

**28 May 2025**

**Safety**



**LITTLE ROCK AIR FORCE BASE  
BIRD/WILDLIFE AIRCRAFT STRIKE  
HAZARD (BASH) PROGRAM**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements Department of the Air Force Instruction DAFI91-202, U.S. Air Force Mishap Prevention Program, DAFI91-204, Safety Investigations and Reports, and DAFI91-212, Bird/Wildlife Aircraft Strike Hazard (BASH) Management Program at Little Rock Air Force Base (LRAFB). This instruction provides a program to minimize aircraft exposure to potentially hazardous wildlife strikes and applies to all host, associate, and temporary duty organizations at LRAFB, including Air National Guard and US Air Force Reserve members and units. It establishes program requirements, assigns responsibilities for program elements, and contains program management information. Refer all recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the Department of the Air Force Form (DAF) Form 847, Recommendation for Change of Publication; route DAF Forms 847 from the field through the appropriate functional chain of command. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force. This publication may not be supplemented or further implemented/extended. IAW DAFMAN90-161 this publication will be reviewed Bi-Annually for required changes from posting date.

***SUMMARY OF CHANGES***

This document was re-written from the LRAFB Bird Aircraft Strike Hazard (BASH) Plan and supports DAFI91-212, 13 April 2023. Duties and processes in this document supplement DAFI91-212 and DAFI91-212AMCSUP with characteristics from LRAFB processes and procedures.

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## Chapter 1

### GENERAL ROLES AND RESPONSIBILITIES

**1.1. Overview.** This instruction provides guidance to the LRAFB BASH program and operations of manned aircraft at LRAFB. The purpose of this plan is to provide a program to minimize aircraft exposure to hazardous bird and wildlife strikes in the LRAFB local flying area. A BASH program exists at LRAFB and the surrounding vicinity, due to resident and migratory bird species and other wildlife. Daily and seasonal wildlife movements create various hazardous conditions throughout the year. This plan establishes procedures to minimize the impacts of local wildlife hazards to the Department of the Air Force's (DAF) local mission and assets at LRAFB including the airfield, landing zones, and drop zones. Wildlife hazard identification, control, and dispersal are the primary responsibility of the DAF host unit's BASH team. However, a variety of measures must be available to other tenant unit personnel to use on an as-needed basis.

**1.2. BASH Team.** The BASH team is comprised of 19 Airlift Wing (AW) safety trained personnel led by a USDA Wildlife Biologist. They are responsible for conducting operations to mitigate wildlife strikes to USAF assets assigned to LRAFB in accordance with established DAF guidelines.

#### **1.3. Roles and Responsibilities.**

##### **1.3.1 Installation Commander (19 AW/CC) will:**

1.3.1.1 Create policy and provide guidance for the BASH program.

1.3.1.2 Direct Installation Chief of Safety to establish a local BASH program. Wing Safety is the OPR for development and oversight of the local BASH program. The BASH Program Manager(s) may be delegated to another organization(s) for augmentation (e.g., USDA Wildlife Services, vendor/contractor, internal DAF stakeholder). This designation may be established through a formal agreement (e.g., contract, host-tenant Support Agreement, Memorandum of Agreement, etc.) in lieu of an internal-DAF subject matter expert.

1.3.1.3 Promote and emphasize a BASH program geared toward reducing the possibility of bird and wildlife strikes.

1.3.1.4 Obtain resources necessary to ensure an effective BASH program.

1.3.1.5 Review annual request for depredation permit from United States Fish and Wildlife Service and any state required permits.

1.3.1.6 Provide Wing Safety adequate storage for tools, cages, traps, and equipment necessary to execute the BASH program. Gun safes will be utilized with site licenses to maintain various weapons, ammo, and pyrotechnics. Storage will be centrally located away from office space for fire precautions. Storage space will be in a climate-controlled location that offers limited access to equipment, weapons, and ammunition IAW DESR 6055.09\_AFMAN91-201\_AMCSUP, 17 OCTOBER 2022.

**1.3.2 Deputy Wing Commander (19 AW/CD) will:**

- 1.3.2.1 Chair the Bird Hazard Working Group (BHWG) meetings.
- 1.3.2.2 Review and approve/disapprove recommendations of BHWG.
- 1.3.2.3 Provide recommendations to tenant units.
- 1.3.2.4 Approve depredation activities.

**1.3.3 Tenant Wing/Group Commanders (314 AW/CC, 189 AW/CC, and 913 AG/CC) will:**

- 1.3.3.1 Provide endorsement authority for the LRAFB BASH Plan.
- 1.3.3.2 Review recommendations of BHWG and provide direction and guidance for all flying activities for their respective units.
- 1.3.3.3 Provide final execution authority for all 314 AW, 189 AW, and 913 AG aircraft operations.

**1.3.4 Public Affairs (19 PA) will:**

- 1.3.4.1 Provide a public information program designed to inform base personnel, dependents, and the general public on the hazards and costs of uncontrolled wildlife activity and the measures being taken to minimize them.
- 1.3.4.2 Provide photographic and graphic support, as required to document wildlife strikes and related activities.

**1.3.5 Command Post (19 CP) will:**

- 1.3.5.1 Inform transient aircrews of current LRAFB BASH conditions Low/Moderate/Severe in the 30 minute out call.
- 1.3.5.2 Notify 19 OG/CC, 314 OG/CC, 189 AW/SE, 189 AW/C, 913 AG, 327 AS/CC, and 19AW/SEF when notified of a declared, updated, or cancelled Bird Watch Condition/Deer Watch Condition (BWC/DWC), including All-American and Blackjack Drop Zones.
- 1.3.5.3 Broadcast any change in BWC/DWC on CP frequency and inform transient military aircrews of MODERATE or SEVERE or current BWC/DWC upon request.

**1.3.6 Airfield Management (19 OSS/OSAA) will:**

- 1.3.6.1 Declare or elevate BWC/DWCs.
  - 1.3.6.1.1 Elevation or downgrading of BWC/DWC will be based on information relayed by airborne aircraft, observations made by the ATC tower, transient personnel, or Airfield Management personnel.
  - 1.3.6.1.2 Airfield Management Operations personnel, 19 AW/SEF, or USDA Wildlife Biologist, in coordination with the ATC Watch Supervisor are authorized by the 19 OG/CC to elevate, downgrade, or cancel BWC/DWCs.
- 1.3.6.2 Notify ATC and CP of increased bird activity and of any changes to BWC/ DWC.
- 1.3.6.3 Conduct daily airfield inspections and/or checks IAW LRAFB I 13-204, Airfield

### Operations and Local Flying Procedures.

1.3.6.3.1 Inspections must be conducted no earlier than one hour prior to sunrise and anytime the BWC/DWC is elevated to SEVERE.

1.3.6.3.2 Inspections must include and record: a wildlife activity assessment, the time, location, and species on the Daily Airfield Inspection Checklist (i.e. LOW, MODERATE, or SEVERE BWC).

1.3.6.3.3 Report observed wildlife activity to ATC Tower.

1.3.6.3.4 Remove dead wildlife from the airfield. Ensure accurate time, date, and location is recorded for non-fleshy remains. Notifies 19 AW/SE for pick-up of preserved non-fleshy remains.

1.3.6.4 Conduct a visual count of all wildlife inside the Controlled Movement Areas (CMA) during airfield checks. The individual conducting the inspection determines the number of wildlife seen and notes the area.

1.3.6.5 Disperse wildlife from CMA and log information for trend analysis purposes.

1.3.6.6 Display the current BWC/DWC on mission planning website and closed-circuit television status board in Airfield Management.

1.3.6.7 Dispatch personnel to disperse any wildlife from the CMA as expeditiously as possible. Airfield management team, at a minimum, will have immediate access to pyrotechnic equipment and propane cannons for dispersal actions.

1.3.6.8 Respond when Wing Safety personnel are unable to respond.

1.3.6.9 Conduct harassment activities on birds nesting and roosting in or on any airfield structure.

1.3.6.9.1 Conduct dispersal operations using standard frightening techniques such as bioacoustics, pyrotechnics, gas cannons, or other methods. Tenant agencies must have this equipment at their disposal to supplement active Air Force or contracted personnel as needed.

### **1.3.7 Air Traffic Control (19 OSS/OSAT) will:**

1.3.7.1 Report observed bird activity to 19 OSS/OSAA.

1.3.7.2 Issue BWC/DWC advisories to aircrews as required by FAAJO 7110.65Y, paragraph 2-1-23, Bird Activity Information and Air Force Supplements.

1.3.7.3 Provide airfield management/wildlife dispersal teams immediate access to any controlled surface under BWC/DWC MODERATE or SEVERE.

1.3.7.4 Adjust local pattern operations to allow for bird dispersal. Identify radar targets as possible bird activity when appropriate to provide warning to pilots as required by FAAJO 7110.65Y, paragraph 2-1-21, Traffic Advisories.

1.3.7.4.1 Notify 19 AW/SEF of possible bird activity identified on radar.

1.3.7.5 Issue traffic advisories so pilots can make operational changes such as missed approaches or delayed takeoffs when possible bird hazards appear on ATC radar.

1.3.7.6 Update BWC/DWCs on Automatic Terminal Information Service (ATIS) when the BWC is MODERATE or SEVERE.

1.3.7.7 Use very specific language to communicate locations, times, and behaviors of birds identified as possible hazards to aircraft as required by FAAJO 7110.Y.

**1.3.8 Chief of Safety (19 AW/SE) will:**

1.3.8.1 Serve as the focal point between wing leadership and the BASH Program Manager(s) for risk assessment of identified hazards and program issues.

1.3.8.1.1 Designate the Flight Safety Officer/BASH Manager to serve this role in the absence of the Chief of Safety.

1.3.8.2 Designate the BASH Program Manager(s) in writing.

1.3.8.3 Provide instruction or instruction material to flight safety officers (FSO), flight safety noncommissioned officers (FSNCO) and civilian equivalents in program management.

1.3.8.4 Assign wing safety staff to maintain a technical reference library on hazard studies BASH data and other records in accordance with DAF records disposition schedules.

1.3.8.5 Provide subject matter experts to communicate BASH issues at the BHWG upon request.

1.3.8.6 Assign a technical representative to assist the Safety Investigation Board President or Investigating Officer anytime wildlife may be a contributing or causal factor in a mishap.

1.3.8.7 Establish and maintain liaison with federal, state, and private agencies such as the Arkansas Game and Fish Commission, US Fish and Wildlife Service, the Department of Agriculture, and wildlife services as necessary for BASH management actions.

**1.3.9 BASH Program Manager (Flight Safety Manager/USDA/Contractor) will:**

1.3.9.1 Provide oversight, coordination, and execution of the installation BASH program.

1.3.9.1.1 Develop program elements, attend the BHWG meetings, document all wildlife hazards, dispatch/disperse threats, and report/analyze wildlife strike events.

1.3.9.2 Coordinate depredation permit application procedures with Arkansas Game and Fish Commission, US Fish and Wildlife Service, and US Department of Agriculture, Wildlife Services to ensure operations are handled in accordance with the Endangered Species Act, National Environmental Policy Act, Migratory Bird Treaty Act, and any state or local laws.

1.3.9.2.1 Track all required depredation permits and ensure they are up to date.

1.3.9.3 Conduct BASH training IAW DAFI 91-212 for all aircrews with the use of Bird Avoidance Model (BAM), and Avian Hazard Advisory System (AHAS) for flight planning, as requested.

