

**BY ORDER OF THE COMMANDER
JOINT BASE CHARLESTON**

**JOINT BASE CHARLESTON
INSTRUCTION 91-2121**

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Safety



***THE BIRD/WILDLIFE AIRCRAFT STRIKE
HAZARD (BASH) REDUCTION PROGRAM***

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements Air Force Pamphlet (AFPAM) 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Techniques*, Air Force Instruction (AFI) 91-204 Air Mobility Command (AMC) Supplement (Sup), *Safety Investigations and Reports*, and AFI 91-202 AMC Sup 1, *The US Air Force Mishap Prevention Program*. It outlines procedures to minimize the Bird Aircraft Strike Hazard (BASH) to aircraft operating at Joint Base Charleston and North Auxiliary Air Field (NAAF). It applies to the following agencies: 628 ABW/SE, 437 AW/SE, 315 AW/SE, 437 AW/OG, 315 AW/OG, 437 AW/MXG, 315 AW/MXG, 628 ABW/MSG, EADS OL-A / LGGSI, 628 CS/SCMV, 628 ABW/CP and all tenant unit flying squadrons. It is not applicable to Air National Guard Units. This AFI may be supplemented at any level, but all supplements that directly implement this publication must be routed to 437 AW/SEF for coordination prior to certification and approval. Waivers to this instruction will be requested through the 437 AW/SEF. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS). Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Form 847s from the field through the appropriate functional chain of command.

SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed.

1. General:

1.1. BASH Phase Conditions. A moderate wildlife-aircraft strike hazard exists at Joint Base Charleston, NAAF, and the surrounding areas due to resident and migratory wildlife. Daily and seasonal bird movements, as well as movement from non-flying wildlife, create a hazard to aircraft operations. All pilots and operations supervisors must be alert to these dangers, which can be sub-divided into categories as follows:

1.1.1. Migratory bird threat: Joint Base Charleston lies along a major migratory route and attracts species for rest and feeding due to suitable habitats. Some species migrate through the airfield at particular times of the year increasing the total amount of birds at Joint Base Charleston and NAAF. Mitigation is accomplished through the use of harassment and depredation, the use of a USDA a Biologist, and by restricting flying operations. During heightened times of bird migration, Phase II BASH procedures may be implemented as listed in AFI 11-2C-17 V3, C-17 Operation Procedures, All AW Flight Crew Bulletin (FCB) and/or 437 AW Flight Crew Information File (FCIF).

1.1.2. Indigenous bird threat: Joint Base Charleston and NAAF are inhabited year-round by several species of birds regardless of the migration of other bird species.

1.1.3. Local wildlife threat: Many species of wildlife (deer, coyote, foxes, etc.) represent a high risk to flying operations at Joint Base Charleston and NAAF.

1.2. BASH Phase Periods.

1.2.1. When the local bird population is comprised mostly of indigenous birds rather than migrating birds, Phase I BASH procedures, as outlined in AFI 11-2C-17 V3, FCBs and/or FCIFs are in effect.

1.2.2. The 437 OG/CC establishes a Phase II period at Joint Base Charleston and NAAF based on the bird migration period, increased bird strike incidents and whether or not Phase II procedures would have prevented the strikes. If bird migration is prolonged, or started earlier than normal, the 437 OG/CC may modify Phase II periods as necessary, with recommendations provided by 437 AW/SE.

1.3. Bird Watch Condition (BWC).

1.3.1. Completely separate from the BASH Phase I or II distinction, the BWC measures an immediate and continuously changing bird threat at Joint Base Charleston and NAAF. It measures the threat only within close proximity to the runways. It does not provide data or bird activity information for low level routes or other airfields (consult the Bird Avoidance Model (BAM) and Avian Hazard Avoidance System (AHAS) databases for this information). The threat is determined by observation of bird type, the quantity of birds, and the proximity of the birds to the runways.

