Cairns Airport

Bird and Wildlife Management Plan

Reference No: 3054 AO

Version 2.2 – 06 January 2018
Summary

The objectives of the Cairns Airport Bird and Wildlife Management Plan (BWMP) is to:

- Identify and address broad wildlife management issues at Cairns Airport including the risk posed by wildlife to aircraft operating at the Airport;
- protect airport users and staff from aggressive animals (e.g. swooping birds), hygiene issues related to handling wildlife remains and damage to infrastructure by wildlife;
- ensure compliance with all relevant International, Federal, State, and Local legislation;
- ensure compliance with the Civil Aviation Safety Authority (CASA) Manual of Standards (MOS) Part 139 and associated Advisory Circular (AC) 139-26(0) (section 7.4);
- ensure that adequate systems are in place to define roles, responsibilities and procedures for managing wildlife risks at the Airport;
- define the methods by which wildlife hazards are managed at Cairns Airport;
- develop performance goals, and targets for management of wildlife issues; and
- periodically review the management of wildlife risks at Cairns Airport.
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## Glossary of Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Bird Management</td>
<td>The use of short-term management techniques such as, pyrotechnics, and euthanasia to disperse or remove birds</td>
</tr>
<tr>
<td>Airside</td>
<td>The movement area of the airport, adjacent terrain and buildings or portions thereof within the airport controlled security fence line.</td>
</tr>
</tbody>
</table>
| Bird Strike | **A “reported bird or animal strike”** is deemed to have occurred whenever:  
- a pilot reports a strike to the ATSB, AsA or the ASO,  
- aircraft maintenance personnel find evidence of a bird or animal strike on an aircraft,  
- personnel on the ground report seeing an aircraft strike one or more birds or animals,  
- bird or animal remains are found within the RWY strip unless another reason for the bird or animals’ death can be found.  

**A “Unconfirmed bird or animal strike”** is deemed to have occurred whenever a bird or animal strike has been suspected by aircrew or ground personnel but upon inspection:  
- no bird or animal carcass is found, and there is no physical evidence on the aircraft of the strike having occurred.  

**A “confirmed bird or animal strike”** is deemed to have occurred whenever:  
- aircrew report that they definitely saw, heard or smelt a bird strike,  
- bird or animal remains are found within the runway strip, unless another reason for the bird or animals death can be found,  
- aircraft maintenance personnel find evidence of a bird or animal strike on an aircraft.  

**A “bird or animal near miss”** is deemed to have occurred whenever a pilot takes evasive action to avoid birds or animals or no evidence of a strike can be found on the aircraft and a carcass or injured bird or animal found.  

**An “on-aerodrome bird or animal strike”** is deemed to be any strike that occurs within the boundary fence of the aerodrome, or where this is uncertain, where it occurred below 500ft on departure and 200ft on arrival.  

**A “bird strike in the vicinity of an aerodrome”** is deemed to have occurred whenever a bird strike occurs outside the area defined as “on aerodrome” but within an area of 15 Kilometres radius from the aerodrome reference point (ARP) or up to 1,000 feet above the elevation of the aerodrome.  

**A “bird or animal strike remote from the aerodrome”** is deemed to have occurred whenever a bird strike occurs more than 15 kilometres from an aerodrome or more than 1,000 feet above the elevation of the aerodrome. |
| **Bird Count** | Bird counts are conducted by Airport Safety Officers on a regular basis. |
| **Bird Survey** | Bird surveys of airside areas are conducted by wildlife biologists or ornithologists. |
| **Consequence** | The outcome of an event expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain. There may be a range of possible outcomes associated with an event. |
| **Critical Area** | Areas within or in close proximity to the flight strip, approach and landing paths, and movement areas of an airport. |
| **Foraging** | When birds search for and obtain food. |
| **Habituation** | The tendency for wildlife to become accustomed to certain stimulus when repeatedly exposed to it. |
| **Hazard** | A source of potential harm or a situation with potential to cause loss. |
| **Loafing** | When birds rest. |
| **Migration** | When birds pass periodically from one region to another. |
| **Passive Bird Management** | The modification of habitat to render it less attractive to birds. |
| **Likelihood** | The probability of a specific event or outcome, measured by the ratio of specific events or outcomes to the total number of possible events or outcomes. |
| **Raptor** | Birds of prey such as eagles and falcons. |
| **Risk** | The chance of something happening that will have an impact upon objectives. It is measured in terms of consequences and likelihood. |
| **Roosting** | When birds repeatedly return to a particular place in numbers to loaf or spend the night. |
| **Transit** | When birds fly from one place to another. |
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AAWHG</td>
<td>Australian Aviation Wildlife Hazard Group</td>
</tr>
<tr>
<td>AM</td>
<td>Airport Manager</td>
</tr>
<tr>
<td>ASIC</td>
<td>Aviation Security Identification Card</td>
</tr>
<tr>
<td>ASO</td>
<td>Airport Safety Officer</td>
</tr>
<tr>
<td>ASRI</td>
<td>Airport Survey Risk Index</td>
</tr>
<tr>
<td>ATSB</td>
<td>Australian Transport Safety Bureau</td>
</tr>
<tr>
<td>BWMP</td>
<td>Bird and Wildlife Management Plan</td>
</tr>
<tr>
<td>CAMBA</td>
<td>China-Australia Migratory Bird Agreement</td>
</tr>
<tr>
<td>CAPL</td>
<td>Cairns Airport Pty Ltd</td>
</tr>
<tr>
<td>CASA</td>
<td>Civil Aviation Safety Authority</td>
</tr>
<tr>
<td>CASR</td>
<td>Civil Aviation Safety Regulations</td>
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<tr>
<td>CBWMC</td>
<td>Cairns Bird and Wildlife Management Committee</td>
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<tr>
<td>CA</td>
<td>Cairns Airport</td>
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<tr>
<td>EHP</td>
<td>Department of Environment and Heritage Protection</td>
</tr>
<tr>
<td>EPBC</td>
<td>Environment Protection &amp; Biodiversity Conservation Act</td>
</tr>
<tr>
<td>FOD</td>
<td>Foreign Object Debris</td>
</tr>
<tr>
<td>ICAO</td>
<td>International Civil Aviation Organisation</td>
</tr>
<tr>
<td>JAMBA</td>
<td>Japan-Australia Migratory Bird Agreement</td>
</tr>
<tr>
<td>MOS</td>
<td>Manual of Standards</td>
</tr>
<tr>
<td>NOTAM</td>
<td>Notice to Airman</td>
</tr>
<tr>
<td>ROKAMBA</td>
<td>Republic of Korea-Australia Migratory Bird Agreement</td>
</tr>
<tr>
<td>RPT</td>
<td>Regular Public Transport</td>
</tr>
<tr>
<td>RWY</td>
<td>Runway</td>
</tr>
<tr>
<td>SAP</td>
<td>Species Action Plan</td>
</tr>
<tr>
<td>SRI</td>
<td>Survey Risk Index</td>
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<tr>
<td>-----------</td>
<td>-------------------</td>
</tr>
<tr>
<td>TWY</td>
<td>Taxiway</td>
</tr>
<tr>
<td>WMC</td>
<td>Wildlife Management Committee</td>
</tr>
<tr>
<td>WMP</td>
<td>Wildlife Management Procedure or Permit</td>
</tr>
<tr>
<td>YBCS</td>
<td>Cairns  Airport ICAO identifier code</td>
</tr>
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</table>
1. Introduction

The consequence of wildlife colliding with aircraft can be very serious. Worldwide there have been 55 recorded fatal wildlife strikes, resulting in 276 human fatalities and 108 aircraft damaged beyond repair (Thorpe 2012). Wildlife strikes cost the commercial aviation industry an estimated US$1.2 billion per annum and involve more than just the repair of damaged engines and airframes (Allan 2002). Even minor strikes which result in no damage can reduce engine performance, cause concern among aircrew and add to airline operating costs.

The main factors determining the consequences of a strike are the number and size of wildlife struck, the phase of flight when struck and the part of the aircraft struck. Generally the larger the wildlife the greater the damage. Large animals have the ability to destroy engines, windshields, cause significant damage to airframe components and leading edge devices. Strikes involving more than one individual (multiple strikes) can be serious, even with relatively smaller wildlife, potentially disabling engines and/or resulting in major accidents.

Historically, over 90% of reported strikes have occurred on or in close proximity to airports (ICAO, 1999). Consequently, the primary focus of management programs is directed here with the responsibility resting on airport owners and operators. It is, however, important that the whole airport community (including airline operators) and surrounding land managers are aware of the bird and wildlife issues and that all stakeholders become involved in the process of reducing the hazard wildlife presented to airport and aircraft operations.

