



PROCEEDINGS OF THE NORTH AMERICAN BIRD STRIKE CONFERENCE

**17TH JOINT CONFERENCE OF THE BIRD STRIKE ASSOCIATION OF CANADA AND
BIRD STRIKE COMMITTEE USA**

HALIFAX, NOVA SCOTIA, CANADA

12-15 AUGUST 2019

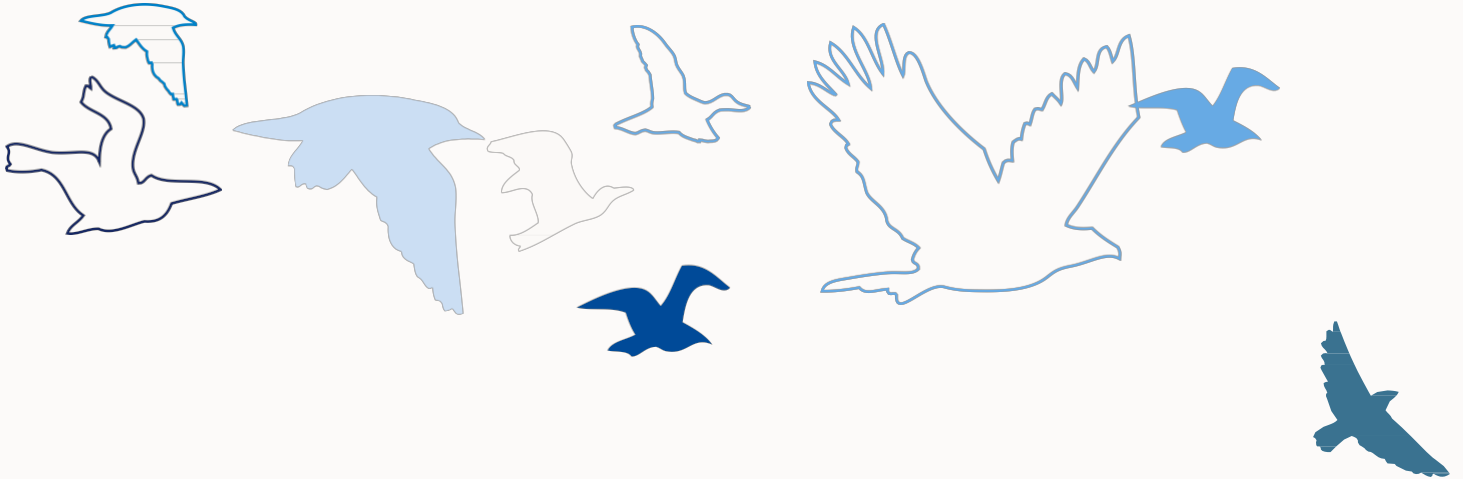
Introduction

In the interests of preserving the ideas, expertise and hard work of conference contributors, these proceedings have been compiled from a combination of prepared papers by authors, transcripts of talks presented at the conference and slide presentations made by presenters. While I hope that these proceedings capture to essence of the conference, unless the authors have produced a peer-reviewed paper, none of the papers or transcripts have been peer-reviewed. However, the authors have been offered an opportunity to review and revise the transcripts for their presentations in order to insure that the content of these proceedings matches the intent of the authors who have contributed.

Gary F. Searing
Executive Director
Bird Strike Association of Canada

Edited by:

Gary F. Searing, Bird Strike Association of Canada



WELCOME

Welcome to the 17th North American Bird Strike Conference in the historic city of Halifax, the capital city of Nova Scotia. It is always a pleasure for the Bird Strike Committees from Canada and the US to join together as co-hosts for the “North American” meeting. As the cooperation between these Bird Strike Committees continues to be strong (no tariffs on bird strikes and the Canadians have already apologized for their part in the small matter of burning down the White House in 1814), we look forward to these conferences as a way to strengthen our ties and relationships. As such, and on behalf of all in attendance this year who are “south of the border,” we would like to thank the host Canadians for their hockey greats Wayne Gretzky, Mario Lemieux, Gordie Howe and Keanu Reeves, Shrek AND Austin Powers (Mike Meyers), half of the Blues Brothers (Dan Akroyd), BeaverTails, Bob and Doug McKenzie, your Strategic Maple Syrup Reserve and poutine.