1.3.2. Changing BWC. BWC is formally changed by 437 OSS/OSA. Recommendations for BWC changes can be made by any individual (aircrew, safety, etc.), but the final

approval authority for changing the BWC remains with Airfield Operations. Personnel observing bird concentrations on the airfield, as defined in 1.3.2.1.1 through 1.3.2.1.3., should call 437 OSS/OSA with the appropriate information. This information should include (at a minimum) the type, quantity, and location of the birds. Airfield Operations will pass all pertinent information to the Charleston Air Traffic Control Tower and 628 ABW/CP. Furthermore, they will update the base operations airfield status board in base operations. **EXCEPTION:** If the USDA Biologist sees a threat that represents an immediate or extreme threat, they will call the tower (on either ground or tower frequency) with all appropriate information (change in BWC, location of species, species type, other important information, etc.) and immediately disperse/eradicate the species. Upon completion, the USDA Biologist will brief Airfield Operations on the situation. Airfield Operations will pass all pertinent information to the Command Post and will update the airfield board in base operations.

1.3.2.1. There are three types of BWC.

1.3.2.1.1. Bird watch condition LOW is defined as no significant threat of bird activity in the local pattern. Flying operations are not restricted.

1.3.2.1.2. Bird watch condition MODERATE is defined as concentrations of 10 to 15 large birds (egrets, waterfowl, raptors, gulls, etc.) or 15 to 30 small birds (terns, swallows, etc.) observed in locations that represent an increased potential for strike.

1.3.2.1.3. Bird watch condition SEVERE is defined as heavy concentrations of birds (more than 15 large birds or 30 small birds) on or above the runway, taxiways, infield areas and departure or arrival routes or in areas that represent an imminent hazard to safe flying operations.

1.3.2.1.4. The different BWC levels may restrict flying operations. Check the most current 437 AW FCB/FCIF for the latest guidance.

1.4. Bird/Hazard Working Group (BHWG). A coordinated agency effort aimed primarily at preventive measures that provide the best chance of avoiding a collision between birds/wildlife and aircraft. The BHWG may meet monthly during phase II periods; otherwise it meets once a semiannual period (usually in March and October). The 437 AW/CV chairs the BHWG and members include: 437 OG (CC or CD), 437 MXG (CC or CD), 628 MSG (CC or CD), 437 OSS/CC, 437 OSS/OSA (Airfield Management), USDA Biologists, 628 CES/CEO, 628 CES/CEIE, 437 AW/SE, 628 ABW/SE, Charleston Air Traffic Control Representative, Charleston County Aviation Authority Director of Operations, and 14 AS, 15 AS, 16 AS, 17 AS, 315 AW safety representatives. BHWG meeting minutes will be taken and stored on the 437 AW/SEF EIM site for 2 years at the following link and be available for all JBC personnel: <https://eim.amc.af.mil/org/437se/Flight/BASH%20Program/Forms/AllItems.aspx?RootFolder=%2forg%2f437se%2fflight%2fBASH%20Program%2fBird%20Hazard%20Working%20Group%20and%20FOD%20DOPP&FolderCTID=&View=%7bE770C4C7%2d428E%2d441F%2dB49A%2d81C364A516FA%7d>. BHWG minutes should include (at a minimum): a list of attendees, USDA issues at JBC and North Auxiliary Airfield, and a status update BASH related projects and recommendations.

1.5. Birdstrike Determination. Personnel will use the following guidance to determine the presence of a birdstrike. If a birdstrike is confirmed, use the appropriate checklists to report

the strike, collect remains, and wipe clean the area to avoid duplicate reports. Birdstrikes are defined as:

1.5.1. Any smudge accompanied by fleshy bird remains (i.e., down, feathers, body parts, etc.)

1.5.2. Any smudge that is close (within 2 inches) to new aircraft damage (i.e., a dent, hole in aircraft skin, etc.), with or without fleshy remains.

1.5.3. Any smudge that does not meet the conditions of 1.5.1. or 1.5.2., but is greater than 6 inches in length and reddish in color is a bird strike. Other smudges will not be reported as bird strikes. **NOTE:** These procedures do not relieve 437 MXG of the responsibility to conduct proper aircraft inspections. For instance, if a smudge is found on an engine inlet, deciding the smudge is not a bird strike does not mean an engine inspection should not be accomplished.

