifies a defined or seasonal trend, update the ERSA to include hazard details, time of hazard, location, expected duration, and general hazard avoidance advice for pilots.

BREEDING SEASON

J	F	M	A	M	J	J	A	S	O	N	D

PRESENT ON AIRPORT

J	F	M	A	M	J	J	A	S	O	N	D

6. Policies and Procedures

This section details YBMK's updated policies and procedures to best manage the wildlife strike risk.

Undated Procedures include:

WMPR01 Wildlife Counts

WMPR01 Wildlife Count Procedure

Objective	To provide data for the identification of trends and the development of targeted hazard management.
Responsibility	ARO
Frequency	Monthly (morning, midday, afternoon and nocturnal
Equipment	Vehicle Binoculars Wildlife Count Form Wildlife Count Map Bird identification field guide

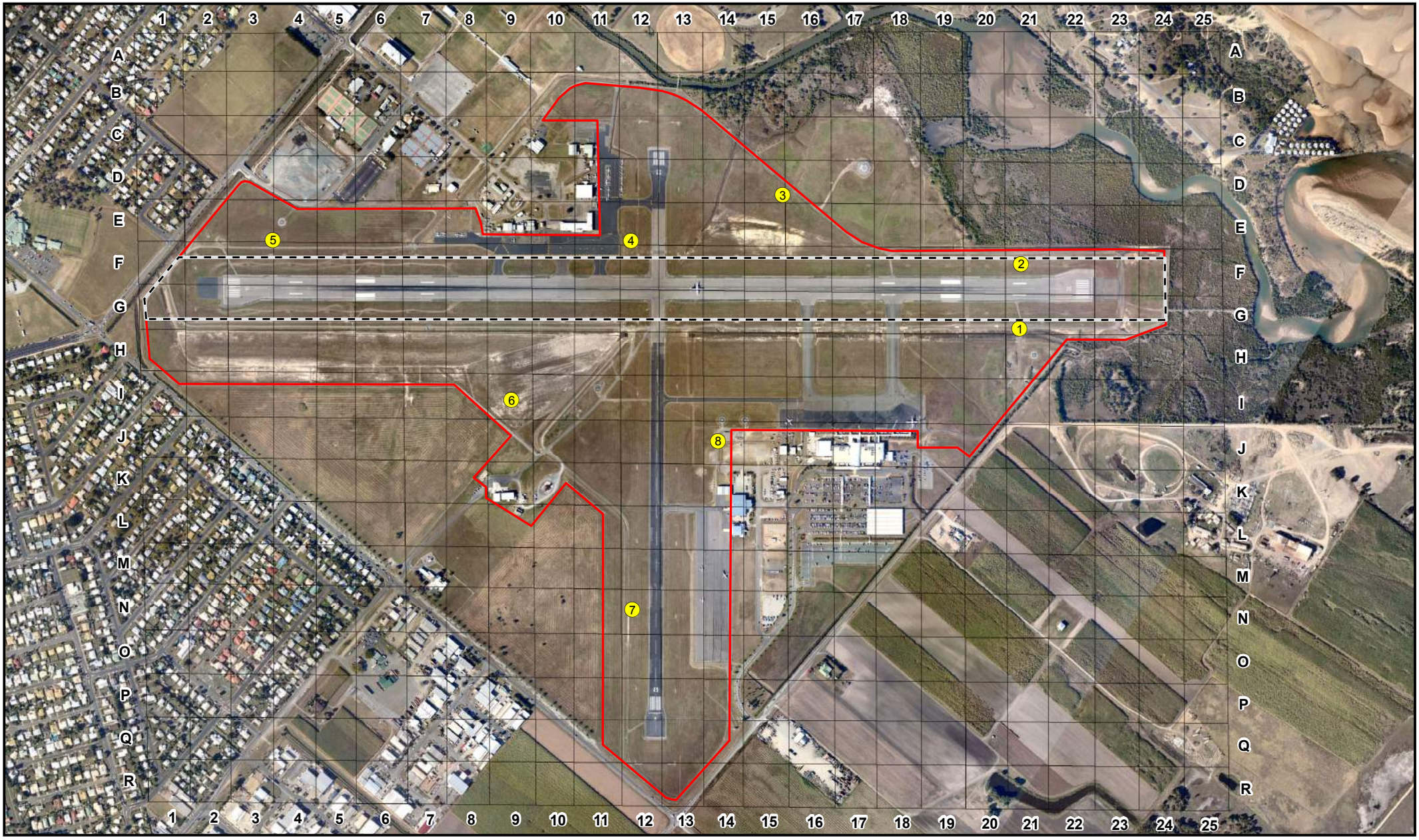
Procedure

1. Commence count at designated starting point (see Wildlife Count Map).
2. Following the count route as detailed on the Wildlife Count Map.
3. Stop the vehicle at the specific numbered location for each count area and scan entire sector, using binoculars for a total of 2 minutes.
4. Animals observed whilst driving through sectors are also recorded, particularly where the sector is too large to view from a single observation point.
5. Record all wildlife observed in the Wildlife Count Form. Use the bird field guide to assist with species identification.
6. Submit the completed Wildlife Count Form to Aviation Administration Officer (AAO) at the conclusion of each count.