1.3.9.3.1 Training may include usage of the Bird Strike Threat (BST) Calculator as a situational awareness and advisory tool for local area planning.

1.3.9.4 Establish and maintain a bird hazard awareness program with squadron flight safety officers.

1.3.9.5 Provide BASH and wildlife hazard data to the BHWG and flying units upon request.

1.3.9.6 Notify 19 AW/CP when BASH Phase II is implemented or terminated.

1.3.9.7 Coordinate with 19 OSS/OSAA to provide maps and charts of local wildlife hazards for the Airfield Management Flight Planning Room IAW AFMAN 13-204V3.

1.3.9.8 Civilian GS employees assigned BASH manager duties should complete DAF-prescribed training requirements equivalent to a flight safety noncommissioned officer, as defined in AFI 91-202.

1.3.9.9 Attend annual conferences (e.g., Bird Strike Committee USA) and training opportunities to maintain Qualified Airport Wildlife Biologist credentials.

1.3.9.10 Remain current with continuing education related to wildlife damage management.

1.3.9.11 Develop a Wildlife Exclusion Zone or other appropriate mitigation zones (airfield specific).

1.3.9.12 Conduct a stand-alone, year-long Wildlife Hazard Assessment as required IAW DAFI 91-212.

1.3.9.13 Work with Community Planner, local, and regional planning/zoning boards to be aware of proposed land-use changes, or modification of existing land uses, that could attract hazardous wildlife.

1.3.9.13.1 Communicate with Public Affairs for notifications from local planning boards or equivalent organizations to review proposed land uses for all communities within five miles of the installation with the potential to attract wildlife hazards.

1.3.9.14 Procure and maintain two BASH M870 shotguns (NSN 1005-01-604-1156), for the 19 AW/SEF responsible for wildlife depredation.

1.3.9.15 Maintain Theater Integrated Combat Munitions System (TICMS) munitions and property inventory account for installation BASH firearms.

1.3.9.16 Develop and execute an annual equipment safety and familiarization training program for all installation Wildlife Dispersal Team personnel. At a minimum, the installation training program will include use of pyrotechnics, DAF-approved firearms, and/or lasers.

1.3.9.17 When required, notify appropriate agencies such as Security Forces, Base Operations or Camp Robinson Operations Center prior to utilizing munitions and pyrotechnics to ensure effective harassment and control of wildlife hazards on all LRAFB owned, leased, or managed property and within five nautical miles of any LRAFB local flying operations.

1.3.9.18 Disperse wildlife from any LRAFB owned, maintained, or leased properties as necessary.

1.3.9.19 Maintain the capability and proficiency to depredate wildlife utilizing any wildlife control devices and techniques such as firearms, air rifles and traps etc.

1.3.9.20 Travel unimpeded throughout operating areas such as Blackjack DZ, All American

LZ/DZ, and LRAFB, owned, or leased properties with munitions, pyrotechnics, and firearms to include but not limited to all access points throughout the installation IAW Defense Explosive Safety Regulation (DESR).

1.3.9.21 Maintain positive control of munitions, pyrotechnics, and firearms in the USDA/Contractor biologist vehicle (GOV or POV) or firearms safe. This does not prohibit the manager from using any other GOV or specialty use vehicle as required (i.e. an ATV on the former golf course, etc.).

1.3.9.21.1 Due to the type and small amount of munitions and hazardous materials carried, no placards are required to be displayed on the vehicle IAW DESR.

1.3.9.22 Survey operating areas such as Blackjack DZ, All American LZ/DZ, LRAFB, and any LRAFB maintained, owned, or leased properties for conditions that may attract wildlife within five nautical miles of any LRAFB local flying operations.

1.3.9.22.1 Make recommendations to appropriate agencies to address hazards.

1.3.9.23 Survey roosting sites and areas of concern within five nautical miles of the LRAFB flying operation areas during day/night to determine presence and abundance of wildlife species and hazards to the flying mission.

1.3.9.24 May advise Base Operations to, upgrade, downgrade, or terminate BWC/DWCs based on available information on bird/wildlife activity level.

1.3.9.25 Designate a Wildlife Exclusion Zone. (Figure 7-10.)

1.3.9.25.1 A Wildlife Exclusion Zone is a locally defined, site-specific area where a zero-tolerance for wildlife is maintained. At a minimum, the Wildlife Exclusion Zone will include the airfield (encompassing the Aircraft Movement Area and clear zones) but may also include additional wildlife hazard attractants (such as water treatment facilities, golf courses, landfills, and athletic fields) within five nautical miles of the airfield and low-level flight corridors (such as final approach/departure paths). The Wildlife Exclusion Zone must be consistent with the installation BASH program and airfield mission.

### **1.3.10 Operations Group Commanders (19 OG/CC, 314 OG/CC, 189 OG/CC, and 913 AG/CC) will:**

1.3.10.1 Direct Base Operations to declare, disseminate, and terminate BWC/DWCs at LRAFB and surrounding training areas, through Airfield Management Operations.

1.3.10.2 Issue specific guidance for respective units, ATC, and 19 OSS/OSAA on procedures followed under BWC/DWCs

1.3.10.3 Retain BASH restriction waiver authority over assigned aircraft/aircrews (or delegate to authorized designee) for all AMC/AETC/ANG/AFRC aircraft departures and arrivals during elevated BWC/DWCs or during Phase II and BASH window periods.

1.3.10.4 Make operational changes to avoid areas and times of known hazardous bird concentrations, mission and operations permitting, especially during Phase II operations. Consider the following, during periods of increased bird activity:

1.3.10.4.1 Avoid takeoffs/landings within  $\pm$  1 hour of sunrise/sunset during Phase II.

1.3.10.4.2 Depart pattern in trail.

1.3.10.4.3 Reschedule local training or transition elsewhere.

1.3.10.4.4 Limit time in low-altitude environments to minimum required for training.

1.3.10.4.5 Select low-level routes or training areas based on bird hazard data from HQ AFSC/SEFW, BAM, and AHAS for low-level route analysis. The BST Calculator may be used as an aircrew situational awareness enhancement tool for local area training routes.

1.3.10.4.6 Restrict or delay takeoffs and direct full stop landings or diverts as required.

1.3.10.5 Coordinate during non-duty hours directly with Airfield Management (501-987-6123) for the dispersal of birds/wildlife from areas of the airfield.

1.3.10.6 Inform flying squadrons of reported or observed increases in local bird activity and resulting local BWC/DWC changes.

**1.3.11 Flying Squadron Commanders (41 AS/CC, 61 AS/CC, 34 CTS/CC, 62 AS/CC, 29 WPS/CC, 154 TRS/CC, and 327 AS/CC) will:**

1.3.11.1 Provide representatives to the BHWG.

1.3.11.2 Ensure aircrews participate in the BASH program by reporting all wildlife strikes

(complete AF Form 853-2 (LRAFB overprint), AF Form 97, or 189AW-A and 189AW-B and document data and mitigation procedures in the mission recaps.

1.3.11.3 Ensure aircrews are briefed on seasonal bird hazards.

1.3.11.4 Ensure unit personnel report all bird/wildlife sightings on or near the airfield to LRAFB Airfield Operations.

1.3.11.4.1 Report sighting as soon as possible to ATC or 19 AW/CP.

1.3.11.5 Schedule training missions to avoid periods of peak bird activity during Phase II operations.

1.3.11.5.1 Exceptions may be considered for unique circumstances. In such cases, plan to execute only one takeoff or one full stop landing.

1.3.11.6 Provide aircrews and supervisors access to check BAM and AHAS for flight planning to reduce Operational Risk Management (ORM) level associated with bird activity. Additionally, the BST may be used as a situational awareness enhancement tool for local area operations. Ensure current BASH mitigation strategies are incorporated in mission planning.

**1.3.12 Squadron Assigned Flight Safety Officers will:**

1.3.12.1 Brief aircrews to report all bird/wildlife sightings on or near the airfield to LRAFB Airfield Operations or ATC.

1.3.12.1.1 Report these sightings as soon as possible to the ATC, 19 AW/CP, and/or Pilot to Dispatch (PTD). The following information should be included: Call sign and tail number, Location (Lat/Long), Altitude, Time of sighting, Type of

bird/wildlife (if known), Approximate number of birds/wildlife (single/size of flock), Behavior of birds/wildlife (soaring, migrant, flying to/from location, etc.).

1.3.12.2 Ensure unit aircrews and supervisors are trained on BASH mitigation resources.

1.3.12.2.1 Aircrew will be trained on the use of BAM and AHAS. Training on BST usage will be included for 19AW assigned units.

1.3.12.2.2 Train aircrew on debrief processes including post-flight documentation.

1.3.12.3 Brief aircrews on seasonal bird hazards and ensure current bird activity data is available and briefed for each planned flight phase (BWC, BAM, BST, and AHAS).

1.3.12.3.1 The BST Calculator may be used to enhance aircrew situational awareness for local training missions.

1.3.12.4 Ensure aircrews complete AF Form 853-2 (LRAFB overprint), AF Form 97, or 189AW-A and 189AW-B if a damaging or non-damaging wildlife strike occurs and document data and mitigation procedures in the mission recaps.

1.3.12.5 Ensure aircrews are aware of allowable/approved flight operations during BWC LOW, MODERATE, and SEVERE.

1.3.12.6 Ensure cross-country briefings (if applicable) include a discussion of bird/wildlife hazards for the areas and airfields the aircrew will be using.

1.3.12.7 Ensure proper collection methods of strikes are conducted and properly sent to the Smithsonian for identification.

### **1.3.13 Current Operations (19 OSS/OSO) will:**

1.3.13.1 Schedule local takeoffs/arrivals to minimize operations during BASH Phase II.

1.3.13.2 Disperse wildlife effecting operations when Wing Safety personnel are unable to respond (Airfield Management flight).

1.3.13.3 Review all proposed guidance for aircrew and 19 OSS/OSAA on BWC/DWC procedures and potential operational changes to avoid areas and times of known hazardous bird conditions.

1.3.13.4 Review all proposed routes and training areas or changes to existing routes/areas for BASH hazards.

### **1.3.14 Combat Tactics (19 OSS/OSK) will:**

1.3.14.1 Review all low-level routes and training areas or changes to existing routes/areas for BASH potential.

1.3.14.1.1 Any changes to routes must be coordinated with Airspace Management (19 OSS/OSAM).

1.3.14.2 Provide maps of flight training areas/ranges and low-level routes that include descriptions of known wildlife refuges, bodies of water, landfills, and other significant bird attractants to the flying squadrons.

### **1.3.15 Maintenance Group/Tenant Squadron Commanders (19 MXG/CC, 314 MXG/CC, 189 MXG/CC, and 913 MXS/CC) will:**

1.3.15.1 Issue guidance to personnel for reporting all discovered bird strikes on aircraft to their respective Quality Assurance and the 19 AW, 314 AW, 189 AW, and 913 AG Safety Offices.

1.3.15.2 In incidents of BASH found after the ACFT is released to MX, Ensure maintenance personnel are trained on completing the AMC Form 97, *AMC In-Flight Emergency and Unusual Occurrence Worksheet* (N/A for 189 AW) or AETC Form 645-4, *Trend Data Report* (as required, N/A for 189 AW and 19 AW) for damaging strikes, and AMC or LRAFB Form 853-2 for all bird strikes, and procedures are in place to forward forms to respective unit's flight safety office.

