National Databank Interactions
Strike Reporting and Brazilian Species Hazard Ranking

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Structure

- Introduction
- Data and wildlife strike management
- Ranking the wildlife strike risk of Brazilian species to aviation
- Conclusions
Introduction

Brazil:

- 714 public aerodromes
- Regional airports (BRL 7,3 bi)
- Total RPT movements **2,042,726** (2013)
- International movements **159,706** (2013)
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Data and Wildlife Strike Management

- Doc 9332 ICAO Bird Information System
- Doc 9137 ICAO Wildlife Control and Reduction
Information
People are knowledgeable about the human, technical and organizational factors that determine the safety of the system as a whole.

Willingness
People are willing to report their errors and experiences.

Flexibility
People can adapt their reporting mode when facing unusual circumstances, shifting from the established mode to a direct mode, thus allowing information to quickly reach the appropriate decision-making level.

Accountability
People are encouraged (and rewarded) for providing essential safety-related information. However, there is a clear line that differentiates between acceptable and unacceptable behaviour.

Learning
People have the competence to draw conclusions from safety information systems and the will to implement major reforms.
Informants not always see the value of reporting, especially if they are sceptical about the acting upon the information.

Important factors for both quantity and quality of incident reports:

- Rapid, useful, accessible and intelligible feedback to the reporting community (*beyond borders*)
- Ease of making the report

1) Reports from Brazilian airliners operating abroad
2) Reports from foreign airliners operating in Brazil
Doc 9332 IBIS

- State Letter AN4/9.1-79/179 Nov 23rd 79:
  - Report all bird strikes to ICAO
  - ACF OPR usually send strike reports to their State for onward transmission to ICAO, and to the State of occurrence
  - It is essential that the State of the occurrence be advised ASAP to ensure that the appropriate ARP authorities are aware of the bird strike and can take action

Effective communication is paramount.

Time is an important issue.
Postal addresses for States’ civil aviation authorities can be found in ICAO’s Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services (Doc 8585).

States are requested to complete as many of the data items on the report.

Effective communication is paramount.

Time is an important issue.
The importance of reporting:

- An effective bird/wildlife control programme depends upon accurate and reliable reporting.

- Reviewing and analyzing this data will help identify problems at the airport and indicate the effectiveness of current WHMP.

- Annex 14, Volume I, requires States to assess the hazard on, and in the vicinity of, an aerodrome through the establishment of a national procedures for recording and reporting strikes.
What is the problem?

1) Effective communication is paramount and time is an important issue

2) Reports from Brazilian airliners operating abroad, and foreigner airliners operating in Brazil, shall arrive at the appropriate databank

3) Online reporting systems facilitate data gathering

SIGRA

Brazilian National Databank available in English at:

http://www.cenipa.aer.mil.br/cenipa/sigra/perigoAviarioExt?idioma=en
Engine was shut down by pilot or stopped running because of strike.
From 200ft AGL up to the end of landing run, or, in other words, up until the aircraft reaches the taxiing speed and vacates the RWY. For helicopters until hovering close to the ground or wheels on ground for taxiing or the end of the landing run.
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Ranking the wildlife strike risk of Brazilian species
Optimizing fauna management at airports

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Weber Novaes
Wildlife Management Project at Brazilian Airports, University of Brasília & National
Institute of Amazonian Research (INPA)
Ranking the wildlife strike risk of Brazilian species

- 11,026 wildlife strikes (2000-2013)
- 53% were identified to species or group level
- The ranking was based on three severity criteria:
  1) Percentage of damaging strikes,
  2) Percentage of strikes with negative effects on flight (EOF),
  3) Percentage of strikes that resulted in substantial damage.
- 74 wildlife species or groups were ranked (> 3 reports)
## Ranking the wildlife strike risk of Brazilian species

