

**BY ORDER OF THE COMMANDER  
PACAF REGIONAL SUPPORT CENTER**

**PACAF REGIONAL SUPPORT CENTER  
INSTRUCTION 91-212**



**4 OCTOBER 2024**

**Safety**

**BIRD/WILDLIFE AIRCRAFT STRIKE  
HAZARD (BASH) MANAGEMENT  
PROGRAM**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements Air Force Policy Directive (AFPD) 91-2, *Safety Programs*, and is used in conjunction with Department of the Air Force Instruction (DAFI) 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Program*, Air Force Instruction (AFI) 91-202, *The US Air Force Mishap Prevention Program* and DAFI 91-204, *Safety Investigations and Reports*, Department of the Air Force Manual (DAFMAN) 91-223, *Aviation Safety Investigations and Reports*, and Pacific Air Forces (PACAF) guidance. This instruction provides a base program to minimize aircraft exposure to potentially hazardous bird strikes. It applies to all host, associate, tenant, and temporary duty (TDY) organizations on Joint Base Elmendorf-Richardson (JBER) (Elmendorf Airfield side) including the Air National Guard and US Air Force Reserve members and units. The 3d Wing WG Flight Safety Office (WG/SEF) is responsible for the implementation of this instruction. Blanket waivers for this instruction are prohibited. The 3d Wing Safety Office (WG/SE) chief may grant waivers on individual sections/procedures. Refer recommended changes and questions about this publication to the office of primary responsibility (OPR) using the Department of the Air Force (DAF) Form 847, *Recommendation for Change of Publication*. Route DAF Forms 847 through the appropriate chain of command. Ensure all records generated as a result of processes prescribed in this publication adhere to AFI 33-322, *Records Management and Information Governance Program*, and are disposed in accordance with the Air Force Records

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## 1. BASH Program Management.

1.1. **Introduction.** This instruction establishes a program to minimize wildlife strikes. It delineates PACAF Regional Support Center (PRSC) airfield Wildlife Exclusion Zones for dispersal purposes and defines Vegetation Management Zones designed to make PRSC airfields unattractive to wildlife. Furthermore, it defines 3d Wing (WG) and PRSC BASH responsibilities and outlines procedures for issuing bird watch conditions and reporting wildlife strikes. All agencies operating at PRSC airfields will incorporate this instruction into their operations. All BASH briefings and training will be adhered to IAW this instruction and *PRSC Memorandum of Agreement (MOA)-301*.

### 1.2. Overall Program.

1.2.1. The 3 WG/SEF will manage the overall program in coordination with The United States Department of Agriculture–Wildlife Services (USDA–WS) and PRSC leadership IAW the PRSC MOA- 301.

1.2.2. The 611th Civil Engineer Squadron (CES) will be responsible for vegetation management and overall wildlife management at the various PRSC locations in conjunction with contractors on site.

1.2.2.1. Site contract personnel are responsible for execution on specific vegetation and wildlife management protocols IAW this instruction, DAFI 91-212, and site specific Integrated Natural Resources Management Plan (INRMP).

1.2.3. The 611 CES Natural Resources Managers will cooperate with the BASH program managers on habitat modification projects and base wildlife populations.

1.2.4. The USDA-WS biologist will ensure that all Contractors and airfields have the proper federal and state depredation permits required for the program.

1.3. **Phase I and Phase II.** This plan contains two BASH phases of operation. **Note:** See appropriate airfield specific Attachment for Phase I/II information.

1.3.1. Phase I concentrates on wildlife control and habitat modification to mitigate wildlife hazards on the airfields. Refer to [paragraph 7.3.5.1](#) for effective dates.

1.3.2. Phase II concentrates on bird avoidance using operating restrictions and increased dispersal efforts. Refer to [paragraph 7.3.5.2](#) for effective dates.

1.4. **Wildlife Strikes.** All wildlife strikes to aircraft will be reported to the 3 WG/SEF and PRSC USDA-WS biologist using AF Form 853, *Air Force Wildlife Strike Report*, IAW DAFMAN 91-223.

1.4.1. All wildlife remains found will be collected and processed according to DAFI 91-204.

1.4.2. All Form 853s will be forwarded to the 3 WG/SEF and the USDA-WS biologist overseeing the PRSC BASH program.

1.4.3. It is the responsibility of the person who identifies the bird strike to fill out the AF Form 853. Typically, this will be the aircraft commander or the maintenance member who discovered the bird strike but may be done by person(s) responsible for conducting BASH work once permission to approach the aircraft has been given.

1.4.4. GeoBase: DAFI 91-212 2.4.4 and 2.4.5, the standard operating procedures (SOPs) will be outlined by the 611th Civil Engineer Squadron (CES), Civil Engineer Natural Resources Management Element (CENME).

1.4.4.1. All Bird/Wildlife Aircraft Strike Hazard (BASH) data collection procedures must be strictly adhered to.

1.4.4.2. Subsequently, the collected data must be submitted to the Pacific Air Forces (PACAF) Regional Support Center (PRSC) GeoBase Integration Office (GIO) for integration into the geodatabase.

1.4.4.3. Subsequently, the GIO will display the data on the PACAF GeoBase Environmental Map Application.

## 2. Environment.

2.1. PRSC airfields cover a broad range of elevations, terrains, and habitats. These range from sea-level tropical environments, such as Wake Island (PWAK); sea-level tundra, such as Cape Lisburne (PALU); mountainous forest, such as Sparrevohn (PASV); to mountainous tundra, such as Indian Mountain (PAIM). **Note:** See appropriate Attachment for airfield specific environment information.

2.2. Bird and wildlife hazards exist on the airfields and pose a threat to flying operations year-round. See appropriate airfield specific Attachment for relative bird and wildlife hazard information.

**3. Specific Responsibilities.** This list is not all-inclusive and should be reviewed annually, as necessary.

### 3.1. PRSC BASH Biologist:

3.1.1. The BASH Program Manager/OPR for this instruction will review and/or revise the PRSC 91-212 annually; to include but not limited to: inserting updated survey maps, modified WEZ/BEZ delineation, evolving site-specific bird/wildlife hazards and mitigation efforts.

3.1.2. Ensures that PRSC contracted personnel maintain airfield BASH programs IAW with instruction, DAFI 91-212, and state and federal regulations.

3.1.3. Maintain current site-specific BASH strike data, and identifies trends or areas of concern.

3.1.4. Manages all PRSC-Supported Airfield/Alaska Radar Sites strike reports. Forward bird strike remains IAW DAFMAN 91-223. After remains are identified, ensure Air Force Safety Automated System (AFSAS) reports are finalized. Assist TDY aircrews with bird strike procedures, as required.

3.1.5. Coordinates with PRSC contractors to determine if Phase II dates, listed below, need to be modified in response to significant changes in the local bird population or migratory activity.

3.1.5.1. BASH PHASE I - All dates not designated as Phase II.

3.1.5.2. BASH PHASE II – See appropriate airfield specific Attachment for BASH Phase II information.

- 3.1.6. Coordinates with PRSC contractors to announce BASH Phase operations.
- 3.1.7. Serves as the BHWG coordinator. Schedules meetings of the BHWG and publishes meeting minutes.
- 3.1.8. Ensures availability of AF Form 853, for PRSC contractors.
- 3.1.9. Engages in constant communication between the USDA–WS, 611 CES, and PRSC contractors to determine the best solution to any wildlife that may pose a threat to aircraft.
- 3.1.10. Considers all sources for the improvement of this program. There are many national and international BASH conventions and committees that the PRSC BASH Biologist is encouraged to attend. Many of these opportunities are listed on the Air Force Safety Center’s BASH website.
- 3.1.11. Annually reviews this BASH plan, IAW AFI 91-202. Document the review and self-inspection via memorandum for record (MFR).
- 3.1.12. Provides guidance, when requested, on the collection of bird/wildlife remains for identification (reference DAFI 91-212, paragraph 2.5.2). Also, reference the Air Force Safety Center BASH website for the latest collection methods: <http://www.safety.af.mil/Divisions/Aviation-Safety-Division/BASH/>.
- 3.1.13. Coordinates with 611th PRSC Commander (PRSC/CC) to establish funding to support BASH programs, training, equipment and material, conference attendance, and so forth from the PRSC. This includes ensuring the annual cost estimate and the Military Interdepartmental Purchase Request (MIPR) is processed before each fiscal year to ensure funding for the USDA-WS contract.
- 3.1.14. Provide BASH administrative oversight and poses the ability to accomplish BASH duties while on site for all airfields supported and maintained by the PRSC. This includes Wake Island (PWAK), Eareckson AS (PASY), Cape Lisburne LRRS (PALU), Cape Newenham LRRS (PAEH), Cape Romazof LRRS (PACZ), Indian Mountain LRRS (PAIM), Sparrevhon LRRS (PASV), Tatalina LRRS (PATL), and Tin City LRRS (PATC). Any administrative BASH issues, along with all bird strike reports from these airfields will be briefed and covered in the PRSC bi-annual BHWG meetings.
- 3.1.15. Coordinates with current flying contractors that service the PRSC locations listed in 3.1.14. to provide BASH hazard information in coordination with the semi-annual BHWG.

**3.2. The 611th Civil Engineer Squadron Commander (CES/CC) will:**

- 3.2.1. Initiate wildlife, vegetation surveys and write environmental assessments and environmental impact statements as required by law.
- 3.2.2. Conduct operations IAW **paragraph 5** of this instruction.
- 3.2.3. Advise the PRSC USDA BASH Biologist of civil engineering projects that may impact airfield operations related to bird and wildlife hazards.
- 3.2.4. Document bird migration activity through surveys, referencing of historic data, and cooperatively with PRSC USDA BASH Biologist and USDA-WS to designate the Phase I and II dates for each airfield.

3.2.5. Coordinate with PRSC USDA BASH Biologist to establish funding to support BASH programs, that is, training, equipment and material, purchase and maintenance, conference attendance, and so forth from the PRSC.

#### **4. Personnel tasked with BASH responsibilities:**

4.1. Will maintain a BASH mitigation program at each respective PRSC site, IAW this regulation, and DAFI 91-212.

4.2. Notify inbound aircraft of any bird watch condition above low. Include location, movement, and other known data of the bird activity that is driving the BWC. See site specific Attachment for BWC notification procedures.

4.3. Will report all bird/wildlife strikes that occur at each respective PRSC operated airfield, IAW DAFI 91-204, DAFMAN 91-223, and this instruction within two business days of the event. See site specific Attachment below for strike reporting procedures.

4.4. Monitor bird/wildlife population, grass height, and standing water within the Airfield Zone and report problems to the appropriate OPRs for modifying or eliminating the problem.

4.5. Disperse all bird(s) and wildlife within the BEZ/WEZ using physical harassment, vehicle harassment, shooting, or with pyrotechnics as needed to reduce hazards to aircraft. IAW state and federal permits.

4.6. Lethally remove bird(s) and wildlife that pose an immediate threat to aircraft on the airfield and/or to reinforce non-lethal hazing techniques. IAW state and federal permits.

4.6.1. Maintain a database of dispersal and lethal take operations for each airfield. The database must consist at a minimum of species, numbers dispersed, location, date, time, and means of dispersal.

4.6.2. An annual report summary of all BASH operations to include but not limited to, habitat changes, hazing, and exclusionary efforts should be prepared and presented to 3 WG/SEF and PRSC USDA BASH Biologist by end of 1st Quarter, Calendar Year.

4.7. Will inspect all arriving aircraft for bird strike remains and follow the proper collection and reporting methods.

4.8. Maintain the WEZ/BEZ with active patrolling, nest removal, record all wildlife interactions and have them available by request from 3<sup>rd</sup> Wing Flight Safety/PRSC USDA BASH Biologist within two business days. All nests need to be removed from the WEZ/BEZ IAW limit and means as stated on the federal and state permits.

#### **5. Training.**

5.1. BASH training will be provided by USDA-WS IAW DAFI 91-212 and PRSC MOA-301 on an annual basis.

5.2. 3 WG/SEF, in conjunction with USDA-WS, PRSC leadership, and PRSC contractors, will maintain a bird/wildlife hazard awareness program. Briefings, films, posters, and other methods will be used to inform personnel about local bird hazards and reporting procedures.

5.3. Based on the complexities of the bird and wildlife hazards at PRSC airfields, the USDA-WS BASH biologist is charged with program oversight IAW the PRSC MOA-301. PRSC contractors will be the primary BASH dispersal/depredation agency for their respective airfield.

5.4. All personnel who engage in BASH dispersal/depredation need to receive, and maintain currency with and apply, annual USDA-WS training. Personnel will qualify by completing the following requirements:

5.4.1. USDA-WS Wildlife Hazard Management at Airports training is mandatory for all personnel conducting dispersal/depredations at PRSC airfields. All personnel must be familiar with bird identification, wildlife deterrent procedures, and trained in the proper use of firearms and pyrotechnic devices as outlined in the USDA-WS Wildlife Hazard Management at Airports training.

5.4.2. BASH training records will be created and maintained by USDA-WS biologist. All training will be documented IAW DAFI 91-212.

## **6. Exclusion Zones.**

6.1. These boundaries have been established to aid all agencies in defining when a bird/wildlife hazard exists, dispersal priorities and vegetation management goals.

6.2. Wildlife Exclusion Zones (WEZ), also known as Bird Exclusion zones (BEZ) and Bird Reduction Areas (BRA) are boundaries that have been established to aid all agencies in defining when a bird/wildlife hazard exists, dispersal priorities and vegetation management goals. See appropriate airfield specific Attachment for exclusion zone information.

## **7. Habitat Modification.**

7.1. **Overview.** By utilizing specific habitat management practices PRSC airfields can maintain an airfield habitat that is less attractive to birds and other wildlife, effectively lowering the risk to flight safety.

7.1.1. 611 CES Natural Resources managers, will be primarily responsible for habitat modification.

7.1.2. Completed habitat modification projects will be communicated to the PRSC USDA Biologist.

7.2. **BASH Vegetation Management Zones.** There are 2 types of zones identified, Airfield Zones and Clear Zones. See appropriate airfield specific Attachment for BASH Vegetation Management Zone information.

### **7.3. Managing Grass Height.**

7.3.1. The 611 CES in coordination with PRSC contractors will determine the timing of mowing operations to keep grass height within tolerance (7-14 inches unless otherwise specified). The intent of grass management is to cut during the period when birds are least likely to be attracted to short grass, to remove the seed heads from the plants before they fully mature and provide a food source, late enough that alternate seed heads do not mature, and with adequate time for the grass to reach 14 inches by date designated in airfield specific Attachment. See appropriate airfield specific Attachment for grass cutting information.

7.3.2. When mowing the Airfield Zone, mow infield beginning adjacent to the runway and finish in the outermost areas to drive rodents and insects away from the runway.

**7.4. Management of shrublands, woodlands, and controlling broad-leafed weeds.** See appropriate airfield specific Attachment.

**7.5. Berry/Fruit Producing Trees and Shrubs.** Mature berries can attract several species of birds. Minimizing their presence within the WEZ/BEZ is a BASH objective. No new berry/fruit producing trees or shrubs will be planted within the WEZ/BEZ without permission granted by 3 WG/SEF or USDA-WS. See appropriate airfield specific Attachment for berry/fruit producing tree and shrub information.

**7.6. Bird-Proof Buildings and Hangars.**

7.6.1. The 611 CES will ensure all new structures within the WEZ/BEZ are designed to avoid attracting nesting birds. These designs will minimize open vents, covered ledges, and graveled flat roofs.

7.6.2. Bird proofing of existing buildings and hangars within the WEZ/BEZ is required to exclude birds. Excluding birds from a structure they currently use will often displace them to an adjacent structure.

7.6.3. Existing bird nests should be destroyed prior to egg laying (IAW federal and state permits). Facility managers are responsible to identify exclusion and nest removal needs service requests to the 611 CES if the actions are beyond their capabilities. See appropriate airfield specific Attachment for bird-proofing information.

**7.7. Leveling of Airfield Zone.** Level or fill high or low spots to prevent standing water and reduce attractiveness to birds. See appropriate airfield specific Attachment for leveling information.

**7.8. Maintaining Drainage Ditches.** Regularly inspect ditches to keep them clear.

7.8.1. Maintain ditch sides as steeply as possible (minimum slope ratio of 5 to 1) to discourage wading birds and emergent vegetation.

7.8.2. Improve drainage, as necessary, to inhibit even temporary ponds or puddles. See appropriate airfield specific Attachment for drainage ditch information.

**7.9. Minimize Open Water.** All activities affecting wetlands must be coordinated with 611 CES and US Army Corps of Engineers.

7.9.1. When properly permitted, and where appropriate, eliminate snowmelt ponds or standing open water in the WEZ/BEZ, especially on the airfield. If unable to relocate a snowmelt pond, ensure it is drained as soon as possible.

7.9.2. Where appropriate, monitor ponds throughout the year and drain as necessary.

**7.10. Erosion Control Vegetation.** Outside of the Airfield Zone use vegetation that does not attract birds. Non-invasive annual grasses may be planted for initial soil stabilization. Any new planting should be done as soon as spring migration is over so that the grass will have time to grow before the fall migration. The USDA can assist in identifying those areas. See appropriate airfield specific Attachment for erosion control information.