1.1 Function

The function of this document is to define and identify the risks that wildlife pose to the safety of aircraft operations at Cairns Airport and to set objectives, performance indicators and procedures in place to mitigate and control the risk as effectively and as reasonably practical.

1.2 Policy

Cairns Airport Pty Ltd (CAPL) is committed to a zero tolerance of all wildlife that may be in a position on or near the airport, and that have the potential to place aviation safety at risk.

While the safety of aircraft and passengers at Cairns Airport is paramount, all care is taken to ensure that the euthanasia of wildlife is a last resort and only used after all other deterrent and dispersal actions have been exhausted.

1.3 Objectives

The objectives of the Cairns Airport Bird and Wildlife Management Plan (BWMP) is to:

- Identify and address broad wildlife management issues at Cairns Airport including the risk posed by wildlife to aircraft operating at the Airport;
- Protect airport users and staff from aggressive animals (e.g. swooping birds), hygiene issues related to handling wildlife remains and damage to infrastructure by wildlife;
- Ensure compliance with all relevant International, Federal, State, and Local legislation;
- Ensure compliance with the Civil Aviation Safety Authority (CASA) Manual of Standards (MOS) Part 139 and associated Advisory Circular (AC) 139-26(0) (section 7.4);
- Ensure that adequate systems are in place to define roles, responsibilities and procedures for managing wildlife risks at the Airport;

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3054_CAPLBirdandWildlifeManagementPlan_V2.1_EffectiveDate_01/06/2017_ReviewDate_01/06/2018
• define the methods by which wildlife hazards are managed at Cairns Airport;
• develop performance goals, and targets for management of wildlife issues; and
• periodically review the management of wildlife risks at Cairns Airport.

1.4 Legislation

Australia has international obligations as a contracting state to the International Civil Aviation Organisation (ICAO). The CASA enacts and enforces the Civil Aviation Safety Regulations (1998).

The following legislation was reviewed in order to ensure the BWMP satisfies legislative requirements:

• ICAO Annex 14;
• ICAO Airport Services Manual, Part 3;
• Civil Aviation Safety Regulations 1998, Part 139.B.2 – Aerodrome Manual;
• CASA Manual of Standards Part 139 – Aerodromes:
  • Section 10.1.4 – Aerodrome Safety Management System;
  • Section 10.2.7 – Birds or Animals on, or in the Vicinity of the Movement Area;
  • Section 10.14 – Bird and Animal Hazard Management; and
  • Section 13.1.7 – Runway and Runway Strip Conditions.
• CASA Advisory Circular 139-26(0) – Wildlife hazard management at Aerodromes;
• Air Navigation Act Section 19A and B;
• Transport Safety Act 2003 (requiring mandatory reporting of bird and other wildlife strikes);
• State Planning Policy 1/02 (pertaining to developments in the vicinity of airports);
• Nature Conservation Act 1992 (QLD); and
• Environmental Protection and Biodiversity Act 1999.

1.5 Roles and Responsibilities

The person responsible for the overall implementation of the BWMP at Cairns Airport is the Aerodrome Standards and Compliance Manager. Roles and responsibilities of all stakeholders and CAPL personnel are detailed in Annex F.

1.6 Review

The BWMP is subject to continuous review and improvement to ensure its currency and effectiveness against wildlife hazards identified at Cairns Airport. Under the requirements of CASA, MOS Part 139 it is a requirement to review the BWMP on a regular basis.

Reviews of this plan will be carried out at least annually, with the assistance of CAPLs contracted Ornithologist. More frequent reviews may be triggered in response to regulatory changes, operational changes, environmental changes or an increased in significant wildlife strike risks.

Annual reviews will address and ensure the following:

• compliance with all current legislation;
• that the wildlife risk assessment is current;
• that all processes, procedures, roles, responsibilities and associations are current and relevant; and
• that all management actions undertaken are recorded.

A major review will be done every five years.
1.7 Communication

Managing the risk of wildlife strikes at Cairns Airport is a collaboration between CAPL and our key stakeholders. The Cairns Airport Bird and Wildlife Management Committee (CBWMC) aids in the development and implementation of the BWMP. The CBWMC meetings are held quarterly.

1.8 Strike Reporting

When a strike is reported, or when a carcass is discovered on or within the runway area it is recorded by the Airport Safety Officer (ASO) on the Wildlife Strike Template which sits within the Bird and Wildlife Database. The reports are subsequently forwarded to the Australian Transport Safety Bureau (ATSB) for inclusion in the national database. Strikes are reported to the ATSB regardless of strike confirmation or location.

Carcasses from a strike or carcasses found on airport, that may have resulted from a strike, are assessed and identified by CAPL’s contracted ornithologist. The assessment may include the birds stomach contents being examined to assist in determining the attractant. When remains are insufficient for visual identification of species, samples may be sent for DNA investigation.

1.9 Permits

Several permits/licences are required for the management of wildlife hazards at Cairns Airport:

- Damage Mitigation Permit (to allow euthanasia and egg/nest removal);
- Firearms licences;
- Airside Drivers Authority;
- Aviation Security Identification Card (ASIC); and
- Aircraft Radio Operators Certificate of Proficiency.

2. Species Risk Assessment

Risk is the chance that a hazard will result in damage or harm. It is measured in terms of likelihood and consequence.

CAPL bases its risk assessment process upon:

- ICAO Safety Risk Assessment Matrix (contained in ICAO document 9859 SMS framework);
- A basic Introduction to Managing Risk – Standards Australia HB 142 – 1999; and
- CAPL’s overarching risk management process is found in CAPL’s NQA Risk Management Framework.

The approach CAPL has taken to assess the risk of Bird and Wildlife hazards pose on the operating of aircraft at Cairns Airport is based on historical, current and quantitative data.

Consequences: It is very difficult to predict the consequence of a strike given the variables surrounding any one single event including but not limited to varying aircraft types, phase of flight, speed, potential impact areas on the aircraft, species and the number of birds struck. In determining the consequence CAPL has used a simple categorisation method based on the species body mass.
(Paton 2010) and five years of historical strike/damage data to determine a species consequence score. This score is calculated by combining data on species mass, the proportion of strikes on each species that involve multiple birds and proportion of strikes on each species that result in damage.

**Likelihood:** In determining the likelihood of a strike, five years of historical strike data along with survey data is combined to determine the strike probability score (Paton 2010). This score is calculated by combining the proportion of birds on airport that are of each species and the proportion of strikes that involved each species.

### 2.1 Overall Species Risk

The Likelihood score and the consequence score are combined to determine the overall individual species risk. (Annex C)

CAPL’s focus is predominately on the species that overall risks are in the medium to high ranges. (*Table 1* lists these species). Species assessed as high or medium risk have Specific Action Plans included in Annex A.

**Table 1. Cairns Airport overall species risk ranking (high and high medium risk species only)**

<table>
<thead>
<tr>
<th>Risk</th>
<th>Species</th>
<th>Risk</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>BUSH STONE-CURLEW</td>
<td>High</td>
<td>SPECT’D FLYING FOX</td>
</tr>
<tr>
<td>High</td>
<td>PACIFIC BLACK DUCK</td>
<td>High</td>
<td>MASKED LAPWING</td>
</tr>
<tr>
<td>Medium</td>
<td>CATTLE EGRET</td>
<td>High</td>
<td>STRAW-NECKED IBIS</td>
</tr>
<tr>
<td>Medium</td>
<td>INTERMEDIATE EGRET</td>
<td>Medium</td>
<td>PIED IMPERIAL PIGEON</td>
</tr>
<tr>
<td>Medium</td>
<td>ROCK DOVE</td>
<td>Medium</td>
<td>AUST WHITE IBIS</td>
</tr>
<tr>
<td>Medium</td>
<td>WHITE-FACED HERON</td>
<td>Medium</td>
<td>BEACH STONE-CURLEW</td>
</tr>
<tr>
<td>Medium</td>
<td>BLACK KITE</td>
<td>Medium</td>
<td>MAGPIE LARK</td>
</tr>
<tr>
<td>Medium</td>
<td>LITTLE RD FLYING FOX</td>
<td>Medium</td>
<td>BLACK-NECKED STORK</td>
</tr>
<tr>
<td>Medium</td>
<td>RAINBOW LORIKEET</td>
<td>Medium</td>
<td>AUST PELICAN ,</td>
</tr>
<tr>
<td>Medium</td>
<td>WHITE-BEL SEA-EAGLE</td>
<td>Medium</td>
<td>COMMON Myna</td>
</tr>
</tbody>
</table>

### 3. Management Plan

The management of risks at Cairns Airport is broken down into three key elements:

1. Monitoring risks,
2. Detecting and reporting hazards, and
3. Arrangements for removing wildlife hazards

Each of the elements are outlined in detail below.

