# State of the art bird deterrence



Collisions between birds and aircraft can cause minor damage or fatal results.



## The Phoenix Airport Wailer

- combines:
- sophisticated electronics
  - computer technology
  - surround sound concepts
- with:

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 high level wildlife knowledge

#### Beirut Airport - Lebanon Installation



## History

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- The first fatal accident occurred in 1912
- Since 1960, approx. 400 aircraft have been destroyed
  - Over 370 people killed as a result of bird and other wildlife strikes



#### **Optimal locations for strikes**

- Strike hazards exist throughout the world
- Higher threats near migration routes
  - Favorable wildlife environments such as wetlands or rubbish dumps often lead to accidents



## **Relevant Statistics**

- In USA, over 800 strikes per month occur
- Hundreds of lives at risk
- Millions of dollars spent on engine replacements



#### **Relevant Statistics**

THF



Although strike reports can be reported in real time, this graph is presented with a 3-month delay to permit verification of reported data.

#### THE PHOENIX AIRPORT WAILER



Learjet about to crash in paddock after hitting a flock of birds



All four passengers miraculously survive

# Where in flight do strikes happen?

- Most strikes occur at approach phase but also when landing
- Takeoff and climb are also significant
  - Bird deterrence must be an overall and continuous program



# Where in flight do strikes happen?

Yearly average number of bird strikes to civil aircraft by phase of flight, USA, 1990-2002.





## When do strikes happen?

- Most strikes in daytime (over 120 per year or >2 per week)
- Night strikes also significant



#### When do strikes happen?

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Yearly average number of bird strikes to civil aircraft by time of day, USA, 1990-2002.



## Altitude level

- More than half of strikes between 1990-2000 were at less than 100 feet (30 meters) above the ground
- Essential to have bird deterrence focussed within this zone



### The Phoenix Wailer is:

- automated
- continuous



#### THE PHOENIX AIRPORT WAILER



Cessna crash due to bird strike – two people killed

Damage can be minor but very expensive, causing delays to schedules





#### THE PHOENIX AIRPORT WAILER



#### **Soaring Birds**

Upward pointing speakers can be added to deter soaring birds (e.g Vultures, Black Kites.)

## Boeing engines cost over \$1 million each to replace!



#### The Phoenix Wailer is an...

- automated
- customized
- cost effective
- life saving



#### method for runway protection

## Phoenix Wailer – general description

- Each system covers
  760 metres (2500') of runway
- Positioned alongside runway, approximately 60m (200') back
- Master unit and four speakers on stands
- Shielded cables can be above ground or buried



## How does it work?

- Master unit has 4 stereo channels
- Master unit has up to 25 different electronic sounds, plus up to 50 natural sounds
- Programmed to set up predator-prey situation
- Computer control
- Multiple different programs per system
- e.g. Spring birds.. Summer birds .. Winter birds
- Changeable with the touch of a button
- Program changes can be made remotely from Phoenix Agritech via Dropbox

#### FAA Certified Frangible Couplings standard throughout





#### Predator-prey concept

- Predator calls played from one channel
- Pest's alarm calls played from another
  - Then distress calls (a kill!)
  - Then quiet time
  - Then a different sequence with a different indigenous raptor



#### Stereo effect

- 4 speaker pairs
- 1 external, 1 central
- Sounds appear to come from between speakers



- Each sound played from a different pair of speakers – gives effect of movement along runway section
- Predator appears from one section, alarm call comes from another, the "kill" from yet another one
- Gives effect of predator movement along runway section

#### Birds are now on alert!

- Several predator-prey sound sequences gets the flock nervous
- Start to warn each other and watch for predator but cannot see it
- No visual cues audio (call from predator) is their only alert



## Electronic sound blanket

- Birds now must listen for predator
- Computer program then brings in electronic noises – sweep up and down runway
- As well as not being able to see predator, birds realize they now cannot hear it either
  - Being alert and nervous, their best option is to leave the area
  - That is why the Phoenix Wailer is a deterrent not a scarer



## Do birds get used to the Wailer?

- Short answer … NO!
- Other systems repeat sounds, birds get habituated
  - Wailer is random and programming makes a real (not artificial) situation
- Works year after year ... in different countries worldwide



## More advantages

- Very quiet compared with other airport noises
- Operates automatically either by light sensor (dawn to dusk) or programmable clock
- 12 volt battery power maintained by a solar panel or by a customized 220/110 volt to 12 volt power supply
- No interference to radio communication and navigation systems

## Worldwide application

- USA
- Canada
- Australia
- Sierra Leone
- Azerbaijan
- Kazakhstan
- Singapore
- Bulgaria
- Lebanon
- Indonesia
- India
- Hong Kong
- Brunei

#### Indonesian Airport Officials visit San Francisco Airport to view Wailers



Slide 34

BB3 Bruce Blacklock, 4/19/2005

## Halifax Stanfield International Airport

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#### Bali Airport - Indonesia

#### Bali Airport - Indonesia

## Bali Airport Officials Visit

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## What do we provide?