7.11. **Pest Controls.** Invertebrates and rodents are key food sources for many birds. See appropriate airfield specific Attachment for pest control information.

7.12. **Controlling Waste Disposal.**

7.12.1. All solid waste storage/disposal facilities within the WEZ/BEZ will be designed and managed to remain closed and inaccessible to wildlife. Receptacles will be equipped with securable lids that are windproof.

7.12.2. Facility managers are responsible for waste receptacle housekeeping, monitoring maintenance and repairs. Facility managers will ensure all solid waste is inaccessible to wildlife within the WEZ/BEZ at all times. See appropriate airfield specific Attachment for waste disposal information.

7.13. **Discourage Wildlife Feeding.** Signs should be placed appropriately to educate the site personnel and visitors about the legal risks and hazard posed by feeding any wildlife. Bird feeders will not be allowed within the WEZ/BEZ.

**8. Bird Hazard Warning System.** These procedures establish methods to use for the immediate exchange of information between ground agencies and aircrews concerning the existence and location of birds that pose a hazard to flight safety.

8.1. **Bird Watch Condition (BWC) Codes.** The following terminology has been established for rapid communication of bird activity. Bird locations will be given with the condition code.

8.1.1. **Declaring a BWC.** Each airfield will establish procedure for notifying approaching and departing aircraft of current BWC on the airfield.

8.1.2. **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. BWC may be declared for an approach or departure end of the affected runway. For example: "BWC SEVERE, departure end, Runway XX; eagle soaring at 100 feet above ground level."

8.1.3. **Condition MODERATE.** Represents 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.

8.1.4. **Condition LOW.** Represents bird activity on or around the airfield representing low potential for strikes.

8.2. **Dispersal Operations.** See appropriate airfield specific Attachment for additional dispersal operations information.

8.2.1. Birds and mammals will be dispersed using physical harassment, vehicle harassment, shooting, or with pyrotechnics.

8.2.2. Any personnel who disperse, haze, or depredate any wildlife should at a minimum document species, number, date, time, method of dispersal, behavior, and location IAW state and federal bird/wildlife depredation permits. Documentation should be provided upon request to 3 WG/SE, 611 CES, and/or 611th Air Support Squadron (ASUS).

**9. Bird Strike Reporting:**

9.1. All bird/wildlife strikes that occur at PRSC controlled airfields will be reported IAW DAFI 91-204 and every effort will be made to collect samples or remains IAW DAFMAN 91-223. If damage is suspected notify 3 WG/SEF and PRSC Airfield Manager immediately.

9.2. Aircrew involved in a bird strike will provide AF Form 853 to 3 WG/SEF and or airfield contract personnel as soon as practical who will intern contact 3 WG/SEF in their behalf.

9.3. All impact points should be identified on the mishap object. Collect all feathers/feather fragments, Deoxyribonucleic Acid (DNA) samples, and other representative wildlife remains for submission to the Smithsonian Institution Feather Identification Lab IAW instructions provided in DAFMAN 91-223, Aviation Safety Investigations and Reports.

9.3.1. Photographs of whole carcasses may be used to identify species after Air Force Safety Center (AFSEC)/Bird/Wildlife Aircraft Strike Hazard Team (SEFW) and Smithsonian Scientist concur on species identification (See AFSEC website). Otherwise, carcasses or feather remains will be submitted.

9.4. Collect, and submit, all bird/wildlife remains, whether whole or in part, found on the airfield within 250 feet of a runway centerline, or within 1,000 feet of a runway end. If the animal's death may be definitively attributed to another source (i.e., natural causes), it should be removed from the airfield and disposed of in accordance with state and federal regulations.

9.4.1. The PRSC USDA BASH Biologist will enter event information into AFSAS. If shipment of remains to the Smithsonian is needed, 3 WG/SEF will provide a shipping sheet with instructions to proceed. Once a positive species identification has been made, the 3 WG/SEF will finalize the report in AFSAS.

**10. Bird Hazard Working Group (BHWG):**

10.1. PRSC BASH concerns/issues will be included in the semi-annual 3 WG BHWG. PRSC leadership will receive invitations to these meetings and/or will be provided meeting minutes IAW PRSC MOA-301.

TIMOTHY MEERSTEIN, Colonel, USAF  
Commander

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

DAFI 91-204, *Safety Investigations and Reports*, 10 March 2021

DAFI 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Program*, 13 April 2023

DAFMAN 91-223, *Aviation Safety Investigations and Reports*, 20 September 2022

AFI 91-202, *The US Air Force Mishap Prevention Program*, 12 March 2020

AFI 33-322, *Records Management and Information Governance Program*, 23 March 2020

AFPD 91-2, *Safety Programs*, 03 September 2019

PRSC MOA-301, *Memorandum of Agreement between PACAF Regional Support Center (PRSC) and the 3rd Wing for oversight of PRSC Flight Safety and BASH Program*, 04 August 2020

***Prescribed Forms***

None

***Adopted Forms***

AF 847, *Recommendation for Change of Publication*

AF 853, *Air force Wildlife Strike Report*

***Abbreviations and Acronyms***

°F—Degrees Fahrenheit

**AFI**—Air Force Instruction

**AFPD**—Air Force Policy Directive

**AFSAS**—Air Force Safety Automated System

**AFSEC**—Air Force Safety Center

**AGL**—Above Ground Level

**ATC**—Air Traffic Control.

**BASH**—Bird/Wildlife Aircraft Strike Hazard

**BHWG**—Bird Hazard Working Group

**BRA**—Bird Reduction Area

**BWC**—Bird Watch Condition

**DAF**—Department of the Air Force

**DAFI**—Department of the Air Force Instruction

**DAFMAN**—Department of the Air Force Manual

**DNA**—Deoxyribonucleic Acid

**IAW**—In Accordance With

**ISS**—Installation Support Services

**IUCN**—International Union for Conservation of Nature

**JBER**—Joint Base Elmendorf-Richardson

**LRRS**—Long Range Radar Site

**MFR**—Memorandum for Record

**MIPR**—Military Interdepartmental Purchase Request

**MOA**—Memorandum of Agreement

**NOTAM**—Notice to Airmen.

**OPR**—Office of Primary Responsibility

**PACAF**—Pacific Air Forces

**PACZ**—Cape Romanzof Long Range Radar Site

**PAEH**—Cape Newenham Long Range Radar Site

**PAIM**—Indian Mountain Long Range Radar Site

**PALU**—Cape Lisburne Long Range Radar Site

**PASV**—Sparrevohn Long Range Radar Site

**PASY**—Eareckson Air Station

**PATC**—Tin City Long Range Radar Site

**PATL**—Tatalina Long Range Radar Site

**PWAK**—Wake Island Airfield

**PWS**—Performance Work Statement

**SEFW**—Bird/wildlife Aircraft Strike Hazard Team

**TDY**—Temporary Duty

**USDA-WS**—United States Department of Agriculture-Wildlife Services

**USFWS**—United States Fish and Wildlife Service

**WEZ**—Wildlife Exclusion Zone

*Office Symbols*

**ASUS**—Air Support Squadron

**ASUS/CC**—Air Support Squadron Commander

**CES**—Civil Engineer Squadron

**CES/CC**—Civil Engineer Squadron Commander

**PRSC**—PACAF Regional Support Center

**PRSC/CC**—PACAF Regional Support Center Commander

**DET 1/CC**—Detachment 1 Commander

**WG**—Wing

**WG/CV**—Wing Vice Commander

**WG/SE**—Wing Safety

**WG/SEF**—Wing Flight Safety

## Attachment 2

### WAKE ISLAND (PWAK) AIRFIELD

#### A2.1. Environment.

A2.1.1. Wake Island Airfield is a strategic trans-Pacific refueling depot 1,501 miles east of Guam, 2,298 miles west of Honolulu, 1,991 miles southeast of Tokyo, and 3,109.5 miles southwest of Elmendorf Air Force Base. The runway, designated 10/28, is an asphalt surface.

A2.1.1.1. The total land area of Wake Atoll is approximately 2.85 square miles with 12 miles of coastline. The atoll is comprised of three small islands islets (Peale, Wake, and Wilkes). The three islets form a “V” shaped atoll, open on the northwest side and surrounded by a barrier reef. The atoll is traversable by nearly 9 miles of paved road and about 25 miles of unpaved roads.

A2.1.1.2. Wake Atoll lies in the tropical zone but is subject to periodic temperate storms during the winter. It receives little rainfall, averaging fewer than 40 inches per annum. The wettest season is from July through October. There is no wide variation in temperature on the island - yearly maximum is 95 degrees Fahrenheit (°F); minimum, 68°F, with the mean monthly temperatures running from 76 to 83°F. Typhoons occasionally pass over the island, with the last major damaging storm being Super-Typhoon Ioke in 2006.

A2.1.2. Trees, thick tropic shrub growth and grasses are scattered through the islands and provide opportune concealment for birds. Vegetation is densest on the south leg of Wake Island, west and south of the airfield. The disintegrated coral ground surface and calcium carbonate substrate typical to all three islets are desiccating to plants. Fertility is very low due to the lack of essential nutrients and organic matter. Soil formation processes are precluded by high winds, high waves, and localized inundation. As a result, soils are lacking as are the environmental conditions conducive to developing complex and varied plant associations. The natural plant communities of Wake Atoll are composed of fewer than 20 native species, although numerous others have been introduced.

A2.1.3. **Birds.** The following is a summary of specific bird groupings and associated bird species that predominate in the Wake Atoll, along with general recommendations for reduction of each bird group as an existing hazard (threat) to flight operations.

A2.1.3.1. Sooty Tern (*Onychoprion fuscatus*) is a relatively large member of the tern family, weighing an average of 178.60 grams (6.3 ounces), 14 inches in length, with a 37-inch wingspan. Wake Atoll, particularly Wilkes Island, sustains a large breeding colony of sooty terns, with up to 250,000 individuals and nest densities of up to 2 eggs per square meter. A smaller population of nesting sooty terns has been documented on Peale Island in recent years. The breeding season varies from year to year and can take place from January until September and tends to coincide with available food sources brought in by oceanic currents. They build nests almost exclusively on bare sandy soil, scraping out a shallow nest. While actively breeding and nesting the terns fly (average below 5000 feet above ground level [AGL]) miles offshore to fish, then return to land. They are not listed as a threatened or endangered species by the USFWS and are listed as a species of Least Concern by the International Union for Conservation of Nature (IUCN).

A2.1.3.2. Laysan Albatross (*Phoebastria immutabilis*) is a large sea bird averaging 2,540 grams (5.6 pounds), 32 inches in length, with a 72-inch wingspan, and is documented to live up to 70 years in the wild. Known for its ability to glide over long distances, albatross spends much of its time out at sea. They prefer short vegetation with large expanses that allow them to take off, and glide. They are not listed as a threatened or endangered species by the USFWS and are listed as a species of Least Concern by the IUCN.

A2.1.3.3. Red-tailed Tropicbird (*Phaethon rubricauda*) have an average weight of 839.15 grams (30 ounces), measures 37-41 inches in length including its long tail streamers, with a 44 – 47-inch wingspan. The nesting season can occur throughout the year on Wake Atoll but typically most activity occurs between January and September where they prefer to nest in loose colonies. They construct a shallow nest in rocky or sandy soil that are exclusively situated under some type of cover (i.e., pemphis, river tamarind, ironwood, rocks, abandoned equipment, etc.). Tropicbirds are known for their courtship displays in which they can be seen flying backwards and circling (25 feet to 250 feet AGL). They are not listed as a threatened or endangered species by the USFWS and are listed as a species of Least Concern by the IUCN.

A2.1.3.4. White Tern (*Gygis alba*) also referred to as “Fairy” terns, are small seabirds weighing an average 115.2 grams (4 ounces), a length of 11-12.9 inches, and wingspan 27.5- 34.2 inches. White terns do not construct a nest, but instead balance a single egg on a bare branch of a tree. On Wake Atoll, white terns favor nesting in ironwood (both alive and dead standing) trees and heliotrope bushes. They prefer to feed on small fish found in the near shore areas of the atoll. They are not listed as a threatened or endangered species by the USFWS and are listed as a species of Least Concern by the IUCN.

A2.1.3.5. Black Noddy (*Anous minutus*) is a medium sized seabird in the tern family, weighing 121.9 grams (4.3 ounces), 14-15 inches in length, with an average wingspan of 27 inches. On Wake atoll, black noddies are asynchronous breeders, preferring to nest in ironwood (both alive and dead standing) trees found throughout the island. They favor the near shore areas and coral rock outcroppings to forage for small fish. They are not listed as a threatened or endangered species by the USFWS and are listed as a species of Least Concern by the IUCN.

A2.1.3.6. Brown Noddy (*Anous stolidus*) is very similar in appearance to black noddies, however the browns are slightly larger. Weighing an average of 178.6 grams (6.3 ounces), an average overall length of 16.5 inches, with a 32-inch wingspan. Also, an asynchronous breeder, they too prefer nesting in the ironwoods (both alive and dead standing) throughout Wake Atoll. They are not listed as a threatened or endangered species by the USFWS and are listed as a species of Least Concern by the IUCN.

A2.1.3.7. Three booby species breed and nest on Wilkes Island at differing times of the year. All three species can periodically be observed flying over the runway at lower altitudes (less than 500 feet AGL) and also “towering” over Wilkes Island up to 7500 feet AGL.

- A2.1.3.7.1. Red Footed Booby (*Sula sula*) is a large seabird weighing 997.90 grams (1.85 pounds), overall length of 28 inches, and 60-inch wingspan. The red footed boobies' nesting colony is located in the heliotrope trees on Wilkes Island, with most nesting activity taking place between January and May each year. Most of the boobies fly offshore to feed on fish and can be seen periodically flying over the airfield going to/from Wilkes Island. They are not listed as a threatened or endangered species by the USFWS and are listed as a species of Least Concern by the IUCN.
- A2.1.3.7.2. Masked Booby (*Sula dactylatra*) is a large seabird weighing 1,700.97 grams (3.75 pounds), overall length of 31 inches, and a 65-inch wingspan. Masked boobies build a cleared shallow depression nest on the ground and lay up to 2 eggs. The nesting colony is located on the outer perimeter of the northwest edge on Wilkes Island. Masked boobies typically nest from December until March, although they are present throughout the year on Wake Atoll. They are not listed as a threatened or endangered species by the USFWS and are listed as a species of Least Concern by the IUCN.
- A2.1.3.7.3. Brown Booby (*Sula leucogaster*) is a large seabird weighing 1,2070.06 grams (2.8 pounds), 31 inches in length, and 55.2-inch wingspan. Brown boobys nest on the ground making a shallow depression, laying 1 to 2 eggs. The colony can be found on the northwest portion of Wilkes Island and is exclusive to this island. Breeding season usually occurs from June until September with up to 437 adults present. Although outside of breeding season there is a smaller resident population that remains on the atoll year-round. They are not listed as a threatened or endangered species by the USFWS and are listed as a species of Least Concern by the IUCN.
- A2.1.3.8. Great Frigatebird (*Fregata minor*): is a large seabird, weighing in at 1,587.57 grams (3.5 pounds), an overall length of 41 inches and a wingspan of 91 inches. Nesting is sporadic on Wilkes Island. However, a resident population of up to 400 frigatebirds use the trees on Wilkes Island to roost. Frigatebirds tend to "tower" over Wilkes Island and the airfield during mid-afternoon when thermal winds tend to occur. They are not listed as a threatened or endangered species by the USFWS and are list as a species of Least Concern by the IUCN.
- A2.1.3.9. Pacific Golden Plover (*Pluvialis fulva*) is a medium sized plover, weighing 136.07 grams (4.8 ounces), and a length of 10.24 inches long. Plovers are a seasonal migrant to Wake Island traveling from the arctic tundra. They can be found along the airfield, roadways, and the tidal areas of the lagoon. They are not listed as a threatened or endangered species by the USFWS and are listed as a species of Least Concern by the IUCN.

A2.1.3.10. Other species observed during the site visit include but not limited to: ruddy turnstones (*Arenaria interpres*), white-tailed tropicbird (*Phaethon lepturus*), American kestrel (*Falco sparverius*) northern pintail (*Anas acuta*) and bristle-thighed curlews (*Numenius tahitensis*). The curlew is a medium sized shorebird that's entire population breeds and nests in the Alaskan tundra. The population of curlews migrate to islands in the pacific to overwinter before returning north each spring. They are not listed as a threatened or endangered species by the USFWS, however they are listed as "near threatened" by the IUCN. No curlews were observed on or near the airfield during the February 2021 site visit.