#### 3.1 Monitoring Risks

##### 3.1.1 On Airport

Cairns Airport monitors airport risks through a continuous and structured wildlife patrols including surveys across all airside areas. Monitoring includes checking for the location of nests and their contents such as eggs, as well as checking for any remains which may be a result of a strike. Patrols are particularly important at first light, mid-afternoon and prior to known peak periods of wildlife
activity. Monitoring activities not only includes daily ASO serviceability inspections and weekly counts, but also day and night surveys on a fortnightly basis conducted by the Ornithologist.

3.1.2 Off Airport

A detailed survey of the northern approaches is carried out twice a month by the Ornithologist and includes recording of species numbers, their activity and the environmental conditions.

CAPL is actively involved in all new development applications and Cairns Regional Council seek CAPL’s advice and feedback on any potential risks that new development projects may have on aviation safety.

3.2 Detecting and Reporting Hazards

It is important to report all hazards posed by wildlife to aircraft in order to effectively identify and manage such risks. It is essential that all possible sources of information are investigated and details accurately recorded. When a bird or wildlife strike occurs details are recorded in the CAPL wildlife database a report generated and forwarded to the ATSB and other relevant stakeholders within 72 hours of the incident regardless of strike confirmation or location.

CAPL’s ASOs continually monitor and patrol the airfield reporting dispersal and sightings of birds and wildlife. If it is identified that a risk posed by a particular species has significantly increased this will trigger species action plans along with notification and reporting to operators by way of NOTAMs, ATIS and Cairns Airport Bird Watch Condition Reports. A copy of the report is attached as Annex B.

3.3 Managing Hazards

Strategies for managing wildlife strikes at an airport typically focus on managing populations on and surrounding the airport.

Management actions are classified as either:

1. Active management – directly removing or reducing the numbers of animals in critical or high risk areas; or
2. Passive management – modifying habitats or other aspects of the airport environment to indirectly remove or reduce the number of animals attracted to critical or high risk areas.

Hazard removal actions and their outcomes are key sources of information. It is important that all dispersal, euthanasia and removal actions and their outcomes are recorded. This information provides a record for comparison and analysis and may provide evidence to demonstrate how robust the management of wildlife is in the event of litigation.

3.4 Active Management

Active management plays an important role in managing the risks associated with the presence of wildlife. CAPL currently employs dispersal and depredation techniques using a variety of different tools and methods.

Frequency of active management is related to the detection of hazards and the opportunity to safely and effectively carry out the activity. Annex D provides guidance and methods used by CAPL’s ASOs.
3.5 Passive Management

Grass Management

CAPL’s Mowing Management Plan includes mowing of the Runway Strip and critical areas at night to reduce attracting species such as raptors and egrets. Whenever mowing is being conducted the ASOs monitor and will stop the operation in the event that birds are being attracted.

Mowing Management Plan is attached as per Annex E.

Drainage

Drain design that encourages rapid water drainage have been factored into drainage works at Cairns Airport which discourages birds, particularly ducks, from foraging and sheltering in airside areas during high rainfall events. A number of airside drains have had netting installed which presents species such as ducks from landing on and access to these drains. Horizontal steel braces have been installed over other concrete sided drains; the spacing of these braces has made it more difficult for ducks to access the drains, reducing the attractiveness of the drains to these species.

Contractors and visitors

When engaging any contractors an induction process it carried out along with briefings prior to the commencement of any works being conducted within the bounds of the airport in line with Cairns Airports Safety Management System. These inductions include bird and wildlife awareness and include not feeding and birds/wildlife, not leaving food scraps laying around, when moving around the airfield be cautious not to spook and birds that may cross the path of aircraft movements.

4. Species Management Plans

Species Management Plans are part of the risk mitigation strategy used at Cairns Airport to target those risk species that have been identified as part of the risk assessment process that fall within the medium and high risk category. These species are listed in table 1 and indvivial species plans in Annex A.
## Species Management Plans

<table>
<thead>
<tr>
<th>Plan No</th>
<th>Species</th>
<th>Overall risk score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pacific Black Duck</td>
<td>24</td>
</tr>
<tr>
<td>2</td>
<td>Straw-necked Ibis</td>
<td>24</td>
</tr>
<tr>
<td>3</td>
<td>Bush Stone-curlew</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Spectacled Flying-fox</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>Masked Lapwing</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>Black Kite</td>
<td>16</td>
</tr>
<tr>
<td>7</td>
<td>Little Red Fox</td>
<td>16</td>
</tr>
<tr>
<td>8</td>
<td>Pied Imperial-Pigeon</td>
<td>16</td>
</tr>
<tr>
<td>9</td>
<td>Black-necked Stork</td>
<td>16</td>
</tr>
<tr>
<td>10</td>
<td>Cattle Egret</td>
<td>12</td>
</tr>
<tr>
<td>11</td>
<td>Intermediate Egret</td>
<td>12</td>
</tr>
<tr>
<td>12</td>
<td>Rock Dove</td>
<td>12</td>
</tr>
<tr>
<td>13</td>
<td>White-faced Heron</td>
<td>12</td>
</tr>
<tr>
<td>14</td>
<td>Aust White Ibis</td>
<td>12</td>
</tr>
<tr>
<td>15</td>
<td>Beach Stone-curlew</td>
<td>12</td>
</tr>
<tr>
<td>16</td>
<td>Magpie Lark</td>
<td>10</td>
</tr>
<tr>
<td>17</td>
<td>Common Myna</td>
<td>10</td>
</tr>
<tr>
<td>18</td>
<td>Aust Pelican</td>
<td>8</td>
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<tr>
<td>19</td>
<td>White-bellied Sea-Eagle</td>
<td>8</td>
</tr>
<tr>
<td>20</td>
<td>Rainbow Lorikeet</td>
<td>8</td>
</tr>
</tbody>
</table>
Species Management Pacific Black Duck (PBD)

Source K Vang & W Dabrowka

Overall risk score 24 (High)
Strike Likelihood High
Consequence High
Mass 1045g

5 year history (01 Oct 12 – 30 Sep 17)

Strikes events 6 with Nil Multi strikes
Damaging strikes Nil

Survey presence data

![Survey presence data graph]
Management

- CAPL have installed netting to open drains that run parallel between TWY B and TWY C, this netting regularly monitored and maintained by CAPL ground staff.
- Regular mowing of airfield to standards See Annex E
- Continual monitoring, harassment and dispersal of PBD within and around critical areas of the airfield by the ASOs and Bird and Wildlife Officer.
- Harassment and dispersal of PBD are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
- Filling of depressions were ponding may provide an attractant.
Species Management Straw-necked Ibis (SNI)

Overall risk score 24 (High)
Strike Likelihood High
Consequence High
Mass 1300g

5 year history (01 Oct 12 – 30 Sep 17)
Strikes events 4 with Nil Multi strikes
Damaging strikes Nil

Survey presence data

Management

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3054_CAPLBirdandWildlifeManagementPlan_V2.1_EffectiveDate_01/06/2017_ReviewDate_01/06/2018
- Regular mowing of airfield to standards See Annex E
- ASO monitor mowing operations and advise ground staff to cease mowing attracting SNI.
- Continual monitoring and the immediate, harassment and dispersal of SNI within the airfield using active dispersal methods See Annex D.
- ASO to actively prevent settling to feed to discourage regular visitation.
- Immediately advise ATC of any sightings of SNI within the northern or southern final approaches.
- Harassment and dispersal of SNI are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
- Aerodrome Standards and Compliance Manager to review and assess ASO log reports against Bird Watch Condition Reporting criteria and activate a Bird Watch Condition if necessary. See Annex B
- Cull any persistent individuals or groups.
- Work with Council and developer to reduce SNI attractants as a result of any land use changes.
Species Management Bush Stone Curlew (BSC)

Overall risk score: 220 (High)
Strike Likelihood: Very High
Consequence: Moderate
Mass: 647g

5 year history (01 Oct 12 – 30 Sep 17)
Strikes events: 312 with Nil Multi strikes
Damaging strikes: 1

Survey presence data
Management

- Regular mowing of airfield to standards See Annex E
- Continual monitoring and the immediate, harassment and dispersal of BSC within and the critical areas of the airfield using active dispersal methods See Annex D.
- Harassment and dispersal of BSC are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
- Cull any persistent individuals or groups.
- Destroy eggs.
- Increased RWY inspections at night prior to aircraft movements.
- ATC to extinguish TWY and RWY lighting during periods of inactivity.
- Increase surveillance after rain, seasons of insects and other periods of increased prey activity.
Species Management Spectacled Flying-fox (SFF)

*Note listed in the Nature Conservation Act 1992 (Qld) as Threatened.*

<table>
<thead>
<tr>
<th>Overall risk score</th>
<th>20 (High)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strike Likelihood</td>
<td>Very High</td>
</tr>
<tr>
<td>Consequence</td>
<td>Moderate</td>
</tr>
<tr>
<td>Mass</td>
<td>675g</td>
</tr>
</tbody>
</table>

5 year history (01 Oct 12 – 30 Sep 17)

- Strikes events: 22 with 2 Multi strikes of 2 SFF
- Damaging strikes: 1

**Management**

- CAPL are actively involved with Cairns Regional Council in issues and action council is taking in relocation and management of colonies in and around the Cairns CBD and greater region.

