



Bird Strike Buzz

Spring/Summer 2016

Volume 3, No. 1

In this issue:

One Door Closes and Another Opens	1
Wildlife Strikes in the News	2
In Memoriam: Edward C. Cleary	3
Bird Brain	4
Latest from the Lab... What's in a Name	5
FAA Tech Center	6
Artificial Turf and Gopher Tortoises at Orlando Sanford International Airport	7
2016 Poster and Photo Contest	7
Bird Strike Committee – USA to Stage Special Symposium at North American Ornithological Conference	8
Unmanned Aircraft Systems, Aviation and Wildlife Management	9
Some Historical Background on Mandatory Wildlife Strike Reporting	11
Bird Phrases	13

Bird Strike Committee Website

Checkout our website for regulatory information, guidance, and conference proceedings at:

<http://www.birdstrike.org/>



www.facebook.com/BirdstrikeUSA

One Door Closes and Another Opens

Greetings colleagues! Welcome to the warm weather — are you ready? This is my last message as the Chair of the Executive Committee for Bird Strike Committee USA, and it has truly been an honor to serve this organization.

So, how are things with BSC USA? I am happy to report that “the times, they are a’ changing,” and the change is positive.

The Executive Committee of Bird Strike Committee USA is about to undergo the transition that I have mentioned in past newsletters. I would like to welcome our new chair, Sarah Brammell of Environmental Resource Solutions, Inc., who will take the reins this August. Sarah continues to be a great partner on the Executive Committee, and her dedication to the committee is unparalleled. I am confident that good things are in store for the committee under her leadership. Please welcome her and give her your support.

Over the past few years we have made choices to restructure the Executive Committee at your suggestion. Our committee has grown to include new individual members and industry groups. We have sought out new voices to better align the activities of BSC USA with the needs of its membership. More work remains — so here is the challenge: get involved!

BSC USA remains an organization that depends on the contributions of members. We volunteer our time, and it is often a labor of love. While this may sound a little cheesy, I contend that the members of this committee participate because they are deeply interested in wildlife hazard management. Take a moment to look within your organization and ask your colleagues to consider getting involved. Do you enjoy the changes you see, such as the great work our Communications Committee has accomplished to produce this newsletter and the website? What about the Conference Committee and the great interest we have had in new topics, panels, training sessions and speakers that have been a part of and participated in recent conferences? The BSC Committee needs your help to continue these events and provide our members with the resources they need. Please consider stepping forward to serve on the Steering Committee. If you are in Chicago this August we look forward to your input and the opportunity to set the hook and reel you in!

About Chicago...WOW! The preliminary attendance numbers are impressive, and we are assembling an informative and enjoyable agenda. BSC last met in Chicago in August 1994, and a lot has changed in 22 years. We look forward to seeing you, and if you are not a member yet, we hope you will be soon.

Once again, thank you! It has been a pleasure to serve as the Chair of the Executive Committee and to play a small part of the story we know as Bird Strike Committee USA.

See you in Chicago!

Michael J. Begier
Chair, Bird Strike Committee USA



Bird Strike Committee USA Executive Committee

The BSC-USA Executive Committee welcomes your input and insights regarding the organization, its operations and matters of interest to our members. Please feel free to contact the members below with ideas or suggestions.

Mike Begier, Chair

USDA, APHIS, Wildlife Services

Mike.Begier@aphis.usda.gov

Sarah Brammell, Chair-Elect

Environmental Resource Solutions

sbrammell@ersenvironmental.com

John Weller, Vice-Chair

Federal Aviation Administration

john.weller@faa.gov

John Ostrom, Immediate Past Chair

Minneapolis/St. Paul Intl. Airport

john.ostrom@mspmac.org

Standing Committee

John Ostrom, Annual Conference

USDA, APHIS, Wildlife Services

Brian.E.Washburn@aphis.usda.gov

Cathy Boyles, Communications

Dallas-Fort Worth International Airport

cboyles@dfwairport.com

Amy Reed, Membership

Environmental Resource Solutions

areed@ersenvironmental.com

Steve Osmek, Operation Policies

Seattle-Tacoma International Airport

osmek.s@portseattle.org

Roger Nicholson, Research & Development

The Boeing Company

Roger.Nicholson@boeing.com

Mike Stephens, Education and Outreach

Standing Committee Chair

Dane County Regional Airport

stephens.michael@msnairport.com

Newsletter team:

Lisa Harmon, Mead & Hunt, Inc.

Mary Griego, Mead & Hunt, Inc.

Cathy Boyles,
Dallas-Fort Worth International Airport

WILDLIFE STRIKES IN THE NEWS

Cathy Boyles, Wildlife Administrator, Dallas-Fort Worth International Airport

Heathrow Strike...what was it?