It takes a lot of work to organize these gatherings but thankfully, the team at AAAE does most of the heavy lifting. Paralleling those efforts, a small team from both Bird Strike Committees dedicates a significant amount of time planning the technical program and scheduling events to make this conference a success. Of course, the speakers who volunteer to present and all of you who choose to participate are really what makes this conference worthwhile and we would be remiss if we did not give all of you a huge “thank you.” As we continue the tradition of this conference, we hope you find much value from the presentations, the discussions and the associations with like-minded professionals striving to reduce local risks while increasing global safety.

Enjoy the conference, renewing old acquaintances and meeting new colleagues from around the world. Welcome to Halifax!

Gary F. Searing

Executive Director

Bird Strike Association of Canada

John R. Weller

Chair

Bird Strike Committee USA



AGENDA



All sessions will take place in **Commonwealth A** unless otherwise noted. The Exhibit Hall will be in the **Atlantic Ballroom**. Both **Commonwealth A** and the **Atlantic Ballroom** are located on **Conference Level, First Floor**. The Harbor Suites are located on the **lobby level**, behind the check-in desk.

MONDAY // AUGUST 12

- 0800 – 1200 **BSC-USA Steering Committee Meeting**
Harbor Suite A
- 0800 – 1200 **Bird Strike Association of Canada Meeting**
Harbor Suite B
- 1200 – 1700 **Registration**
Commonwealth Ballroom Foyer
- 1300 – 1700 **International Update Session – Updates from
National Bird Strike Committees/Regulators**
- 1700 – 2000 **U.S. Navy Breakout Session**

0930 -1000

Technical Session I – Bird Strikes

Moderator: Steve Osmek, Manager, Airport Wildlife, Seattle-Tacoma International Airport

P1 – Measuring Effectiveness – Strike Data Evaluations and the Question of Standardization
John Weller, Chair, Birdstrike Committee USA

1000 – 1030

Refreshment Break with Exhibitors

Atlantic Ballroom
Sponsored by: Halifax International Airport Authority

1030 – 1200

Technical Session I – Bird Strikes

Commonwealth A

Moderator: Steve Osmek, Manager, Airport Wildlife Biologist, Seattle-Tacoma International Airport

TUESDAY // AUGUST 13

- 0700 – 1700 **Registration**
- 0700 – 0800 **Continental Breakfast with Exhibitors**
Atlantic Ballroom
Sponsored by: AERIUM Analytics and Air Canada
- 0800 **Welcome to Bird Strike North America 2019**

Gary Searing, Chair, Bird Strike Association of Canada

John Weller, Chair, Bird Strike Committee USA
- 0810 **Housekeeping**

John Ostrom, C.M., Chair, Annual Conference Committee
- 0820 **Welcome to Halifax**

Joyce Carter, CEO, Halifax International Airport Authority
- 0830 **Keynote Address**

Samuel Elfassy, Vice President, Safety, Air Canada
- 0900 **Transport Canada and FAA Updates**

P2 – Bird Strike Prevention – An Operational Approach

Isabel Metz, PhD Candidate, Delft University of Technology

P3 – Bird Strikes are NOT Random!

William Barnes, Chief Operating Officer, Lumen International, Inc.

P4 – Bird Strikes to Aircraft Sensors: An Overlooked Concern for Aviation Safety?

Richard Dolbeer, Science Adviser, Airport Wildlife Hazards Program, USDA Wildlife Services