- The Wistaria St Camp at Holloways beach is regularly monitored as part of the fortnightly northern approach surveys conducted by CAPL’s contracted ornithological consultant. The aim of the monitoring is to identify whether the camp is active, size, attractants within the area and the potential impact on airport operations.

- Twice daily, at dusk and at dawn monitoring of the northern and southern approaches to the airfield is conducted by the Airport Safety Officers and reported in their daily log books. Any sightings that the ASOs report are reviewed and assessed against the Bird Watch Condition reporting criteria by the Aerodrome Standards and Compliance Manager and if required a Bird Watch Condition is activated. See Annex B
Species Management Masked Lapwing (MLW)

Source Ian Northcott

Overall risk score 12 (Medium)
Strike Likelihood High
Consequence Moderate
Mass 315g

5 year history (01 Oct 12 – 30 Sep 17)

Strikes events 11 with 2 Multi strike of 2 Birds
Damaging strikes 2 Damaging strikes

Survey presence data
Management

- Regular mowing of airfield to standards See Annex E
- Continual monitoring and the immediate, harassment and dispersal of MLW within the airfield using active dispersal methods See Annex D.
- Harassment and dispersal of MLW are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
- Aerodrome Standards and Compliance Manager to review and assessed ASO log reports against Bird Watch Condition Reporting criteria and activate a Bird Watch Condition if necessary. See Annex B
- Cull any persistent individuals or groups.
- Egg and Nest destruction.
Species Management Black Kite (BK)

Overall risk score 16 (Medium)
Strike Likelihood High
Consequence Moderate
Mass 585g

5 year history (01 Oct 12 – 30 Sep 17)
Strikes events 10 with Nil Multi strikes
Damaging strikes 2

Survey presence data
Management

- Regular mowing of airfield to standards See Annex E
- ASO monitor mowing operations and advise ground staff to cease mowing attracting BK.
- Ground Staff monitor and maintain vermin control and along gable line to reduce rodents that can be an attractant.
- Continual monitoring and the immediate, harassment and dispersal of BK within and the airfield using active dispersal methods See Annex D.
- Immediately advise ATC of any sightings of BK within the northern or southern final approaches.
- Harassment and dispersal of BK are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
- Aerodrome Standards and Compliance Manager to review and assessed ASO log reports against Bird Watch Condition Reporting criteria and activate a Bird Watch Condition if necessary. See Annex B
- ASO to monitor and remove any dead wildlife.
- Cull any persistent individuals or groups.
- Work with land owner to eliminate or reduce any burning off. Consideration of night burns if necessary.
- Work with Council and developer to reduce BK attractants as a result of any land use changes.
Species Management Plan Little Red Flying-fox (LRFF)

Overall risk score 16 (High)
Strike Likelihood High
Consequence Moderate
Mass 438g

5 year history (01 Oct 12 – 30 Sep 17)
Strikes events 15 with 2 Multi strike of 2 LRFFs
Damaging strikes 1

Management

- CAPL are actively involved with Cairns Regional Council in issues and action council is taking in relocation and management of colonies in and around the Cairns CBD and greater region.
- Twice daily, at dusk and at dawn monitoring of the northern and southern approached of the airfield is conducted by the Airport Safety Officers and reported in their daily log books.
- Any sightings that the ASOs report are reviewed and assessed against the Bird Watch Condition reporting criteria by the Aerodrome Standards and Compliance Manager and if required a Bird Watch Condition is activated. See Annex B
Species Management Pied Imperial Pigeon (PIP)

Source Wikipedia

Overall risk score 16 (Medium)
Strike Likelihood High
Consequence Moderate
Mass 475g

5 year history (01 Oct 12 – 30 Sep 17)

- Strikes events 6 with Nil Multi strikes
- Damaging strikes Nil

Survey presence data

![Graph showing Pied Imperial-Pigeon data]

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3054_CAPLBirdandWildlifeManagementPlan_V2.1_EffectiveDate_01/06/2017_ReviewDate_01/06/2018 14
Management

- Continual monitoring, harassment and dispersal of PIP within and around critical areas of the airfield by the ASOs and Bird and Wildlife Officer. See Annex D
- Harassment and dispersal of PIP are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
- If numbers constitute a Bird Watch Condition Report will be issued. See Annex B
- Raise NOTAM
Species Management Black Necked Stork (BNS)

Overall risk score 16 (Medium)
Strike Likelihood Low
Consequence Very High
Mass 4100g

5 year history (01 Oct 12 – 30 Sep 17)
Strikes events 2 with Nil Multi strikes
Damaging strikes Nil

Survey presence data

Management
• Regular mowing of airfield to standards See Annex E
• Continual monitoring and the immediate, harassment and dispersal of BNS within the critical areas of the airfield using active dispersal methods See Annex D
• Harassment and dispersal of BNS are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
• Inform ATC when groups or individuals are observed over flying or near airport.
Species Management Cattle Egret (CE)

Source: K Vang & W Dabrowka

Overall risk score 16 (Medium)
Strike Likelihood Moderate
Consequence Moderate
Mass 365g

5 year history (01 Oct 12 – 30 Sep 17)

Strikes events 1 with Nil Multi strikes
Damaging strikes Nil

Survey presence data

Management
• Regular mowing of airfield to standards See Annex E
• Continual monitoring and the immediate, harassment and dispersal of CE within the airfield using active dispersal methods See Annex D
• ASO to actively prevent settling to feed to discourage regular visitation.
• Immediately advise ATC of any sightings of CE within the northern or southern final approaches
• Harassment and dispersal of CE are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
• Aerodrome Standards and Compliance Manager to review and assessed ASO log reports against Bird Watch Condition Reporting criteria and activate a Bird Watch Condition if necessary. See Annex B
• Cull any persistent individuals or groups.
Species Management Intermediate Egret (IE)

Overall risk score: 16 (Medium)
Strike Likelihood: Moderate
Consequence: Moderate
Mass: 400g

5 year history (01 Oct 12 – 30 Sep 17)
Strikes events: 3 with Nil Multi strikes
Damaging strikes: Nil

Survey presence data
Management

- Regular mowing of airfield to standards See Annex E
- Continual monitoring and the immediate, harassment and dispersal of IE within the airfield using active dispersal methods See Annex D
- ASO to actively prevent settling to feed to discourage regular visitation.
- Immediately advise ATC of any sightings of IE within the northern or southern final approaches
- Harassment and dispersal of IE are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
- Aerodrome Standards and Compliance Manager to review and assessed ASO log reports against Bird Watch Condition Reporting criteria and activate a Bird Watch Condition if necessary. See Annex B
- Cull any persistent individuals or groups.
Species Management Rock Dove (RD)

Overall risk score: 16 (Medium)
Strike Likelihood: Moderate
Consequence: Moderate
Mass: 308g

5 year history (01 Oct 12 – 30 Sep 17)
- Strikes events: 3 with Nil Multi strikes
- Damaging strikes: Nil

Survey presence data

![Rock Dove Chart]
Management

- Continual monitoring, harassment and dispersal of RD within and around critical areas of the airfield by the ASOs and Bird and Wildlife Officer. See Annex D
- Harassment and dispersal of RD are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
- If numbers constitute a Bird Watch Condition Report will be issued. See Annex B
- Raise NOTAM
Species Management White Faced Heron (WFH)