On April 17, 2016, it was reported that a drone was possibly struck at London Heathrow Airport. Speculation since that day indicates that what actually may have been struck was a bird or even a plastic bag. According to one expert, four recently reported drone strikes have turned out to be caused by birds. Now it has been reported that a toy kite was the culprit. BSC will keep you posted via Facebook as the real story unfolds.

Fatal Crash near Anchorage Alaska

On April 20, 2016, a Cessna 172 crashed in an area of dense spruce and fir trees near Anchorage, Alaska, killing four on board. Investigators at the crash site found a substance on various areas of the plane and sent samples to the Smithsonian Feather and DNA Lab. The lab identified the samples as coming from an immature bald eagle. At this time it is not known whether the eagle caused the crash or if the aircraft encountered the eagle after it crashed into a tree. We will be tracking this tragedy and post updates on our BSC Facebook page as more is known. The story is available at:

<http://www.foxnews.com/us/2016/05/05/eagle-hit-small-plane-in-alaska-before-it-burst-into-flames-killing-4.html>

Rock Pigeon Strike in Seattle

On April 27, 2016, an American Airlines flight departing Seattle for Dallas/Fort Worth struck a bird on take-off. The flight returned to the Seattle Airport without incident, but a 2-foot wide dent was sustained on the aircraft nose. Officials at SEA-TAC confirmed that the strike was caused by one or more rock pigeons. The story is available at: <http://abcnews.go.com/US/american-airlines-aircraft-returns-seattle-airport-damaging-bird/story?id=38721606>



Aircraft damage caused by one or more rock pigeons.



IN MEMORIAM: EDWARD C. CLEARY

Staff Wildlife Biologist, Federal Aviation Administration, 1995 - 2007

By Richard Dolbeer, Past Chair (1997-2008), Bird Strike Committee-USA

Friends and colleagues were saddened by the news that Ed Cleary passed away in Houston, Texas, in May 2016 after a courageous three-year battle with cancer. True to his nature, he was positive and in good spirits to the end.

Ed was simply one of those “larger than life” people that you rarely meet in a lifetime. With his lanky frame, cowboy boots, Stetson hat and ambling gait, he always made an indelible impression—for good or for bad! And I don’t mean bad in a negative way. Ed was a man of action; he made decisions and said what needed to be said—even when others didn’t want to hear it.

Ed grew up in southern California and graduated from Humboldt State University. He worked for the Agricultural Research Service of the U.S. Department of Agriculture (USDA) in Montana before transferring to the USDA Wildlife Services program where he held various positions to resolve human-wildlife conflicts in Indiana, North Dakota and Ohio. While in Ohio in 1987 I met Ed and developed a strong professional relationship and friendship.

In 1995, Ed was hired by the FAA to replace Gene LeBoeuf as the Staff Wildlife Biologist after Gene left to become Chief of the U.S. Air Force BASH Team. I had major concerns about

how Ed was going to fare in the D.C. atmosphere of suits and regulatory responsibilities. I needn’t have worried. Ed, much to my delight, thrived in his new environment.

Ed arrived in D.C. at a critical and opportune time, as wildlife populations and air traffic were both increasing at the nation’s airports, and leadership was needed to sustain and build upon the wildlife programs initiated by Gene LeBoeuf. Ed was incredibly organized and, as the sole wildlife biologist for the FAA, accomplished a remarkable suite of tasks during his 12-year tenure. Among them was the publication of a manual “Wildlife



Edward C. Cleary in China

Photo courtesy of Richard Dolbeer

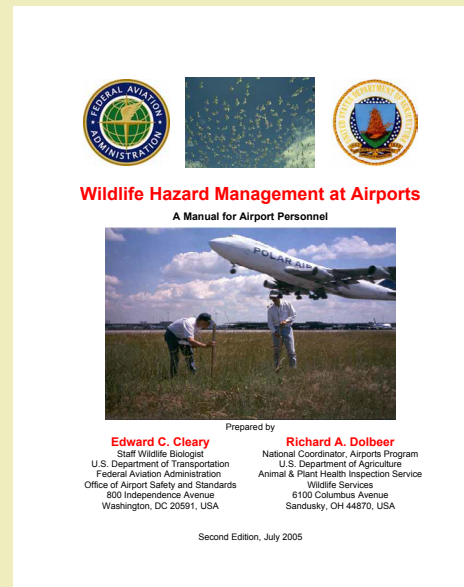


IN MEMORIAM: EDWARD C. CLEARY (CONTINUED)

Hazard Management at Airports” (now in its second edition), which is used worldwide and has been translated into French, Spanish and Chinese. He guided the development of the National Wildlife Strike Database (started by LeBoeuf) into a powerful management tool for airports and for FAA regulatory and guidance decisions. He updated and authored numerous Advisory Circulars and Cert Alerts. Ed developed a strong working relationship with FAA Airport Certification Inspectors, providing training and guidance related to wildlife issues. He traveled abroad numerous times to assist civil aviation authorities with wildlife issues under the auspices of the FAA International Affairs Program and the International Civil Aviation Organization. Ed had a true passion for his work, and it rubbed off on those around him.