Technical Session II – Bird Strikes

Harbor Suite A/B

Moderator: Sara Handrigan, Avian Analyst, Accipiter Radar

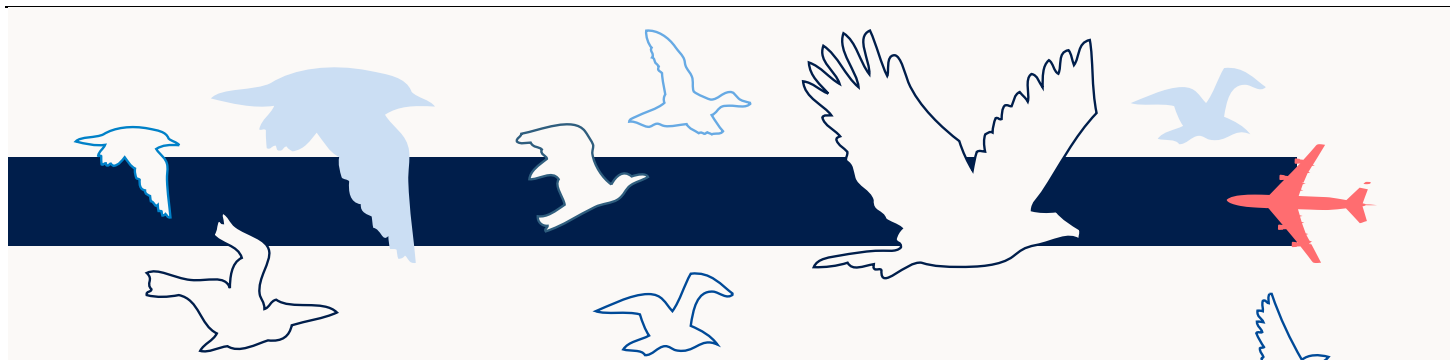
P5 – Enhancing Risk Management for Bird Strikes: An Update to NEXRAD Biological Target Risk Alterations

Major Donald Lewis, 47 FTW Chief of Flight Safety, United States Air Force

P6 – Efficacy of Robotic Falcons as a Bird Strike Reduction Tool at Major International Airports

Jordan Cicoria, Vice President of Operations, AERIUM Analytics





P7 - "Joint Base McGuire-Dix-Lakehurst Deer Management for Aviation Safety": Managing White-Tailed Deer Populations on Military Installations to Minimize the Risk of Deer Strikes
 Michael Luna, Wildlife Biologist, USDA APHIS

P12 - Use Caution, Birds in Vicinity
 Gary Cooke, President, World Bird Strike Association

1200 - 1300

Lunch with Exhibitors
 Atlantic Ballroom

P13 - Thousands of Images and the Big Picture: Site-Specific Long-Term and Seasonal Bird Assessments Using Wildlife Camera Trapping and Automated Object Counting in Remote Locations
 Taylor Houston, Program Manager, ManTech

1300 - 1430

Technical Session III - Bird Strikes
 Commonwealth A

P14 - Alternative Land Covers May Not Influence Bird Communities But How About Extreme Observations?
 Raymond Iglay, Assistant Research Professor, Mississippi State University

Moderator:

Steve Osmek, Manager, Airport Wildlife Biologist, Seattle-Tacoma International Airport

P8 - An Airline Perspective on Airport Wildlife Strikes
 Troy Levanen, Manager, Maintenance Safety, Alaska Airlines

1430 - 1500

Refreshment Break with Exhibitors
 Atlantic Ballroom
 Sponsored by: Mead & Hunt

Strikes

P9 - An Airport Perspective on Airline Wildlife Strikes
 Steve Osmek, Manager, Airport Wildlife Biologist, Seattle-Tacoma International Airport

1500 - 1630

Technical Session V - International Issues

P10 - The Data Delirium - Wildlife Strike Reporting Gaps Between Countries
 Nick Yearwood, International Specialist, UK Civil Aviation Authority
 John Weller, Chair, Bird Strike Committee USA

Moderator:

Dr. Rolph Davis, Director, Senior Consultant, LGL Limited

P11 - Human Fatalities and Destroyed Aircraft Due to Wildlife Strikes, 1912 to Present
 Phil Shaw, President, Avisure

P15 - Common Themes within Wildlife Hazard Management; Delivery of International Best Practice
 Andy Baxter, Managing Director, Bird Strike Management Ltd.

P16 - Urban Concentration of Large-Mass Flocking Species: Management Strategies for a New Airport in Australia
 Jeff Follett, General Manager, Avisure

Technical Session IV - Bird Strikes
 Harbor Suite A/B
 Moderator: Natalie Reeder, Biologist, San Francisco International Airport

P17 - Wildlife Hazard Management: An Analysis of Wildlife-Strike Data from the Five Busiest Airports in Brazil [2011-2018]
 Flavio Mendonca, Assistant Professor & Researcher, Purdue University