### Very High Risk Species

<table>
<thead>
<tr>
<th>Rank</th>
<th>Severity</th>
<th>Species or Group</th>
<th>Damage %</th>
<th>EOF %</th>
<th>Substantial Damage %</th>
<th>Severity Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>very high</td>
<td>Frigatebirds</td>
<td>20,0%</td>
<td>55,0%</td>
<td>5,0%</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>very high</td>
<td>Cattle Egret</td>
<td>14,3%</td>
<td>14,3%</td>
<td>7,1%</td>
<td>19</td>
</tr>
<tr>
<td>2</td>
<td>very high</td>
<td>Other vultures</td>
<td>11,6%</td>
<td>40,9%</td>
<td>2,1%</td>
<td>19</td>
</tr>
<tr>
<td>2</td>
<td>very high</td>
<td>Lesser Yellow-headed Vulture</td>
<td>14,3%</td>
<td>14,3%</td>
<td>7,1%</td>
<td>19</td>
</tr>
<tr>
<td>5</td>
<td>very high</td>
<td>Black Vulture</td>
<td>25,6%</td>
<td>56,4%</td>
<td>-</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>very high</td>
<td>Turkey Vulture</td>
<td>14,3%</td>
<td>19,0%</td>
<td>4,8%</td>
<td>22</td>
</tr>
<tr>
<td>7</td>
<td>very high</td>
<td>Greater Yellow-headed Vulture</td>
<td>28,6%</td>
<td>28,6%</td>
<td>-</td>
<td>23</td>
</tr>
</tbody>
</table>
# Ranking the wildlife strike risk of Brazilian species

## High Risk Species

<table>
<thead>
<tr>
<th>Rank</th>
<th>Severity</th>
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<th>Damage %</th>
<th>EOF %</th>
<th>Substantial Damage %</th>
<th>Severity Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>high</td>
<td>Gulls</td>
<td>6.3%</td>
<td>32.6%</td>
<td>1.1%</td>
<td>33</td>
</tr>
<tr>
<td>8</td>
<td>high</td>
<td>Brown-chested Martin</td>
<td>11.1%</td>
<td>22.2%</td>
<td>-</td>
<td>33</td>
</tr>
<tr>
<td>10</td>
<td>high</td>
<td>Yellow-headed Caracara</td>
<td>10.0%</td>
<td>20.0%</td>
<td>-</td>
<td>37</td>
</tr>
<tr>
<td>11</td>
<td>high</td>
<td>Domestic dogs</td>
<td>5.3%</td>
<td>26.3%</td>
<td>-</td>
<td>43</td>
</tr>
<tr>
<td>12</td>
<td>high</td>
<td>Fork-tailed Flycatcher</td>
<td>9.1%</td>
<td>9.1%</td>
<td>-</td>
<td>45</td>
</tr>
<tr>
<td>13</td>
<td>high</td>
<td>Other ducks</td>
<td>5.9%</td>
<td>5.9%</td>
<td>5.9%</td>
<td>47</td>
</tr>
<tr>
<td>14</td>
<td>high</td>
<td>Southern Caracara</td>
<td>5.2%</td>
<td>6.8%</td>
<td>1.2%</td>
<td>51</td>
</tr>
</tbody>
</table>
Ranking the wildlife strike risk of Brazilian species

Frequency distribution of body masses for birds involved in strikes
Ranking the wildlife strike risk of Brazilian species

Severity score = 18.7 log body mass² - 67.8 log body mass + 82.3

$R^2 = 0.308$

All bird species

N = 66

p < 0.001
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Findings

Brazilian hazardous species involved in damaging strikes are smaller but damaging collisions with passerines are rare.

Brazilian hazard ranking will enhance risk management efficiency focusing on greatest risk species to aviation.

Bird census through surveys will allow proactive management actions.

Acknowledgments

This research was funded by INFRAERO, Brazilian Airport Infrastructure Company.
Brazilian hazard ranking will help airport managers to focus efforts in order to control & reduce the presence of bird species with the greatest risk to aviation on & off-aerodromes

Wildlife monitoring and site-specific surveys must identify species abundance, indicating management actions towards hazardous wildlife species
Conclusions

Recommendations

1) Reports shall arrive at the appropriate national databank

2) Each State shall point to ICAO the correct national databank electronic address to share strike reports ASAP

3) ICAO shall keep an updated list of national databank addresses because not all countries have an online system
ICAO, World Birdstrike Association and CARSAMPAF
Mexico City, 20-24th October 2014

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Thank you