Ed was devoted to his wife, Susie, to whom he was married for 53 years, to his three children, and to the Catholic Church where he served as a Deacon for 20 years. Upon retirement in 2007, Susie and Ed moved to Indiana to be close to their daughter. True to his word, he fulfilled a long-time dream by buying five acres of land, building a house and barn, and establishing a working vineyard for wine production. I was privileged to be among the first to taste the fruits of his labor!

Ed was a good man and a true professional. He was a close friend and colleague. In my heart, I know he is at peace in heaven, sitting under a shade tree soothed by a cool breeze next to a sunny vineyard. I miss him dearly.



Richard Dolbeer and Edward C. Cleary
Photo courtesy of Cathy Boyles

BIRD BRAIN

By Cathy Boyles, Wildlife Administrators, Dallas-Fort Worth International Airport

Have you ever thought about all the phrases, terms, or names we use that relate to birds?

As a Communications Committee member of the Bird Strike Committee, I do! I don't think there is any other type of animal or object that we refer to as much in our everyday language. So just for the fun of it, I started writing them down. Challenge yourself to come up with as many references to birds, bird parts, or behavior as you can in, say, 15 or 20 minutes. Or take one or two days. Then check your list against mine.*

I'm sure I've missed some, so post them on our Facebook Page (www.facebook.com/BirdstrikeUSA)! I'll try to keep track and list them in the next newsletter.

*Available on page 13



LATEST FROM THE LAB...WHAT'S IN A NAME?

By Marcy Heacker, Smithsonian Feather Lab

Why do we need to identify bird strike material to taxonomic species? Can't we just say 'bird'? Both are common questions we get here at the Smithsonian Feather Identification Lab.

With approximately 9,000 identification cases a year, the Feather ID Lab has seen it all when it comes to the bird names noted on strike reports. Sometimes a name includes a simple typo (e.g., meadowlard, killdear), and sometimes it is a case of creativity (e.g., pterodactyl, Thelma and Louise). But the more casual bird identifications noted on strike reports submitted from the field are usually common words that, while they may be somewhat descriptive, can have different meanings.

Probably the most common casual bird name we see at the Lab is “buzzard.” For us bird nerds, this means the Common Buzzard (*Buteo buteo*), which is a raptor found in Europe and part of Asia, not a North American vulture. While describing a bird struck by a plane as a “vulture” is still good basic information, distinguishing between the turkey vulture (*Cathartes aura*) and the black vulture (*Coragyps atratus*) is important for understanding local bird activity and interpreting the differences in ecology associated with these birds.

Another example of a casual bird name that can mean different things is “blackbird.” For example, is the description meant as a literal description—a bird that is black? Could the bird be a rusty blackbird (*Euphagus carolinus*), which is a bird found in the eastern U.S. that has drastically declining populations, or is the ‘blackbird’ a brown-headed cowbird (*Molothrus ater*), which is a common bird species that many consider a nuisance.

We recently received a damaging case reported from the northeastern U.S. in which the bird species noted was “gull.” Gulls can be tricky to identify on a good day. We were fortunate that the wildlife personnel at the airport did a great job of documenting and collecting all the material they could for this case. Our final ID was a black-tailed gull (*Larus crassirostris*), which is native to Asia and looks similar to a ring-billed gull (*Larus delawarensis*). It was confirmed that the aircraft had taken off in an Asian country, and that the strike more than likely occurred on take-off.

Keep submitting those reports!

These examples are not meant to discourage you from making notes on a bird strike report to help identify the bird species or bird activity observed. The Lab staff needs all the information we can get, and we always consider the notes made by field personnel carefully. Stating that a bird was probably a ‘buzzard’ is fine. This is just a reminder of the value and variety of information that a specific bird name can provide. In addition, using standardized taxonomic names helps to keep the database consistent and accurate. While we enjoy the occasional bird ID of “Fred” or “honker goose”, the Smithsonian Feather ID Lab will continue to do its best to provide the most specific bird identifications possible.



Smithsonian
Institution



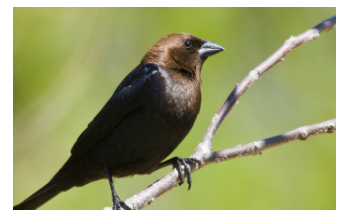
Turkey vulture with carrion
Photo courtesy of Marcy Haecker



Black vulture
Photo courtesy of USFWS



Rusty blackbird
Photo courtesy of USFWS



Brown-headed cowbird.
Photo courtesy of USFWS



FAA TECH CENTER

Cathy Boyles, Wildlife Administrator, Dallas-Fort Worth International Airport

The folks at the FAA Airport Technology Research and Development Branch have been hard at work! Two publications related to wildlife have been recently posted to the FAA website.