Canadian Geese Photo Credit: John Weller

AGENDA



- 1630 - 1715 **Vendor Presentations**
- 1715 - 1830 **Welcome Reception with Exhibitors and Poster Sessions**
Atlantic Ballroom
- A Year in Photographs: Photographic Identifications of U.S. Air Force Wildlife Strikes
 - Turkey Vulture Responses to Approach by Two Unmanned Aerial Systems in a Landfill: A Preliminary Study
 - European Starlings Fly Before they Fledge
 - "Audubon Internationals Raptor Relocation Network": Data Tracking & Network Expansion
 - "Bridging the General Aviation Gap": Building Parity with Certificated Airports in Wildlife Strike Research

WEDNESDAY // AUGUST 14

- 0700 - 0830 **U.S. Navy BASH Working Group Meeting**
Maritime
- 0730 - 0830 **Continental Breakfast with Exhibitors**
Atlantic Ballroom
Sponsored by: Margo Supplies
- 0830 - 1000 **Technical Session VI - Assessing Risk**
- Moderator: Pierre Molina, Executive Director, Falcon Environmental Services
- P18 - Be Proactive: The Abundance-based Strike Risk Index**
Maxime Allard, Senior Airport Biologist, Falcon Environmental Services
- P19 - Premium Methods for Wildlife Strike Reduction**
Andy Baxter, Managing Director, Bird Strike Management Ltd.
- P20 - Long-Term Monitoring: An Essential Component of Airport Wildlife Management Programs**
Gary Searing, Executive Director, Bird Strike Association of Canada

- 1000 - 1030 **Refreshment Break with Exhibitors**
Atlantic Ballroom

- 1030 - 1130 **Panel Discussion - Standardized Metrics, Do We Need them and What Should They Be?**
- Moderator: Gary Searing, Chair, Bird Strike Association of Canada
- Panelists: John Weller, Chair, Bird Strike Committee USA
- Nick Yearwood, International Specialist, Aerodrome & Wildlife Hazard Management, CAA International
- Pierre Molina, Executive Director, Falcon Environmental Services
- Nick Atwell, Wildlife Program Manager, Port of Portland
- 1130 - 1330 **Lunch on Your Own**
- 1330 - 1500 **Workshop 1: Species Management - Gulls & Geese**
Commonwealth A
- Host: Nick Atwell, Wildlife Program Manager, Port of Portland

- Workshop 2: Introductory Topics in Airport Wildlife Management**
Harbor Suite A/B

- Host: John Ostrom, C.M., Annual Conference Chair, Bird Strike Committee USA

- 1500 - 1530 **Refreshment Break with Exhibitors**
Atlantic Ballroom



Moose outside fence at Anchorage Airport





1530 - 1700 **Workshop 3: Advanced Topics in Airport Wildlife Management**
Commonwealth A

Hosts: Andy Baxter, Managing Director, Bird Strike Management, Ltd
Gary Searing, Chair, Bird Strike Association of Canada

Workshop 4: Standardized Metrics - What Data Should We Be Recording?
Harbor Suite A/B

Hosts: Nick Yearwood, International Specialist, United Kingdom Civil Aviation Authority
Pierre Molina, Executive Director, Falcon Environmental Services

1700 - 1800 **Annual General Meeting for Bird Strike Association of Canada**
Commonwealth A

1900 - 2100 **Bird Strike Quiz Bowl**
Commonwealth A
Sponsored by: Environmental Resource Solutions



Nikos Fokas 1st Place winner 2014

P23 - Deterrent Effectiveness of PAR46 Landing Light with UVLED on Bird Behavior
Donald Ronning, President, Lite Enterprises, Inc.

Technical Session VIII: Management Tools
Harbor Suite A/B

THURSDAY // AUGUST 15

0730 - 0830 **Continental Breakfast with Exhibitors**
Atlantic Ballroom

0830 - 1000 **Technical Session VII**
Commonwealth A

Moderator: Clark Norton, Senior Consultant, Tetra Tech, Inc.