1.6. Deer population control. Deer inhabit areas within the boundaries of Joint Base Charleston and NAAF. Deer population control will be attained through the use of the recreational hunting program, deer depredation, and non-lethal methods of control. The OPR for nuisance deer management is 437 AW Safety. The following agencies actively help achieve our deer control as outlined in JB Charleston Instruction 32-7064.

1.6.1. 628 CES/CEIE controls the recreational deer and turkey hunting program. South Carolina deer hunting season runs 15 August through 1 January and Turkey season is 15 March to 1 May, IAW all existing federal and state laws. Hunting is allowed four days per week (Friday through Monday) in hunt areas 4,7,10,11,12,13,16,19A, I-1 and I-2 IAW JBCI 32-7064 paragraph 6.1. Hunting is allowed seven days per week in hunt areas 1, 2, 3, 5, 6, 8, 9, 14, 15A, 15B, 17A, 17B, 17C, 19B, 20, and 21 IAW JBCI 32-7064 paragraph 6.1. Any questions regarding rules and procedures for the recreational deer hunting program will be referred to 628 CES/CEIE.

1.6.2. Deer depredation may be accomplished by the USDA Biologist, 628 CES/CEIE, 437 AW/SE, and 437 OSS/OSA. Depredation activities will occur year round. All depredation activities will be conducted IAW laws and procedures on file with 628 CES/CEIE. Depredation permits from both state and federal regulatory agencies will be obtained and managed by 628 CES/CEIE. Deer depredation permits are for deer harvested outside of regular hunt times/seasons and only apply to deer in airfield areas. Questions regarding these rules and laws will be referred to 628 CES/CEIE.

1.7. Disposal of depredated animals. Animal depredation must be conducted IAW all federal and state laws. Applicable depredation permits are kept for the base at 628 CES/CEIE. Animals depredated are to be disposed of by the person who performed the depredation and IAW federal and state laws on file at the 628 CES/CEIE. Any animal remains discovered on the airfield will be collected and disposed of IAW the USDA contract, i.e. buried or placed in a lidded dumpster. Animal remains may be donated, but only after a hold harmless agreement has been signed by the receiver of the depredated animal which is then placed on file with 437 AW/SE. No field dressing of and subsequent disposal of remains will be allowed at NAAF.

2. Roles and Responsibilities:

2.1. 437 AW/SE will:

2.1.1. Serve as the overall OPR for the Joint Base Charleston and NAAF BASH programs.

2.1.2. Serve as the overall OPR for the BHWG.

2.1.3. Record and report bird/animal strikes IAW AFI91-202 AMC Sup 1 and AFI91-204 AMC Sup.

2.1.4. Recommend implementation/termination of BASH Phase II procedures to 437 OG/CC in response to significant changes in bird migration patterns, strike activity, and recommendation of the USDA Biologist. 437 AW/SE will coordinate with 437 OSS/OSO Current Operations office as early as practicable regarding BASH Phase II timelines. This coordination will help alleviate training and mission restrictions as a result of last minute BASH Phase II introduction.

2.1.5. Establish an educational program in conjunction with tenant unit flying squadron safety offices to acquaint aircrews with the hazards associated with bird migration and placing particular emphasis on BASH Phase II periods. 437 AW/SE will place emphasis, during annual inspections, on observing flight planning room displays.

2.1.6. Conduct semi-annual review of mission planning documents and local guidance concerning BASH program and procedures in prior to implementing BASH Phase II. This review should include but not be limited to FLIP, AFI 11-2MDS, JBC SUPPs, FCIFs and FCBs.