Overall risk score: 12 (Medium)
Strike Likelihood: Medium
Consequence: Medium
Mass: 550g

5 year history (01 Oct 12 – 30 Sep 17)
Strikes events: 2 with Nil Multi strikes
Damaging strikes: 1

Survey presence data
Management

- Regular mowing of airfield to standards See Annex E
- Continual monitoring and the immediate, harassment and dispersal of WFH within the airfield using active dispersal methods See Annex D
- ASO to actively prevent settling to feed to discourage regular visitation.
- Immediately advise ATC of any sightings of WFH within the northern or southern final approaches.
- Harassment and dispersal of WFH are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
- Aerodrome Standards and Compliance Manager to review and assessed ASO log reports against Bird Watch Condition Reporting criteria and activate a Bird Watch Condition if necessary. See Annex B
- Cull any persistent individuals or groups.
- Work with Council and developer to reduce WFH attractants as a result of any land use changes.
Species Management Australian White Ibis (AWI)

Overall risk score 12 (Medium)
Strike Likelihood Low
Consequence High
Mass 1950g

5 year history (01 Oct 12 – 30 Sep 17)
Strikes events Nil with Nil Multi strikes
Damaging strikes Nil

Survey presence data

Australian White Ibis
Management

- Regular mowing of airfield to standards See Annex E
- ASO monitor mowing operations and advise ground staff to cease mowing attracting AWI.
- Continual monitoring and the immediate, harassment and dispersal of AWI within the airfield using active dispersal methods See Annex D
- Immediately advise ATC of any sightings of AWI within the northern or southern final approaches.
- Harassment and dispersal of AWI are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
- Aerodrome Standards and Compliance Manager to review and assessed ASO log reports against Bird Watch Condition Reporting criteria and activate a Bird Watch Condition if necessary. See Annex B
- Cull any persistent individuals or groups.
- Work with Council and developer to reduce attractants as a result of any land use changes.
Species Management Beach Stone Curlew (BESC)

*Note listed in the Nature Conservation Act 1992 (Qld) as vulnerable.*

Overall risk score 12 (Medium)

Strike Likelihood Low

Consequence High

Mass 1000g

**5 year history [01 Oct 12 – 30 Sep 17]**

Strikes events 1 Multi strikes of 2 Birds

Damaging strikes Nil

**Survey presence data**

![Graph showing survey presence data for Beach Stone-Curlew (day)]
**Management**

- Regular mowing of airfield to standards See Annex E
- Continual monitoring and the immediate, harassment and dispersal of BESC within and the critical areas of the airfield using active dispersal methods See Annex D
- Harassment and dispersal of BESC are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
Species Management Magpie Lark (ML)

Source: R. Wikipedia

- Overall risk score: 10 (Medium)
- Strike Likelihood: Very High
- Consequence: Low
- Mass: 80g

5 year history (01 Oct 12 – 30 Sep 17)
- Strikes events: 18 with Nil Multi strikes
- Damaging strikes: Nil

Survey presence data
Management

- Continual monitoring and the immediate, harassment and dispersal of ML within the airfield using active dispersal methods See Annex D
- Regular mowing of airfield to standards See Annex E
- ASO monitor mowing operations and advise ground staff to cease mowing if attracting ML.
- Harassment and dispersal of ML are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
- Aerodrome Standards and Compliance Manager to review and assesss ASO log reports against Bird Watch Condition Reporting criteria and activate a Bird Watch Condition if necessary. See Annex B
- Cull any persistent individuals or groups.
- Egg and Nest destruction.
Species Management Common Myna (CM)

Overall risk score 10 (Medium)
Strike Likelihood Very High
Consequence Low
Mass 120g

5 year history (01 Oct 12 – 30 Sep 17)
Strikes events 2 with 1 Multi strikes of 2 birds
Damaging strikes Nil

Survey presence data
• Continual monitoring and the immediate, harassment and dispersal of CM within the airfield using active dispersal methods See Annex D
• Regular mowing of airfield to standards See Annex E
• ASO monitor mowing operations and advise ground staff to cease mowing if attracting CM.
• Work with operators to ensure CM roosts are actively managed encouraging trapping by operators.
• Harassment and dispersal of CM are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
• Aerodrome Standards and Compliance Manager to review and assessed ASO log reports against Bird Watch Condition Reporting criteria and activate a Bird Watch Condition if necessary. See Annex B
• Cull any persistent individuals or groups.
• Egg and Nest destruction.
Species Management Australian Pelican (AP)

Overall risk score 8 (Medium)
Strike Likelihood Very Low
Consequence Very High
Mass 5400g

5 year history (01 Oct 12 – 30 Sep 17)

Strikes events Nil with Nil Multi strikes
Damaging strikes Nil

Survey presence data

Management
- Continual monitoring and the immediate, harassment and dispersal of AP within the airfield using active dispersal methods. See Annex D
- Immediately advise ATC of any sightings of AP within the northern or southern final approaches.
- Harassment, dispersal and all sightings of AP are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
- Aerodrome Standards and Compliance Manager to review and assessed ASO log reports against Bird Watch Condition Reporting criteria and activate a Bird Watch Condition if necessary. See Annex B
- Monitor and report to ATC increased seasonal RWY and approach crossing activity.
Species Management White Bellied Sea Eagle (WBSE)

Overall risk score 8 (Medium)
Strike Likelihood Very Low
Consequence Very High
Mass 3300g

5 year history (01 Oct 12 – 30 Sep 17)

- Strikes events: Nil with Nil Multi strikes
- Damaging strikes: Nil

Survey presence data
Management

- ASO monitor mowing operations and advise ground staff to cease mowing if attracting WBSE.
- Ground Staff monitor and maintain vermin control and along gable line to reduce rodents that can be an attractant.
- Continual monitoring and the immediate, harassment and dispersal of WBSE within the airfield using active dispersal methods See Annex D
- Immediately advise ATC of any sightings of WBSE within the northern or southern final approaches.
- Harassment and dispersal of WBSE are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase to the Aerodrome Standards and Compliance Manager.
- Aerodrome Standards and Compliance Manager to review and assessed ASO log reports against Bird Watch Condition Reporting criteria and activate a Bird Watch Condition if necessary. See Annex B
- ASO to monitor and remove any dead wildlife.
- Cull any persistent individuals or groups.
- Nest removal.
- Hard cover/barriers to prevent roosting and nesting at potential sites.
- Restrict nesting by WBSE in all areas on airports, through passive dispersal measures such as spikes.
- Monitor and report to ATC increased seasonal RWY crossing activity usually at nesting time.
Species Management Rainbow Lorikeet (RL)

Overall risk score 8 (Medium)
Strike Likelihood High
Consequence Low
Mass 125g

5 year history (01 Oct 12 – 30 Sep 17)
Strikes events 1 with Nil Multi strikes
Damaging strikes Nil

Survey presence data

![Rainbow Lorikeet chart image]
Management

- Minimise on airport attractants.
- Adherence to plant species list.
- Continual monitoring and the immediate, harassment and dispersal of WBSE within the airfield using active dispersal methods See Annex D
- Harassment and dispersal of RL are recorded in daily log books and reviewed by the Airside Operations Supervisor daily noting any significant increase or flight patterns to the Aerodrome Standards and Compliance Manager.
- Aerodrome Standards and Compliance Manager to review and assessed ASO log reports against Bird Watch Condition Reporting criteria and activate a Bird Watch Condition if necessary. See Annex B
Bird Watch Condition Status and Reports

The safety risk that any one particular species possess to aircraft operations at Cairns Airport has been assessed by applying the risk assessment process detailed in Annex C. This gives a good reliable method of determining the risk of species using reliable consistent data. As the assessment methodology uses data collected over a five (5) year period it cannot accurately predict when the hazard will increase above normal levels and for how long. If and when there is an increase in the hazard level posed by any species in the medium and high risk categories then apart from the management plans, CAPL will issue a BIRD Watch Condition Status along with a report alerting operators to the heightened risk.

Bird Watch Condition Status

Depending on the level of increased risk, CAPL will issue a Bird Watch Condition Status. The status level will be determined against trigger levels of the individual species and definition of the status. This trigger level is detailed within the species management plan Annex A.

There are Four (4) Status levels:

1. Alert- Weather, time of day and seasonal conditions which make an influx of birds onto the airfield likely;
2. Low- Above normal bird activity on and above the airfield with a low probability of hazard;
3. Moderate- Concentrations of birds observable in locations that represent a probable hazard to safe flying operations; and
4. Severe- Heavy concentration of birds on or immediately above the active runway or other specific locations that represent an immediate hazard to safe flying operations.