1.3.15.3 Promote procedures for the preservation of non-fleshy bird remains and blood smears if discovered on aircraft in accordance with respective Safety Office guidance.

**1.3.16 Maintenance (19 AMXS) will:**

1.3.16.1 Ensure all applicable forms [Form 97 with the 19 AW overprint (AMC) or Form 645-4 (AETC) and the LRAFB Form 853-2] are completed by the aircrew and submitted to MX debrief if the remains are found post flight prior to the ACFT turned over to MX.

1.3.16.2 Ensure all bird strike/wildlife remains are collected in accordance with the procedures outlined in applicable regulations.

1.3.16.3 Ensure that MX personnel fill out all applicable data on the Form 97 with 19 AW overprint (AMC) or Form 645-4 (AETC) and the LRAFB Form 853-2 if a wildlife strike is identified by maintenance personnel.

1.3.16.4 Ensure that CTK personnel maintain the 19 AW Bird-Strike Remains Collection Kits and replenish used items when required.

1.3.16.4.1 Each kit contains an inventory list of the minimum stock required.

**1.3.17 Security Forces Squadron Commander (19 SFS) will:**

1.3.17.1 Attend all BHWG meetings or send a designee.

1.3.17.2 Brief Security Forces personnel on the BASH mission and on personnel that execute the LRAFB BASH Plan. Specifically, the briefing should focus on BASH personnel utilizing harassment to lethal take of wildlife that pose threats to aircraft. "Harassment" is defined as the use of pyrotechnics, bioacoustics, lasers, or any non-lethal means to disperse wildlife potentially impacting the flying mission or health and human safety on any LRAFB utilized, owned, or controlled property. "Lethal Take" is defined as euthanizing wildlife when other non-lethal harassment techniques have failed, to include emergency situations that critically impact the flying mission, or dispersal harassment techniques are deemed no longer effective by the BASH program manager, contractor, or 19 AW Flight Safety Office.

1.3.17.3 Direct on-duty forces to support BASH and AW/SE Operations, based on response prioritization, to mitigate harm to the base population.

**1.3.18 Civil Engineering (19 CE) will:**

1.3.18.1 Provide a Natural Resources, Environmental, Grounds Maintenance, and Pest Management representatives to the BHWG to advise the group on the airfield habitat.

1.3.18.2 Immediately addresses environmental conditions that increase the BASH potential on aircraft operating areas.

1.3.18.3 Maintain the airfield habitat following established runway lateral and approach zone management criteria IAW AFMAN 32-1053.

1.3.18.4 Ensure Section 106, NEPA, EIAP, 813 and permitting processes are complete for operations and future projects (19 CEIEC).

1.3.18.5 Coordinate with outside agencies and community planners when potential hazards arise off base such as landfills, slaughterhouses, wetlands mitigation projects, etc. (19 CENPL)

1.3.18.6 Coordinate with 19 AW/SEF, USAF BASH Team to include CEI, CEOIE, and SE, and current DAFI's to develop land management practices that reduce BASH potential utilizing risk management tools for mitigating broad-leaved plants, planting bare areas, fertilizing, reducing edge effect, leveling of airfield, removing dead vegetation, removing dead birds/wildlife, controlling pests, mowing regimes, maintaining ditches, drainage, security fencing, trees/ landscaping, perch and nest sites, wildlife attractants, agricultural leases, and controlling waste disposal.

1.3.18.7 Airfield Mowing Plan: The 19 CES maintains an Airfield Mowing Plan (AMP) that is not included in the BASH Plan that will:

1.3.18.7.1 Maintain a uniform grass height between seven and fourteen inches on the airfield.

1.3.18.7.2 Determine mowing frequency as needed to maintain height requirements. Mowing regimes should address mowing patterns/paths so as not to induce ruts, scalping, or creating wet areas. Coordinate mowing with periods of low flight activity.

1.3.18.8 Biannually survey for pests (invertebrates and rodents) and reduce them when recommended by 19 AW/SE (19 CES/CEOIE).

1.3.18.9 Control insects, earthworms, and rodents with insecticides and rodenticides or any other approved methods IAW AFMAN 32-1053 (19 CES/CEOIE).

1.3.18.10 Control vegetation with herbicides or any other approved methods IAW AFMAN 32-1053 (19 CES/CEOIE).

1.3.18.11 Notify Flight Safety of new construction projects prior to the design phase.

### **1.3.19 Weather Services (19 AW/OSW)**

1.3.19.1 Provide weather representative to the BHWG.

**1.4 Technical Assistance (DAFI91-202):** The U.S. Air Force Mishap Prevention Program outlines responsibilities for reducing bird/wildlife strike hazards. Obtain additional information on BASH management from DAFI91-212, Bird/Wildlife Strike Hazard (BASH) Management Program. Technical assistance is available through the USAF BASH Team, HQ AFSC/SEFW, 9700 AVE G SE, Building 24499, Kirtland AFB NM 87117-5671. DSN 246-5674/5679/5673 or fax (505)-846-0684, e-mail address; [afsc.sefw@kirtland.af.mil](mailto:afsc.sefw@kirtland.af.mil).

## Chapter 2

### PROGRAM MANAGEMENT

**2.1. Program Overview.** No single solution exists to the BASH problem, and a variety of techniques and organizations are involved in the BASH program. Recommendations from Wing Safety should flow to CE during construction projects to mitigate habitat changes that increase the potential for BASH strikes. While it is impossible to keep all wildlife away from the airfield environment, it is important to discourage habitats that attract wildlife directly (e.g., availability of food, water, cover, and nesting) or indirectly (e.g., increasing prey species). Attracting wildlife to an airfield is detrimental to wildlife and mission capability.

2.1.1. Periodic habitat surveys may be conducted through Wing Safety and/or CE to identify major habitat types available to birds. Update maps based on these surveys if local land uses, and habitat conditions change to determine if a specific attractant exists that can be altered within the scope of this instruction.

2.1.1.1. The LRAFB BASH program and LRAFB Integrated Natural Resources Management Plan (INRMP) must be mutually supportive.

2.1.2. Wing Safety, 19 OSS/OSAA, and 19 OSS/OSK will develop a local area and low-level training area map to identify high threat areas for flight crew mission planning.

2.1.3. Wing Safety will develop the BASH program.

2.1.3.1. Bash Phase II represents heavy bird activity, normally associated with migratory season. The Bash Phase II months may vary based on migratory activity. 19 AW/SEF will designate Phase I and II periods.

2.1.3.2. Phase II Months: April, May, September, October, and November

**2.2. Operating Instructions (OI).** Restrictions to local flying operations will be tailored to observed bird/wildlife activity. The 19 OG/CC, 314 OG/CC, 189 OG/CC, 913 AG/CC will determine what actions are necessary to decrease aircrew exposure to known areas of bird activity and publish these restrictions in their unit OIs. Usually, aircrew awareness that increased bird activity exists will be sufficient action. However, some situations require positive action to reduce the potential for bird strikes. Refer to AFMAN 11-202V3 for guidance on operational restrictions during increased bird watch conditions. Crews will also refer to appropriate unit level guidance for restrictions under varying bird conditions.

**2.3. Bird Hazard Working Group.** The Bird Hazard Working Group shall meet quarterly.

2.3.1. Mission. To mitigate and reduce bird/wildlife strikes in the LRAFB local area, thus reducing aircraft damage, repair downtime, and possible injury to personnel. The purpose of the BHWG is to identify wildlife hazards and current trends impacting mission requirements to leadership and develop mitigation strategies.

2.3.2. Execution. The BHWG is responsible for coordinating the activities of all agencies involved in the BASH program. BHWG duties include collecting, compiling, and reviewing bird strike data, recommending actions to reduce hazards, changes in operational procedures, habitat management procedures, and preparing informational programs for aircrews.

2.3.3. Authority. The BHWG submits recommendations to the LRAFB flying unit commanders for approval. Implementation of recommendations is through the normal chain of command.

2.3.4. Composition. The chairperson will be the 19 AW Deputy Wing Commander (19 AW/CD) or designee. Co-chairpersons shall be the tenant unit Deputy Wing Commanders (314 AW/CD, 189 AW/CD, 913 AG/CD,) or designees. Per DAFI 91-212, the following list and representatives from other tasked organizations, are required to attend the BHWG. Original meeting minutes will be maintained by 19 AW/SE.

<u>ORGANIZATION</u>	<u>SYMBOL</u>
19th Airlift Wing .....	19 AW/CD
Safety .....	19 AW/SE
USDA.....	19 AW/SE/USDA
Public Affairs.....	19 AW/PA
Base Legal.....	19 AW/JA
Security Forces Squadron.....	19 AW/SFS
19th Operations Group.....	19 OG/CC
19th Operations Support Squadron.....	19 OSS
Airfield Operations Flight.....	19 OSS/OSA
Airfield Manager.....	19 OSS/OSAA
Air Traffic Control Tower .....	19 OSS/OSAT
Airspace Manager .....	19 OSS/OSAM
Weather Flight .....	19 OSS/OSW
Combat Tactics .....	19 OSS/OSK
41st Airlift Squadron.....	41 AS/CC
Safety .....	41 AS/SE
61st Airlift Squadron .....	61 AS/CC
Safety .....	61 AS/SE
34th Combat Training Squadron.....	34 CTS/CC
19th Mission Support Group.....	19 MSG/CC
19th Civil Engineering Squadron.....	19 CES/CC
Engineering Flight .....	19 CES/CEN
Installation Management Flight .....	19 CES/CEI
Operations Flight .....	19 CES/CEO
19th Maintenance Group.....	19 MXG/CC
Quality Assurance.....	19 MXG/QA
314th Airlift Wing.....	314 AW
Deputy Wing Commander .....	314 AW/CD
Operations Group.....	314 OG/CC
Maintenance Group.....	314 MXG/CC
Standardization/Evaluation.....	314 OGV
Safety .....	314 AW/SE

Quality Assurance.....	314 MXG/QA
62d Airlift Squadron .....	62 AS/CC
Safety .....	62 AS/SE
29th Weapons Squadron .....	29 WPC/CC
Safety .....	29 WPS/SE
189th Airlift Wing (ANG) .....	189 AW
Deputy Wing Commander .....	189 AW/CD
Safety .....	189 AW/SE
913th Airlift Group (AFRC) .....	913 AG
Group Safety .....	913 AG/SE
327 <sup>th</sup> AS Safety .....	327 AS/SE

\* All mandatory attendees may send a designated representative

## 2.4. Documenting Bird/wildlife Hazards

2.4.1. Flight safety offices of the organization credited with the aircraft's flying hours will report and document all bird/wildlife strikes.

2.4.2. Document bird/wildlife strikes using AFSAS in accordance with AFMAN 91-223. AFSAS requires a user profile (username and password). Designated administrators at MAJCOM safety offices create AFSAS accounts for each unit. Aircrews and maintenance personnel will document the necessary data for reporting wildlife strikes through use of the LRAFB Form 853-2.