WILDLIFE SURVEILLANCE CONCEPT—AVIAN RADAR KNOWLEDGE ELICITATION ACTIVITY

Authors: Mark Hale and Anton Koros

The FAA Concept Development and Validation Branch held a Knowledge Elicitation Activity (KEA) for the Wildlife Surveillance Concept (WiSC) in February 2014. This activity was funded by the FAA Airport Technology Research and Development Branch and was meant to elicit information from stakeholders. The researchers convened a panel of certified professional controllers, front line managers and commercial airline pilots to learn how they currently handle bird threat information and their perspectives on the potential introduction of supplemental bird threat information into the air traffic control (ATC) environment via airport avian radar systems. This KEA served as the first in a series of research activities aimed at maturing the WiSC and gathering information to prepare the Concept of Operations document. The purpose of this report is to provide an in-depth summary of the KEA and its findings.

Participants reviewed and validated five common operational situations depicting how bird threat information is managed and disseminated today and the changes that might be anticipated with the introduction of more precise and timely bird threat information. In addition, participants provided feedback on notional graphical and textual display options for providing this supplemental information on ATC displays.

All participants confirmed the value of integrating more timely and precise supplemental bird threat information into the ATC environment. In addition, they identified areas requiring further investigation. For example, they suggested research is needed to quantify the potential benefit of supplemental bird threat information on aviation safety, to ensure that controller and pilot workload levels and performance are not adversely impacted by the new information, and to ensure that the new information is optimally integrated into the ATC operational environment.

Source: <http://www.airporttech.tc.faa.gov/Download/Airport-Safety-Papers-Publications-Detail/dt/Detail/ItemID/566/WILDLIFE-SURVEILLANCE-CONCEPT%E2%80%94AVIAN-RADAR-KNOWLEDGE-ELICITATION-ACTIVITY-1>



ARTIFICIAL TURF AND GOPHER TORTOISES AT ORLANDO SANFORD INTERNATIONAL AIRPORT

Authors: Ryan King, Lauren (Vitagliano) Collins, and John R. Weller

Under Title 14 Code of Federal Regulations Part 139 (14 CFR 139) Section 309, airports are required to maintain runway safety areas (RSAs) free of “hazardous ruts, humps, depressions or other surface variations.” The safety areas must also be capable of supporting the “occasional passage of aircraft without causing major damage to the aircraft.” A number of airports in the FAA Southern Region have difficulty meeting the regulations under 14 CFR 139 due to holes in RSAs caused by burrowing gopher tortoises. Gopher tortoises are listed as a threatened species in Florida, and mitigation efforts (i.e., tortoise removal or relocation and burrow eliminations) are heavily regulated, expensive and time-consuming. However, gopher tortoises burrowing in such close proximity to runways are a safety hazard to aircraft that may leave the runway pavement surface.



*A gopher tortoise is measured at Orlando Sanford International Airport
Photo courtesy of FAA*

Artificial turf that meets the specifications in FAA Advisory Circular 150/5370-15B has been identified as a material that can be used to cover large portions of airport property with multiple benefits, such as providing consistent ground cover, as well as reducing maintenance costs and attractive vegetative food sources for hazardous wildlife species. It was determined that research was necessary to assess artificial turf as a potential solution for mitigating the burrowing behavior of gopher tortoises on the airport property.

The FAA Airport Technology Research and Development Branch entered into an agreement with Orlando Sanford International Airport in August 2013 to conduct a study on the applicability of artificial turf in the RSA to mitigate potential hazardous conditions resulting from the presence of burrowing gopher tortoises. The study also investigated the ability of the artificial turf system to withstand exposure to harsh environmental conditions and the occasional, inadvertent passage of vehicles and aircraft, which was tested by using a specialized vehicle retrofitted with an aircraft nose wheel. An area adjacent to the blast pad at the approach end of Runway 18 was selected as the test site, and construction on the test area commenced in February 2014. Data was collected between May 1, 2014 and April 30, 2015. The results from over a year of data collections and directed studies demonstrated that artificial turf is compatible with safe airport operations, is durable to passive environmental factors, is not attractive to other hazardous species, resists burrowing by gopher tortoises, and does not exhibit detrimental reduced braking during aircraft or vehicle excursions. It was also determined that the artificial turf performed well during the occasional passage by operational vehicles, including fully loaded aircraft rescue and firefighting vehicles.