Bird Watch Condition Reports

When a Bird Watch Condition Status is triggered, CAPL will notify operators by email when a Bird Watch Condition Status has been issued and at the same time issue a Bird Watch Condition Report. The report will provide operators with information such as the species identification features, behaviour and attractants. The report will provide details about NOTAMs if raised, numbers, location, time and direction of flight over the airfield. See Bird Watch Condition Report example.

During periods when the Status level is Moderate or above CAPL will provide regular daily updates to operators on the current situation.
**CAIRNS AIRPORT**
**BIRD WATCH REPORT**

**Condition: SEVERE – Flying Fox**

**Issue date:** DD MMM YYYY  
**Review date:** DD MMM YYYY

**Legend**

**Bird Watch condition SEVERE.** Heavy concentration of birds on or immediately above the active runway or other specific locations that represent an immediate hazard to safe flying operations (>100 FF in a 10 min period).

**Bird Watch condition MODERATE.** Concentrations of birds observable in locations that represent a probable hazard to safe flying operations (>50 and <100 in a 10 min period).

**Bird Watch condition LOW.** Above normal bird activity on and above the airfield with a low probability of hazard.

**Bird Watch ALERT.** Weather, time of day and seasonal conditions which make an influx of birds onto the airfield likely.

**Location:**
Between 1820Hrs and 1840Hrs on the 04 May 15 Flying Foxes (FF) were observed coming from the Holloways Beach area north of the airport passing around and over the airport towards the south east. The majority of FF were observed to be between 50 to 200Ft. See attached flight path map.

**Time of Day: (All times local):**
FF were observed between 1830Hrs and 1840Hrs at which time it became too dark for the Airport Safety Officers to observe any more FF. I would anticipate and operators should be prepared for FF to be present in the northern approaches from 1810Hrs and over the airfield from 1820Hrs. Dependant on weather conditions peak fly out times may vary by up to 30min and any time between dusk and dawn FF may be in the vicinity of the airport and approaches.

**Number of Birds / Wildlife:**
Last night a high number of FF were observed which has triggered a “SEVERE” (> 100 in a 10 min period) bird watch condition. See Table below for indicative numbers.

<table>
<thead>
<tr>
<th>Times</th>
<th>DD MMM</th>
<th>DD MMM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1800-1810</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1810-1820</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1820-1830</td>
<td>85</td>
<td>1000+</td>
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</tbody>
</table>

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Species Identification, Behaviour and Attractants

Identification:
Spectacled Flying Fox (*P. conspicillatus*).
Large blackish body and head fur. Black wings (not transparent in flight). Pale yellow collar and eye fur (‘spectacles’). Wing beat slow, willowing. Weight: 500g - 1kg, Wingspan: up to 1.5m.

Attractants:
The main attractants for this fly out are not known. All FF feed on fruit and nectar of various native and introduced tree species. This occurrence is not associated with Melaleuca flowering. Cairns Airport does not offer roosting habitat for FF; bird strike risk is associated with FF transiting across the airport and approaches from adjacent colonies heading to rainforest and other feeding areas.

Bird/wildlife management strategies implemented:

- Airport Safety Officers are monitoring the Flying Fox movements and reporting the presence, numbers, direction and approx flying height via Air Traffic Control to all Arr and Dep aircraft.
- A NOTAM covering the presence of Flying Foxes will be issued.
- A hazard report will be placed on the ATIS.
- Airline operators requested to advise aircrews by INTAM
- Cairns Airport Pty Ltd Apron Coordinators will provide fly out / fly in advice to airline movement control 30 mins prior to expected peak time, at the commencement of the peak period, and at the end of the peak period.
- Should mass fly outs occur, Airline operators will be requested to review their operating schedules during the peak fly in / fly out period.
- Pilots may be requested to delay their arrival or departure on advice from the Airport Safety Officer / ATC in the peak fly out / fly in period.
- Should significant numbers of Flying Fox be reported crossing the southern approach only, pilots may be requested to use full length departures when RWY 15 is operational to avoid Flying Fox activity.
- If RWY 33 is the duty runway, then aircraft may be requested to delay their departures until after the peak fly out.

NOTAM to be issued.

```
INCREASED FLYING FOX (BATS) HAZARD EXISTS
SEVERE BIRD WATCH CONDITION ACTIVATED.BATS OBSERVED
CROSSING THE NORTHERN APPROACH AND RWY 15 THR BTN 50 AND 200FT AGL.
HN
```

<table>
<thead>
<tr>
<th>1830-1840</th>
<th>55</th>
<th>500+</th>
</tr>
</thead>
<tbody>
<tr>
<td>1840-1850</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>140</td>
<td>1500+</td>
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</table>
Risk Management

CAPL’s core business is the provision of aviation infrastructure, upon which much of the economy of the surrounding regions depend. Proper management of risk by CAPL is essential to achieve its corporate objectives and to avoid the significant flow on impact that loss of reliability of this vital infrastructure would have on the community and the region’s economy.

It is recognised that the management of risk is a key element of good corporate governance, as well as providing an increased level of safety. This Risk Management Framework describes the manner in which CAPL identifies, assesses, monitors and manages risk. This Framework is supported by a strong system of internal control. CAPL is committed to reducing risks to a level as low as reasonably practicable.

CAPL has integrated the principles of risk management into its management processes to minimise reasonably foreseeable disruption to operations, harm to people, non-compliance with the Safety Management System and damage to the environment.

CAPL’s Risk Management Framework provides a detailed Risk Management process when undertaking risk assessments within the organisation.

Generally, risk management is integrated into CAPL’s management systems including aviation safety. CAPL’s management systems include a requirement to undertake risk management assessment to control the risk for the organisation. CAPL’s Risk Management Framework policy provides the risk management processes which will be used when undertaking risk assessments in the organisation.

Safety Management System

CAPL’s Safety Management System highlights a commitment to the management of safety and it details the processes that have been implemented to achieve the required safety outcomes, as outlined within Australian Civil Aviation Safety Regulations 1998 (CASR), AC-139-16(1) and more specifically regulation 139.250 and the requirements under Manual of Standards (MOS) – Part 139 Aerodromes. The Safety Management System provides a comprehensive and holistic approach to CAPL’s safety systems and underpins CAPL’s strong commitment to safety.

Risk Analysis

The objective of risk analysis is to separate the minor acceptable risks from major risks and to provide data to assist in evaluation and treatment of risks. Risk analysis involves considering the sources of risk, their consequences and likelihood that the consequences may occur. Risk is analysed by combining estimates of consequences and likelihood taking into account any existing control/treatment measures.

A preliminary analysis can be carried out so that similar or low risks are excluded from further more detailed consideration. The excluded risks should however be listed to demonstrate they have been considered and therefore the process has been thorough.

The level of risk (likelihood and consequence) can be assessed quantitatively where the risk level is reasonably expected to be higher and the data is available.
Risk Identification

To efficiently allocate resources and to develop management plans it is essential to identify the species that pose the greatest risk to aircraft safety. In order to do this a risk assessment process that was reliable and could be adapted to the unique environment at Cairns was developed in consultation with CAPLs ornithological consultant. Further to this it was identified that the assessment needed to be capable of identifying current risks as opposed to the use of outdated historical statistical data. The approach that has been adopted is a modified simple risk assessment methodology model (D.C Paton 2010).

The Consequence of a bird strike.

The consequence of a bird strike is twofold and may result in damage to an aircraft and/or delays or delays due to additional inspections required when a pilot believes they may have struck a bird or while birds are dispersed from manoeuvring areas prior to take off and arrival.

The risk assessment process focuses mainly on the likely damage that may result from an RPT aircraft striking a particular species. In considering the potential damage that may be caused by a bird strike CAPL has considered the following factors;

- The mass of the bird,
- The proportion of strikes that involved multiple birds, and
- The proportion of strikes that have resulted in damage.

By applying this known information a species consequence score and category can be obtained.

The likelihood of a bird strike.

In determining the probability of a strike by a particular species CAPL uses the following criteria;

- The abundance of a species (survey data is used to rank species according to their proportion of the airport’s total bird population) and
- The number of strikes of a particular species. (Number of strikes per species as a proportion of total number of strikes.).

The application of this data produces a likelihood score and Category.