2.4.3. Formal wildlife surveys and a wildlife hazard assessment will be completed IAW DAFI 91-212, 2.4.1-3.

## 2.5. Wildlife Strike Reporting and Analysis

2.5.1. All damaging and non-damaging bird/wildlife strikes shall be reported to the 19 AW/SEF. Additional information may be obtained on the Air Force Safety Center web pages <https://www.safety.af.mil/Divisions/Aviation-Safety-Division/BASH/>; [http://af.safety.af.mil/SEF/BASH/SEFW\\_home.shtml](http://af.safety.af.mil/SEF/BASH/SEFW_home.shtml)). Reporting all bird/wildlife strikes is a necessary part of an effective BASH plan. In-depth knowledge of the circumstances leading to a bird/wildlife strike is vital for effective recommendations.

2.5.2. For every bird strike, send non-fleshy remains (if available) to the Smithsonian National Museum of Natural History for identification.

2.5.2.1. Remains may include feet, beak, and/or feathers (only a few feathers are needed). If no remains are apparent, collect blood smear with an alcohol swab contained in the Bird-strike Remains Collection Kit. Place the alcohol swab and/or non-fleshy remains into a labeled zip-loc bag found in the Remains Collection Kit. Send a copy of the corresponding AFSAS report with the strike evidence to the following address: "Smithsonian Institution, Feather Identification Lab, NHBE, E610, MRC 116, PO BOX 37012, Washington, DC 20013-7012." For high priority mishap identifications ship remains via overnight delivery to the following address: "Smithsonian Institution, Feather Identification Lab, NHBE,

E610, MRC 116, 10th and Constitution Ave. NW, Washington, DC 20560.” To ensure overnight delivery, time shipments to arrive between Monday and Friday. If you collect a whole bird carcass, place it in a freezer and contact the Smithsonian at (202) 357-2334 to see if the museum can use the specimen in their collection. Once the Smithsonian has entered the identification into the AFSAS report, AFSAS will automatically notify the reporting unit of the species identification through email.

2.5.2.2. Remains found on the runway as the result of a suspected aircraft strike should also be recorded in AFSAS and sent to the Smithsonian for identification.

2.5.2.3. Bird remains recovered from a mishap site should be collected IAW procedures outlined in this instruction. The Interim Safety Board should not delay recovering and shipping remains to the Smithsonian, as the sample could be compromised.

2.5.2.4. For wildlife strikes other than birds, send samples of skin, fur, teeth or other non-fleshy remains, if possible, or a photograph along with the corresponding AFSAS report to the Smithsonian for identification.

**2.5.3. Migratory birds and time of occurrence:**

2.5.3.1. Double-Crested Cormorant – September through April.

2.5.3.2. Ducks and Coots – September through April, limited nesting May through August.

2.5.3.3. Scissor-tailed Flycatchers – April through October.

2.5.3.4. Robins - December through March.

2.5.3.5. Cedar Waxwings - December through March.

2.5.3.6. Geese – Year-round.

2.5.3.7. Hawks, Eagles, Falcons – Year-round.

2.5.3.8. Nighthawks – April through November.

2.5.3.9. Pelicans – September through October.

2.5.3.10. Purple Martins - March through August.

2.5.3.11. Swallows - April through November.

2.5.3.12. Doves - March through November.

2.5.3.13. Orioles - April through September.

2.5.3.14. Sandhill Cranes – March through April and September through November.

2.5.3.15. Woodstorks – October.

2.5.3.16. Gulls – Year-round.

**2.5.4. Non-migratory and resident birds:** Vultures, Grackles, Doves, Egrets/Herons, Owls, Hawks, Eagles, Falcons, Crows/Ravens, Meadowlarks.

**2.5.5. Mammals:** Bats, Deer, Coyotes, and other species.

**2.5.6. Reptiles:** Various species of snakes, and turtles.

**2.5.7. Amphibians:** Various species of frogs and toads.

## Chapter 3

### AIRFIELD AND INSTALLATION HAZARD MANAGEMENT

**3.1 Airfield Wildlife Strike Management Overview.** The 19 AW does not accept bird strikes as unavoidable. Reducing bird strikes requires a continuous effort from several organizations. This plan outlines the process for the declaration, dissemination, and active reduction of MODERATE or SEVERE BWC/DWC and the management of wildlife that may cause hazardous conditions on the airfield and local operating areas. Utilize prescribed actions in this plan and parent directives to reduce hazards to aircraft. LRAFB has a unique bird migration pattern with two delta fly way zones converging near the base. Multiple harassment techniques are necessary to maintain a safe aircraft flying environment while reducing wildlife attractants. Base practices will encompass methods to preserve environments designed specifically for the safe launch and recovery of aircraft. Team Little Rock will follow all governing parent regulations incorporating all base resources to facilitate this program to minimize hazards. Follow land use plans and the INRMP to ensure the airfield and Aircraft Movement Area are not used or designated as wildlife conservation, wetland, or grassland areas to include zero tolerance for wildlife inside the CMA and Wildlife Exclusion Zones.

**3.2 Mitigation Practices.** 19 AW will use both “long term passive” and “short term active” controls to mitigate threats to the airfield. Construction projects that impact the airfield will incorporate Risk Management (RM) analysis and controls to mitigate long or short-term solutions to reduce wildlife strikes. Along with the RM process, follow instructions from parent regulations for guidance on vegetation, airfield fencing, drainage, temporary water storage, exclusionary devices, perching on/in structures, agriculture programs, wastewater facilities, and landfills.

3.2.1 Passive Mitigation Procedures. Execute USDA Wildlife Biologist recommendations for habitat modification, targeting vegetation including vegetative cover between seven to fourteen inches on the CMA. Other methods include:

3.2.1.1 Removing attractive habitat features as a long-term strategy to reduce wildlife presence.

3.2.1.2 Removing standing water on or near the airfield to eliminate nesting, perching, and roosting structures. See Federal Aviation Administration Circular 150/5200-33B Hazardous Wildlife Attractants on or near Airports for further guidance.

3.2.2 Active Controls. The 19 AW will utilize a combination of dispersal tools to provide the best line of defense for immediate hazards.

3.2.2.1 Non-lethal pyrotechnics, bioacoustics, lasers, and wildlife depredation through lethal trapping and firearms will be the primary control methods. All hazards identified will be documented and RM procedures implemented to alleviate the threat.

3.2.2.2 US Fish and Wildlife Services will be consulted prior to the use of pyrotechnics that will disturb any federally listed threatened/endangered species, to comply with the Endangered Species Act, and DAFI91-212 Regulation 21.41, *Depredation Permits*.

3.2.2.3 When required, surveys will be conducted to identify local and migratory species and other wildlife hazards that impact local flying operations.

## Chapter 4

### BIRD/WILDLIFE AIRCRAFT STRIKE HAZARD AND FLIGHT OPERATIONS

#### 4.1. Flight Operations Overview

4.1.1. Wildlife Hazard Warning System. This instruction establishes procedures for the immediate exchange of information between ground agencies and aircrews concerning the existence and location of birds hazardous to flight safety.

4.1.1.1. Bird Watch Conditions and Restrictions: Use the following terminology for rapid communications to disseminate bird activity information and implement proper operational procedures. Give bird locations with the condition code.

4.1.1.1.1. Bird Watch Condition **LOW**: Bird activity on and around the airfield presents a low potential for strikes. No restrictions, continue normal operations.

4.1.1.1.2. Bird Watch Condition **MODERATE**: Bird activity near the active runway or other specific location presents increased potential for strikes, requiring increased vigilance by agencies and extreme caution by aircrews.

4.1.1.1.2.1. Traffic Pattern/Landing Zones: Initial takeoffs and final landings allowed only when departure and arrival routes will avoid bird activity. Local IFR/VFR traffic pattern activity is prohibited unless waived by 19 OG/CC, 314 OG/CC, 189 OG/CC, and 913 AG/CC, and then only the minimum required for training. 19 OSS/OSAA or the DZCO/LZCO notify Airfield Management and 19 AW/SE for dispersal or take appropriate actions to disperse the birds/wildlife.

4.1.1.1.2.2. Ranges, Low-Level Routes: While flying any leg of a low-level route assessed Moderate by AHAS (based on NEXRAD), MSA or 1,000 feet AGL, whichever is higher, should be maintained unless required for training as prescribed or waived by 19OG/CC or equivalent. During BASH Phase II, crews should be aware that bird activity may still exist above 1000 feet AGL.

4.1.1.1.3 Bird Watch Condition **SEVERE**: Bird Activity on or immediately above the active runway or other specific location representing high potential for strikes. Aircrews must thoroughly evaluate mission need before operating in areas under condition SEVERE.

4.1.1.1.3.1 Traffic Pattern/Landing Zones: All takeoffs and landings are prohibited unless a greater emergency exists. Waiver authority is 19 OG/CC, 314 OG/CC, 189 OG/CC, and 913 AG/CC. Diverting or holding until a lower BWC is declared is preferred. Notify Airfield Management and 19 AW/SE immediately to disperse birds/wildlife from the airfield, or the DZCO/LZCO when operating at an off-station LZ, including AALZ.

4.1.1.1.3.2 Ranges, Low-Level Routes: While flying any leg of a low-level route assessed Severe by AHAS (based on NEXRAD), MSA or 1,500 AGL whichever

is higher, should be maintained unless required for training waived by 19 OG/CC, 314 OG/CC, 189 OG/CC, and 913 AG/CC. During BASH Phase II, crews should be aware that bird activity may still exist above 1000 feet AGL.

4.1.1.2 Deer Watch Conditions and Restrictions (DWC): Use the following terminology for rapid communications to disseminate deer activity information and implement proper operational procedures. Give deer locations with the condition code.

4.1.1.2.3 Deer Watch Condition **LOW**: No deer activity noted inside fences or within perimeter of landing surface. No restrictions, continue normal operations.

4.1.1.2.4 Deer Watch Condition **MODERATE**: Deer sighted inside the fence perimeter, but no closer than 200 feet to any landing surface with potential to cross active surfaces and increase collision potential. Requires increased aircrew vigilance and extreme caution.

4.1.1.2.4.1 Traffic Pattern/Landing Zones: Formation takeoffs and landings are prohibited. Consider full stop landings only and use extreme caution if performing touch-and-go or assault landings.

4.1.1.2.5 Deer Watch Condition **SEVERE**: Deer sighted within the fence perimeter and/or any activity within 200 feet of any landing surface pose high potential for collisions. Requires thorough aircrew evaluation of the mission.

4.1.1.2.5.1 Traffic Pattern/Landing Zones: No touch-and-go or assault landings are authorized. Full-stop landings should be delayed until DWC is lowered.

4.1.2 Authority: ATC / 19 OSS/OSAA are the authority to declare BWC/DWCs during flight operations. These persons can declare, increase, decrease, or terminate conditions based on ground observations, pilot reports, or radar observations, etc.

4.1.2.1 19 AW/SEF, USDA/Contractor Biologist, and aircraft in LRAFB airspace have authority to make recommendations.

4.1.3 Disseminate BWC/DWCs by the following means:

4.1.3.1 Upon declaration of a BWC/DWC other than LOW, the Airfield Manager or designee will notify ATC and 19 AW Safety and post the status in Airfield Management.

4.1.4 The 19 OG/CC has authorized Airfield Management Operations personnel in coordination with the ATC Watch Supervisor, if on duty, authority to update BWC/DWCs at LRAFB. The 19 AW/CC has also authorized the DZCO/LZCO (Civilian contractor or qualified DZCO/LZCO) the authority to downgrade or cancel BWC/DWCs at AADZ/AALZ, BJDZ, or any certified DZ/LZ approved and listed on the Zone Availability Report (ZAR).