Source: <http://www.airporttech.tc.faa.gov/Download/Airport-Safety-Papers-Publications-Detail/dt/Detail/ItemID/564/ARTIFICIAL-TURF-AND-GOPHER-TORTOISES-AT-ORLANDO-SANFORD-INTERNATIONAL-AIRPORT>

2016 Poster and Photo Contest

The Bird Strike Committee USA is pleased to announce the opening of the poster and photo contests to promote education and awareness of this year's conference theme, “One Community – No Boundaries”. Entries must be received by 11:59 pm U.S. Central Standard Time, July 15, 2016.

Click [here](#) for contest guidance and entry forms.





BIRD STRIKE COMMITTEE-USA TO STAGE SPECIAL SYMPOSIUM AT NORTH AMERICAN ORNITHOLOGICAL CONFERENCE

By Richard A. Dolbeer, PhD.

Science Adviser, Airports Wildlife Hazards Program, USDA, Animal and Plant Health Inspection Service

Washington D.C. is always an interesting place, but it is going to get really “loony” this summer, when more than 2,000 ornithological professionals, amateurs and students from around the world flock to our nation’s capital to attend the North American Ornithological Conference (NAOC) from August 16 to 20. The theme of the international meeting, which is the largest gathering of ornithologists ever held in North America, is “Bringing Science and Conservation Together.”

Bird Strike Committee-USA sees this conference as an outstanding opportunity to educate the ornithological community at large about the nature of bird strikes. More importantly, BSC-USA wants to solicit input from academic ornithologists regarding possible solutions to mitigate the risk of strikes based on avian physiology, sensory perception, behavior and conservation biology. To this end, BSC-USA has organized an afternoon symposium on August 18 entitled “Separating Birds and Aircraft: Uniting Science and Conservation for Safer Skies.”

The BSC-USA symposium will consist of the following 15-minute presentations followed by a 30-minute period of discussion.

- “History of bird-aircraft collisions and the role of Bird Strike Committee-USA within the International Civil Aviation Organization” - Michael J. Begier, Immediate Past Chair BSC-USA
- “The National Wildlife Strike Database: a scientific foundation for basic and applied ornithology related to birds and aviation safety” - Richard A. Dolbeer, USDA
- “The science and art of identifying bird remains to species: an essential component of bird-aircraft hazard mitigation efforts” - Carla Dove, Smithsonian Institution
- “Aircraft turbofan engine standards for bird strikes: progress and challenges” - Christopher G. Demers, Pratt and Whitney, United Technologies

- “Techniques used in bird hazard management programs at airports: passive, active, administrative” - Sarah Brammell, Environmental Resource Solutions
- “Advances and challenges in the use of avian radar to reduce bird strikes” - Ryan King, FAA
- “Role of sensory ecology and behavioral theory in enhancing avian detection and response to aircraft approach” - Bradley F. Blackwell, USDA, National Wildlife Research Center
- “Conflicting regulations: balancing aviation safety and threatened/endangered species using airport habitats” - John R. Weller, FAA
- “Case Study: Streaked Horned Lark at Portland International Airport” – Nick Atwell, Port of Portland
- “Inter-agency collaboration for a wildlife hazard management plan and greater sage-grouse conservation efforts at Jackson Hole Airport” – Lisa Harmon, Mead and Hunt, Inc.

*The presentations will be followed by a wrap-up, discussion and questions led by presenters.

In addition to the symposium, Bird Strike Committee-USA is a Bronze Sponsor for the conference and will have a display booth staffed by committee members in the exhibit hall. Conference attendees can visit to obtain more detailed information and develop contacts.

See more at: <http://naoc2016.cvent.com/events/naoc-2016/event-summary-9cca73ad2f044f8790ca08d7f1d28536.aspx>





UNMANNED AIRCRAFT SYSTEMS, AVIATION, AND WILDLIFE MANAGEMENT

John Weller, National Wildlife Biologist, Federal Aviation Administration

Unmanned aircraft systems (UAS) are fundamentally different from manned aircraft. The term “unmanned aircraft system” was adopted by the U.S. Federal Aviation Administration (FAA) and the Department of Defense (DoD) in 2005. The International Civil Aviation Organization (ICAO) and several national aviation authorities also adopted this term. For comparison, an unmanned aerial vehicle (UAV), commonly known as a drone and also referred to as an unpowered aerial vehicle and a remotely piloted aircraft by ICAO, is an aircraft that operates without a human pilot aboard. The term drone, which is widely used by the public, was coined in reference to the resemblance of dumb-looking navigation and the loud and regular motor sounds of old unmanned military aircraft to the male bee. The term has met strong opposition from aviation professionals and government regulators.



The National Airspace System (NAS) is the airspace, navigation facilities and airports of the United States along with their associated information, services, rules, regulations, policies, procedures, personnel and equipment. It includes components shared jointly with the military. Introducing UAS into the nation’s airspace is challenging for both the FAA and the aviation community, because the U.S. has the busiest, most complex airspace in the world. The FAA is taking an incremental approach to the safe integration of UAS.