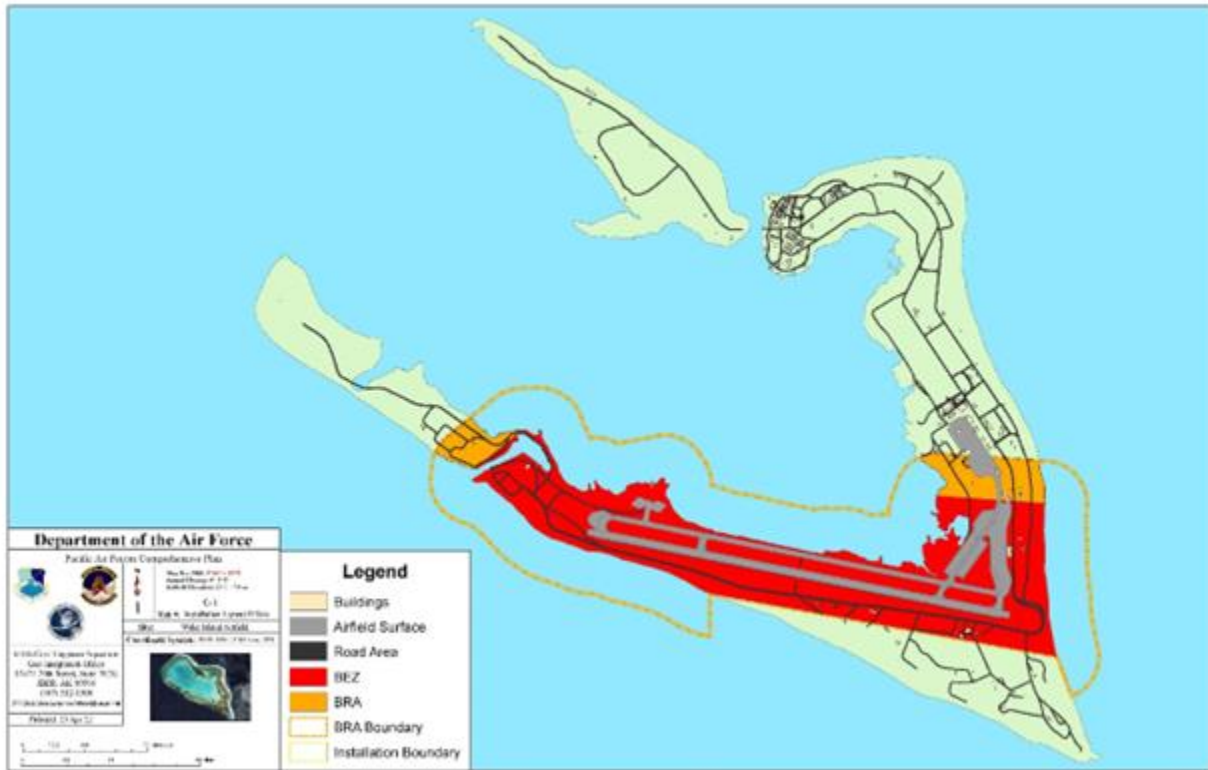
## **A2.2. Exclusion Zones:**

A2.2.1. These boundaries have been established to aid all agencies in defining when a bird hazard exists, dispersal priorities, and habitat management goals.

A2.2.2. Wildlife Exclusion Zone (WEZ) or Bird Exclusion Zone (BEZ) is defined as an area, 1,000' X 1,000' either side of centerline, over the entire length of the runway, extending 2000' east and west off each end of the hard surface of the runway. The WEZ identifies an area where no bird presence will be tolerated. Every effort will be made to eliminate all bird/wildlife hazards within the BEZ, all remaining wildlife hazards that remain for longer 24hrs must be reported to the 611<sup>th</sup> BASH Program Manager. Removing wildlife from the BEZ is the primary responsibility of BASH manager/BASH team charged with implementing the BASH program and requires daily active patrolling and hazing of birds in order to be accomplished. No birds will be allowed to nest within the BEZ and the BASH manager/BASH team will ensure that it doesn't happen IAW federal permits.

A2.2.3. The Bird Reduction Area (BRA) is a secondary exclusion zone established by regulatory permit stipulation and is defined as the area outside the defined BEZ including Wake Island mainland from the 1800 cut east to the far shoreline, north to the Civil Engineering storage yard, and south to the shoreline including the Missile Defense Agency area. The BRA will also be actively patrolled and birds removed/hazed from the area once the BEZ has been declared clear of hazardous wildlife.

**Figure A2.1. Wake Island WEZ and BASH Observed Habitat Map.**



A2.2.4. For immediate response situations, the primary consideration is to drive birds/wildlife away from the direct path of an aircraft as quickly as possible. First employ use of “active” measures (non-lethal techniques & resources) to frighten birds/wildlife away from the airfield. Active measures include, but may not be limited to the following, as are available:

A2.2.4.1. Non-lethal dispersal cartridges launched from either a 15mm pyrotechnic pistol or a 12-Gauge Shotgun. Scare cartridges from a 12-Gauge Shotgun produce a secondary explosion to scare the birds from the area. Pyrotechnics are effective for temporary dispersal of most bird/wildlife species.

A2.2.4.2. As equipped on authorized vehicles, use of a vehicle horn, lights and/or siren may be used to disperse birds/wildlife.

A2.2.4.3. Use of other prescribed resources, such as Propane Gas Cannons, bird/wildlife netting, bird balls, Falconry, etc., may be utilized as funding is available and considered value added.

**A2.3. Habitat Modification:** By incorporating specific practices into local land management, Wake Island Airfield can maintain an airfield habitat less attractive to birds. Vegetation management will vary by BASH vegetation zones as delineated below. All BASH habitat modification projects must be approved by BASH Program Manager and the 611<sup>th</sup> CES NRM.

A2.3.1. Airfield Zone: The Airfield zone is the same area delineated as the WEZ/BEZ. Within this zone DAFI 91-212 states that vegetation should primarily be native grasses/ plants maintained at a height of 7-14 inches. The objective is to create an area free of nesting/loafing habitat with minimum concealment of birds. No trees or shrubs will be allowed within 250' of the runway, taxiway, or ramp to avoid creating hospitable habitat for birds. Vegetation height need may vary depending on circumstance and should the need to exceed 14 inches arises the BASH manager/BASH team will coordinate with PRSC USDA-WS Biologist.

A2.3.2. Bird Reduction Area (BRA). Trees and shrubs within the BRA will be maintained by BASH personnel as to not provide nesting, loafing, or roosting habitat. Areas closest to the WEZ/BEZ will be given first priority. Coordinate with 611 CES on invasive Ironwood tree removal along the south areas of the airfield.

A2.3.3. Managing Shrublands. Any shrubs that naturally regenerate within the WEZ/BEZ should be encouraged to grow to fill-in gaps in grass vegetation to provide further ground exclusion. Shrubs within the WEZ/BEZ should be cut to 7-14 inches above the ground as needed to ensure that they will not grow to long as to provide nesting habitat for red-tailed tropic birds.

A2.3.4. Controlling Broad-Leafed Weeds. Not Applicable to Wake Island airfield.

A2.3.5. Woodlands. Within the Airfield Zone/WEZ woodlands should be eliminated to reduce habitat for birds.

A2.3.6. Berry/Fruit Producing Trees and Shrubs will be removed from BRA and WEZ locations. If additional berry/fruit trees outside of those areas have been identified as an attractant and the birds they attract poses a risk of aviation safety contact PRSC USDA BASH Biologist for guidance.

A2.3.7. Bird-Proofing Buildings and Hangars. Not Applicable to Wake Island airfield.

A2.3.8. Leveling of Airfield Zone. Low lying areas within the WEZ that collect rainwater or run off should be leveled or filled in when practical. Reducing standing water on the airfield will further reduce attractiveness to birds.

A2.3.9. Maintaining Drainage Ditches to prevent pooling bodies of water.

A2.3.10. Erosion Control Vegetation. If vegetation is needed to control erosion native grasses/plants may be used.

A2.3.11. Pest Controls. Wake Atoll supports a large population of rodents (Species) however, none of the birds found on the island are known to predate on small mammals. There are several species of insects that are found on the island, again none of the birds are known to predate them.

A2.3.11.1. Insects. Not applicable to Wake Island airfield.

A2.3.11.2. Small Mammals. PRSC contractors, 611 CES, or USDA - WS will conduct small mammal surveys if a reoccurring BASH risk is identified.

A2.3.12. Controlling Waste Disposal. None of the birds found on Wake Atoll are scavengers or are known to feed on anthropomorphic food sources. However, all solid waste storage/disposal facilities within the WEZ/BRA should be designed and managed to remain closed and inaccessible to wildlife. All waste receptacles should be equipped with securable lids that are windproof.

A2.3.13. Discourage Wildlife Feeding. No food or other waste should be accessible to birds whether intended to feed or not.

**A2.4. Specific Responsibilities:** This is not all-inclusive and should be tailored, as necessary.

A2.4.1. PRSC USDA Biologist. Is the BASH Program Manager/OPR for this instruction and will ensure is reviewed and/or revised annually, to include inserting updated maps and surveys.

A2.4.2. PRSC USDA BASH Biologist will:

A2.4.2.1. Ensure that the USFWS Migratory Bird Depredation permit is maintained and current to the BASH risk on the airfield.

A2.4.2.2. Manage all PWAK reported bird strikes.

A2.4.2.2.1. Initiate Air Force Safety Automated System (AFSAS) investigation upon receiving notice of a strike at PWAK.

A2.4.2.2.2. Electronically forward BASH shipping sheet to on-site BASH Specialist, for processing and shipping to the Smithsonian Feather ID Lab.

A2.4.2.2.3. After remains are identified, ensure AFSAS investigations are finalized.

A2.4.2.3. Complete annual Airport Hazard training for all required personnel.

A2.4.2.4. Reports all pertinent BASH information to BHWG.

A2.4.2.5. Provide guidance, when requested, on collection of bird/wildlife remains for identification (reference DAFI 91-212, paragraph 2.5.2). Also reference the Air Force Safety Center BASH website for the latest collection methods.

A2.4.2.6. Review this BASH plan, IAW AFI 91-202, and runs the Self Inspection Checklist (DAFI 91-212) annually. Document the review and self-inspection via MFR.

A2.4.2.7. Engage in constant communication between the Contractor, the PRSC command, 611 CES, and 3 WG/SE to determine the best solution to any wildlife that may pose a threat to aircraft.

A2.4.3. BASH Program Manager, in coordination with 611<sup>th</sup> ASUS program managers will oversee contractor implementation and compliance with this regulation.

A2.4.4. On-site BASH Specialist/Airfield Operations Personnel will:

A2.4.4.1. Establish and maintain a physical and electronic Continuity Binder in the BASH specialist or Airfield Manager's office with any pertinent BASH data, procedures, and information to assure breadth of knowledge with local agencies and personnel turnover. This binder should be made available by request of 611<sup>th</sup> personnel or BASH PM. The intent of this binder is to be a living document that holds information needed to perform BASH work.

A2.4.4.2. Engage in daily active harassment of birds within the WEZ, using all available methods. When a BASH threat is observed on the airfield the specialist will respond. Harassment should not be limited to days with or just prior to aircraft movement. The specialist should maintain the exclusion zone daily to ensure zero birds have opportunity to nest on the airfield and reduce the amount of time birds spend loafing in the BEZ and BRA.

A2.4.4.2.1. Coordinate with DET 1 to maintain an enough inventory of paintballs, pyrotechnics, and 12-gauge steel shotshells to maintain the BEZ and BRA for a 6 month period.

A2.4.4.2.2. Monitor BEZ and BRA for active and inactive bird nest. IAW Installation Support Services (ISS) PWS, the ISS contractor shall track the total number of eggs and birds which are taken over the course of the permitted period IAW the USFWS Depredation Permit. On an annual basis, the ISS FTBS shall submit required USFWS annual report and application for permit renewal to the PRSC/611 CES, Natural Resources Program Manager, and PRSC USDA BASH Biologist for submission to the USFWS, Permits office. When detected remove/destroy nest/eggs IAW USFWS permit stipulations.

A2.4.4.2.3. Record all harassment/depredation activities but not limited too include: date, time, species involved, number of individuals involved, method of harassment depredation, and resulting action of bird(s). An electronic data sheet and grid map overlay of the airfield used for data collection will be provided by the BASH Program Manager. Record will be forwarded to BPM once a quarter or as requested by the BPM/611<sup>th</sup> personnel.

A2.4.4.3. When all non-lethal means have failed to mitigate the immediate BASH threat, consider use of lethal means (12GA shotgun or other means). All lethal takes should be IAW USFWS Migratory Bird Depredation permit.

A2.4.4.4. Maintain currency with all wildlife harassment trainings provided by USDA-WS on an annual basis.

A2.4.4.5. Monitor BEZ and BRA to ensure that vegetation is managed IAW this regulation and DAFI 91-212. Vegetation may be permitted to exceed length if it successfully deters nesting and coordination with BPM.

A2.4.4.5.1. Record date, time, specific area impacted, and activity for habitat modifications that occur within the BEZ/BRA. Report to USDA-WS and 611 CES Natural Resources Manager on completed projects.

A2.4.4.6. Conduct inspection of entire runway prior to and after plane movement to identify any bird strikes that may have occurred. Dead Birds/Animals must be removed from the airfield. Discovered remains will be considered a bird strike and reported as such IAW DAFMAN 91-223.

A2.4.4.7. Conduct surveys of bird activity on the airfield at least twice a month at established points IAW DAFMAN 91-212. Surveys should be conducted for 30 minutes per point both morning and evening of each day. Data should be collected to include date, time, species, number, behavior, habitat use, and any other relevant BASH information. Collected data must be transmitted to the USDA-WS BASH Biologist at the beginning of each quarter.

A2.4.4.8. Ensure all bird strikes that occur at PWAK are reported on AF Form 853, immediately forwarded to 3 WG/SE (Safety) and USDA – WS. Also forward any and all photographic evidence of the carcass(es), or damage to aircraft. Each aircraft that arrive shall have a visual 360 degree inspection for bird strikes if approval from pilot is given.

A2.4.4.8.1. Coordinate with aircrews and maintenance for collection of bird remains (snarge) after bird/wildlife strikes. If whole carcass(s) is (are) found take photographs, showing head, extended wing, and any other distinguishing characteristics.

A2.4.4.8.2. Encourage aircrews using PWAK facilities to participate in the BASH Plan by promptly reporting of all bird strikes and hazardous conditions IAW this plan.

A2.4.4.8.3. All bird remains must be mailed within 7 days to the Smithsonian Bird and Feather Identification Laboratory, with shipping sheet provided by USDA-WS BASH biologist. For additional guidance on where to send bird remains, refer to DAFI 91-212 and DAFI 91-204.

A2.4.4.9. Observe and Disseminate current BWC to Base Operations for coordination with local agencies and all aircrews using PWAK.

A2.4.4.10. Discuss all recommendations for changes or enhancements to the PWAK BASH Program with the USDA-WS BASH Biologist, PRSC DET 1/CC, 611 CES Natural Resources manager at the semi-annual BHWG teleconference.

A2.4.4.11. Maintain communication with USDA-WS BASH Biologist on current BASH issues and upcoming events.

A2.4.4.12. Monitor local bird activity and advise USDA-WS BASH biologist if Phase II dates, this instruction, should be modified.

A2.4.5. Airfield Operations will:

A2.4.5.1. Report observed bird activity, disseminate BWC changes and forward aircrew reports of bird/wildlife activity to the FTBS and Airfield Manager (AM) for further action.

A2.4.5.2. Post current bird activity data and BWC in the Events Log and Flight Planning Room so that it is properly documented and readily available to all aircrews.

A2.4.5.3. Advise aircrews of BWC codes and/or local advisories.

A2.4.5.4. Approve Bird Dispersal Team (BDT) members access to the Controlled Movement Area (CMA) as required.

A2.4.6. Civil Engineer will:

A2.4.6.1. In coordination with the USDA-WS BASH Biologist, BASH Specialist, and the contractor Environmental Manager, develop procedures for removal or control of vegetation in and around the airfield.

A2.4.6.2. Correct environmental conditions that increase BASH potential within the capabilities of the Contract Performance Work Statement (PWS) and available funding.

A2.4.6.3. Works with the 611 CES Natural Resources Wildlife Biologist/ BASH Advisor to ensure the following practices are incorporated into the base Integrated Natural Resource Management Plan (INRMP):

A2.4.6.4. Dead Vegetation: Coordinate with boss contractor to remove standing dead trees, brush piles and grass clippings should be removed as soon as possible to prevent provided cover for birds, nesting, etc within the BEZ and BRA.

A2.4.6.5. Coordinate with contractor to eliminate standing water on or near the prepared surfaces of Aircraft Movement Areas (AMA). Eliminate small ponds, pebbles, low lying areas and large bodies of standing water to reduce attractiveness to birds.

### Attachment 3

#### EARECKSON AIR STATION (PASY)

##### A3.1. Environment:

A3.1.1. Eareckson Air Station (EAS) is a remote airfield located on Shemya Island at the western end of the Aleutian Island chain.

A3.1.2. Shemya Island is located within the Alaska Maritime National Wildlife Refuge administered by the U.S. Fish and Wildlife Service (USFWS), however primary jurisdiction on the island is held by the Department of the Air Force. The flora is typical of the arctic tundra ecosystem region and is heavily influenced by the surrounding marine environment. The vegetation generally consists of various grasses, lichen, sedge, and scattered willows. The upland section of the island is comprised of rolling hills with steep bluffs dropping off to the ocean along the perimeter of the island. There are numerous shallow freshwater ponds found throughout the island providing habitat to migrating waterfowl. A network of interconnecting paved and gravel roads crisscross the island allowing access to scattered facilities. Most human activity is concentrated in the southern and western sections of the island where the main lodging, airfield and support infrastructure are located.