NOTE: CAPL has limited both the survey data and strike data used to 5 years so that the resultant Risk reflects the current environment and not influenced by historical data that is too remote.
## Species Risk Matrix

<table>
<thead>
<tr>
<th>Likelihood of a Strike</th>
<th>Very Low(1)</th>
<th>Low(2)</th>
<th>Moderate(4)</th>
<th>High(8)</th>
<th>Very High(8)</th>
</tr>
</thead>
</table>

### Notes
- Spectacled Flying-fox likelihood has moved from high to very high as numbers are vastly under-represented in surveys.
- Magpie Goose has moved to very low likelihood due to low survey counts and no strikes in last 5 years.
- Masked Lapwing have moved to very high likelihood.
- Brahminy Kite has moved to Low.

### Note
Species Management Plans have been prepared for all high risk (Red) and medium risk (yellow) species. See Annex A.

### Risk Ranking

<table>
<thead>
<tr>
<th>Risk Criteria</th>
<th>Species of High Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Criteria</td>
<td>Continual monitoring, harassment and application of action plans.</td>
</tr>
<tr>
<td>Risk Criteria</td>
<td>Species of Medium Risk</td>
</tr>
<tr>
<td>Risk Criteria</td>
<td>Action plans activated during periods of increased activity on airfield.</td>
</tr>
<tr>
<td>Risk Criteria</td>
<td>Species of Very Low to Low Risk</td>
</tr>
</tbody>
</table>

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Basic Harassment, Dispersal, Euthanasia and Removal Guidelines

1. Dispersal is most intense at the end of the breeding season to discourage young wildlife from foraging at the airport.

2. Young are especially targeted in dispersal, to provide recognition that the airport is an unattractive and threatening environment.

3. Do not allow settling wildlife to feed or breed on the airport in order to discourage regular visitation or habituation.

4. Dispersal efforts are concentrated during peak wildlife activity periods such as early morning and mid to late afternoon.

5. Dispersal efforts are increased before each block of RPT movements across the day.

6. Dispersal actions are prioritised in relation to the location of the hazard, and the proximity to critical areas.

7. Actions such as egg/nest removal are undertaken to limit the breeding success and hence populations of birds nesting on airport, to deter birds from establishing breeding territories on airport and to limit the number of young birds present on airport who are more likely to react inappropriately in the presence of aircraft.

Harassment, Dispersal, Euthanasia and Removal Actions

There are a number of methods used by the ASOs to undertake dispersal of birds and wildlife in various situations. This approach limits habituation of wildlife to any one dispersal option and ensures results with a variety of species. These include:

1. Vehicle, sirens, lights, loud speakers and horns can be used to alarm and herd animals in a variety of airside environments.

2. Arm waving is sometimes an effective means of dispersal. These are useful with flocks of birds, or to lift birds before combining with other herding techniques.

3. Pyrotechnics is a very useful tool in dispersal. To reduce habituation use as few shots as possible to achieve the required effect and ensure the cartridge activates as close to the target as possible.

4. Gas Cannons can be strategically located at different positions and activated remotely to lift and disperse birds and then follow up with other dispersal methods. This can be effective by combining their use with an ASO on the opposite side of the RWY.

5. Lethal control is a last option management technique that is used to reinforce other non-lethal methods of dispersal and remove high risk animals in situations of imminent safety hazard. This method is always a controlled and targeted approach to strategically remove hazards. CAPL maintains a Damage Mitigation permit (DMP) issued by the Department of Environment and Heritage Protection (EHP) for the taking of high risk species listed as ‘least concern’ under the Nature Conservation Act 1992 that may need to be targeted for control. All ASOs hold a current QLD Firearms licence and receive appropriate training in the safety and use of the weapons.
6. Physical removal of eggs and nests of species of least concern (under the Nature Conservation Act 1992) prior to hatching which reduces the breeding potential and can interrupt territorial behaviour. The preferred practice is to minimise impact to such species by regularly undertaking inspections and monitoring to check for nests prior to any eggs/young. This will discourage the building of nests on the airport.

7. The use of an ASO vehicle strategically placed as a decoy discourages certain species from remaining within a critical area. The use of decoy object must be limited to reduce the likelihood of habituation of wildlife.
CAPL Mowing Plan
Note Mowing within the RWY Strip and critical areas is carried out at night to reduce the attraction of birds. If during any mowing activities it is identified that large numbers of birds are being attracted then mowing is ceased.
Bird and Wildlife Management Committee

CAPL actively engages with and encourages stakeholders to take part in the strategy and management of the risks associated with wildlife and the safe operation of aircraft at Cairns International airport. This engagement is facilitated through the Cairns Bird and Wildlife Management Committee where members are encouraged to assist with the formulation and review of policy and procedures. Committee members may formulate and present recommendations to CAPL that assist with the enhancement of bird and other wildlife management.

Cairns International Airport Bird and Wildlife Management Committee
Terms of Reference

Background

Managing the bird strike risk at Cairns International Airport requires a cooperative effort between several stakeholders. Accordingly, an airport bird and wildlife management committee has been formed to aid in the development and implementation of a Strategy to minimise this risk.

Function of Committee

The function of the Bird and Wildlife Management Committee (BWMC) is to:

- Assist with the development and implementation of the BWMP.
- Identify tasks and responsibilities of key organisations.
- Review bird strike and count data and assist in identifying trends and causes.
- Review operating procedures and policies.
- Provide a forum for discussing recommendations from research and expert reports.
- Assist in the development of strategies to minimise off-airport bird and wildlife issues.
- Review and recommend changes to the BWMP.

Membership of Committee

Membership of this committee will comprise representatives of those stakeholder groups with an operational interest in the management of bird and wildlife hazards on airport and those organisations who can assist with off-airport hazard management:

- Cairns Airport Pty Ltd
- Air Traffic Control
- Qantas Airways
- Jetstar Airlines
- Virgin Australia Airways
- Tiger Airlines
- Alliance Airlines
- Skytrans
- Hinterland
- Cathay Pacific Airlines
- Air Niugini
- Regional Express Airline
- General Aviation Representative
• Civil Aviation Safety Authority (CASA)
• Cairns Regional Council (CRC)
• Queensland Parks and Wildlife Service (QPWS)
• Wildlife Preservation Society Queensland (WPSQLD)
• Far North Queensland Wildlife Rescue (FNQWR)

Outcomes

It is anticipated that the Committee will assist with:

• The development and implementation of the BWMP.
• Reducing the bird and wildlife risk to aircraft operations at Cairns International Airport.
• Reducing the economic/financial impact on airlines and improve operational safety.
• The ongoing exchange of information between stakeholders to improve the Plan.
• The operation of Bird Watch Condition Reporting program advising of conditions: Severe/Moderate/Low/Alert.

Chairmanship and Secretariat support

The Committee will be chaired by the Aerodrome Standards and Compliance Manager.

Frequency and location of meetings

Meetings are held on a quarterly basis. All meetings will be held at Cairns Airport and meeting room advised prior to each meeting.

Roles and Responsibilities of Committee members

Aerodrome Standards and Compliance Manager

• Implement the Plan.
• Chair BWMC meetings.
• Review recommendations of the BWMC.
• Arrange administrative support for the BWMC.
• Report to CAPL management actions required to implement the Plan.
• Liaise with airport operators.
• Undertake periodic inspections of the airport for bird and other wildlife hazards.
• Initiate Action Plans.
• Review all proposals for changes in land use on and around the airport giving due consideration to the potential for bird and other wildlife hazards being created or enhanced. Where necessary recommend changes to such proposals or formally reject the proposal.
• Engage the necessary consultants to undertake professional bird surveys twice monthly (day and night) and to review the Plan annually.
• When appropriate, invite specialists to BWMC meetings to present relevant information.
• Review and approve modifications to the Plan as a result of Annual Review.
• Monitor bird and other wildlife activity and strike statistics.
• Act as administrator for CAPL’s bird and wildlife database.
• Determine changes to Bird Watch Conditions and advise Airline Operators and others on the Bird Watch Distribution list.
- Where Bird Watch Conditions are indicated as “Moderate” or “Severe”, activate NOTAM to advise of hazardous bird or other wildlife activity.
- Ensure that all bird and wildlife strikes are reported to ATSB.

**Airside Operations Supervisor**

- Manage ASO training for: the operation of the Bird and Wildlife database system; bird and other wildlife identification and strike reporting; inspection for bird and other wildlife hazards; bird counts; bird dispersal and culling; and, weapons licencing.
- Ensure that all Operations Procedures involving ASO’s are followed.
- Annually review the Plan with particular input into Operations Procedures, Firearms Policy and forward any recommended modifications to the Aerodrome Standards and compliance Manager.
- Maintain weapons/ammunitions register.
- Ensure Cairns International Airport – Airport Operations Manual Part 2, Section 11 is updated to reflect the Strategy.