UAS Diversity

UAS come in a variety of shapes and sizes and serve diverse purposes. UAS range in size from the very small, weighing less than a pound, to the very large, with the largest weighing as much as 32,250 pounds at takeoff and capable of traveling around the world while staying aloft for multiple days (RQ-4 Global Hawk). Regardless of size, the responsibility to fly safely applies equally to manned and unmanned aircraft operations. There are three different types of UAS operations: Public Operations (governmental), Civil Operations (non-governmental) and Model Aircraft (hobby or recreation only). Model aircraft are defined by the purpose of flight rather than the particular configuration of the aircraft; model aircraft can be operated only for recreational or hobby purposes, and their operations must follow the requirements of Section 336 of Public Law 112-95. A model aircraft is an unmanned aircraft that is capable of sustained flight in the atmosphere and flown within visual line of sight of the person operating the aircraft. Model aircraft include a wide range of aircraft including, but not limited to, traditional radio-controlled fixed wing aircraft and radio-controlled helicopters. Model aircraft can include small UAS aircraft, such as “quadcopters.”

Federal Statutes

Public Aircraft Operations are limited by federal statute to certain government operations within U.S. airspace. Title 49 U.S.C. §40102(a)(41) provides the definition of “Public Aircraft,” and §40125 provides the qualifications for public aircraft status. Whether an operation qualifies as a public aircraft operation is determined on a flight-by-flight basis under the terms of the statute. The considerations when making this determination are aircraft ownership, the operator, the purpose of the flight, and the persons on board the aircraft. Any operation that does not meet the statutory criteria for a public aircraft operation is considered a civil aircraft operation and must be conducted in accordance with all FAA regulations applicable to the operation.

Authorizations

UAS operators who initially wished to fly at U.S. civil airports needed to apply to FAA for a Section 333 exemption pursuant to the FAA Modernization and Reform Act of 2012 (FMRA) and/or a Petition for Exemption with a civil Certificate of Waiver or Authorization (COA) for civil aircraft to perform commercial operations in low-risk, controlled



UNMANNED AIRCRAFT SYSTEMS, AVIATION, AND WILDLIFE MANAGEMENT (CONTINUED)

environments. A COA is an authorization issued by the FAA to grant NAS access for a specific UAS activity. COAs contain specific requirements that the operator/COA holder must follow. The FAA issues COAs for both public UAS operations and civil UAS operations. The type of COA for a governmental or nongovernmental entity will depend on the type of operation to be conducted on or near the airport. Also, COAs are site-specific and dependent on the class of airspace at the particular site. Each classification of airspace will have various restrictions for safety.

In June 2016, FAA published Title 14 CFR Part 107, Small Unmanned Aircraft Systems. The new Part 107 Small UAS rule, which takes effect in late August, offers safety regulations for UASs weighing less than 55 lbs. (25kg) that are conducting non-hobbyist operations. Part 107 states that anyone who owns a small unmanned aircraft that weighs more than 0.55 lb. (250g) and less than 55 lbs. must register with the FAA's UAS registry before flying outdoors or face civil and criminal penalties.



A significant change following publication of Part 107 includes the removal of the Section 333 exemption by commercial operators. Under the final rule, the person actually flying a drone must be at least 16 years old and have a remote pilot certificate with a small UAS rating or be directly supervised by someone with such a certificate. To qualify for a remote pilot certificate, an individual must either pass an initial aeronautical knowledge test at an FAA-approved knowledge testing center or have an existing non-student Part 61 pilot certificate. If qualifying under the latter provision, a pilot must have completed a flight review in the previous 24 months and must take a UAS online training course provided by the FAA.

The UAV must remain within visual line-of-sight (VLOS) unaided by any device other than corrective lenses, adhere to daylight-only operations, or civil twilight (30 minutes before/after official sunrise and sunset, local time) with appropriate anti-collision lighting, fly at a maximum altitude of 400 feet above ground level (AGL) and a minimum weather visibility of 3 miles. Also, operations are allowed in Class B, C, D and E airspace with the required ATC permission and in Class G airspace without ATC permission. Additionally, Part 107 will not apply to model aircraft.

Wildlife Management and UAVs

Biologists and airport operators who want to use UAVs to collect wildlife data or to mitigate wildlife hazards on or near an airport need to follow the guidance in Part 107. UAS technology has been used successfully by wildlife managers for many years, and its use on airports is expected to increase. UAVs have enabled proven data collection for avian species in locations with difficult access or in flocks of a size too large to accurately estimate using limited ground means. UAS technology can also provide routine data collection for avian or mammal surveys on or near airports through the use of night vision or infrared technologies, and it can provide monitoring detection capabilities for hazardous species and routine perimeter fence patrols. The nighttime-operations prohibition in this rule will also be waivable; which will allow improved wildlife detection/monitoring strategies through the use of night vision or infrared technologies.