P21 - Wildlife Strikes: Investigate, Litigate or Prevaricate, Part II
Phil Shaw, President, Avisure

P22 - The Use of Avian Radar at Vancouver International Airport (YVR) to Quantitatively Assess and Manage Bird Strike
Sara Handrigan, Avian Analyst, Accipiter Radar Technologies

Moderator: Rob Shevalier, Executive Vice President, Falcon Environmental Services

P24 - The Use of Air Cannons at Charles Kirkconnell International Airport
Miguel Martin, IAP, Airport Manager, Cayman Island Airports Authority

P25 - Air Rifles and Their Uses
Dan Frankian, CEO, Hawkeye

P26 - Lasers, Drones and Speakers: The Testing of Bird Control Tools
Marie-Line Fiola, Project Manager, Falcon Environmental Services

1000 - 1030 **Refreshment Break with Exhibitors**
Atlantic Ballroom

AGENDA



1030 – 1200

Technical Session IX: Avian Biology
Commonwealth A

Moderator: Laura Francoeur, ACE, Chief Wildlife Biologist,
John F. Kennedy International Airport

P27 – Population Increases of Large Bird Species in North America Pose Challenges for Aviation Safety
Richard Dolbeer, Science Adviser, Airport Wildlife Hazards Program, USDA Wildlife Services

P28 – Bird Hazard Mitigation Training for Part 141 General Aviation Pilots: An Experimental Study
Flavio Mendoca, Assistant Professor & Researcher, Purdue University

P29 – Invertebrate Foraging by Water Birds, and the Use of Acelepryn to Reduce Their Invertebrate Prey at Vancouver International Airport
Sean McCann, Postdoctoral Researcher, Simon Fraser University

Technical Session X: Avian Biology
Harbor Suite A/B

Moderator: Devon Harris, Wildlife Manager, Transport Canada

P30 – International Partnering to Prevent Bird Strikes: Diego Garcia
David "Buck" Jolley, Supervisory Wildlife Biologist, USDA Wildlife Services

P31 – Controlling Deer Populations: Managed Archery Hunt
Nicole Lordemann, Assistant Manager of Operations, Kansas City International Airport

P32 – Snowy Owl's in Airport Environments: Understanding Habitat Use and Strike Risk
Rebecca McCabe, PhD Candidate, Intern at Falcon Environmental Services, McGill University

1200 – 1300

Lunch with Exhibitors
Atlantic Ballroom

1300 – 1430

Technical Session XI

Moderator: John Weller, Chair, Bird Strike Committee USA

P33 – Analyzing Bird Strikes in Fast-Time
Isabel Metz, PhD Candidate, Delft University of Technology

P34 – The Challenges of Wildlife Mitigation at an FAA Certified Airport in a National Wildlife Refuge
Amy Anderson, National Wildlife Biologist, Federal Aviation Administration

P35 – Making \$ense: Promoting Wildlife Hazard Management and Economic Development Near Airports
Lisa Harmon, Aviation/Environmental Planner, Mead & Hunt

P36 – Measuring Bird Strikes
Rick de Ronde, Business Development Manager – Military Aviation, Robin Radar Systems

1430

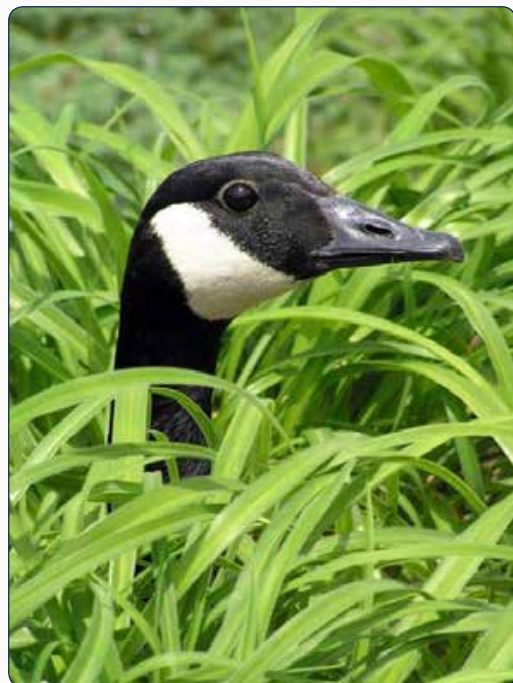
Closing Remarks

Gary Searing, Chair, Bird Strike Association of Canada

John Weller, Chair, Bird Strike Committee USA

1445 – 1530

BSAC/BSC USA Committee Discussion
All Delegates Welcome



Canadian Goose head in grass. Photo Credit: John Weller



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