A3.1.3. The location of the island in the remote western end of the Aleutian chain provides a unique opportunity for migratory birds as both Asiatic and North American species have been observed on the island (over 215 species total). Each year over 20 species of migrating waterfowl use the island as a resting/staging area in the spring and fall. The most abundant species being the once endangered Aleutian Cackling goose (*Branta hutchinsii leucopareia*). Due to the introduced arctic fox (*Vulpes lagopus*) population, geese and other birds have limited nesting success on the island. For this reason, the arctic foxes were spared from eradication efforts in the early 2010's.

A3.1.4. Bird hazards exist on the airfield year-round with peaks in the spring and fall during migration. Several species of birds could be encountered on and around the airfield; of particular concern are the Aleutian Cackling geese, gulls, ravens, and other waterfowl. Waterfowl, gulls and smaller birds will also fly over the island. The bird hazard on the aerodrome will be significantly reduced through habitat management, active and passive dispersal techniques, and effective warning techniques. Additionally, other wildlife poses a threat to flying operations. Of particular concern are the blue foxes.

A3.1.5. The Aleutian Cackling goose problem. Shemya has a growing population of migratory Aleutian Cackling geese. This is causing a dramatic increase in flight safety concerns.

A3.1.6. Waterfowl (Ducks, Geese, Swans). Both passive and active deterrent measures will be utilized to disperse waterfowl from the airfield. A distinction must be made between resident and migrating populations. Eareckson AS has become a heavy migration point during the spring and fall migration season of the Aleutian Canada Geese. These geese have become habituated to the grass areas on Eareckson AS. Staging geese take on the characteristics of resident waterfowl and often travel to and from base to other areas nearby at a variety of times throughout the day.

A3.1.7. Resident waterfowl are attracted to an area to breed or feed, water, or rest. When possible, remove all sources of open water within the WEZ. Ponds, lakes, ditches, etc. may attract these birds, particularly if these areas contain emergent or submerged vegetation for feeding, nesting, or shelter. Steepening ditch and pond banks and removing vegetation will reduce waterfowl numbers. When possible, drain water sources. Grassy areas also attract waterfowl (particularly geese) in large numbers and should be eliminated if possible. When vegetation cannot be eliminated, it should be modified to deter the species that pose the greatest threat to safe aircraft operations. Proven deterrents are the use of bird dispersal teams using horns, lights or sirens. If these means fail, pyrotechnics should be used next. These consist of screamers, bangers and cracker shells. Resident birds are most active at dawn and dusk, moving at low altitudes to and from feeding areas.

A3.1.8. Migrating waterfowl are particularly dangerous to flight safety due to the large numbers and generally higher altitude of the birds. Large flocks of waterfowl travel along traditional flyways to their breeding and wintering grounds during spring and fall. Huge flocks may stop along the route awaiting favorable weather conditions to continue. At Eareckson AS, we see large concentrations of geese during both the spring and fall migration period. These geese are stopping at Eareckson AS to feed on grass and berries prior to heading south in the fall and may take on the characteristics of resident waterfowl. The spring migration occurs during the months of April, May and June and is hazardous with high numbers of geese. The fall migration occurs during the month of August, September and October and is also hazardous with high numbers of geese and migrating waterfowl. 2008 and 2009 saw flocks of Sandhill Cranes migrate through Eareckson AS.

A3.1.9. Ravens, these omnivorous birds are common in open areas and around landfills. These birds may occur in large flocks, particularly at sunset as they return to roost sites. Operation of the landfills need to be in a manner to discourage these birds from foraging by covering the trash with dirt. Ensure garbage dumpster lids are closed, and that waste items are not easily gotten to. Use pyrotechnics to frighten these birds if they occur on the field. Roost deterrent devices and lethal control will reduce population numbers.

A3.1.10. Gulls. These birds represent the most significant hazard to aircraft worldwide. Due to their omnivorous feeding habits and preference for flat, open areas to rest, they are commonly found on airfields. Gulls are most active just after sunrise and before sunset as they move to and from feeding areas. Improperly operated landfills are a significant source of attraction for gulls and should not be allowed in the airfield vicinity. Both passive and active deterrents must be used, and persistent harassment is necessary to discourage these birds. Occasionally, use live ammunition to reinforce these techniques. Poisoning of earthworms and insects may be accomplished if these invertebrates are found to attract gulls. Do not allow these birds to establish a habit of using the airfield to feed, breed, or rest.

A3.1.11. Fringillids (Sparrow, Finches, Grosbeaks, and Buntings). Most Fringillids are not hazardous to aircraft operations, but occasional large flocks can be encountered, particularly during migration. These birds are seedeaters as a rule, and most prefer weedy, brushy, or forested areas. Use pyrotechnics to frighten many of these birds; success may be limited with others.

A3.1.12. Sandpipers/Shorebirds. The most significant hazard from these birds occurs when large numbers flock in tight groups, particularly during migration and along coastlines. Many of the species such as sandpipers and plovers may nest on airfields in spring and early summer but has not occurred at Eareckson AS. Other species such as Pacific Golden-Plovers, a bird that is common during migration and avoids aircraft do not pose a significant hazard. Flocks in coastal areas can be hazardous and should be avoided. Eliminate water in puddles and steepening ditch banks to limit access to these birds. Use pyrotechnics for all species.

A3.1.13. Small Mammal hazards. The following is a brief description of specific hazards associated with introduced foxes on EAS. Rodents and other food sources attract these animals to airfields. Dens may be found in banks, culverts, or other suitable areas. Rodent and waste control will reduce the numbers of these animals. Use horns and pyrotechnics to frighten these species. Ensure garbage dumpster lids are closed, and that waste items are not easily gotten to. Controlling the major food sources of trash will greatly reduce their population around the airfield. Consideration should be given that these animals frighten geese and their presence in limited numbers can reduce the threat from geese. The foxes also discourage geese from nesting on the island. Runway operations should be halted until the animals are chased from the area.

**A3.2. Exclusion Zones:** These boundaries have been established to aid all agencies in defining when a bird hazard exists, dispersal priorities and vegetation management goals.

A3.2.1. The Primary WEZ consists of the area 1000 feet either side of the runway centerline and extending 200 feet beyond the thresholds. The WEZs is designed as the active BASH control area and is the focus of those charged with BASH work in determining the location and risk of birds. Removing wildlife from the WEZ is the primary responsibility of individual/team charged with implementing the BASH program.

A3.2.2. The Secondary WEZ consists of the areas beyond the Primary WEZ, the Approach zones of runway 10 and 28, the Raven Avoidance zone on South Beach Road, the Gull Loafing area northeast of hangar-8 and the Northern Edge zone south of Cross Island Road and Pearl Drive.

A3.2.3. During aircraft operations (excluding emergency situations), when the AM or AAM declares BWC MODERATE or SEVERE, the BASH Specialist will have priority access within the WEZ to conduct bird/wildlife dispersal.

A3.2.4. The primary Wildlife Exclusion Zone (WEZ) is defined as an area, 200 either side of centerline, over the entire length of the runway, extending 1000' east and west off each end of the hard surface of the runway. The WEZ identifies an area where no bird presence will be tolerated. Every effort will be made to eliminate all bird/wildlife hazards within the WEZ, all remaining wildlife hazards that remain for longer 24hrs must be reported to the 611<sup>th</sup> BASH Program Manager. Removing wildlife from the WEZ is the primary responsibility of BASH manager/BASH team charged with implementing the BASH program and requires daily active patrolling and hazing of birds to be accomplished. No birds will be allowed to nest within the WEZ and the BASH manager/BASH team will ensure that it doesn't happen IAW federal and state permits.

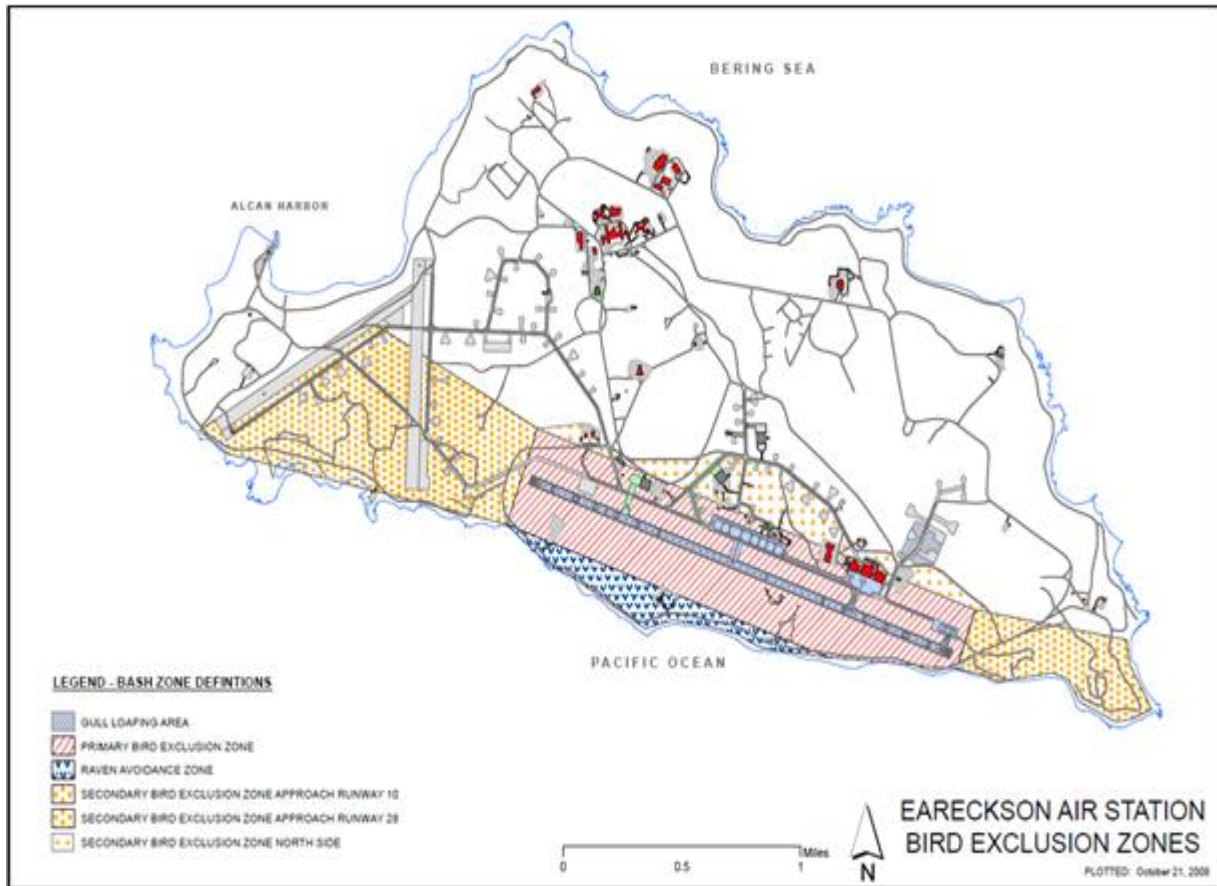
A3.2.5. For immediate response situations, the primary consideration is to drive birds/wildlife away from the direct path of an aircraft as quickly as possible. First employ use of “active” measures (non-lethal techniques & resources) to frighten birds/wildlife away from the airfield. Active measures include, but may not be limited to the following, as are available:

A3.2.5.1. Non-lethal dispersal cartridges launched from either a 15mm pyrotechnic pistol or a 12-Gauge Shotgun. Scare cartridges from a 12-Gauge Shotgun produce a secondary explosion to scare the birds from the area. Pyrotechnics are effective for temporary dispersal of most bird/wildlife species.

A3.2.5.2. As equipped on authorized Airfield Response Vehicles, use of a vehicle horn, lights and/or siren may be used to disperse birds/wildlife.

A3.2.5.3. Use of other prescribed resources but not limited to, such as Propane Gas Cannons, bird/wildlife netting, bird balls, may be utilized as funding is available and considered value added.

**Figure A3.1. Eareckson Air Station Bird Exclusion Zones.**



### **A3.3. Habitat Modification:**

A3.3.1. By incorporating specific practices into the base land management plan, Eareckson AS can maintain a flight line habitat less attractive to birds and other wildlife.

A3.3.2. Airfield Zone: Is the area directly adjacent to the runway and taxiways out to 300 yards (inside the primary WEZ). Within this zone the primary vegetation will be grasses. Grasses will be encouraged to grow at least 11" in height. All solid waste containers within the zone should be designed and maintained in a manner to exclude wildlife and changed out regularly. The objective is to allow grasses to grow to a height and density that is undesirable to Aleutian Cackling Geese.

A3.3.2.1. Planting in sparsely vegetated areas. Eliminate bare areas on the airfield by planting species of grass unattractive to geese as necessary and appropriate to maintain ground cover all grass species must be approved by PRSC USDA Biologist and 611<sup>th</sup> CES.

A3.3.2.2. Removing edge effects. Maintain the airfield as uniformly as possible to reduce the transition zone between two distinct habitat types (e.g., brush to grassland).

A3.3.3. Clear Zone. Not applicable to Eareckson Air Station.

A3.3.4. Managing Shrublands. Not applicable to Eareckson Air Station.

A3.3.5. Controlling Broad-Leafed Weeds. Not applicable to Eareckson Air Station.

A3.3.6. Woodlands. Not applicable to Eareckson Air Station.

A3.3.7. Berry/Fruit Producing Trees and Shrubs. Not applicable to Eareckson Air Station.

A3.3.8. Bird proof buildings and hangars. Often, bird proofing of buildings and hangars is required to exclude ravens. Excluding birds from a structure they currently utilize will often displace them to an adjacent structure. Existing birds should be destroyed (IAW federal and state permits) prior to the exclusion effort whenever possible. Denying access by screening windows, closing doors and blocking entry holes is most effective.

A3.3.9. Leveling of airfield. Level or fill high or low spots to reduce attractiveness to birds and prevent standing water.

A3.3.10. Maintaining drainage ditches. Regularly inspect ditches to keep them clear. Maintain ditch sides as steeply as possible (minimum slope ratio of 5:1) to discourage wading birds and emergent vegetation. Improve drainage as necessary to inhibit even temporary ponds or puddles.

A3.3.11. Minimize Open Water. Eliminate snowmelt ponds around the airfield. Move the snow piles or breaking up the snow piles and filling these areas with gravel as need within the WEZ. If unable to relocate snowmelt ponds, ensure it's drained as soon as possible. Monitor airfield for low lying areas that collect water during weather events.

A3.3.12. Employing erosion control vegetation. When vegetation is required to stabilize or prevent erosion ensure that the vegetation that does not attract birds.

A3.3.13. Pest controls. Invertebrates and rodents are key food sources for many birds. Periodically survey and reduce these pests when required. Pesticides and traps can reduce pest populations. Inspection and control should begin early in the spring after coordination is made with the animal control section of the Wildlife Management Plan.

A3.3.14. Controlling waste disposal. Landfills are the most significant attractant to hazardous bird species. The solid waste landfill located on Shemya should be operated in a way as to not unnecessarily attract birds to include but not limited to; operate as a pit or trench to limit access to birds; cover waste material immediately to limit access; and segregate, when possible, construction debris from food waste. Food wastes should never be left out during the night unattended.

A3.3.15. Discourage wildlife feeding.

A3.3.15.1. Policies should be put in place for zero tolerance feed policy for all wildlife found on the island. Signs should be developed and placed to educate the public to the hazard posed by feeding any wildlife.

A3.3.15.2. Removing bird and animal carcasses from the airfield. This is to avoid attracting scavengers that feed on them. Airfield management will forward any remains which may have been caused by a collision with aircraft to the Smithsonian for identification (IAW DAFMAN 91-223, *Aviation Safety Investigations and Reports*). This action will not be required in cases where positive identification has already been accomplished by USDA Wildlife personnel.

#### **A3.4. Specific Responsibilities:**

A3.4.1. PRSC USDA Biologist. Is the BASH Program Manager/OPR for this instruction and will ensure is reviewed and/or revised annually; to include inserting updated maps and surveys.

A3.4.2. PRSC USDA-WS BASH Biologist will:

A3.4.2.1. Manage all PASY reported bird strikes.

A3.4.2.1.1. Initiate Air Force Safety Automated System (AFSAS) investigation upon receiving notice of a strike at PASY.

A3.4.2.1.2. Electronically forward BASH shipping sheet to on-site personnel, for processing and shipping to the Smithsonian Feather ID Lab.

A3.4.2.1.3. After remains are identified, ensure AFSAS investigations are finalized.

A3.4.2.2. Complete annual Airport Hazard training for all required personnel.

A3.4.2.3. Reports all pertinent BASH information to BHWG.

A3.4.2.4. Provides guidance, when requested, on collection of bird/wildlife remains for identification (reference DAFI 91-212, paragraph 2.5.2). Also reference the Air Force Safety Center BASH website for the latest collection methods.

A3.4.2.5. Reviews this BASH plan, IAW AFI 91-202, and runs the Self Inspection Checklist (DAFI 91-212) annually. Document the review and self-inspection via MFR.