4.1.4.1 Once a BWC/DWC has been declared at AADZ/AALZ, BJDZ, or certified DZ/LZ, the DZCO/LZCO downgrades BWC/DWCs commensurate with the latest observations

based on visual confirmation of current conditions. The DZCO/LZCO will notify aircraft in the vicinity immediately of any changes to the BWC/DWC via radio.

4.1.4.1.1 If radio contact is not viable, the DZCO/LZCO will contact 19 AW/CP to relay current BWC/DWC to the aircrew. The DZCO/LZCO should notify 19 AW/CP of current conditions. 19 AW/CP will notify Airfield Management Operations, ATC, 19th AW/SEF and flying aircrew.

4.1.4.2 During periods of flight operations, include bird hazard information other than low activity (i.e. normal conditions) in the hourly ATIS information, as specified in FAAJO 7110.65Y, LRAFBI 13-204 and AF Supplements.

4.1.4.3 Ensure common language is used to direct specific attention to bird concentrations hazardous to flight operations. When ATC or 19 OSS/OSAA declares BWC/DWC MODERATE or SEVERE, notify ATC to add BWC/DWCs to the ATIS. The 19 AW/CP will transmit on Command Post Frequency 349.4 if any leg of a route is SEVERE.

4.1.4.4 The primary means of transmitting BWC/DWCs will be via ATIS, the airfield status board in Base Operations, and direct communications with ATC, 19 AW/CP, 19th AW/SEF and flying aircrew. Under BWC/DWC SEVERE, ATC will ensure the pilot understands the condition and is provided the option to delay, divert, or continue the proposed operation into the hazardous area with 19 OG/CC (or equivalent for tenant units) approval.

#### 4.1.5 Phase I/II designation

4.1.5.1 During Phase II months, aircrew should maintain a minimum of 1,000 AGL while flying over the Arkansas River. During Phase II months, aircrew should completely avoid the “River Tour” segment completely. Aircrews should use locally developed risk mitigation techniques such as the BST Calculator to reduce bird strikes on local area training routes.

4.1.6 Mission Planning. The Operations Group Commanders make operational changes to avoid areas and times of known hazardous bird concentrations, mission and operations permitting, especially during Phase II operations. Operational planning utilizing ORM to avoid wildlife in time and space is paramount in areas where active control of wildlife is not possible. Aircrews operating in remote areas, must plan to minimize exposure to potentially hazardous wildlife concentrations. Mission planning using the BAM for scheduling purposes, or AHAS in near-real time, is critical.

4.1.6.1 Aircrew should incorporate locally developed risk mitigation tools such as the BST Calculator into their mission planning to enhance awareness on low-level routes and the terminal area. Training of aircrews, Airfield Management personnel, schedulers, and other users of these systems should occur on an as-needed basis to ensure the latest information is available and properly employed.

4.1.6.2 The BAM model provides a detailed depiction of bird concentrations from a historical perspective. It consolidates data on bird abundance and distribution from the

previous three decades and graphically depicts the relative level of bird mass for every “one square kilometer block” of the continental US and Alaska for each two-week period of the year and four daily time periods. It also depicts a wide array of environmental features and human infrastructure for reference.

4.1.6.2.1 Aircrew should consult the BAM for long-range mission planning purposes and to assess relative risks of bird strikes to operations in time and space whenever flying low-level missions.

4.1.6.3 AHAS is a dynamic version of BAM providing forecast bird hazard advisories within 24 hours. Aircrew should consult AHAS in the short term to assess bird hazards within 24 hours of a planned operation. Access to both systems is through the internet at [www.usahas.com](http://www.usahas.com). BAM and AHAS are continually updated as conditions and bird populations change. These conditions are updated in the models as new data becomes available. Schedulers, planners, and aircrews should continue to check the models for the most current conditions. A sample of the graphic output from the BAM is contained in Figure 6 of this plan. AHAS and BAM are not currently available outside the continental United States and Alaska. Specific evaluation of potential hazards in deployed areas outside the United States is not possible in the context of this plan without firsthand knowledge of these areas.

#### 4.1.7 Operational Modifications.

4.1.7.1 BHWG meetings report LRAFB wildlife mishaps and hazards. An analysis of wildlife strike data should use a rate per 1,000 flying hours (i.e., the number of events, multiplied by 1,000 flight hours, divided by the number of flying hours). This normalized rate will support annual comparisons to other installations. This data is used to report recommendations for route modifications to reduce wildlife strikes.

4.1.7.2 Locally observed/reported wildlife activity, airfield inspection findings, formal wildlife survey data trends, recovered wildlife strike remains, wildlife strike metrics, local hazardous wildlife habitat management/modifications (to include dispersal/depredation activity), environmental/land management activity, land uses (landfills, agriculture crop seasons), current or projected community projects off installation with the potential to affect wildlife activity on or near the installation, and encroachment issues are considered when formulating risk mitigation and flight profile modification recommendations.

## 4.2 Bird Hazard Identification

4.2.1 Bird populations and identification of species, obstructions, and construction projects should be monitored by local flight safety through survey programs to include the following areas: local flying areas, known wildlife attractions, wildlife exclusion zones, and low-level flying routes.

4.2.2 Data collection training will be provided to Airfield Management personnel and wildlife dispersal teams to include relevant species, direction of travel, activity, and number count.

Table 4.1. Technical Points of Contact.

<b>USAF BASH Team</b>	HQ AFSEC/SE Mr. Daniel Sullivan 9700 Ave. G., SE. Building 24999 KAFB, NM 871175671 DSN 246-5674 (505) 846-5674 <a href="mailto:Daniel.Sullivan.26@us.af.mil">Daniel.Sullivan.26@us.af.mil</a>
<b>National Guard Bureau, Environmental Planning Branch</b>	NGB/A7CVP (BASH) 3500 Fletcher Ave. Andrews AFB, MD 20762-5157 DSN 278-8859 (301) 836-8859
<b>Air National Guard Safety Office</b>	NGB/SEF 411 Jefferson Hwy, Suite 9400 Arlington, Va. 22202 DSN 612-8549
<b>FAA</b>	FAA-Airports Airport Compliance 800 Independence Ave., SW., Rm 615 Washington, DC. 20591 (202) 267-3389 <a href="https://www.faa.gov/airports/airport_safety/wildlife/">https://www.faa.gov/airports/airport_safety/wildlife/</a> <a href="https://wildlife.faa.gov">https://wildlife.faa.gov</a>
<b>UDDA/APHIS/WS</b>	U.S. Department of Agriculture, Wildlife Services: New Mexico Wildlife Services State Director 8441 Washington NE Albuquerque, NM 87113 (505) 346-2640 (phone)/(505) 346-2627 (Fax) <a href="https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/programs">https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/programs</a>

**Literature.** The Following (non-exclusive) references provide excellent text references for bird/wildlife hazards.

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Brough, T. and C.J. Bridgman. 1980. An evaluation of long grass as a bird deterrent on British airfields. J. Appl. Biol. 17:243-253.

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

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Title 16 United States Code, *Endangered Species Act of 1973*, 16 USC §§1531-1543

Title 16 United States Code, *Migratory Bird Treaty Act*, 16 USC §703 et. seq.

Title 16 United States Code, *Sikes Act*, USC §§670a-f

Title 33 United States Code, *Clean Water Act*, USC 33 § 1344

32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*, 15 July 1999

33 CFR 328.3(a), *Definitions*

40 CFR 258, *Criteria for Municipal Solid Waste Landfills*

50 CFR 21.41, *Depredation Permits*

50 CFR 21.43, *Depredation Order For Blackbirds, Cowbirds, Grackles, Crows, and Magpies* 1 October 2003

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AFMAN 13-204V2, *Airfield Management*, 22 July 2020

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ACRP Report 32, *Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports*, 2010

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ACRP Synthesis 39, *Airport Wildlife Population Management*, 2013

ACRP Synthesis 52, *Habitat Management to Deter Wildlife at Airports*, 2014

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FAA AC 150/5200-32B, *Reporting Wildlife Aircraft Strikes*, 31 May 2013

FAA AC 150/5200-33C, *Hazardous Wildlife Attractants on or Near Airports*, 21 February 2020

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Memorandum of Agreement *Between the Federal Aviation Administration, the U.S. Air Force, the U.S. Army, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, and the U.S. Department of Agriculture to Address Aircraft-Wildlife Strikes*, 2003

General Technical Report WO-73, *Multiple Species Inventory and Monitoring Technical Guide* Version 1.0, August 2006

NATO Standard AFSP-1.4, *Wildlife Strike Prevention*, Edition A, Version 1, March 2013

T.O. 1-1-691, *Cleaning and Corrosion Prevention and Control, Aerospace and Non-Aerospace Equipment*, 13 July 2017

T.O. 11W2-9-2-31, *Operations and Maintenance Instructions with Illustrated Parts Breakdown Pyrotechnic Pistol AN-M8*, 30 June 2004

T.O. 11W3-6-2-1, *Intermediate Maintenance Instructions with Illustrated Parts Breakdown Military Shotgun, 12 Gauge, Pump Action Model 870, with Adapter Part Number 32911*, 24 February 2014

UFC 3-260-01, *Airfield and Heliport Planning and Design*, 17 November 2008

UFC 3-260-17, *Standard Practice for Dust Control on Roads, Airfields, Base Camps, and Adjacent Areas*, 22 May 2018

### ***Prescribed Forms***

None

### ***Adopted Forms***

DAF Form 847, *Recommendation for Change of Publication*

United States Fish and Wildlife Services Form 3-200-13, *Federal Fish and Wildlife Permit Application Form*.

AF Form 853, *Air Force Wildlife Strike Event*, 17 Oct 23

### ***Abbreviations and Acronyms***

**ACRP**—Airport Cooperative Research Program

**AETC**—Air Education and Training Command

**AFB**—Air Force Base

**AFI**—Air Force Instruction

**AFMAN**—Air Force Manual

**AFPD**—Air Force Policy Directive

**AFRC**—Air Force Reserve Command

**AFSAS**—Air Force Safety Automated System  
**AFSEC**—Air Force Safety Center  
**AGL**—Above Ground Level  
**AHAS**—Avian Hazard Advisory System  
**ANG**—Air National Guard  
**ATIS**—Automated Terminal Information System  
**ATV**—All-terrain Vehicles  
**BAM**—Bird Avoidance Model  
**BASH**—Bird/wildlife Aircraft Strike Hazard  
**BST** – Bird Strike Threat Calculator  
**CFR**—Code of Federal Regulations  
**COTS**—Commercial Off The Shelf  
**DAF**—Department of the Air Force  
**DAFPAM**—Department of the Air Force Pamphlet  
**DoD**—Department of Defense  
**EO**—Executive Order  
**FAA**—Federal Aviation Administration  
**FSNCO**—Flight Safety Non-Commissioned Officer  
**FSO**—Flight Safety Officer  
**GPC**—Government Purchase Card  
**IAW**—In accordance with  
**MAJCOM**—Major Command  
**NATO**—North Atlantic Treaty Organization  
**NGB**—National Guard Bureau  
**NOTAM**—Notice to Air Missions  
**OPR**—Office of Primary Responsibility  
**SEF**—Flight Safety  
**SEFW**—Bird/wildlife Aircraft Strike Hazard Team  
**SE**—Safety  
**TICMS**—Theater Integrated Combat Munitions System  
**T.O.**—Technical Order

**UFC**—Unified Facilities Criteria

**USAF**—United States Air Force

**USC**—United States Code

**USDA**—United States Department of Agriculture – Wildlife Services

**USSF**—United States Space Force

### *Terms*

**Aircraft Design**—Engineering improvements that reduce aircraft damage when wildlife strikes occur (for example, improved windscreen design).