- One master unit and four speakers per 760 metres of runway (clearly lets them calculate the number of systems needed)
- Shielded cable to prevent radio frequency interruption
- Optional solar panel or main power supply
- Installation advice
- Service and maintenance program from the dealer

#### Installation procedures

- Compliance with all airport safety requirements
- Equipment set back behind gable markers
- Cables buried underground optional (safety convenience for grass mowing etc)





### Installation example

- System customized for bird pests and local predator species
- Master unit installed with solar panel
- Cables to external speakers buried underground



#### **External speakers**

- External speakers on stands
- Cables can be laid on top of the ground, or buried (as shown below)
- Cable fitted inside stabilized conduit
  - Conduit buried approximately 6 inches below ground

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AIRPORT







Master unit with computer and sounds on memory card



Speaker cables underground

Incoming aircraft – "bird free"

#### Clearance from air traffic



Runway setback distance

#### Testimonials

#### **UNITED NATIONS**



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UNITED NATIONS INTEGRATED OFFICE IN SIERRA LEONE (UNIPSIL)

Freetown, 15 January 2012

Dear Mr. Bruce Blacklock Phoenix Agritech (Canada) Ltd

#### Subject: PHOENIX WAILER SYSTEM

United Nations Integrated Peace Building Office in Sierra Leone (UNIPSIL) has purchased Phoenix Wailer systems just months ago.

This system is located at our main base helipad at Cockerill (Freetown).

We observed that the main problem at this helipad were vultures and crows.

After installation of Phoenix Wailer and about week of operations the big vultures disappeared completely. First days of operations birds were almost all time in the air whenever system was on. At present after months of operations birds are avoiding close vicinity to helipad - it is what was expected.

Our air operation working environment is by million times safer with your device then it was earlier.....

The Phoenix Wailer system has proven to be an effective and valued asset to our wildlife control program. I would definitely recommend it to anyone with wildlife issues at the airport or helipad.

Thanks for a job well done.

Yours Truly,

Zbigniew BLEACHACZ Chief Aviation/Movcon UNIPSIL



12 October 2007

Mr. Bruce Blacklock Phoenix Agritech (Canada) Ltd. P.O. Box 10 Truro, Nova Scotia Canada. B2N 5B6

Dear Bruce:

#### **RE: PHOENIX WAILER SYSTEM**

The Regina Airport Authority Inc. has purchase five phoenix Wailer systems in the past two years. The first set of systems purchased as in 2006, and the second systems (3units) was purchased and installed this past summer season of 2007.

These systems outline two runways. One runway is 7900 feet and the other being 6300 feet. The Regina Airport Authority Inc. has not had one Gull strike in the 2007 season so far.

Historical wildlife control data shows that Gulls involved with aircraft incidents account for 62% of Strikes at the Regina international Airport.

The Phoenix Wailer system has proven to be an effective and valued asset to our wildlife control program. I would definitely recommend anyone with wildlife issues to tryout this system at their location to see first hand its effectiveness.

If you have any questions or concerns, please call me at (306) 761-7590.

Yours Truly,

Emile Forest, C.Tech, M.M.M., CD. Manager Airport Facilities / Environmental Officer Regina Airport Authority Inc. (306)761-7590 www.ygr.ca

## Manufacturer and primary contact

Mr. Bruce Blacklock Phoenix Agritech (Canada) Ltd. PO Box 10, Truro, Nova Scotia, B2N 5B6, Canada

Tel : 902 662 2444 Fax : 902 662 2888 Email : <u>phoenixagritech@uniserve.com</u> Website : <u>phoenixagritech.com</u>

## Dealer/Distributor for U.S.A and Gulf Nations

Mr. Jack Wagner

THE PHOENIX AIRPORT WAILER BIRDBUSTERS INC. 707 South Gulfstream Avenue #405 Sarasota, Florida 34236 Toll Free: 1-866-915-8225 Tel: (703) 299-8855 Fax: (941) 952-9766

Email: jackwagner@birdbusters.com Website: http://birdbusters.com

### Worldwide Dealers – page 1

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#### Worldwide Dealers – page 2

	India	Hughes & Hughes Chem Ltd.	Mr. Rajat Singhal	cmd@hugheschem.com
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