A3.4.2.6. Engages in constant communication between the Contractor, the PRSC command, 611 CES, and 3 WG/SE to determine the best solution to any wildlife that may pose a threat to aircraft.

A3.4.3. Eareckson Air Station Airfield Manager (AM):

A3.4.3.1. Is the onsite OPR, ensures base-wide compliance with the BASH Plan and reports all bird-aircraft hazards.

A3.4.3.2. Maintains currency for all State and Federal bird depredation permits as they apply to Eareckson Air Station BASH program. Communicates to the USDA-WS BASH biologist for the renewal process and applicable permit updates.

A3.4.3.3. Ensures all bird strikes are reported on AF Form 853, immediately forwarded to 3 WG/SE (Safety) and PRSC USDA Biologist. Also forward all photographic evidence of the carcass(s), or damage to aircraft.

A3.4.3.3.1. Coordinate with aircrews and maintenance for collection of snarge after bird/wildlife strikes. If whole carcass(s) is (are) found take photographs, showing head, extended wing, and any other distinguishing characteristics.

A3.4.3.3.2. Encourage aircrews using PASY facilities to participate in the BASH Reduction Program by promptly reporting all bird strikes and hazardous conditions IAW this plan.

A3.4.3.3.3. Expedite in a timely manner all remains to the Smithsonian Bird and Feather Identification Laboratory, with shipping sheet provided by USDA-WS BASH biologist. For additional guidance on where to send bird remains, refer to DAFI 91-212 and DAFI 91-204.

A3.4.3.4. Disseminates BASH data as required to the BHWG and flying units using base facilities. Provides the BHWG with current BASH guidance from the Air Force, the USFWS and other agency records of confirmed bird/animal strikes on Eareckson Air Station.

A3.4.3.5. Monitors bird activity and strike statistics, advises the PRSC USDA BASH biologist, Site Manager and BHWG when a meeting is required or warranted, and schedules such meetings.

A3.4.3.6. Establish and maintain a physical and electronic Continuity Binder in the BASH specialist office or Airfield Manager's office with any pertinent BASH data, procedures, and information to assure breadth of knowledge with local agencies and personnel turnover. This binder should be made available by request of 611<sup>th</sup> personnel or BASH PM. The intent of this binder is to be a living document that holds information needed to perform BASH work.

A3.4.3.7. Ensures that an adequate supply of BASH report forms (AF Form 853) and WEZ maps are readily available to visiting aircrews.

A3.4.3.8. Ensures aircrews operating from EAS are briefed on seasonal bird Hazards, Phase I and II, during local safety briefings provided by the CFSI QC Safety Manager.

A3.4.3.9. Declares any change in the BWC as deemed necessary through Airfield Ops.

A3.4.3.9.1. Pest Controller, Bash Team Members, QC Safety and/or Trusted Agents may also recommend changes to the BWC.

A3.4.3.9.2. As reported, the BWC will be upgraded and/or downgraded based on updated information, effectiveness of bird/wildlife dispersal techniques applied and/or observed conditions. Only the AM, Airfield personnel or the Pest Controller can downgrade the BWC.

A3.4.4. Assistant Airfield Manager (AAM):

A3.4.4.1. Notifies the AM whenever significant bird activity is observed, to include recommendations for use of BASH specialist equipment (pyrotechnics, bioacoustics, etc.) as deemed necessary to mitigate bird/animal activity.

A3.4.4.2. In case of the AMs absence, assumes all BASH related duties, functions, and responsibilities of the AM IAW this plan.

A3.4.5. BASH Site Specialist (AM, AAM or other assigned personnel):

A3.4.5.1. Engage in daily active harassment of birds within the WEZ, using all available methods. Harassment should not be limited to days with or just prior to aircraft movement. The specialist should maintain the exclusion zone daily.

A3.4.5.1.1. Maintain a minimum of a one month inventory of paintballs, pyrotechnics, and 12-gauge steel shotshells, and any other necessary BASH supplies.

A3.4.5.1.2. Monitor WEZ for active and inactive bird nest. When detected remove/destroy nest/eggs IAW federal and state permit.

A3.4.5.1.3. Document all harassment depredation events/data to include but not limited to: date, time, species involved, location, estimated number, method of harassment/depredation, resulting action of bird(s). Records will be forwarded to PRSC USDA-WS BASH biologist. An electronic grid map and data sheet will be provided by the PRSC USDA BASH Biologist

A3.4.5.2. Notifies the AM and/or Airfield Ops whenever significant bird activity is observed, to include change in the BWC. Hazes birds/wildlife using BDT equipment (pyrotechnics, bioacoustics, etc.) as needed to mitigate bird/animal activity.

A3.4.5.3. Removes any dead or wounded birds/animals from the airfield and reports all findings to the AM and/or Airfield Ops.

A3.4.5.4. Conducts a runway sweep after a noted bird/wildlife strike.

A3.4.5.5. Monitors bird populations, grass height, drainage ditches, etc. and reports all findings to the AM or AAM for further evaluation and/or disposition.

A3.4.5.6. Ensures South Beach Road and McDonald's Point Road are closed no later than 1 hour before aircraft operations when geese are observed in those areas.

A3.4.5.7. Will participate in annual Managing Wildlife Hazards at Airports training to include practical firearms/pyrotechnics training, bird identification, and wildlife mitigation techniques.

A3.4.6. Airfield Ops:

A3.4.6.1. Disseminates BWC changes and forwards aircrew reports of bird/animal activity to the AM and/or BASH Site Specialist for further action.

A3.4.6.2. Declares a BWC immediately when there is a visual observation of bird activity on or near the airfield, when aircraft relay bird hazard information, or when personnel or agencies on or near the airfield relay observations

A3.4.6.3. Once BWC SEVERE has been declared, the BWC will be updated every 15 minutes, at a minimum, until the BWC returns to LOW based on updated information. BWC MODERATE will be updated every 15 minutes as well. This requirement is only in effect if an aircraft is scheduled to arrive or depart within 6 hours.

A3.4.6.4. Advises aircrews of BWC. Include location, movement, and other known data of the bird activity that is driving the bird watch condition.

A3.4.6.5. Advises Airfield Management of bird activity on or near the airfield or in the traffic pattern and the associated BWC.

A3.4.6.6. Gives BASH Team member's access to the Controlled Movement Area (CMA) as required.

A3.4.7. Civil Engineer will:

A3.4.7.1. In coordination with the PRSC USDA BASH Biologist, AM, AAM and Environmental, develops procedures for removal or control of bird attractants in and around the airfield.

A3.4.7.2. Corrects environmental conditions that increase BASH potential within the capabilities of the Contract Performance Work Statement (PWS) and available funding.

A3.4.7.3. Uses prescribed land management practices that reduce BASH hazard potential.

## Attachment 4

### INDIAN MOUNTAIN (PAIM)

#### A4.1. Environment:

A4.1.1. Indian Mountain Long Range Radar Site (LRRS) is a long-range surveillance outpost located 15.8 statute miles east-southeast of Hughes and 165 statute miles northwest of Fairbanks. The station was opened in 1953. The airfield, situated along the southern side of the lower camp, is surrounded by higher elevation on three sides. There are high ridges to the north and south, as well as a steep hillside on the western edge, with the lowest elevation position being on the approach end of the Rwy 24. Surrounding ecology of the site is largely boreal forest that transitions to alpine tundra toward the upper camp.

A4.1.2. The runway, designated 06/24, is a gravel surface. On the approach end of the runway, designated Rwy 24, is Utopia Creek that crosses from the southern side of the lower camp to meet with the Indian River coming from the north. Departure is designated as Rwy 06 and contains the parking area and surrounded by wooded hillside of spruce and birch. The Indian Mountain LRRS lower camp consists of the runway, two large offices and shop structures, and a fuel station with numerous small outbuildings. Interspersed around the immediate area of the lower camp are four covered landfills and four waste collection points that are a part of the environmental clean-up project, "Operation Clean Sweep," initiated by PACAF in 1998.

**A4.2. Exclusion Zones:** These boundaries have been established to aid all agencies in defining when a bird hazard exists, dispersal priorities, and habitat management goals.

A4.2.1. Bird/Wildlife Exclusion Zone (WEZ) (**Figure A4.1**). The WEZ includes the area of the runway out 300' from centerline. This is an area where no bird/wildlife presence will be tolerated, and vegetation should be managed in a way to lower attractiveness to all wildlife. Dispersal priority is: large mammals, large birds, and flocking birds. Removing wildlife from the WEZ is the primary responsibility of individual/team charged with implementing the BASH program.

**Figure A4.1. Indian Mountain WEZ and Vegetation Management Zones.**



A4.2.2. For immediate response situations, the primary consideration is to drive birds/wildlife away from the direct path of an aircraft as quickly as possible. First employ use of “active” measures (non-lethal techniques & resources) to frighten birds/wildlife away from the airfield. Active measures include, but may not be limited to the following, as are available:

A4.2.2.1. Non-lethal dispersal cartridges launched from either a 15mm pyrotechnic pistol or a 12-Gauge Shotgun. Scare cartridges from a 12-Gauge Shotgun produce a secondary explosion to scare the birds from the area. Pyrotechnics are effective for temporary dispersal of most bird/wildlife species.

A4.2.2.2. As equipped on authorized vehicles, use of a vehicle horn, lights and/or siren may be used to disperse birds/wildlife.

A4.2.2.3. Use of other prescribed resources, such as Propane Gas Cannons, bird/wildlife netting, bird balls, Falconry, etc., may be utilized as funding is available and considered value added.

**A4.3. Habitat Modification:** By incorporating specific practices into the local land management, Indian Mountain LRRS can maintain the airfield habitat less attractive to birds and wildlife. The site contractor is primarily responsible for habitat modifications at the site, with coordination from 611 CES, and PRSC USDA BASH Biologist.

A4.3.1. Airfield Zone. The Airfield Zone (**Figure A4.1**) is the area included in the WEZ (centerline out to 300'). Vegetation within this zone should consist primarily of native vegetation and be maintained at a height of 8-11". Trees or shrubs should be maintained within the zone as to not provide nesting/loafing habitat for birds.

A4.3.2. Clear Zone. Not applicable at Indian Mountain LRRS.

A4.3.3. Managing Grass Height. PRSC Contract Personnel in coordination with 611 CES, and USDA-WS BASH Biologist will determine timing of mowing operations to keep grass/vegetation height within tolerance (e.g., 7-14"). The intent of grass/vegetation management is to cut during the period when birds are least likely to be attracted to short grass, to remove seed heads from the plants before they fully mature, late enough that alternate seed heads do not mature, and with adequate time for the grass to reach 11 inches.

A4.3.4. Managing Shrublands. Shrubs will be encouraged/planted to fill gaps to reach a desired canopy coverage of at least 60%. Shrubs will include native, non-berry producing trees and shrubs that easily regenerate after aggressive cutting which include alder, willow, cottonwood, and birch.

A4.3.5. Controlling Broad-Leafed Weeds. Not applicable at Indian Mountain LRRS.

A4.3.6. Woodlands. Not applicable at Indian Mountain LRRS.

A4.3.7. Berry/Fruit Producing Trees and Shrubs. Mature berries/fruit can attract several species of birds during fall and winter. Trees and shrubs that produce berries or fruits should be eliminated, within the WEZ.

A4.3.8. Bird-Proof Buildings and Hangars. All structures within in the WEZ should be maintained as to not provide nesting/roosting cover for birds.

A4.3.9. Leveling of the Airfield Zone. Level or fill high or low areas within the Airfield Zone to prevent standing water and reduce attractiveness to birds.

A4.3.10. Maintaining Drainage Ditches. Regularly inspect ditches and culverts to keep them clear of obstructions. Maintain ditch sides as steeply as possible (minimum slope ratio of 5 to 1) to discourage wading birds and emergent vegetation.

A4.3.11. Minimize Open Water. Eliminate snowmelt ponds or standing open water within the WEZ, ensuring proper coordination with US Army Corps of Engineers, and 611 CES. If unable to relocate snowmelt pond, ensure it drains as soon as possible. Monitor ponds throughout the year and drain as necessary.

A4.3.12. Erosion Control Vegetation. Not applicable at Indian Mountain LRRS.

A4.3.13. Pest Controls. Not applicable at Indian Mountain LRRS.

A4.3.14. Controlling Waste Disposal. Waste control and disposal is a valuable tool in bird and wildlife hazards. Dumpsters and waste containers should remain closed and inaccessible to birds and wildlife at all times. Food scraps and other burnable trash should be promptly incinerated where such capabilities exist.

A4.3.15. Discourage Wildlife Feeding. Intentional and unintentional feeding of birds/wildlife is prohibited at Indian Mountain LRRS.

**A4.4. Specific Responsibilities:** This list is not all-inclusive and should be tailored, as necessary.

A4.4.1. PRSC USDA BASH Biologist. Is the BASH Program Manager/OPR for this instruction and will ensure is reviewed and/or revised annually; to include inserting updated maps and surveys.

A4.4.2. PRSC USDA BASH Biologist will:

A4.4.2.1. Manage all PAIM reported bird strikes.

A4.4.2.1.1. Initiate Air Force Safety Automated System (AFSAS) investigation upon receiving notice of a strike at PAIM.

A4.4.2.1.2. Electronically forward BASH shipping sheet to on-site personnel, for processing and shipping to the Smithsonian Feather ID Lab.

A4.4.2.1.3. After remains are identified, ensure AFSAS investigations are finalized.

A4.4.2.2. Complete annual Airport Hazard training for all required personnel.

A4.4.2.3. Reports all pertinent BASH information to BHWG.

A4.4.2.4. Provides guidance, when requested, on collection of bird/wildlife remains for identification (reference DAFI 91-212, paragraph 2.5.2). Also reference the Air Force Safety Center BASH website for the latest collection methods.

A4.4.2.5. Reviews this BASH plan, IAW AFI 91-202, and runs the Self Inspection Checklist (DAFI 91-212) annually. Document the review and self-inspection via MFR.

A4.4.2.6. Engages in constant communication between the Contractor, the PRSC command, 611 CES, and 3 WG/SE to determine the best solution to any wildlife that may pose a threat to aircraft.

A4.4.3. BASH Site Specialists will:

A4.4.3.1. Engage in as needed active harassment of birds/wildlife within the WEZ, using all available methods. Harassment should not be limited to days with or just prior to aircraft movement.

A4.4.3.1.1. When a BASH threat is observed on the airfield the specialist will respond. The specialist should maintain the exclusion zone daily.

A4.4.3.1.2. Maintain an inventory of 1 month paintballs, pyrotechnics, 12-gauge steel shotshells, and any other necessary BASH supplies.

A4.4.3.2. Document all harassment and depredation events/data to include: date, time, species involved, location, estimated number, method of harassment/depredation, resulting action of bird(s). Records will be forwarded to PRSC USDA BASH Biologist.

A4.4.3.3. Monitor WEZ vegetation zone to ensure that vegetation is managed IAW this regulation and DAFI 91-212.

A4.4.3.3.1. As needed will maintain vegetation in a way as to not attract birds to the WEZ.

- A4.4.3.3.2. Record date, time, specific area impacted, and activity for habitat modifications that occur within the WEZ. Report to PRSC USDA BASH Biologist and 611 CES Natural Resources Manager on completed projects.
- A4.4.3.4. Ensure all bird strikes are reported on AF Form 853, immediately forwarded to 3 WG/SE (Safety) and PRSC USDA BASH Biologist. Also forward any and all photographic evidence of the carcass(s), or damage to aircraft.
- A4.4.3.4.1. Coordinate with aircrews and maintenance for collection of snarge after bird/wildlife strikes. If whole carcass(s) is (are) found take photographs, showing head, extended wing, and any other distinguishing characteristics.
- A4.4.3.4.2. Encourage aircrews using PAIM facilities to participate in the BASH Reduction Program by promptly reporting all bird strikes and hazardous conditions IAW this plan.
- A4.4.3.4.3. Expedite in a timely manner all remains to the Smithsonian Bird and Feather Identification Laboratory, with shipping sheet provided by USDA-WS BASH biologist. For additional guidance on where to send bird remains, refer to DAFI 91-212 and DAFI 91-204.
- A4.4.3.5. Conduct surveys of bird/wildlife activity on the airfield at least twice a month at established points. Surveys should be conducted for 30 minutes per point both morning and evening of each day. Data should be collected to include date, time, species, number, behavior, habitat use, and any other relevant BASH information. Collected data must be transmitted to the USDA-WS BASH Biologist at the beginning of each quarter.

## Attachment 5

### CAPE LISBURNE (PALU)

#### A5.1. Environment:

A5.1.1. Cape Lisburne is a long-range surveillance outpost located 165.7 statute miles north-northwest of Kotzebue, Alaska and 706.6 statute miles northwest of Elmendorf Air Force Base on the Lisburne Peninsula. The airstrip was opened for operations in 1952.

A5.1.2. The runway, designated 09/27, is a gravel surface. The approach end of the runway is designated Rwy 09, and the departure end is designated Rwy 27 which contains a small parking area and a short road to the lower camp. The surrounding ecology is typical subarctic coastal that is marked by small patches of taller grasses in lower lying areas and rocky bluffs, ridges and outcroppings up to an elevation of 1586 feet in the south and is surrounded by the Chukchi Sea, which bounds the northern edge of the runway. The seawall on the northern edge was rebuilt in 2016/2017 using local cliff rock. Historical studies by the US Fish and Wildlife Service (USFWS) have determined that this activity has had a minimal impact on the seabird nesting populations and their behavior.