**Aircraft Movement Area**—The Aircraft Movement Area of the airfield encompassed the primary surface and the clear zones, as well as all apron areas and taxiways, regardless of their location, consistent with UFC 3-260-01.

**Aircraft Operations**—The airborne movement of aircraft in controlled or noncontrolled airport terminal areas and counts at enroute fixes or other points where counts can be made, defined as either local or itinerant operations classified with definitions in the Code of Federal Regulations.

**Aircraft**—Term to include both manned and unmanned aircraft, remotely piloted aircraft, and small unmanned aircraft systems.

**Airfield**—The area comprised of runways, taxiways, aprons, and other adjacent land areas of an airport which are dedicated to aircraft operations. Military airfields are artificially designed environments, specifically intended for the launch and recovery of aircraft.

**Bald and Golden Eagle Protection Act, 16 U.S.C. 668.**—The federal statute that makes it a crime to knowingly kill, take or possess bald and golden eagles.

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

**Bird/wildlife Aircraft Strike Hazard (BASH) Plan**—A written document that addresses wildlife strike hazards and designates organizations responsible for implementing solutions.

**Bird/wildlife Aircraft Strike Hazard (BASH)**—Wildlife, habitat, or conservation efforts that pose a risk to flight operations.

**Bird/wildlife Hazard Working Group**—A team of organizations involved in airfield wildlife control chaired by the vice wing commander of DAF flight assets or appropriate designee. The Bird Hazard Working Group will evaluate and coordinate all installation improvement projects (such as grounds maintenance, wastewater treatment, and golf courses) for wildlife hazard-related issues. At a minimum, Bird Hazard Working Groups will be comprised of representatives from the following organizations: Safety, Operations (flying squadrons, Air Traffic Control, Airfield Management, and Operations Group Standardizations/Evaluations), Civil Engineering (natural resources, pest management, operations, wildlife biologist (if assigned) and infrastructure), Base Legal, Public Affairs, Security Forces, and flying tenant units.

**Bird/wildlife Watch Condition (Bird Watch Condition) Codes**—Designated codes, used to inform aircrews of possible flight hazards due to bird/wildlife activity on the airfield and in local areas. These codes are used to communicate local bird/wildlife activity along with location, number, and type of wildlife.

**BIRDTAM**—A numerical value Bird Hazard Warning System implemented as a NATO Standard in European countries, issued as a specialized Notice to Airmen when increased bird risk is detected.

**Blading**—Passive management technique by which a grader effectively removes all vegetative cover from an area for years by exposing the bare soil to environmental forces letting nature harden

it over time. This technique is successful in desert environments where monotypic vegetative cover is difficult to grow.

**Damaging Wildlife Strike**—Any wildlife strike that causes reportable damage as defined in AFI 91-204.

**Delta**—USSF field organization equivalent to a USAF Wing with a specific mission type and/or combat capability. The term “delta” includes USSF garrisons who have responsibility for the installation safety program.

**Depredation**—The legal action of taking wildlife via lethal means (such as trapping, shooting, poisoning, and birds of prey).

**Edge Effect**—Edge effect is created where two habitat types are juxtaposed (such as grass to brush, brush to trees, or brush to water). Edge habitat is especially attractive to many species because the higher vegetation provides cover, food, and nesting locations while low vegetation provides quick access to water, additional food sources, and prey species.

**Endangered Species Act, 16 U.S.C. 1531**—The federal environmental statute that makes it a felony to "take" an endangered species. As used in the Act, "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect an endangered species. Criminal liability under this Act may be imposed for indirect takings resulting from the destruction of an endangered species habitat.

**Exclusionary Wildlife Mitigation**—Proactive long-term implementation of management techniques to deny wildlife the ability to move freely in and around the aerodrome ultimately reducing the conditions wildlife find attractive.

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

**Migratory Bird Treaty Act, 16 U.S.C. 703**—The federal statute that makes it a felony to kill, take or possess migratory birds without a permit.

**Non—damaging Bird/wildlife Strike** - Any wildlife strike that does not cause reportable damage to the aircraft IAW DAFI 91-204.

**Vegetative Cover**—Term to include all plant life, including but not limited to trees, shrubs, grass, cacti, moss, flowers, and weeds.

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

**Wildlife Control**—Any biological, chemical, or physical procedure that discourages the presence of wildlife. These procedures include repellents, toxicants, harassment, trapping, shooting, grounds maintenance, and habitat modification.

**Wildlife Data**—Information about the ecology, anatomy, physiology, behavior, size, movement, and distribution of wildlife that may be helpful in wildlife control, wildlife avoidance, and aircraft design.

**Wildlife Exclusion Zone**—A locally defined, site-specific area where a zero-tolerance goal for wildlife is maintained. At a minimum, the Wildlife Exclusion Zone will include the airfield (encompassing the Aircraft Movement Area and clear zones) but may also include additional

wildlife hazard attractants (such as water treatment facilities, golf courses, landfills, and athletic fields) within five nautical miles of the airfield and low-level flight corridors (such as final approach/departure paths).

**Wildlife Hazard Warning System**—A set of procedures, implemented through adequate risk-assessment by leadership, providing a framework for avoidance of wildlife hazards to safe aviation operations. The Wildlife Hazard Warning System includes Bird Watch Condition, Phase I/II operations, and the AHAS.

**Wildlife Hazard**—Any wildlife species that presents a potential threat to a safe flying environment.

**Wildlife Mitigation (Active)**—Physical actions to disperse or remove wildlife from an airfield allowing short-term relief from an immediate safety hazard.

**Wildlife Mitigation (Passive)**—Proactive long-term techniques of managing the aerodrome in ways to eliminate or reduce the conditions wildlife find attractive.

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

**Wildlife Threat (Seasonal and Diurnal)**—Wildlife threats associated with seasonality and time of day changes.

**Attachment 2  
AMC Form 97**

<b>AMC IN-FLIGHT EMERGENCY AND UNUSUAL OCCURRENCE WORKSHEET</b>				
Information provided is collected under the provisions of AFI 91-223_AMCSUP solely for the purpose of mishap prevention within the Air Mobility Command to determine all factors relating to the incident. All statements contained herein are NOT PROTECTED UNDER THE PROMISE OF CONFIDENTIALITY. Destroy in accordance with AFMAN 33-363 when no longer needed for mishap prevention purposes. Contact an appropriate Air Force safety officer if you have any questions concerning military safety privilege.				
SECTION I. FOR CREW USE				
1. DATE	2. TIME (ZULU)	3. LAT/LONG, RADIAL/DME OR NAV WAYPOINT	4. CLOSEST AIRFIELD ICAO	
5. REPORTING BASE (ICAO)	6. MISSION NUMBER	7. TYPE AIRCRAFT	8. TAIL NO.	9. ACFT ASSIGNED HOME STATION (ICAO)
10. AIRCREW ASSIGNED WING	12. ALTITUDE (MSL)	13. WEATHER, FLIGHT RULES (VFR, IFR, IMC, VMC, THUNDERSTORMS, HAIL, LIGHTNING, TURBULENCE, RAIN, ICING, ETC.)		
11. SQ AUTHORIZING FLIGHT ORDER				
14. PHASE OF FLIGHT				
<input type="radio"/> TAXI <input type="radio"/> TAKEOFF <input type="radio"/> CLIMB <input type="radio"/> CRUISE <input type="radio"/> AIR REFUELING <input type="radio"/> DESCENT <input type="radio"/> LOW LEVEL <input type="radio"/> FINAL APPROACH <input type="radio"/> MISSED APPROACH <input type="radio"/> TRAFFIC PATTERN <input type="radio"/> TOUCH & GO <input type="radio"/> LANDING <input checked="" type="radio"/> UNKNOWN <input type="radio"/> GROUND OPS <input type="radio"/> GO-AROUND <input type="radio"/> TACTICAL OPERATION				
15. TIME FROM ALERT TO INCIDENT	16. TAKEOFF TIME (ZULU)	17. FLIGHT DURATION	18. AIRCRAFT SYSTEM(S) INVOLVED	19. ENGINE SHUTDOWN
				<input checked="" type="radio"/> NO <input type="radio"/> YES POSITION NO: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
20. WILL YOU FILE ANY OF THE FOLLOWING? <input type="checkbox"/> ASAP <input type="checkbox"/> NASA REPORT <input type="checkbox"/> HATR <input type="checkbox"/> WILDLIFE STRIKE REPORT				
21. STATEMENT: (A CONCISE, CHRONOLOGICAL DESCRIPTION OF THE FACTS AND CIRCUMSTANCES LEADING TO THE OCCURRENCE, ACTIONS TAKEN AND RESULTS. INCLUDE ENGINE INDICATIONS, FLIGHT PARAMETERS, RADIO COMMUNICATIONS, ROUTE OF FLIGHT, SYSTEM INDICATIONS OR WARNINGS WITNESSED AS APPLICABLE. ATTACH EXTRA SHEETS AS REQUIRED.)				



Attachment 4  
Bird Survey Data Sheet.

Page \_\_\_\_ of \_\_\_\_

BIRD SURVEY DATA SHEET

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Weather/Temp: \_\_\_\_\_ Initials: \_\_\_\_\_  
BWC: \_\_\_\_\_ Wind speed /Direction: \_\_\_\_\_

Location _____				Location _____			
<u>Species</u>	<u>Number</u>	<u>Behavior</u>	<u>Comments</u>	<u>Species</u>	<u>Number</u>	<u>Behavior</u>	<u>Comments</u>
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