Attachments

Wildlife Count Area Map

Wildlife Count Form



AVISURE
MITIGATING BIRD STRIKE RISK

0 50 100 200
Metres

Survey points
Critical area
Airport perimeter

Data sources: Avisure Pty Ltd; Aerial image: Nearmap, 2014

Mackay Airport field survey map - INTERNAL USE ONLY

Document name: GB159_15_WP_FieldMap
Date exported: 15/09/2014
Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994

A4

Wildlife Count Form

Airport Name:					Wind Speed (kts):					Cloud (oktas):				
Job Number:					Wind Direction:					Rain past 24hr?			Y / N	
Date:					Temperature (C):					Rainfall (mm):				
Observer:					Pressure (kPa):					Tide:			H / L / NA	
TOD:					Visibility:					Other:				

Time	Ob.	Sp.	No.	X	Y	Ht. (m)	Dir.	B.Hr.	Crit.	Hab.	Comments
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B.Hr: ADV (Advertising), BAS (Basking), BAT (Bathing), BRE (Breeding), CAL (Calling), CHA (Chasing), DRI (Drinking), FIG (Fighting), FLOV (fly-over), FLU (Flushed), FOR (Foraging), LOA (Loafing), NES (Nesting), OTH (Other), PER (Perching), PRE (Preening), ROO (Roosting), SHE (Sheltering), SOA (Soaring), SWO (Swooping), THE (Thermalling), TRA (Tranisting). Hab: AIR (Air), BAN (Bank), BAY (Bay), BIL (Billabong), BEN (Built Environment), CRK (Creek), DIR (Dirt), DRA (Drain), DRW (Drainage Works), EST (Estuary), FEN (Fence), GRA (Grass), HEA (Heath), MFL (Mudflat), OTH (Other), POW (Ponded Water), RIV (River), ROA (Road), SAN (Sand), SBK (Sandbank), SEA (Sealed Area), SEW (Seawall), TRE (Tree), WAT (Water), WAST (Waste)

Appendix A - Scorecard

	2011/12	2012/2013	2013/14	2014/25	**2015/16**	Target
Confirmed, On-airport, Vicinity Strikes	14	16	20	14	**15**	12
Suspected, On-airport, Vicinity Strikes	7	5	21	21	**18**	15
Near Miss	2	0	0	1	**0**	0
Total Strikes (all strikes)	51	43	45	38	**33**	26
On-airport Damaging Strikes	0	1	0	0	**0**	0
No. Strikes affecting planned flight	0	2	0	1	**0**	0
Mean Mass Struck (kg)	0.84	0.37	0.54	0.33	**0.39**	0.19
Total Mass Struck (kg)	11.75	5.90	10.85	4.68	**5.80**	5
No. Very High Risk Species	0	0	0	2	**0**	0
No. High Risk Species	7	6	2	5	**7**	5
No. Moderate Risk Species	10	16	16	15	**18**	15
Average Survey Risk Index	1097	1594	608	4381	**1600**	900
Total confirmed, on-airport strikes per 10,000 a/c movements	4.32	4.21	4.10	3.40	**3.27**	3.15

Appendix B – Review Checklist

Component	Task	Responsibility	Timeframe	Requirement	Compliance
Administration					
Bird strike reporting	All bird strikes reported to ATSB	YBMK, AAO, AROs Air operators	As required - ongoing	All strikes recorded with all available information and forwarded to the appropriate parties.	☐ N/A ☐ Non-compliant ☑ Completed
Permits and licensing	All permits for bird and animal management activities held and kept valid	AAO	As required - ongoing	All permits held and valid	☐ N/A ☐ Non-compliant ☑ Completed
Records of activities	All records of activities kept (i.e. counts, ammunition, cull etc.) and where necessary entered into an electronic database	AROs and AAO	Ongoing	All records maintained	☐ N/A ☐ Non-compliant ☑ Completed
Committee Meetings.	Agenda to cover wildlife issues and management actions. Relevant on and off airport stakeholders must be included.	AAO	Bi-annually	Meetings held on a quarterly basis. Minutes taken to record achievements and progress	☐ N/A ☐ Non-compliant ☑ Completed