A5.1.3. Black-legged kittiwakes are abundant in the Alaska Maritime Wildlife Refuge immediately adjacent to the western boundary of the site. Specific hazards exist due the proximity of the refuge to the site airfield. For example, in summer black-legged kittiwakes are attracted to ditches and ponds adjacent to the airfield. Prior to 1999, and until positive action was taken to maintain the drainage, as many as 300 kittiwakes would move to the airfield to dry after a freshwater bath. Qualified employees should actively haze black-legged kittiwakes that affect aircraft operations.

**A5.2. Exclusion Zones:** These boundaries have been established to aid all agencies in defining when a bird hazard exists, dispersal priorities, and habitat management goals.

A5.2.1. Bird/Wildlife Exclusion Zone (WEZ) (**Figure A5.1**). The WEZ includes the area of the runway out 300' from centerline. This is an area where no bird/wildlife presence will be tolerated, and vegetation should be managed in a way to lower attractiveness to all wildlife. Dispersal priority is: large mammals, large birds, and flocking birds. Removing wildlife from the WEZ is the primary responsibility of individual/team charged with implementing the BASH program.

**Figure A5.1. Cape Lisburne WEZ and Vegetation Management Zones.**

A5.2.2. For immediate response situations, the primary consideration is to drive birds/wildlife away from the direct path of an aircraft as quickly as possible. First employ use of “active” measures (non-lethal techniques & resources) to frighten birds/wildlife away from the airfield. Active measures include, but may not be limited to the following, as are available:

A5.2.2.1. Non-lethal dispersal cartridges launched from either a 15mm pyrotechnic pistol or a 12-Gauge Shotgun. Scare cartridges from a 12-Gauge Shotgun produce a secondary explosion to scare the birds from the area. Pyrotechnics are effective for temporary dispersal of most bird/wildlife species.

A5.2.2.2. As equipped on authorized vehicles, use of a vehicle horn, lights and/or siren may be used to disperse birds/wildlife.

A5.2.2.3. Use of other prescribed resources, such as Propane Gas Cannons, bird/wildlife netting, bird balls, Falconry, etc., may be utilized as funding is available and considered value added.

**A5.3. Habitat Modification:** By incorporating specific practices into the local land management, Cape Lisburne LRRS can maintain the airfield habitat less attractive to birds and wildlife. The site contractor is primarily responsible for habitat modifications at the site, with coordination from 611 CES, and USDA-WS BASH Biologist.

A5.3.1. The Airfield Zone (**Figure A5.1**) is the area included in the WEZ (centerline out to 300’). Vegetation should consist primarily of native vegetation and be maintained at a height of 8-11”. Trees or shrubs should be maintained within the Airfield Zone as to not provide nesting/loafing habitat for birds.

A5.3.2. Clear Zone. Not applicable at Cape Lisburne LRRS.

A5.3.3. Managing Grass Height. PRSC Contract Personnel in coordination with 611 CES, and PRSC USDA BASH Biologist will determine timing of mowing operations to keep grass height within tolerance (e.g., 7-14"). The intent of grass management is to cut during the period when birds are least likely to be attracted to short grass, to remove seed heads from the plants before they fully mature, late enough that alternate seed heads do not mature, and with adequate time for the grass to reach 11 inches.

A5.3.4. Managing Shrublands. Shrubs will be encouraged/planted to fill gaps to reach a desired canopy coverage of at least 60%. Shrubs will include native, non-berry producing trees and shrubs that easily regenerate after aggressive cutting which include alder, willow, cottonwood, and birch.

A5.3.5. Controlling Broad-Leafed Weeds. Not applicable at Cape Lisburne LRRS.

A5.3.6. Woodlands. Not applicable at Cape Lisburne LRRS.

A5.3.7. Berry/Fruit Producing Trees and Shrubs. Not applicable at Cape Lisburne LRRS

A5.3.8. Bird-Proof Buildings and Hangars. All structures within in the WEZ should be maintained as to not provide nesting/roosting cover for birds.

A5.3.9. Leveling of the Airfield Zone. Level or fill high or low areas within the Airfield Zone to prevent standing water and reduce attractiveness to birds.

A5.3.10. Maintaining Drainage Ditches. Regularly inspect ditches and culverts to keep them clear of obstructions. Maintain ditch sides as steeply as possible (minimum slope ratio of 5 to 1) to discourage wading birds and emergent vegetation.

A5.3.11. Minimize Open Water. Eliminate snowmelt ponds or standing open water within the WEZ, ensuring proper coordination with US Army Corps of Engineers, and 611 CES. If unable to relocate snowmelt pond, ensure it drains as soon as possible. Monitor ponds throughout the year and drain as necessary.

A5.3.12. Erosion Control Vegetation. Not applicable at Cape Lisburne LRRS.

A5.3.13. Pest Controls. Not applicable at Cape Lisburne LRRS.

A5.3.14. Controlling Waste Disposal. Waste control and disposal can be very effective in bird and wildlife hazards. Dumpsters and waste containers should remain closed and inaccessible to birds and wildlife at all times. Food scraps and other burnable trash should be promptly incinerated where such capabilities exist.

A5.3.15. Discourage Wildlife Feeding. Intentional and unintentional feeding of birds/wildlife is prohibited at Cape Lisburne LRRS.

**A5.4. Specific Responsibilities:** This is not all-inclusive and should be tailored, as necessary.

A5.4.1. PRSC USDA BASH Biologist. Is the BASH Program Manager/OPR for this instruction and will ensure is reviewed and/or revised annually; to include inserting updated maps and surveys.

A5.4.2. PRSC USDA BASH Biologist will:

A5.4.2.1. Manage all PALU reported bird strikes.

- A5.4.2.1.1. Initiate Air Force Safety Automated System (AFSAS) investigation upon receiving notice of a strike at PALU.
  - A5.4.2.1.2. Electronically forward BASH shipping sheet to on-site personnel, for processing and shipping to the Smithsonian Feather ID Lab.
  - A5.4.2.1.3. After remains are identified, ensure AFSAS investigations are finalized.
  - A5.4.2.2. Complete annual Airport Hazard training for all required personnel.
  - A5.4.2.3. Reports all pertinent BASH information to BHWG.
  - A5.4.2.4. Provides guidance, when requested, on collection of bird/wildlife remains for identification (reference DAFI 91-212, paragraph 2.5.2). Also reference the Air Force Safety Center BASH website for the latest collection methods.
  - A5.4.2.5. Reviews this BASH plan, IAW AFI 91-202, and runs the Self Inspection Checklist (DAFI 91-212) annually. Document the review and self-inspection via MFR.
  - A5.4.2.6. Engages in constant communication between the Contractor, the PRSC command, 611 CES, and 3 WG/SE to determine the best solution to any wildlife that may pose a threat to aircraft.
- A5.4.3. BASH Site Specialists:
- A5.4.3.1. Engage in as needed active harassment of birds within the WEZ, using all available methods. Harassment should not be limited to days with or just prior to aircraft movement.
    - A5.4.3.1.1. When a BASH threat is observed on the airfield the specialist will respond. The specialist should maintain the exclusion zone daily.
    - A5.4.3.1.2. Maintain an inventory of paintballs, pyrotechnics, 12-gauge steel shotshells, and any other BASH supplies.
  - A5.4.3.2. Document all harassment and depredation events/data to include but not limited to: date, time, species involved, location, estimated number, method of harassment/depredation, resulting action of bird(s). Records will be forwarded to USDA-WS BASH biologist.
  - A5.4.3.3. Monitor WEZ vegetation zone to ensure that vegetation is managed IAW this regulation and DAFI 91-212.
    - A5.4.3.3.1. As needed will maintain vegetation in a way as to not attract birds to the WEZ.
    - A5.4.3.3.2. Record date, time, specific area impacted, and activity for habitat modifications that occur within the WEZ. Report to PRSC USDA BASH Biologist and 611 CES Natural Resources Manager on completed projects.
  - A5.4.3.4. Ensure all bird strikes are reported on AF Form 853, immediately forwarded to 3 WG/SE (Safety) and PRSC USDA BASH Biologist. Also forward any and all photographic evidence of the carcass(s), or damage to aircraft.

- A5.4.3.4.1. Coordinate with aircrews and maintenance for collection of snarge after bird/wildlife strikes. If whole carcass(s) is (are) found take photographs, showing head, extended wing, and any other distinguishing characteristics.
- A5.4.3.4.2. Encourage aircrews using PALU facilities to participate in the BASH Reduction Program by promptly reporting all bird strikes and hazardous conditions IAW this plan.
- A5.4.3.4.3. Expedite in a timely manner all remains to the Smithsonian Bird and Feather Identification Laboratory, with shipping sheet provided by USDA-WS BASH biologist. For additional guidance on where to send bird remains, refer to DAFI 91-212 and DAFI 91-204.
- A5.4.3.5. Conduct surveys of bird/wildlife activity on the airfield at least twice a month at established points. Surveys should be conducted for 30 minutes per point both morning and evening of each day. Data should be collected to include date, time, species, number, behavior, habitat use, and any other relevant BASH information. Collected data must be transmitted to the USDA-WS BASH Biologist at the beginning of each quarter.

## Attachment 6

### CAPE NEWENHAM (PAEH)

#### A6.1. Environment:

A6.1.1. Cape Newenham Long Range Radar Site (LRRS) is a long-range surveillance outpost, bordered on the south by Bristol Bay and by Kuskokwim Bay along the Bering Sea coast, 400.9 statute miles west-southwest of Anchorage, Alaska. The station was opened two years behind schedule in 1954 due to constant foul weather and the necessity of using Navy landing ships and barges to supply construction materials. The airfield, situated north of the lower camp, is surrounded by a beach on the north and a high-ridged hill to the west that dips into a saddle along the southern portion of the cape before rising sharply to near vertical pinnacles along the eastern border of the site. Surrounding ecology of the site is austere coastal arctic tundra at the lower elevations that gives way to bare rock rapidly with the increase in elevation.

A6.1.2. The runway, designated 15/33, is a gravel surface. Departure is designated as Rwy 33, and the approach end of the runway is designated Rwy 15. The airfield is on an up-sloping hill with a grade of 7.7% that settles to a flatter surface for parking before continuing its rise to the lower camp. The runway consists of packed gravel that is maintained by the on-site mechanic. Along the runway is short scrub that rarely needs to be maintained. The Cape Newenham LRRS lower camp consists of a combined function building that serves as lodging, a mechanical bay and the offices for the site, as well as a fuel storage farm. The airfield has no trees and only scattered bushes are nearby.

A6.1.3. The Cape Newenham LRRS is located at the end of the Cape Newenham State Game Refuge and comprises the southern end of the Togiak National Wildlife Refuge. The Cape Newenham State Game Refuge, which includes Chagvan Bay and Nanvak Bay, covers a total of 265,000 acres. The cape itself is a mixture of rock ranging from granite to limestone. The cliffs surrounding the LRRS at the end of the cape are altered volcanic rock and granite that have been sculptured by wind and the sea to create a “caldera effect” with sharp pinnacles along the edges. Climate has a drastic effect on the area and the cape frequently sees thick fogs and rain in the summer months and occasional sea ice, moderate snowfall and strong winds in the winter (the permanent wind sensor on the radar station was ripped off about three years ago after two hours of sustained 178 knot winds).

A6.1.4. The vicinity of the Cape Newenham LRRS is entirely coastal arctic tundra, and the flora is typical of this environment. Small alder bushes and prostrate shrubs are the largest plants in the area and much of the rest of the site contains fireweed, crowberry, blueberry and small grasses, flowering plants and lichen. The terrestrial mammals that inhabit the cape include brown bears (*Ursus arctos*), wolverines (*Gulo gulo*), hoary marmot (*Marmota caligata*) and caribou (*Rangifer tarandus granti*). More than two dozen distinct caribou were observed during this visit. The cape is also a home to seventeen species of marine mammals including Pacific walrus (*Odobenus rosmarus*) and the endangered Steller sea lion (*Eumetopias jubatus*). One of the highlights of this area is the avian species that conserves habitat for at least 201 staging, migrating or breeding bird species. The eelgrass beds of

Chagvan Bay, around 12 miles northeast and near the approach pattern, attract migratory waterfowl by the thousands, and the majority of the world's emperor geese (*Anser canagicus*) and black brant (*Branta bernicla nigricans*) stop here as well. A grouping of sea ducks was observed in the small bay on the north side of the cape during this visit but were too distant to positively identify. Other bird species that are found include multiple species of alcids and large numbers of northern fulmar (*Fulmarus glacialis*). Nearly a dozen northern fulmar were observed and there was evidence of their nesting on the cliffs near the beach.

**A6.2. Exclusion Zones:** These boundaries have been established to aid all agencies in defining when a bird hazard exists, dispersal priorities, and habitat management goals.

A6.2.1. Bird/Wildlife Exclusion Zone (WEZ) (**Figure A6.1**). The WEZ includes the area of the runway out 300' from centerline. This is an area where no bird/wildlife presence will be tolerated, and vegetation should be managed in a way to lower attractiveness to all wildlife. Dispersal priority is: large mammals, large birds, and flocking birds. Removing wildlife from the WEZ is the primary responsibility of individual/team charged with implementing the BASH program.

**Figure A6.1. Cape Newenham WEZ and Vegetation Management Zones.**



A6.2.2. For immediate response situations, the primary consideration is to drive birds/wildlife away from the direct path of an aircraft as quickly as possible. First employ use of “active” measures (non-lethal techniques & resources) to frighten birds/wildlife away from the airfield. Active measures include, but may not be limited to the following, as are available:

A6.2.2.1. Non-lethal dispersal cartridges launched from either a 15mm pyrotechnic pistol or a 12-Gauge Shotgun. Scare cartridges from a 12-Gauge Shotgun produce a secondary explosion to scare the birds from the area. Pyrotechnics are effective for temporary dispersal of most bird/wildlife species.

A6.2.2.2. As equipped on authorized vehicles, use of a vehicle horn, lights and/or siren may be used to disperse birds/wildlife.

A6.2.2.3. Use of other prescribed resources, such as Propane Gas Cannons, bird/wildlife netting, bird balls, Falconry, etc., may be utilized as funding is available and considered value added.

**A6.3. Habitat Modification:** By incorporating specific practices into the local land management, Cape Newenham LRRS can maintain the airfield habitat less attractive to birds and wildlife. The site contractor is primarily responsible for habitat modifications at the site, with coordination from 611 CES, and USDA-WS BASH Biologist.

A6.3.1. The Airfield Zone (**Figure A6.1**) is the area included in the WEZ (centerline out to 300’). Vegetation should consist primarily of native vegetation and be maintained at a height of 8-11”. Trees or shrubs should be maintained within the Airfield Zone as to not provide nesting/loafing habitat for birds.

A6.3.2. Clear Zone. Not applicable at Cape Newenham LRRS.

A6.3.3. Managing Grass Height. PRSC Contract Personnel in coordination with 611 CES, and PRSC USDA BASH Biologist will determine timing of mowing operations to keep grass height within tolerance (e.g., 7-14”). The intent of grass management is to cut during the period when birds are least likely to be attracted to short grass, to remove seed heads from the plants before they fully mature, late enough that alternate seed heads do not mature, and with adequate time for the grass to reach 11 inches.

A6.3.4. Managing Shrublands. Shrubs will be encouraged/planted to fill gaps to reach a desired canopy coverage of at least 60%. Shrubs will include native, non-berry producing trees and shrubs that easily regenerate after aggressive cutting which include alder, willow, cottonwood, and birch.

A6.3.5. Controlling Board-Leafed Weeds. Not applicable at Cape Newenham LRRS.

A6.3.6. Woodlands. Not applicable at Cape Newenham LRRS.

A6.3.7. Berry/Fruit Producing Trees and Shrubs. Mature berries/fruit can attract several species of birds during fall and winter. Trees and shrubs that produce berries or fruits should be minimized, when possible, within the WEZ.

A6.3.8. Bird-Proof Buildings and Hangars. All structures within in the WEZ should be maintained as to not provide nesting/roosting cover for birds.

A6.3.9. Leveling of the Airfield Zone. Level or fill high or low areas within the Airfield Zone to prevent standing water and reduce attractiveness to birds.

A6.3.10. Maintaining Drainage Ditches. Regularly inspect ditches and culverts to keep them clear of obstructions. Maintain ditch sides as steeply as possible (minimum slope ratio of 5 to 1) to discourage wading birds and emergent vegetation.

A6.3.11. Minimize Open Water. Eliminate snowmelt ponds or standing open water within the WEZ, ensuring proper coordination with US Army Corps of Engineers, and 611 CES. If unable to relocate snowmelt pond, ensure it drains as soon as possible. Monitor ponds throughout the year and drain as necessary.

A6.3.12. Erosion Control Vegetation. Not applicable at Cape Newenham LRRS.

A6.3.13. Pest Controls. Not applicable at Cape Newenham LRRS.