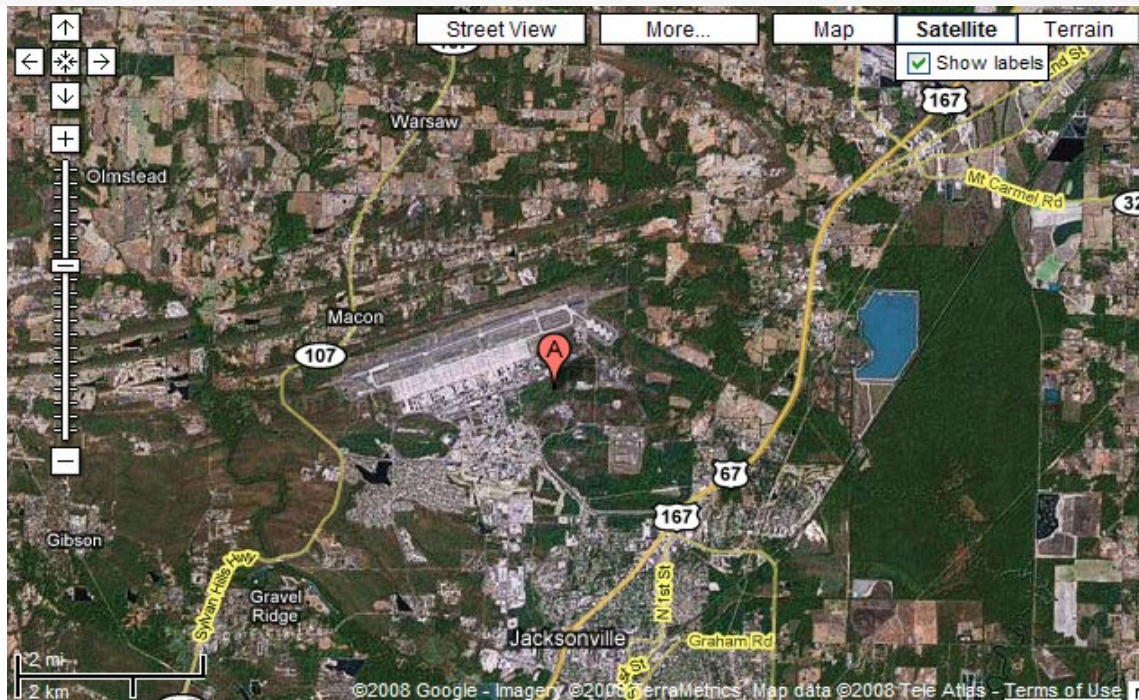
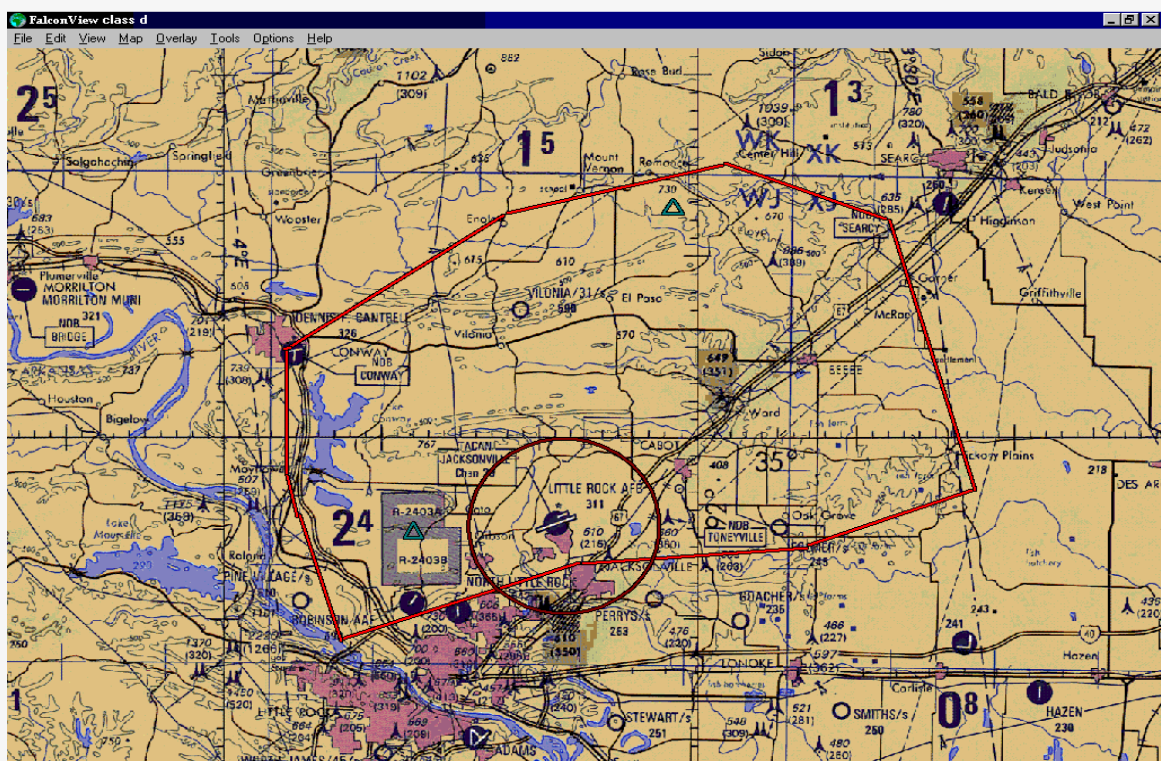
Location _____				Location _____			
<u>Species</u>	<u>Number</u>	<u>Behavior</u>	<u>Comments</u>	<u>Species</u>	<u>Number</u>	<u>Behavior</u>	<u>Comments</u>
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

Behavior Codes:

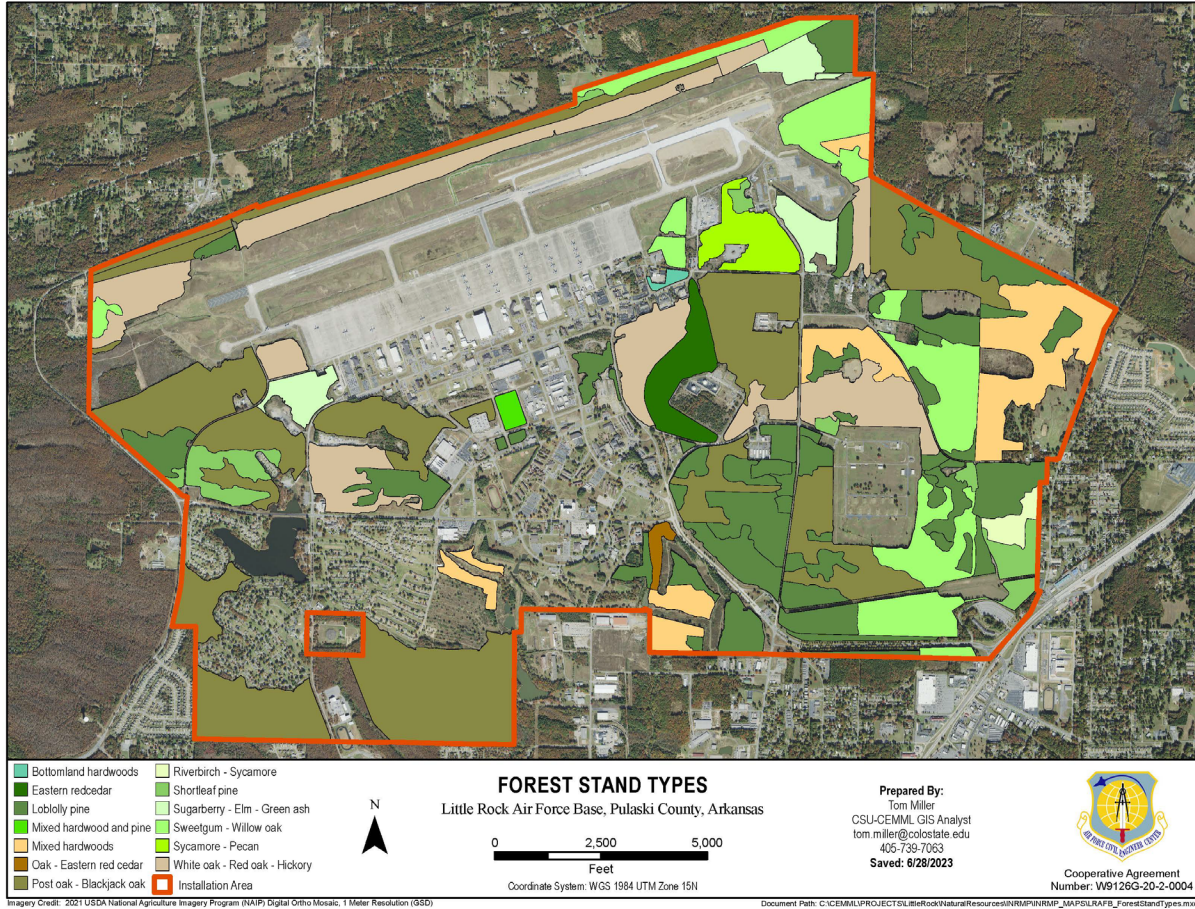
- 1- Loafing on ground      2-Loafing on water      3-Perched on vegetation
- 4- Perched on manmade structure      5- Feeding      6- Flying over observation area      7-Aerial hunting
- 8-On ground in or adjacent to runway      9-Flying over runway



**FIGURE 1**  
**LRAFB Local Area Map/Aerial Photo.**



**FIGURE 2**  
**LRAFB Forest Stand Type Map.**



**FIGURE 3**  
**LRAFB Water Resources Map.**

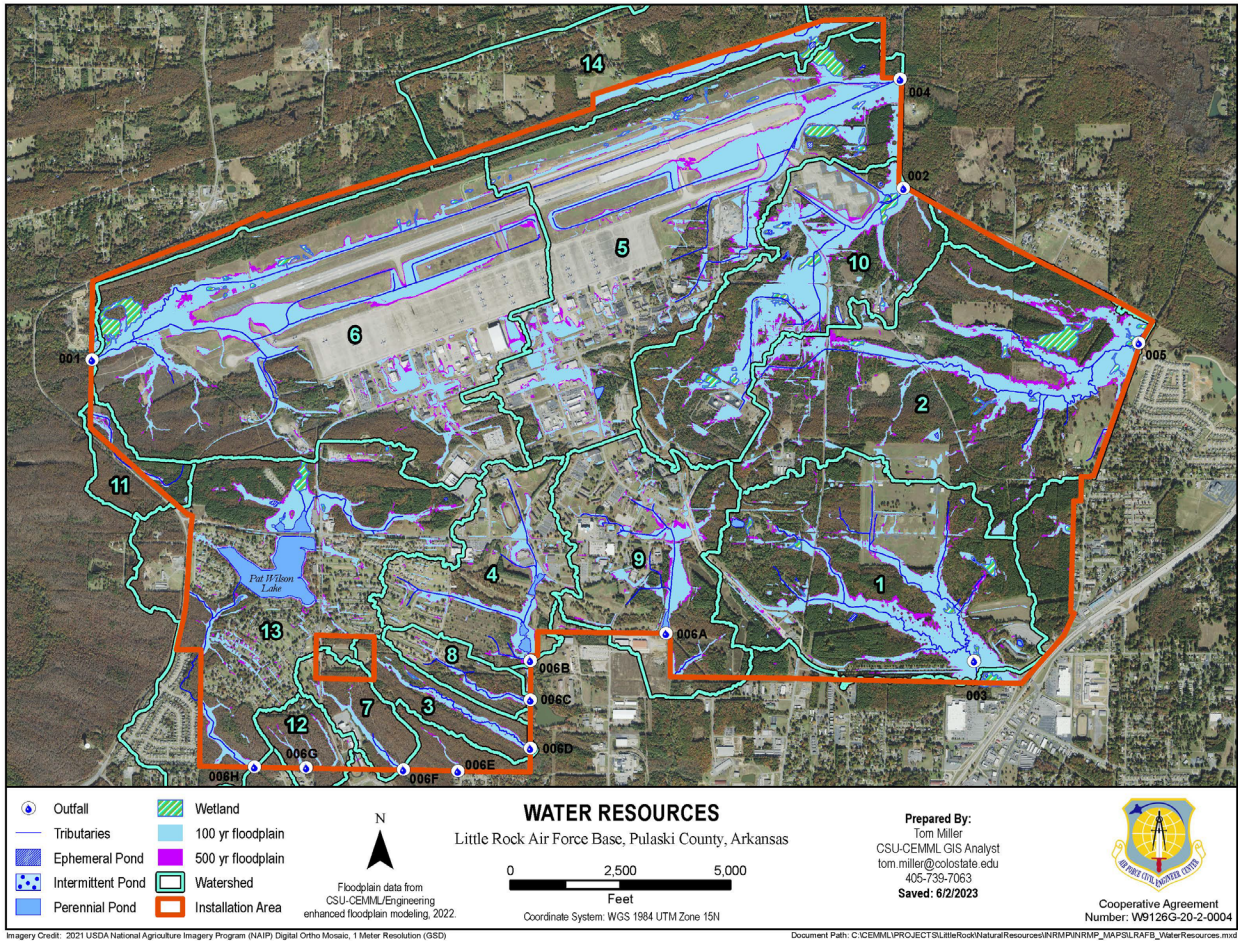


FIGURE 4

LRAFB Surrounding Area and Low-Level Training Area Map.