2.1.7. Coordinate with all tenant unit, transient aircrews and maintenance for collection of remains after strikes. Identify bird or animal remains locally if expertise is available. If identification of bird/animal remains is unavailable, 437 AW/SE or the USDA Biologist will send remains to:

<u>Strikes That Require Immediate Identification</u>	<u>Normal Strikes</u>
Smithsonian Institution Division of Birds, NHB, MRC 116 10th and Constitution Ave., NW Washington, DC 20560	Feather Identification Lab Smithsonian Institution NHB, E-600, MRC116 P.O. Box 37012 Washington, DC 20013-7012

2.1.8. Review the USDA Biologist's bird strike metrics and track their impact to the operational mission and disseminate these metrics to all tenant unit flying squadrons and the 437 MXG.

2.1.9. Initiate and/or track the progress of all projects designed to decrease the appeal of Joint Base Charleston and NAAF as a bird/wildlife habitat.

2.1.10. Establish and maintain a continuity folder on pertinent BASH data, metrics and project action plans.

2.1.11. Monitor BASH conditions at Joint Base Charleston and NAAF to ensure effectiveness and identify potential hazards.

2.1.12. Present any significant findings to the BHWG and facilitate any actions required to reduce bird strike potential.

2.1.13. Maintain Joint Base Charleston and NAAF Wildlife Dispersal Team IAW AFPAM 91-212 and identify the names of individuals selected for the dispersal team. These names will be forwarded to 628 CES/CEIE for record keeping purposes.

2.2. 628 CES, IAW AFI 32-7064, will:

2.2.1. Grass Height. Mow airfield to maintain a uniform grass height between 7 and 14 inches. Each installation BHWG will establish airfield mowing zone boundaries. Installations located in arid climates where growing grass is difficult may develop natural vegetation on the airfield to limit attractiveness to wildlife. These situations require comprehensive vegetation and wildlife hazard management and will be reviewed individually by AFSC/SEFW for approval. MAJCOM safety offices may request a waiver to grass height restrictions from AFSC/SEFW.

2.2.2. Perform mowing operations at an appropriate frequency and schedule to ensure airfield grass remains within the 7 – 14” specified tolerance. HQ AMC/A7V has determined that 11 inches is an optimum height to set mowing equipment to maintain the 7-14 inch standard. This takes into account grass lying over from winds, rain, etc.

2.2.3. Eliminate all growth in airfield ditches. Perform weekly checks to monitor grass or foliage height.

2.2.4. Identify and drain standing water in low areas to reduce bird/wildlife habitat. EXCEPTION: Areas that have been designated as wetlands will not be drained.

2.2.5. Maintain homogeneous vegetation areas on the airfield through elimination of stands of brush and shrubs from grassy areas. Perform monthly checks to verify conditions.

2.2.6. Inspect areas of the airfield that are subject to water pooling for adequate insect control on a monthly basis.

2.2.7. Arrange for application of pesticides, seed suppressants and herbicides, as necessary, to eliminate attractants to bird populations.

2.2.8. Obtain federal and state wildlife hunting permits for recreational deer hunters and depredation permits for 437 AW/SE, 437 OSS/OSA, and the USDA Biologist at Joint Base Charleston and NAAF. Names to be included on permits (other than recreational deer hunting) will be forwarded by 437 AW/SE to 628 CES/CEIE.

2.2.9. Submit all required reports for depredation activities to appropriate regulatory agencies using data provided by the USDA Biologist and 437 AW/SE.

2.2.10. Manage the recreational deer hunting program at NAAF.

2.3. **437 OSS/OSA will:**

2.3.1. Notify 628 ABW Command Post and the air traffic control tower of BWC changes.

2.3.2. Notify aircrews of significant bird activity on the airfield. Post the bird condition on the base operations airfield status board.

2.3.3. Annotate wildlife activity on the airfield and bird condition status on AF Form 3616 Daily Record Facility Operations. The AF Form will be available for review by 437 AW/SE and the USDA Biologist for presentation at BHWG.

2.3.4. Train Airfield Management personnel on Bird Dispersal IAW AFPAM 91-212 and maintain appropriate weapons IAW AFMAN 91-201, Explosive Safety Standards. Airfield Management will assist 437 AW SE in BASH Phase I when USDA Biologist is unavailable at Joint Base Charleston. During Phase II operations at Joint Base Charleston or at NAAF USDA Biologist will be on-call during non-duty hours.