A6.3.14. Controlling Waste Disposal. Waste control and disposal can be very effective in bird and wildlife hazards. Dumpsters and waste containers should remain closed and inaccessible to birds and wildlife at all times. Food scraps and other burnable trash should be promptly incinerated where such capabilities exist.

A6.3.15. Discourage Wildlife Feeding. Intentional and unintentional feeding of birds/wildlife is prohibited at Cape Newenham LRRS.

**A6.4. Specific Responsibilities:** This is not all-inclusive and should be tailored, as necessary.

A6.4.1. PRSC USDA BASH Biologist. Is the BASH Program Manager/OPR for this instruction and will ensure is reviewed and/or revised annually; to include inserting updated maps and surveys.

A6.4.2. PRSC USDA BASH Biologist will:

A6.4.2.1. Manage all PAEH reported bird strikes.

A6.4.2.1.1. Initiate Air Force Safety Automated System (AFSAS) investigation upon receiving notice of a strike at PAEH.

A6.4.2.1.2. Electronically forward BASH shipping sheet to on-site personnel, for processing and shipping to the Smithsonian Feather ID Lab.

A6.4.2.1.3. After remains are identified, ensure AFSAS investigations are finalized.

A6.4.2.2. Complete annual Airport Hazard training for all required personnel.

A6.4.2.3. Reports all pertinent BASH information to BHWG.

A6.4.2.4. Provides guidance, when requested, on collection of bird/wildlife remains for identification (reference DAFI 91-212, paragraph 2.5.2). Also reference the Air Force Safety Center BASH website for the latest collection methods.

A6.4.2.5. Reviews this BASH plan, IAW AFI 91-202, and runs the Self Inspection Checklist (DAFI 91-212) annually. Document the review and self-inspection via MFR.

A6.4.2.6. Engages in constant communication between the Contractor, the PRSC command, 611 CES, and 3 WG/SE to determine the best solution to any wildlife that may pose a threat to aircraft.

A6.4.3. BASH Site Specialists will:

A6.4.3.1. Engage in as needed active harassment of birds within the WEZ, using all available methods. Harassment should not be limited to days with or just prior to aircraft movement.

A6.4.3.1.1. When a BASH threat is observed on the airfield the specialist will respond. The specialist should maintain the exclusion zone daily.

A6.4.3.1.2. Maintain an inventory of paintballs, pyrotechnics, 12-gauge steel shotshells, and any other BASH supplies.

A6.4.3.2. Document all harassment and depredation events/data to include: date, time, species involved, location, estimated number, method of harassment/depredation, resulting action of bird(s). Records will be forwarded to USDA-WS BASH biologist.

A6.4.3.3. Monitor WEZ vegetation zone to ensure that vegetation is managed IAW this regulation and DAFI 91-212.

A6.4.3.3.1. As need will maintain vegetation in a way as to not attract birds to the WEZ.

A6.4.3.3.2. Record day, time, specific area impacted, and activity for habitat modifications that occur within the WEZ. Report to USDA-WS and 611 CES Natural Resources Manager on completed projects.

A6.4.3.4. Ensure all bird strikes are reported on AF Form 853, immediately forwarded to 3 WG/SE (Safety) and USDA – WS through the DET1/CC. Also forward any and all photographic evidence of the carcass(s), or damage to aircraft.

A6.4.3.4.1. Coordinate with aircrews and maintenance for collection of snarge after bird/wildlife strikes. If whole carcass(s) is (are) found take photographs, showing head, extended wing, and any other distinguishing characteristics.

A6.4.3.4.2. Encourage aircrews using PAIM facilities to participate in the BASH Reduction Program by promptly reporting all bird strikes and hazardous conditions IAW this plan.

A6.4.3.4.3. Expedite in a timely manner all remains to the Smithsonian Bird and Feather Identification Laboratory, with shipping sheet provided by USDA-WS BASH biologist. For additional guidance on where to send bird remains, refer to DAFI 91-212 and DAFI 91-204.

A6.4.3.5. Conduct surveys of bird/wildlife activity on the airfield at least twice a month at established points. Surveys should be conducted for 30 minutes per point both morning and evening of each day. Data should be collected to include date, time, species, number, behavior, habitat use, and any other relevant BASH information. Collected data must be transmitted to the PRSC USDA BASH Biologist at the beginning of each quarter.

## Attachment 7

### CAPE ROMANZOF (PACZ)

#### A7.1. Environment:

A7.1.1. Cape Romanzof LRRS is a long-range surveillance outpost located 156.5 statute miles northwest of Bethel, Alaska and 536.2 statute miles west of Elmendorf Air Force Base between Kokechik and Scammon Bays on the Bering Sea coast. The airstrip was opened for operations in 1951. To the northeast is a rise in elevation to the ridge where the radar site is located. The entire site is located within the Yukon Delta National Wildlife Refuge, which serves as nesting/breeding area for many species of wildlife.

A7.1.2. The runway, designated 02/20, is a gravel surface. On the approach end of the runway, designated RWY 02, is the seawall bluff. Departure end is designated RWY 20 and contains a turn-around area. Aircraft parking is limited and bordered steep rise in elevation. The surrounding ecology is entirely coastal tundra that is largely barren rock terrain broken by sparse grass growth, and dwarf shrubs. The site chief aptly described it as the “closest thing to living on another planet”. Nilumat Creek runs along the entire western side of the airfield, and discharges into Kokechik Bay. The creek appears to have sufficient flow and does not provide a significant attractant to wildlife.

A7.1.3. Several other notable wildlife issues around Cape Romanzof, have been documented in the past. The intertidal zone of Kokechik Bay is known to provide an important spawning habitat for Pacific herring (*Clupea pallasii*). Subsequently the spawning herring serves as a significant food attractant for Glaucous gulls (*Larus, hyperboreus*). Additionally, local fishing activity in the bay, can attract gulls to the area. While these gulls do pose an increased risk to flight safety that risk is slightly lowered because of the unique configuration of the airfield (being elevated above the water level where the gulls are more congregated). Beginning in mid-August berry production from the tundra vegetation on the hillsides surrounding the airfield can attract migrating Canada geese (*Branta, canadensis*), and tundra swans (*Cygnus, columbianus*) to the area. These birds do pose an increased risk to flight safety, however due to the yearly variation in berry production and the nature of migration these birds are typically easily hazed away from the airfield.

**A7.2. Exclusion Zones:** These boundaries have been established to aid all agencies in defining when a bird hazard exists, dispersal priorities, and habitat management goals.

A7.2.1. Bird/Wildlife Exclusion Zone (WEZ) (**Figure A7.1**). The WEZ includes the area of the runway out 300' from centerline. This is an area where no bird/wildlife presence will be tolerated, and vegetation should be managed in a way to lower attractiveness to all wildlife. Dispersal priority is: large mammals, large birds, and flocking birds. Removing wildlife from the WEZ is the primary responsibility of individual/team charged with implementing the BASH program.

**Figure A7.1. Cape Romanzof WEZ and Vegetation Management Zones.**



A7.2.2. For immediate response situations, the primary consideration is to drive birds/wildlife away from the direct path of an aircraft as quickly as possible. First employ use of “active” measures (non-lethal techniques & resources) to frighten birds/wildlife away from the airfield. Active measures include, but may not be limited to the following, as are available:

A7.2.2.1. Non-lethal dispersal cartridges launched from either a 15mm pyrotechnic pistol or a 12-Gauge Shotgun. Scare cartridges from a 12-Gauge Shotgun produce a secondary explosion to scare the birds from the area. Pyrotechnics are effective for temporary dispersal of most bird/wildlife species.

A7.2.2.2. As equipped on authorized vehicles, use of a vehicle horn, lights and/or siren may be used to disperse birds/wildlife.

A7.2.2.3. Use of other prescribed resources, such as Propane Gas Cannons, bird/wildlife netting, bird balls, Falconry, etc., may be utilized as funding is available and considered value added.

**A7.3. Habitat Modification:** By incorporating specific practices into the local land management, Cape Romanzof LRRS can maintain the airfield habitat less attractive to birds and wildlife. The site contractor is primarily responsible for habitat modifications at the site, with coordination from 611 CES, and PRSC USDA BASH Biologist.

A7.3.1. The Airfield Zone (**Figure A7.1**) is the area included in the WEZ (centerline out to 300'). Vegetation should consist primarily of native vegetation and be maintained at a height of 7-14". Trees or shrubs should be maintained within the Airfield Zone as to not provide nesting/loafing habitat for birds.

A7.3.2. Clear Zone. Not applicable at Cape Romanzof LRRS.

A7.3.3. Managing Grass Height. PRSC Contract Personnel in coordination with 611 CES, and PRSC USDA-WS BASH Biologist will determine timing of mowing operations to keep grass height within tolerance (e.g., 7-14"). The intent of grass management is to cut during the period when birds are least likely to be attracted to short grass, to remove seed heads from the plants before they fully mature, late enough that alternate seed heads do not mature, and with adequate time for the grass to reach 14 inches.

A7.3.4. Managing Shrublands. Shrubs will be encouraged/planted to fill gaps to reach a desired canopy coverage of at least 60%. Shrubs will include native, non-berry producing trees and shrubs that easily regenerate after aggressive cutting which include alder, willow, cottonwood, and birch.

A7.3.5. Controlling Board-Leafed Weeds. Not applicable at Cape Romanzof LRRS.

A7.3.6. Woodlands. Not applicable at Cape Romanzof LRRS.

A7.3.7. Berry/Fruit Producing Trees and Shrubs. Mature berries/fruit can attract several species of birds during fall and winter. Trees and shrubs that produce berries or fruits should be minimized, when possible, within the WEZ.

A7.3.8. Bird-Proof Buildings and Hangars. All structures within in the WEZ should be maintained as to not provide nesting/roosting cover for birds.

A7.3.9. Leveling of the Airfield Zone. Level or fill high or low areas within the Airfield Zone to prevent standing water and reduce attractiveness to birds.

A7.3.10. Maintaining Drainage Ditches. Regularly inspect ditches and culverts to keep them clear of obstructions. Maintain ditch sides as steeply as possible (minimum slope ratio of 5 to 1) to discourage wading birds and emergent vegetation.

A7.3.11. Minimize Open Water. Eliminate snowmelt ponds or standing open water within the WEZ, ensuring proper coordination with US Army Corps of Engineers, and 611 CES. If unable to relocate snowmelt pond, ensure it drains as soon as possible. Monitor ponds throughout the year and drain as necessary.

A7.3.12. Erosion Control Vegetation. Not applicable at Cape Romanzof LRRS.

A7.3.13. Pest Controls. Not applicable at Cape Romanzof LRRS.

A7.3.14. Controlling Waste Disposal. Waste control and disposal can be very effective in bird and wildlife hazards. Dumpsters and waste containers should remain closed and inaccessible to birds and wildlife at all times. Food scraps and other burnable trash should be promptly incinerated where such capabilities exist.

A7.3.15. Discourage Wildlife Feeding intentional and unintentional feeding of birds/wildlife is prohibited at Cape Romanzof LRRS.

**A7.4. Specific Responsibilities:** This is not all-inclusive and should be tailored, as necessary.

A7.4.1. PRSC USDA BASH Biologist. Is the BASH Program Manager/OPR for this instruction and will ensure is reviewed and/or revised annually; to include inserting updated maps and surveys.

A7.4.2. PRSC USDA BASH Biologist will:

A7.4.2.1. Manage all PACZ reported bird strikes.

A7.4.2.1.1. Initiate Air Force Safety Automated System (AFSAS) investigation upon receiving notice of a strike at PACZ.

A7.4.2.1.2. Electronically forward BASH shipping sheet to on-site personnel, for processing and shipping to the Smithsonian Feather ID Lab.

A7.4.2.1.3. After remains are identified, ensure AFSAS investigations are finalized.

A7.4.2.2. Complete annual Airport Hazard training for all required personnel.

A7.4.2.3. Reports all pertinent BASH information to BHWG.

A7.4.2.4. Provides guidance, when requested, on collection of bird/wildlife remains for identification (reference DAFI 91-212, paragraph 2.5.2). Also reference the Air Force Safety Center BASH website for the latest collection methods.

A7.4.2.5. Reviews this BASH plan, IAW AFI 91-202, and runs the Self Inspection Checklist (DAFI 91-212) annually. Document the review and self-inspection via MFR.

A7.4.2.6. Engages in constant communication between the Contractor, the PRSC command, 611 CES, and 3 WG/SE to determine the best solution to any wildlife that may pose a threat to aircraft.

A7.4.3. BASH Site Specialist:

A7.4.3.1. Engage in as needed active harassment of birds within the WEZ, using all available methods. Harassment should not be limited to days with or just prior to aircraft movement.

A7.4.3.1.1. When a BASH threat is observed on the airfield the specialist will respond. The specialist should maintain the exclusion zone daily.

A7.4.3.1.2. Maintain an inventory of paintballs, pyrotechnics, 12-gauge steel shotshells, and any other BASH supplies.

A7.4.3.2. Document all harassment and depredation events/data to include: date, time, species involved, location, estimated number, method of harassment/depredation, resulting action of bird(s). Records will be forwarded to PRSC USDA-WS BASH biologist.

A7.4.3.3. Monitor WEZ vegetation zone to ensure that vegetation is managed IAW this regulation and DAFI 91-212.

A7.4.3.3.1. As need will maintain vegetation in a way as to not attract birds to the WEZ.

- A7.4.3.3.2. Record day, time, specific area impacted, and activity for habitat modifications that occur within the WEZ. Report to USDA-WS and 611 CES Natural Resources Manager on completed projects.
- A7.4.3.4. Ensure all bird strikes are reported on AF Form 853, immediately forwarded to 3 WG/SE (Safety) and PRSC USDA BASH Biologist. Also forward any and all photographic evidence of the carcass(s), or damage to aircraft.
- A7.4.3.4.1. Coordinate with aircrews and maintenance for collection of snarge after bird/wildlife strikes. If whole carcass(s) is (are) found take photographs, showing head, extended wing, and any other distinguishing characteristics.
- A7.4.3.4.2. Encourage aircrews using PACZ facilities to participate in the BASH Reduction Program by promptly reporting all bird strikes and hazardous conditions IAW this plan.
- A7.4.3.4.3. Expedite in a timely manner all remains to the Smithsonian Bird and Feather Identification Laboratory, with shipping sheet provided by USDA-WS BASH biologist. For additional guidance on where to send bird remains, refer to DAFI 91-212 and DAFI 91-204.
- A7.4.3.5. Conduct surveys of bird/wildlife activity on the airfield at least twice a month at established points. Surveys should be conducted for 30 minutes per point both morning and evening of each day. Data should be collected to include date, time, species, number, behavior, habitat use, and any other relevant BASH information. Collected data must be transmitted to the PRSC USDA BASH Biologist at the beginning of each quarter.

## Attachment 8

### TIN CITY (PATC)

#### A8.1. Environment:

A8.1.1. Tin City Long Range Radar Site (LRRS) is a long-range surveillance outpost located 106.3 statute miles west-northwest of Nome, Alaska and 633.6 statute miles northwest of Elmendorf Air Force Base on the Cape Prince of Wales. The airstrip was opened for operations in 1951. The airfield is located on a sea wall that opens to flat tundra to the east that is broken only by the defunct White Alice listening stations. To the north is a sudden rise in elevation to the ridge where the radar site is located, and the abandoned mining town of Tin City is on the far edge of the ridge approximately a mile from the airfield.

A8.1.2. The runway, designated 16/34 is a gravel surface. On the approach end of the runway, designated Rwy 34, is the seawall bluff. Departure end is designated Rwy 16 and contains a turn-around area. Aircraft parking is near the center of the airstrip along with fuel storage tanks. A notable feature of the airfield is, the runway center is higher than both ends with limited line of sight on the ground, this is due to the variations of the terrain. This information is also remarked on in the airfield Notice to Airmen (NOTAM). The surrounding ecology is entirely coastal tundra that is marked by small patches of taller grasses in lower lying areas and rocky bluffs, ridges and outcroppings.

A8.1.3. Sandhill crane populations typically increase in mid-May and during the fall as indicated in the FLIP. During these periods, the Station Chief will ensure employees and visitors are aware of and alert for possible large numbers of Sandhill cranes in the WEZ. Sandhill cranes are very large (3 feet long with a wingspan over 6 feet), relatively slow, and they fly and graze in large flocks.

A8.1.4. Employees and visitors should maintain vigilance throughout the indicated periods. Employees performing traffic advisory or weather observer duties will ensure that when providing PPR numbers to arriving aircraft, advise aircrews and carriers of possible large number of Sandhill cranes; and correctly annotate the BWC in the Airfield Events Log and on the Aircraft Arrival/Departure Log. Qualified employees should actively haze Sandhill cranes that affect aircraft operations.

**A8.2. Exclusion Zones:** These boundaries have been established to aid all agencies in defining when a bird hazard exists, dispersal priorities, and habitat management goals.

A8.2.1. Bird/Wildlife Exclusion Zone (WEZ) (**Figure A7.1**). The WEZ includes the area of the runway out 300' from centerline. This is an area where no bird/wildlife presence will be tolerated, and vegetation should be managed in a way to lower attractiveness to all wildlife. Dispersal priority is: large mammals, large birds, and flocking birds. Removing wildlife from the WEZ is the primary responsibility of individual/team charged with implementing the BASH program.