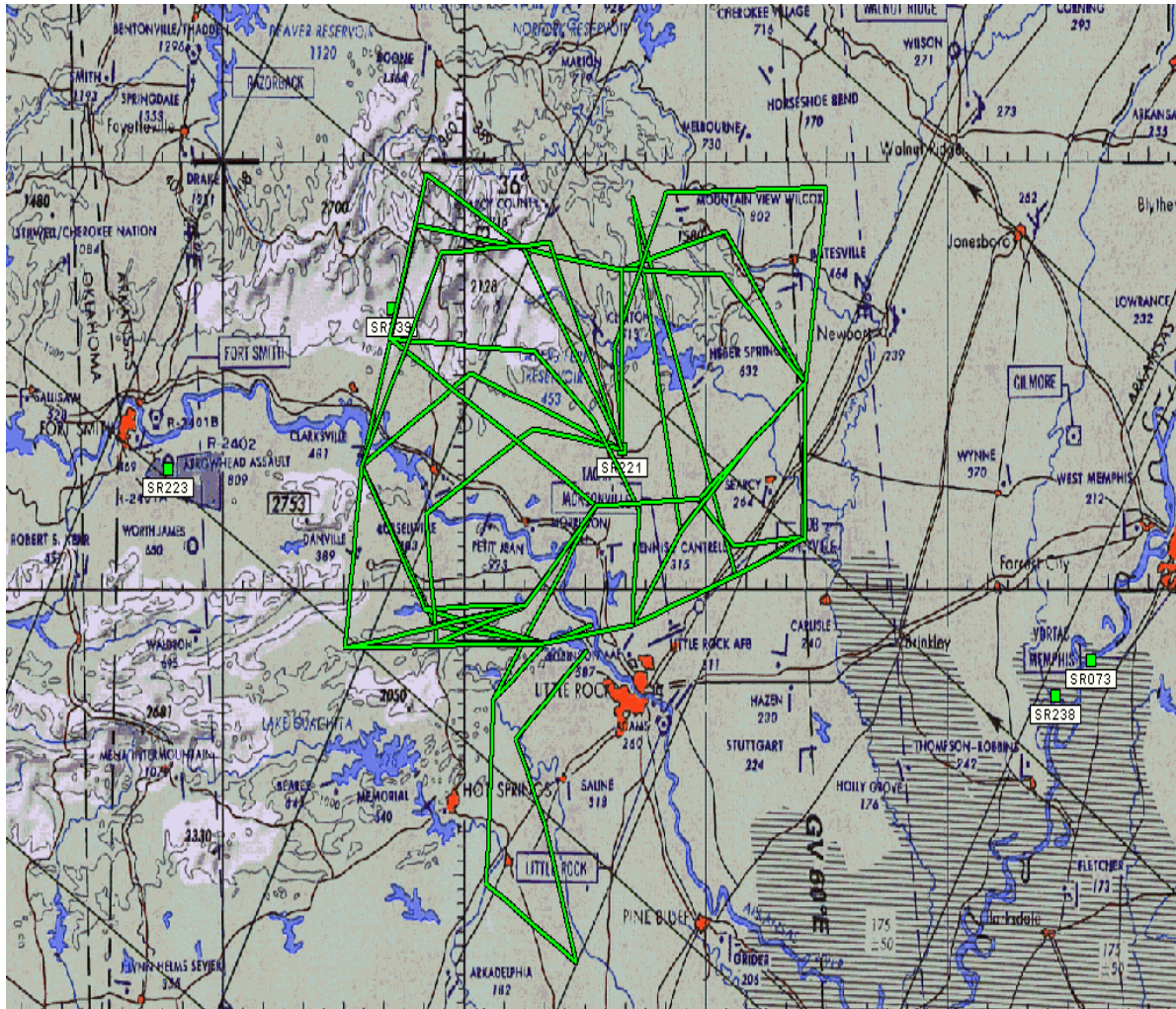


FIGURE 5

Sample Bird Avoidance Model (BAM) Map

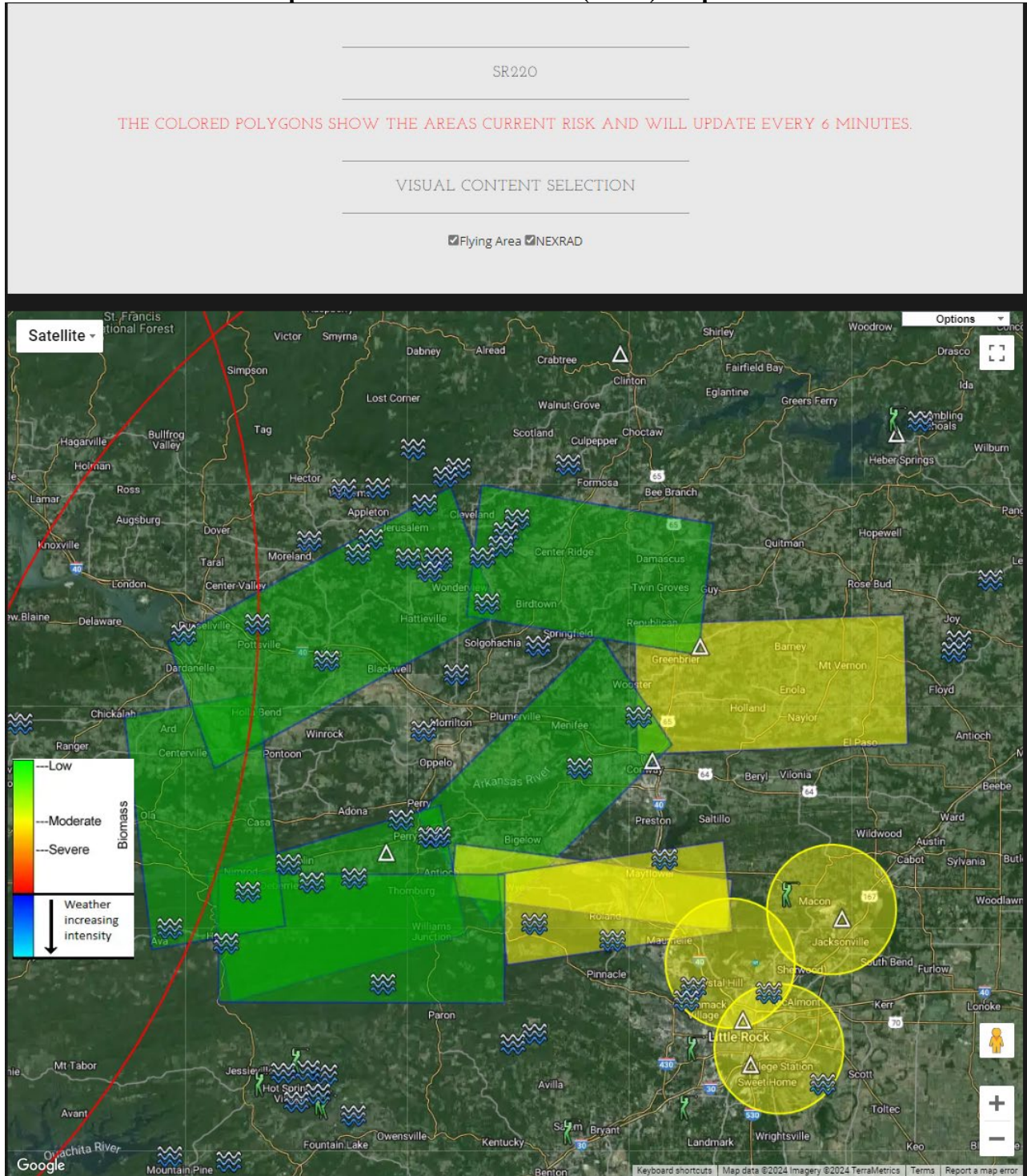


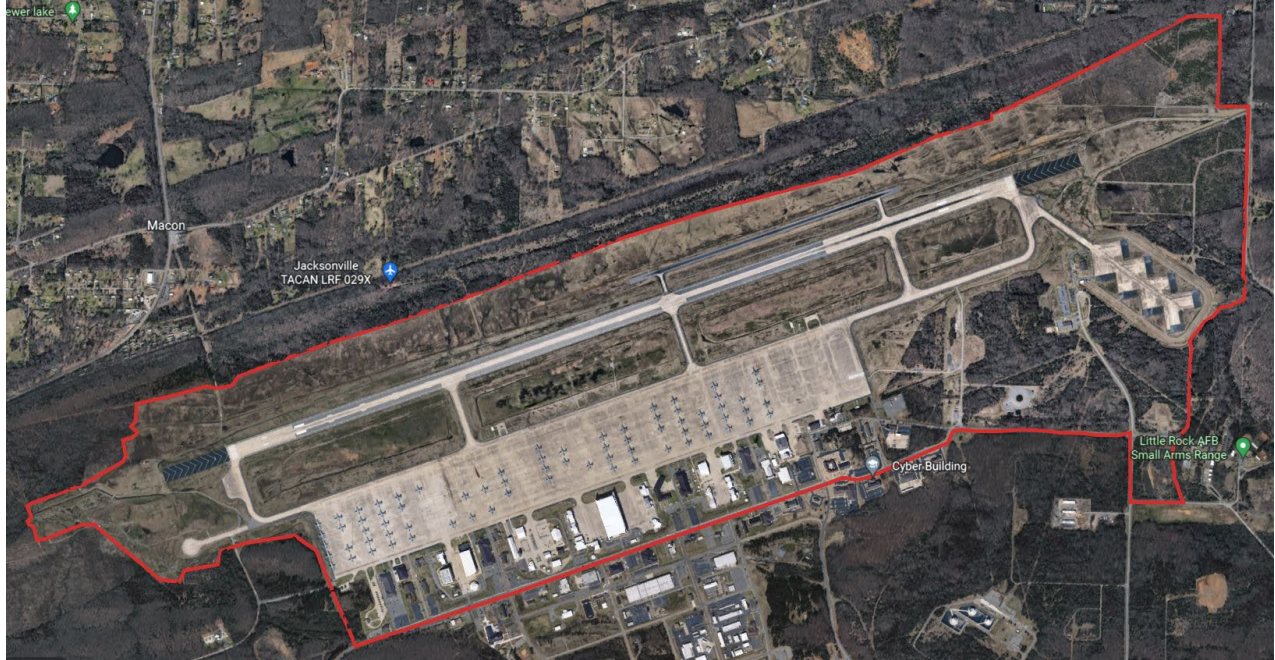
Figure 6

LRAFB Lake/Outdoor Recreation Complex Wildlife Exclusion Zone



Figure 7

LRAFB Controlled Movement Area Wildlife Exclusion Zone



**Figure 8**  
**Blackjack DZ Wildlife Exclusion Zone**



**Figure 9**

**All American Landing/Drop Zone Wildlife Exclusion Zone.**