2.3.5. Report any wildlife hazard condition to the USDA Biologist or 437 AW/SEF when the USDA Biologist is unavailable.

2.3.6. Coordinate with 628 CES to maintain airfield grass height IAW paragraph 2.2.1..

2.3.7. Issue NOTAM for BASH Phase II period as directed by the Bird Hazard Working Group or the 437 OG and publish additional BASH information in appropriate Flight Information Publications.

2.4. USDA Biologist will:

2.4.1. Report directly to 437 AW/SE.

2.4.2. Act as the primary executor of all wildlife dispersal efforts at Joint Base Charleston and NAAF IAW their Memorandum of Understanding, with assistance from 437 AW/SE and 437 OSS/OSA as required.

2.4.3. Meet monthly with 437 AW/SE to discuss the following conditions:

2.4.3.1. The status of the "clear zone" areas off the end of the runways at Joint Base Charleston and NAAF.

2.4.3.2. Grass height, drainage ditch foliage, low area standing water, etc.

2.4.3.3. Provide input for Phase I and Phase II forecasts and the associated priorities for wildlife management.

2.4.3.4. Report to the airfield for emergency depredation activity within 2 hours during normal duty hours.

2.4.4. Provide data on number and species killed to 628 CES/CEIE to be used in preparing reports to be submitted to appropriate federal and state regulatory agencies and provide 437 AW/SE with a copy of this information.

2.4.5. Coordinate trapping or depredation activities with 628 CES/CEIE. All communication with federal and state regulatory agencies should flow through 628 CES/CEIE.

2.4.6. Change the BWC, if deemed necessary IAW paragraph 1.3.2. Under no circumstance should the USDA Biologist delay notification to the air traffic control tower. The primary intent is to remove imminent hazards to the flying environment as quickly as possible.

2.4.7. Inform 437 OSS/OSA when entering or leaving the airfield.

2.4.8. Inform 437 OSS/OSA before initiating wildlife dispersal/depredation techniques.

2.4.9. Coordinate with the control tower prior to initiating wildlife dispersal/depredation techniques when aircraft are taking runway or approaching a runway for takeoff and landing.

2.5. 437th Operations Group will:

2.5.1. Issue specific BASH guidance to aircrew personnel through FCIFs and the FCB. Aircrew mission planning guidance and operating restrictions for both Phase I and Phase II will be permanently maintained in the FCB's or in 11-2C-17 Vol 3, Local Procedures.

2.6. 437th Maintenance Group will:

2.6.1. Ensure all bird strikes are reported to 437 AW/SE on AF Form 853, Air Force Bird Strike Report, or local 437 MXG Safety DOP/Incident/Mishap/No Drop Worksheet. Fax or email a copy of the completed form to DSN 673-4030/Commercial 843-963-4030 or 437AW.FlightSafety@us.af.mil.

2.6.2. Preserve non-fleshy bird remains if discovered on the aircraft regardless of size or amount. Follow procedures outlined in paragraph 1.5. concerning proper identification of bird strikes.

2.7. 628 ABW/CP will:

2.7.1. Notify all inbound crews when BWC is MODERATE or SEVERE on initial contact.

2.7.2. Transmit in the blind on Command Post UHF/VHF frequency all changes in BWC.

2.7.3. Notify 437 AW/SE concerning all damaging bird strikes prior to notifying 437 OG/CC. After normal duty hours, notification will be made to the on-call 437 AW/SEF Flight Safety Officer.

2.7.4. Relay all aircrew calls concerning bird activity on the airfield or low-level routes to 437 OSS/OSA personnel for action.

2.8. 315 AW/SE and all tenant unit flying squadron safety offices will:

2.8.1. Ensure aircrews participate in the BASH Reduction Program by promptly reporting all bird strikes and hazardous bird conditions to 437 AW/SEF, 628 ABW/CP, 437 OSS/OSA and ATC.