Component	Task	Responsibility	Timeframe	Requirement	Compliance
Review of proposed land use changes- on airport land	All proposed land use changes within YBMK controlled land with potential to increase the risk of bird strike must be scrutinised appropriately.	Manager Aviation Operations (MAO)	As required - ongoing	Where risk increase is likely, modification to proposals is sought or the development is refused.	☐ N/A ☐ Non-compliant ☑ Completed
Review of proposed land use changes – off airport land	Ensure a mechanism exists with relevant councils within 13km of YBMK to refer land use changes or developments that have potential to impact on wildlife hazards at YBMK.	MAO	As required - ongoing	Where risk increase is likely, YBMK should formally object to the development and request modification to proposals.	☐ N/A ☐ Non-compliant ☑ Completed
Training					
Wildlife management training	Ongoing advance practical wildlife survey and hazard assessment training	AROs and Wildlife Consultant	Quarterly	Ongoing as part of current quarterly program	☐ N/A ☐ Non-compliant ☑ Completed
Wildlife management training	Once-yearly competency based assessment for bird control staff	AROs and Consultant	Once-yearly – ongoing	Assessment as part of annual audit.	☑ N/A ☐ Non-compliant ☐ Completed
Firearm safety training	Firearm safety training undertaken biennially	AROs	Biennially	1 training session every two years attended by all relevant personnel	☐ N/A ☐ Non-compliant ☑ Completed

Component	Task	Responsibility	Timeframe	Requirement	Compliance
Monitoring Risks					
Wildlife counts	Counts undertaken monthly and recorded in the electronic database	AROs and AAO	Monthly – ongoing	All data collected and entered into database	☐ N/A ☐ Non-compliant ☑ Completed
Risk based surveys	Professional wildlife surveys undertaken Quarterly on and off airport.	Wildlife Consultant	Quarterly – ongoing	Surveys conducted, results presented in annual updates	☐ N/A ☐ Non-compliant ☑ Completed
Detecting Hazards and Active Management					
Perimeter fence inspections	Daily perimeter fence inspections	AROs	Daily – ongoing	Nil breaches of fence by medium and large sized mammals	☐ N/A ☐ Non-compliant ☑ Completed
Discouraging breeding on airport	Nest removal or destruction animal breeding place Egg destruction? Other airside habitats?	AROs and Consultant	As required - ongoing	No birds nesting airside	☐ N/A ☐ Non-compliant ☑ Completed
Recording activities	Logging bird/animal monitoring and management efforts	AROs	As required - ongoing	Records kept for counts inspections dispersal and patrol	☐ N/A ☐ Non-compliant ☑ Completed

Component	Task	Responsibility	Timeframe	Requirement	Compliance
Passive Management					
Vegetation management	Identification and removal of vegetation that attracts significant birds/wildlife as specified in plan.	AROs and MAO General Aviation Tenants	As required - ongoing	No additional attraction of birds due to vegetation and landscaped areas of YBMK.	☐ N/A ☐ Non-compliant ☑ Completed
Ponded water	Areas of ponded water to be filled as required to reduce bird hazard as specified in plan.	MAO	As required - ongoing	No areas of ponded water on airport attracting birds	☐ N/A ☐ Non-compliant ☑ Completed
Waste management	Ensure waste on airport land is disposed of effectively to reduce bird attraction	MOA	As required - ongoing	Ensure bin lids remain closed and waste is not accessible for wildlife to feed.	☐ N/A ☐ Non-compliant ☑ Completed
Review					
Technical inspection	Technical inspection in accordance with MOS 139 Section 10.14.1.5	Consultant	Yearly - ongoing	Conducted annually	☐ N/A ☐ Non-compliant ☑ Completed
Major review of plan	Undertake major review 5 yearly	MAO and Wildlife Consultant	5 yearly - ongoing	Major review every 5 years or when triggered	☑ N/A ☐ Non-compliant ☐ Completed
Update plan	Update Bird and WHMP annually	Wildlife Consultant	Yearly - ongoing	Plan updated annually	☐ N/A ☐ Non-compliant ☑ Completed

Component	Task	Responsibility	Timeframe	Requirement	Compliance
Records of review	Records of review and audits kept	MAO and Wildlife Consultant	Yearly - ongoing	Records kept yearly in Plan	☐ N/A ☐ Non-compliant ☑ Completed

Revision History

Rev. No	Rev. Date	Details	Prepared by	Reviewed and Approved by
00	14/07/2016	Mackay Airport WHMP Supplement 1.4 July 2016	Chris Perry Wildlife Biologist Mandy Todd Wildlife Biologist	Kylie Patrick Principal Consultant

Distribution List

Copy No.	Date	Format	Issued to	Name
1	14/07/2016	E-COPY	Mackay Airport Pty Ltd	Phil Clark
2	14/07/2016	E-COPY	Avisure	Administration

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