Increasing Use

The growth of UAS technology is apparent — there are now more registered drone operators in the U.S. than registered manned aircraft. Properly used, the threat of UAVs becoming a strike hazard with civilian or DoD aircraft should remain considerably low. For more information on UAS look to: <http://www.faa.gov/uas/>. FAA's small UAS rule is available at: https://www.faa.gov/uas/getting_started/fly_for_work_business/.



SOME HISTORICAL BACKGROUND ON MANDATORY WILDLIFE STRIKE REPORTING



Russell P. DeFusco, PhD, USAF (Ret.), BASH Incorporated

As the FAA struggles with whether and/or how to mandate bird/wildlife strike reporting for civil aviation, questions have been raised, such as how the Department of Defense (DoD) achieves this goal. While I cannot address all the history or even some of the recent developments, I can offer a historical perspective. During my time on the U.S. Air Force Bird/wildlife Aircraft Strike Hazard (BASH) Team, I was involved with issuing the mandate that covered the mandatory reporting of all bird and wildlife strikes, regardless of damage and location.

In 1981 the USAF sent me for a sponsored Master's Degree focusing on the bird strike issue. Research was co-sponsored at the time by the FAA and the US Fish and Wildlife Service. I found out very quickly that records were sorely lacking on both the civil and military side and that much of the information, even on significant damaging strikes or catastrophic accidents, was only anecdotally available — if at all. Not long after completing my degree, I attended Air Force pilot training. On my second solo flight in a jet trainer, I experienced an engine ingestion of a bird that resulted in an in-flight fire and emergency landing. I suffered a back injury during the ground egress of the aircraft. I was medically grounded and found a position on the USAF BASH Team at Tyndall Air Force Base in Florida.



Early Programs

Numerous programs were in their infancy when I joined the BASH Team. I was assigned the head of many, such as the initial investigations into the use of NEXRAD weather radars to provide bird distribution and abundance data for avoidance of hazards, the beginning of an automated Bird Avoidance Model, the annual summary of strike incidents, the development of new strike-resistant aircraft components, and the development of new policy and guidance. All of these programs required good bird/wildlife strike data in order to succeed.

Air Force Regulation 127-15 was the policy document in force at that time, and it encouraged strike reporting that focused primarily on damaging strikes. Damaging strikes included those that exceeded specified dollar amounts or involved a catastrophic loss of aircraft, fatalities or injuries to the aircrew. Out of curiosity, I researched the AF database to see if the incident I experienced during pilot training was in the records. Despite the aircraft damage and my injury, that incident was never reported. I contacted the base and found that they did not believe they were required to report any such incidents, and that the records associated with my incident were no longer available. I learned of uncountable other such cases across the Air Force and became determined to correct the situation.

The Initiation of Mandatory Strike Reporting

I drafted the initial language to include mandatory reporting of all strikes in the Air Force regulations. While the USAF BASH Team was technically the Office of Primary Responsibility for the BASH Program, all safety regulations, including AFR 127-15, were the responsibility of the Air Force Safety Center, which at the time was located at Norton AFB, CA.

Major Mike Thompson was Chief of the BASH Team at that time, and he fully supported the effort to mandate the reporting of strikes. Mike and I took the new language to the Safety Center and requested the regulations to be updated. USAF lawyers advised us that we could not enforce the proposed mandate and sug-



SOME HISTORICAL BACKGROUND ON MANDATORY WILDLIFE STRIKE REPORTING (CONTINUED)

gested that we not advance the issue. We decided not to accept their advice and pressed on. The Safety Center was required to send out the proposed change to the Major Commands for comments. Some were negative, some positive, and some required convincing, but we took their comments under advisement and continued pursuing the issue. Ultimately, we just did it. Strike reporting became mandated for USAF in 1985.

Education – the First Challenge

Mandating the reporting of strikes turned out to be the easy part, as numerous ancillary issues had to be resolved once strike reporting was mandated. A primary challenge was to provide training and education of all Air Force Safety and Base Operations offices on the need to report strikes, the benefits of reporting, the means to report, and how to collect evidence and data. To meet this challenge, we produced numerous articles in safety publications including the Air Force Safety Magazine and for the MAJCOMs that had their own publications. We produced an updated BASH Guidance Package that eventually evolved into AF Pamphlet 91-212. I wrote the USAF Model BASH Plan that covered all aspects of BASH, including reporting requirements, and we distributed it to every active Air Force Base. We developed a BASH module in the academic program for every Air Force student in pilot training. We produced a 35mm slide presentation with accompanying audio tapes and videos/films, and distributed them to every Air Force unit with a flying mission. We held photo contests where individuals or units could submit images of strikes that we could use in presentations and publications. We published additional regulatory requirements to notify and invite the BASH Team to participate in any mishap investigation where birds or other wildlife were confirmed or suspected to be involved. Finally, we held several worldwide BASH conferences in the U.S. and Europe and invited all Air Force units, the sister DoD services, the FAA, and others to attend and present workshops. Reporting of strikes was always on the agenda.