2.8.2. Ensure aircrews use the BAM, AHAS, and other planning tools as directed by the 437 OG and 437 AW/SE.

2.8.3. Brief aircrews on seasonal bird hazards. Movies, articles, and other information will be used as appropriate to maintain awareness.

2.8.4. Ensure that all trip kits are stocked with AF Form 853, and the 437 AW Bird Observation Worksheet. Ensure all completed forms are forwarded to 437 AW/SE.

2.8.5. Ensure requirements outlined in AFI 91-202 AMC Sup 1, paragraphs 7.3.1.4.5 and 7.3.1.4.6 are complied with, specifically concerning JBC's BASH program.

2.9. 628 ABW/PA (Visual Information) will:

2.9.1. Provide photographic services to document bird/wildlife strikes and related activities as required.

3. Information Collections, Records, and Forms.

3.1. Information Collections. No information collections are created by this publication.

3.2. Records. All records created will be maintained IAW AFMAN 33-363.

3.3. Forms or IMTs Adopted. AF Form 853, Air Force Bird Strike Report.

JEFFREY W. DEVORE, Colonel, USAF
Commander, 628 ABW

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFPAM 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Techniques*, 1 February 2004

AFI 91-204 AMC Sup, *Safety investigations and Reports*, 8 October 2009

AFI 91-202 AMC Sup 1, *The US Air Force Mishap Prevention Program*, 21 May 2012

AFI 11-2C-17 V3, *C-17 Operation Procedures*, 16 November 2011

Prescribed Forms

None

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

AF Form 853, *Air Force Bird Strike Report*

AF Form 3616, *Daily Record Facility Operations*

Abbreviations and Acronyms

AF—Air Force

AFI—Air Force Instruction

AFPAM—Air Force Pamphlet

AHAS—Avian Hazard Avoidance System

BASH—Bird/Wildlife Aircraft Strike Hazard

BAM—Bird Avoidance Model

BHWG—Bird Hazard Working Group

BWC—Bird Watch Condition

FCB—Flight Crew Bulletin

FCIF—Flight Crew Information File

NAAF—North Auxiliary Air Field

Terms

Bird Avoidance—Techniques (including radar detection, warning, and use of bird data) that reduce potential for bird strikes by allowing aircrews to schedule or maneuver to avoid bird concentrations.

Bird Hazard Reduction Plan—A written document that addresses bird strike hazards and designates organizations responsible for implementing solutions.

Bird/Hazard Working Group (BHWG)—A coordinated agency effort aimed primarily at preventive measures that provide the best chance of avoiding a collision between birds/wildlife and aircraft which may meet monthly during phase II periods; otherwise it meets once a semiannual period (usually in March and October).

Bird Species—A group of interbreeding birds with common characteristics such as size, shape, voice, and behavior.

Bird/Wildlife Strike—Any collision between a bird or other species of wildlife and an aircraft.

Bird Watch Condition Codes—The following terminology is established for rapid communication of bird activity. When communicating, avoid color-coded conditions to eliminate any confusion with color codes used during exercises, contingencies, and emergencies (i.e., disaster preparedness exercises). Also, give bird locations with the condition code:

- Bird Watch Condition SEVERE. Bird activity on or immediately above the active runway or other specific location representing high potential for strikes. Supervisors and aircrews must thoroughly evaluate mission need before conducting operations in areas under condition SEVERE.
- Bird Watch Condition MODERATE. Bird activity near the active runway or other specific location representing increased potential for strikes. BWC moderate requires increased vigilance by all agencies and supervisors, and caution by aircrews.
- Bird Watch Condition LOW. Bird activity on and around the airfield representing low potential for strikes.

Damaging Bird/Wildlife Strike—Any bird/wildlife strike that causes reportable damage according to AFI 91-204, Safety Investigations and Reports.

Habitat—The total environmental elements of food, water, shelter, nesting sites, and space that must be present for wildlife species to survive.