**Airport Safety Officer/Wildlife Safety Officer**

- Inspect the perimeter fence daily so that access for animals such as wallabies and dogs is restricted,
- Undertake runway inspections for bird and other wildlife hazards,
- Undertake bird dispersal and culling,
- Safely store and maintain firearms and ammunition,
- Conduct bird counts weekly,
- Inspect runways, taxiways and flight strips for animal carcasses and where found, collect and store for identification,
- Coordinate with aircrews and maintenance personnel for collection of remains after strikes and store for identification,
- Accurately enter data collected from bird strikes, bird count, culling and dispersal into the Bird and Wildlife database system,
- Annually review Operations Procedures and Firearms Policy, and forward any recommended modifications to the Airside Operations Supervisor, and
- Take part in training sessions which are relevant to this Plan.

**Environment Manager**

- Co-ordinate interactions with BWMC stakeholders for the management of land use surrounding Cairns international airport.
- Ensure that the principles of the Plan are consistent with the Airport Environment Management Plan.
- Manage & implement Species Action Plans as required by the Plan.
- Prepare and deliver summary report on strikes, culling and counts at each of the BWMC meetings.
- Provide advice to the BWMC meetings regarding environmental issues.
- Maintain the necessary Qld Parks & Wildlife Service (QPWS) Damage Mitigation Permits (DMP) for culling, egg and nest removal, and relocation of birds and other wildlife.
- Maintain marine plant removal permits from the Department of Primary Industries & Fisheries (DPI&F).
- Ensure that conditions of the DMP and marine plant removal permits are fully complied with.
- Ensure that all facets of the Plan comply with relevant State and Federal environmental legislation.
- Investigate and initiate research into bird and other wildlife management and report outcomes.
- Coordinate the processing of carcasses,
- Undertake periodic inspections of the airport for bird and other wildlife hazards.
- Where necessary, coordinate the control of birds and other wildlife in occupied buildings and hangars,
- Annually review CIA landscaping guidelines,
- Regularly review waste management practices at the airport to ensure availability of food waste for birds is minimised,
- Annually review and update the Plan in consultation with the Aerodrome Standards and Compliance Manager,
- Collate recommended modifications during annual reviews,
- Liaise with the Manager Infrastructure and Maintenance to ensure optimal grass management and drain maintenance, and
- Engage and manage suitable ornithological and wildlife expertise, including consultants for ongoing monitoring and investigations of wildlife as required.

Manager Infrastructure and Maintenance

- Ensure that mowing strategies advised by Environment Manager are carried out in accordance with the Annex E,
- Suitably maintain drains, mangrove areas and bird prevention structures,
- Update the database with information on maintenance of grassed areas, fences and drains.

Air Traffic Control Manager

- Represent Airservices Australia at BWMC meetings.
- Ensure procedures indicated in the Manual of Air Traffic Services are complied with. Particular attention should be given to the notification of bird hazards and submitting reports,
- Ensure procedures are in place to eliminate the use of runway lights between aircraft movements during non-daylight hours, and
- Annually review the Plan and forward any recommended modifications to the Aerodrome Standards and Compliance Manager.

Air Traffic Control Officer

- Ensure procedures indicated in the Manual of Air Traffic Services are complied with. Particular attention should be given to the notification of bird hazards and submitting reports.
- Ensure procedures are followed to eliminate the use of runway lights between aircraft movements during non-daylight hours.
- Ensure procedures are followed to inform ASO’s of any reported strikes, near misses or indications of heightened risk conditions.

Airline Operators/GA Operators

- Provide a representative to the BWMC,
- Where “Moderate”, “Severe” or “Alert” Bird Watch Conditions prevail, inform aircrews of necessary procedures to follow,
• Review the possibility of changing operations to avoid times and locations of where serious bird or other wildlife concentrations indicate heightened risk conditions,
• Encourage aircrews to promptly inform ATC of all strikes, near misses or indications of heightened risk conditions,
• Inform ground engineering staff of the need to relay evidence of strikes and damage to ASO’s,
• Provide records from own databases on reported strikes at or near Cairns International Airport to CAPL on an annual basis, and
• Annually review the Plan and forward any recommended modifications to the Aerodrome Standards and Compliance Manager.

Civil Aviation Safety Authority

• Provide a representative to the BWMC.
• Ensure that all aspects of the Plan comply with CASA legislation.
• Consider the progress and effectiveness of the Plan during audits of the Airport Operations Manual.
• Report on the Australian Aviation Wildlife Hazard Group (AAWHG).

Queensland Parks and wildlife Service

• Provide a representative to the BWMC,
• Liaise with QLD Environment Protection Authority on matters relating to this Plan,
• Consider the safety imperative when assessing the application by CAPL for Damage Mitigation Permits to cull, remove eggs and nests, and relocate birds and other wildlife,
• Assist CAPL to determine the appropriate actions where rare or threatened species become an aviation hazard. Given that damage mitigation permits cannot be issued to manage such species and alternative arrangements must be made,
• Provide advice on environmental issues, particularly regional bird and other wildlife populations, and
• Annually review the Plan and forward any recommended modifications to the Aerodrome Standards and Compliance Manager.

Cairns Regional Council

• Provide a representative to the BWMC,
• Manage the Sewage Treatment Plant, parks, gardens and other council lands adjacent to Cairns International Airport to minimise their attractiveness to bird species, which present a hazard to aircraft,
• Consider the potential for bird and other wildlife attraction when developing land use strategies,
• Review all proposals for land use changes within 13 kilometres of Cairns International Airport, giving due consideration to potential for bird and other wildlife hazards to be created or enhanced. Where necessary, ensure such proposals are modified to ensure that the risk posed by birds to aircraft is not increased,
• Provide a summary presentation to BWMC of statistics and details of applications assessed and being assessed on a quarterly basis, and
• Annually review the Plan and forward any recommended modifications to the Aerodrome Standards and Compliance Manager.

Wildlife Preservation Society of Queensland
• Provide a representative to the BWMC,
• Provide advice on bird and other wildlife within a local and regional context, and
• Assist with the formulation of Action Plans to mitigate bird and wildlife hazards.

Far North Queensland Wildlife Rescue

• Provide a representative to the BWMC.
• Provide advice on bird and other wildlife within a local and regional context.
• As required, provide carcass analysis of birds and bats struck or culled at Cairns International Airport.
• Provide expertise and advice on the care of wildlife, including those injured at Cairns International Airport.
• Assist with the formulation of Action Plans to mitigate bird and wildlife hazards.
Culling of Eggs on Airport

The culling of eggs belonging to bird species listed as least concern in Queensland is permitted by oiling or pricking under the Cairns Airport Damage Mitigation Permit (DMP). Only persons listed in the conditions of approval for the DMP are to perform egg culling or nest removal activities.

**Oiling:** Coat the entire surface of each egg with canola oil spray. The oil will block the egg shell pores and suffocate the developing chick. Parents will generally return to the nest and continue caring for the eggs for some time before realising that the eggs will not hatch. Once the nest has been abandoned, the eggs may be removed and disposed of or left in place (unless they are likely to attract wildlife to the critical zone).

**Pricking:** Use a pin to create a small hole in the egg shell, ensuring that the embryonic sack of the chick is pierced. Place the egg back in the nest. Parents will generally return to the nest and continue caring for the eggs for some time before realising that the eggs will not hatch. Once the nest has been abandoned, the eggs may be removed and disposed of or left in place (unless they are likely to attract wildlife to the critical zone).

**Masked Lapwing:** Masked Lapwings breed year around in the tropics. Speckled eggs are laid directly onto the ground and are generally well guarded by parents. Wing spurs displayed by adults are thought to be mainly for show but may inflict wounds. Sharp beaks may also inflict wounds. Take care not to injure parents while culling eggs and shelter in a vehicle if possible. Please be reminded that the culling of adults is by lethal shot only and no other harm to the bird is permitted.

*Figure one: Clutch of masked Lapwing eggs. Eggs are generally placed directly onto the ground in the centre of a small clearing.*
Pacific Black Duck: Pacific Black Ducks breed late in the wet season but nesting has been infrequently observed year round. Parents are not generally aggressive but may defend nests. Bites may inflict minor bruising.

Other species: If eggs are encountered that do not fit the abovementioned descriptions, please contact the Cairns Airport Environment Manager or Consultant Biologist (Ian Northcott) for further guidance.