The Data Collection Challenge

At the time the mandate was issued, there really was no efficient way to collect, collate and manage the data. Reports came directly to the BASH Team through message traffic that had to be printed and manually entered into a rudimentary database. We had an administrative assistant whose primary responsibility became data entry and management. Database management systems were neither well developed nor readily available in the mid-1980s, so the task was tedious. Data recovery and analysis were equally as difficult. The BASH Team provided annual summaries of strike incidents and initially published them in Air Force Safety Magazine. Initially, the AF lawyers and the Safety Center allowed us to publish virtually all data, with the exception of any reference to the specific time and date of individual incidents. Their fear was that the former Soviet Union could determine our training schedule if such information became public! Fortunately, that requirement fell even before the Berlin wall did.

Another challenge we faced was associated with the identification of post-strike remains. Units were instructed to send feather remains directly to the BASH Team through the mail, and we attempted to identify them locally. For difficult or microscopic remains, we had a relationship with the Smithsonian Institution through Roxie Laybourne, who was commissioned on a per-case basis to identify feather remains forwarded from select mishaps. Initially, she was poorly equipped to handle the new volume of identifications and those predicted to increase over time. Roxie was on her own. She purchased many of her own supplies and was only given a small “janitor’s closet” in which to work.

In 1986, the BASH Team (only me at the time) was re-assigned to Washington D.C. One of my first initiatives as the BASH Team Chief was to negotiate a deal with the Smithsonian to better equip their lab. USAF funded the procurement of new light and electron microscopes and other needed equipment and supplies, and we provided an open-



SOME HISTORICAL BACKGROUND ON MANDATORY WILDLIFE STRIKE REPORTING (CONTINUED)

ended contract for identifications. In exchange, the Smithsonian would provide adequate office and lab space for Roxie. We also pressured them to hire assistants for Roxie, as she was becoming overwhelmed with the number of identifications coming in. We even co-sponsored an advanced degree for Dr. Carla Dove, who would eventually take over the operation. All this was a major part of the strike reporting process that has vastly improved over time.

I have remained involved in research both during active duty and since my retirement from the Air Force. Many advancements have been made, including those associated with strike reporting. New and updated Air Force regulations, reporting by the Navy and other services, new database management systems, direct data entry capability, submission of DNA remains in addition to feathers, and communications improvements have all followed. The FAA might look back at this history and use it as it moves forward on the issue of mandatory strike reporting. Hopefully, these experiences can aid in the process already learned by the Department of Defense and its BASH programs. The wheel was invented a long time ago, and does not need reinventing.



BIRD PHRASES

- A bird in the hand is worth two in the bush
- A Cuckoo
- A little bird told me...
- Birds of a feather flock together
- Birds-eye view
- Black Swan event
- Bunch of chickens
- Chicken legs
- Chicken one day, feathers the next
- Cute chick
- Dead duck
- Don't be chicken!
- Don't count your chickens before they hatch
- Eagle eye
- "Early Bird" Registration
- Eat like a bird
- Feather in your cap
- Feather your nest
- "Flock" to an area
- Fly like an eagle
- Fly the coop
- Get out and scratch with the chickens
- Get your ducks in a row
- Give a hoot
- "Goose" someone
- Henhouse
- Henpecked
- Just ducky!
- Just wing it!
- Kill two birds with one stone
- Leave the nest
- Light as a feather
- Like being pecked to death by chickens.
- Like water off a duck's back
- Like a Banty Rooster
- Look like the cat that swallowed the canary
- Naked as a jaybird
- Nest egg
- "Parrot" what someone says
- Peck away at something
- Pecking order
- Play chicken
- Proud as a peacock
- Put all your eggs in one basket
- Ruffle someone's feathers
- Run around like a chicken with its head cut off
- Sing like a canary
- Sitting duck
- Snow bird
- Something (nothing) worth crowing about!
- Spread your wings
- Spring chicken
- Strut like a rooster
- Fell like a stuffed goose
- Take someone under your wing
- The early bird gets the worm
- Tweet
- Ugly duckling
- Waddle like a duck
- Watch you like a hawk
- Wise as an owl



**Put this
on your
calendar!**

The 2016 Bird Strike Committee – USA Meeting will be held August 9-11, 2016 in Chicago, Illinois. The theme is "One Community – No Boundaries", which provides a focus on not only the commonality of wildlife hazard mitigation but the ripple effect of hazards, mitigation techniques and information sharing. For more information, go to our website at: <http://www.birdstrike.org/>