**Figure A8.1. Tin City WEZ and Vegetation Zones.**



A8.2.2. For immediate response situations, the primary consideration is to drive birds/wildlife away from the direct path of an aircraft as quickly as possible. First employ use of “active” measures (non-lethal techniques & resources) to frighten birds/wildlife away from the airfield. Active measures include, but may not be limited to the following, as are available:

A8.2.2.1. Non-lethal dispersal cartridges launched from either a 15mm pyrotechnic pistol or a 12-Gauge Shotgun. Scare cartridges from a 12-Gauge Shotgun produce a secondary explosion to scare the birds from the area. Pyrotechnics are effective for temporary dispersal of most bird/wildlife species.

A8.2.2.2. As equipped on authorized vehicles, use of a vehicle horn, lights and/or siren may be used to disperse birds/wildlife.

A8.2.2.3. Use of other prescribed resources, such as but not limited to Propane Gas Cannons, bird/wildlife netting, bird balls, Falconry, etc., may be utilized as funding is available and considered value added.

**A8.3. Habitat Modification:** By incorporating specific practices into the local land management, Tin City LRRS can maintain the airfield habitat less attractive to birds and wildlife. The site contractor is primarily responsible for habitat modifications at the site, with coordination from 611 CES, and PRSC USDA BASH Biologist.

A8.3.1. The Airfield Zone (**Figure A8.1**) is the area included in the WEZ (centerline out to 300'). Vegetation should consist primarily of native vegetation and be maintained at a height of 7-14". Trees or shrubs should be maintained within the Airfield Zone as to not provide nesting/loafing habitat for birds.

A8.3.2. Clear Zone. Not applicable at Tin City LRRS.

A8.3.3. Managing Grass Height. PRSC Contract Personnel in coordination with 611 CES, and PRSC USDA-WS BASH Biologist will determine timing of mowing operations to keep grass height within tolerance (e.g., 7-14"). The intent of grass management is to cut during the period when birds are least likely to be attracted to short grass, to remove seed heads from the plants before they fully mature, late enough that alternate seed heads do not mature, and with adequate time for the grass to reach 14 inches.

A8.3.4. Managing Shrublands. Shrubs will be encouraged/planted to fill gaps to reach a desired canopy coverage of at least 60%. Shrubs will include native, non-berry producing trees and shrubs that easily regenerate after aggressive cutting which include alder, willow, cottonwood, and birch.

A8.3.5. Controlling Board-Leafed Weeds. Not applicable at Tin City LRRS.

A8.3.6. Woodlands. Not applicable at Tin City LRRS.

A8.3.7. Berry/Fruit Producing Trees and Shrubs. Mature berries/fruit can attract several species of birds during fall and winter. Trees and shrubs that produce berries or fruits should be minimized, when possible, within the WEZ.

A8.3.8. Bird-Proof Buildings and Hangars. All structures within in the WEZ should be maintained as to not provide nesting/roosting cover for birds.

A8.3.9. Leveling of the Airfield Zone. Level or fill high or low areas within the Airfield Zone to prevent standing water and reduce attractiveness to birds.

A8.3.10. Maintaining Drainage Ditches. Regularly inspect ditches and culverts to keep them clear of obstructions. Maintain ditch sides as steeply as possible (minimum slope ratio of 5 to 1) to discourage wading birds and emergent vegetation.

A8.3.11. Minimize Open Water. Eliminate snowmelt ponds or standing open water within the WEZ, ensuring proper coordination with US Army Corps of Engineers, and 611 CES. If unable to relocate snowmelt pond, ensure it drains as soon as possible. Monitor ponds throughout the year and drain as necessary.

A8.3.12. Erosion Control Vegetation. Not applicable at Tin City LRRS.

A8.3.13. Pest Controls. Not applicable at Tin City LRRS.

A8.3.14. Controlling Waste Disposal. Waste control and disposal can be very effective in bird and wildlife hazards. Dumpsters and waste containers should remain closed and inaccessible to birds and wildlife at all times. Food scraps and other burnable trash should be promptly incinerated where such capabilities exist.

A8.3.15. Discourage Wildlife Feeding. Intentional and unintentional feeding of birds/wildlife is prohibited at Tin City LRRS.

**A8.4. Specific Responsibilities:**

A8.4.1. PRSC USDA BASH Biologist. Is the BASH Program Manager/OPR for this instruction and will ensure is reviewed and/or revised annually; to include inserting updated maps and surveys.

A8.4.2. PRSC USDA-WS BASH Biologist will:

A8.4.2.1. Manage all PATC reported bird strikes.

A8.4.2.1.1. Initiate Air Force Safety Automated System (AFSAS) investigation upon receiving notice of a strike at PATC.

A8.4.2.1.2. Electronically forward BASH shipping sheet to on-site personnel, for processing and shipping to the Smithsonian Feather ID Lab.

A8.4.2.1.3. After remains are identified, ensure AFSAS investigations are finalized.

A8.4.2.2. Complete annual Airport Hazard training for all required personnel.

A8.4.2.3. Reports all pertinent BASH information to BHWG.

A8.4.2.4. Provides guidance, when requested, on collection of bird/wildlife remains for identification (reference DAFI 91-212, paragraph 2.5.2). Also reference the Air Force Safety Center BASH website for the latest collection methods.

A8.4.2.5. Reviews this BASH plan, IAW AFI 91-202, and runs the Self Inspection Checklist (DAFI 91-212) annually. Document the review and self-inspection via MFR.

A8.4.2.6. Engages in constant communication between the Contractor, the PRSC command, 611 CES, and 3 WG/SE to determine the best solution to any wildlife that may pose a threat to aircraft.

A8.4.3. BASH Site Specialist:

A8.4.3.1. Engage in active harassment of birds within the WEZ, using all available methods as needed. When a BASH threat is observed on the airfield Site Contract Personnel the specialist will respond. Harassment should not be limited to days with or just prior to aircraft movement. The specialist should maintain the exclusion zone daily.

A8.4.3.2. Maintain an inventory of paintballs, pyrotechnics, 12-gauge steel shotshells, and any other BASH supplies.

A8.4.3.3. Document all harassment and depredation events/data to include: date, time, species involved, location, estimated number, method of harassment/depredation, resulting action of bird(s). Records will be forwarded to PRSC USDA-WS BASH biologist.

A8.4.3.4. Monitor WEZ vegetation zone to ensure that vegetation is managed IAW this regulation and DAFI 91-212.

A8.4.3.5. As need will maintain vegetation in a way as to not attract birds to the WEZ. Record date, time, specific area impacted, and activity for habitat modifications that occur within the WEZ. Report to 611<sup>th</sup> USDA BASH Biologist and 611 CES Natural Resources Manager on completed projects.

A8.4.3.6. Ensure all bird strikes are reported on AF Form 853, immediately forwarded to 3 WG/SE (Safety) and PRSC USDA BASH Biologist. Also forward any and all photographic evidence of the carcass(s), or damage to aircraft.

A8.4.3.6.1. Coordinate with aircrews and maintenance for collection of snarge after bird/wildlife strikes. If whole carcass(s) is (are) found take photographs, showing head, extended wing, and any other distinguishing characteristics.

A8.4.3.6.2. Encourage aircrews using PATC facilities to participate in the BASH Reduction Program by promptly reporting all bird strikes and hazardous conditions IAW this plan.

A8.4.3.6.3. Expedite in a timely manner all remains to the Smithsonian Bird and Feather Identification Laboratory, with shipping sheet provided by PRSC USDA-WS BASH biologist. For additional guidance on where to send bird remains, refer to DAFI 91-212 and DAFI 91-204.

A8.4.3.7. Conduct surveys of bird/wildlife activity on the airfield at least twice a month at established points. Surveys should be conducted for 30 minutes per point both morning and evening of each day. Data should be collected to include date, time, species, number, behavior, habitat use, and any other relevant BASH information. Collected data must be transmitted to the PRSC USDA BASH Biologist at the beginning of each quarter.

## Attachment 9

### TATALINA (PATL)

#### A9.1. Environment:

A9.1.1. Tatalina LRRS is a long-range surveillance outpost located 12.9 statute miles west-southwest of McGrath and 240 miles northwest of Anchorage, Alaska. The station was opened in 1952. Slightly higher elevation is found to the north and there are high ridges to the west. The northwestern corner is dominated by the sudden rise in elevation of Takotna Mountain. Surrounding ecology of the site is largely coniferous boreal forest that transitions to bare rock above the tree line toward the upper camp on the mountain.

A9.1.2. The runway, designated 17/35, is a gravel surface. On the approach end of the runway, designated Rwy 35, is a down-sloping hill that settles to a wide valley. Departure is designated as Rwy 17 and contains the aircraft parking area and is surrounded by mostly spruce with some small alder trees. The Tatalina LRRS lower camp consists of the runway and the weather observation building that also serves as the control for the runway lighting. The runway consists of packed gravel that is maintained by the on-site mechanic. Along the runway is trimmed grass brush and the entire airfield is surrounded by Sitka spruce and small alder clusters. The airfield was cleared of trees by an average of 250 meters in any direction from the runway to alleviate BASH and potential collision hazards for incoming aircraft. To the East is the Tatalina River but the distance is great enough that it presents no additional wildlife hazard.

A9.1.3. The lower camp area is properly managed to inhibit wildlife and consistent large numbers of birds or regular numbers of ungulates and ursids have not been observed. During the hour spent observing the airfield, American cliff swallows (*Petrochelidon pyrrhonota*) were the primary species around the tree line and around the weather station building. The weather station building seems to be a magnet for the swallows to build nests.

**A9.2. Exclusion Zones:** These boundaries have been established to aid all agencies in defining when a bird hazard exists, dispersal priorities, and habitat management goals.

A9.2.1. Bird/Wildlife Exclusion Zone (WEZ) (**Figure A9.1**). The WEZ includes the area of the runway out 300' from centerline. This is an area where no bird/wildlife presence will be tolerated, and vegetation should be managed in a way to lower attractiveness to all wildlife. Dispersal priority is: large mammals, large birds, and flocking birds. Removing wildlife from the WEZ is the primary responsibility of individual/team charged with implementing the BASH program.

**Figure A9.1. Tatalina WEZ and Vegetation Management Zones.**



A9.2.2. For immediate response situations, the primary consideration is to drive birds/wildlife away from the direct path of an aircraft as quickly as possible. First employ use of “active” measures (non-lethal techniques & resources) to frighten birds/wildlife away from the airfield. Active measures include, but may not be limited to the following, as are available:

A9.2.2.1. Non-lethal dispersal cartridges launched from either a 15mm pyrotechnic pistol or a 12-Gauge Shotgun. Scare cartridges from a 12-Gauge Shotgun produce a secondary explosion to scare the birds from the area. Pyrotechnics are effective for temporary dispersal of most bird/wildlife species.

A9.2.2.2. As equipped on authorized vehicles, use of a vehicle horn, lights and/or siren may be used to disperse birds/wildlife.

A9.2.2.3. Use of other prescribed resources, such as but not limited to Propane Gas Cannons, bird/wildlife netting, bird balls, Falconry, etc., may be utilized as funding is available and considered value added.

**A9.3. Habitat Modification:** By incorporating specific practices into the local land management, Tatalina LRRS can maintain the airfield habitat less attractive to birds and wildlife. The site contractor is primarily responsible for habitat modifications at the site, with coordination from 611 CES, and PRSC USDA-WS BASH Biologist.

A9.3.1. The Airfield Zone (**Figure A9.1**) is the area included in the WEZ (centerline out to 300'). Vegetation should consist primarily of native vegetation and be maintained at a height of 7-14". Trees or shrubs should be maintained within the Airfield Zone as to not provide nesting/loafing habitat for birds.

A9.3.2. Clear Zone. Not applicable at Tatalina LRRS.

A9.3.3. Managing Grass Height. PRSC Contract Personnel in coordination with 611 CES, and PRSC USDA-WS BASH Biologist will determine timing of mowing operations to keep grass height within tolerance (e.g., 7-14"). The intent of grass management is to cut during the period when birds are least likely to be attracted to short grass, to remove seed heads from the plants before they fully mature, late enough that alternate seed heads do not mature, and with adequate time for the grass to reach 11 inches.

A9.3.4. Managing Shrublands. Shrubs will be encouraged/planted to fill gaps to reach a desired canopy coverage of at least 60%. Shrubs will include native, non-berry producing trees and shrubs that easily regenerate after aggressive cutting which include alder, willow, cottonwood, and birch.

A9.3.5. Controlling Board-Leafed Weeds. Not applicable at Tatalina LRRS.

A9.3.6. Woodlands. Not applicable at Tatalina LRRS.

A9.3.7. Berry/Fruit Producing Trees and Shrubs. Mature berries/fruit can attract several species of birds during fall and winter. Trees and shrubs that produce berries or fruits should be minimized, when possible, within the WEZ.

A9.3.8. Bird-Proof Buildings and Hangars. All structures within in the WEZ should be maintained as to not provide nesting/roosting cover for birds.

A9.3.9. Leveling of the Airfield Zone. Level or fill high or low areas within the Airfield Zone to prevent standing water and reduce attractiveness to birds.

A9.3.10. Maintaining Drainage Ditches. Regularly inspect ditches and culverts to keep them clear of obstructions. Maintain ditch sides as steeply as possible (minimum slope ratio of 5 to 1) to discourage wading birds and emergent vegetation.

A9.3.11. Minimize Open Water. Eliminate snowmelt ponds or standing open water within the WEZ, ensuring proper coordination with US Army Corps of Engineers, and 611 CES. If unable to relocate snowmelt pond, ensure it drains as soon as possible. Monitor ponds throughout the year and drain as necessary.

A9.3.12. Erosion Control Vegetation. Not applicable at Tatalina LRRS.

A9.3.13. Pest Controls. Not applicable at Tatalina LRRS.

A9.3.14. Controlling Waste Disposal. Waste control and disposal can be very effective in bird and wildlife hazards. Dumpsters and waste containers should remain closed and inaccessible to birds and wildlife at all times. Food scraps and other burnable trash should be promptly incinerated where such capabilities exist.

A9.3.15. Discourage Wildlife Feeding. Intentional and unintentional feeding of birds/wildlife is prohibited at Tatalina LRRS.

#### **A9.4. Specific Responsibilities:**

A9.4.1. PRSC USDA BASH Biologist. Is the BASH Program Manager/OPR for this instruction and will ensure is reviewed and/or revised annually; to include inserting updated maps and surveys.

A9.4.2. PRSC USDA BASH Biologist will:

A9.4.2.1. Manage all PATL reported bird strikes.

A9.4.2.1.1. Initiate Air Force Safety Automated System (AFSAS) investigation upon receiving notice of a strike at PATL.

A9.4.2.1.2. Electronically forward BASH shipping sheet to on-site personnel, for processing and shipping to the Smithsonian Feather ID Lab.

A9.4.2.1.3. After remains are identified, ensure AFSAS investigations are finalized.

A9.4.2.2. Complete annual Airport Hazard training for all required personnel.

A9.4.2.3. Reports all pertinent BASH information to BHWG.

A9.4.2.4. Provides guidance, when requested, on collection of bird/wildlife remains for identification (reference DAFI 91-212, paragraph 2.5.2). Also reference the Air Force Safety Center BASH website for the latest collection methods.

A9.4.2.5. Review this BASH plan, IAW AFI 91-202, and runs the Self Inspection Checklist (DAFI 91-212) annually. Document the review and self-inspection via MFR.

A9.4.2.6. Engages in constant communication between the Contractor, the PRSC command, 611 CES, and 3 WG/SE to determine the best solution to any wildlife that may pose a threat to aircraft.

A9.4.3. BASH Site Specialists will.

A9.4.3.1. Engage in as needed active harassment of birds within the WEZ, using all available methods. Harassment should not be limited to days with or just prior to aircraft movement.

A9.4.3.1.1. When a BASH threat is observed on the airfield the specialist will respond. The specialist should maintain the exclusion zone daily.

A9.4.3.1.2. Maintain an inventory of paintballs, pyrotechnics, 12-gauge steel shotshells, and any other BASH supplies.

A9.4.3.2. Document all harassment and depredation events/data to include: date, time, species involved, location, estimated number, method of harassment/depredation, resulting action of bird(s). Records will be forwarded to PRSC USDA BASH Biologist.

A9.4.3.3. Monitor WEZ vegetation zone to ensure that vegetation is managed IAW this regulation and DAFI 91-212.

A9.4.3.3.1. As need will maintain vegetation in a way as to not attract birds to the WEZ.

A9.4.3.3.2. Record date, time, specific area impacted, and activity for habitat modifications that occur within the WEZ. Report to PRSC USDA BASH Biologist and 611 CES Natural Resources Manager on completed projects.

A9.4.3.4. Ensure all bird strikes are reported on AF Form 853, immediately forwarded to 3 WG/SE (Safety) and PRSC USDA BASH Biologist. Also forward any and all photographic evidence of the carcass(s), or damage to aircraft.

A9.4.3.4.1. Coordinate with aircrews and maintenance for collection of snarge after bird/wildlife strikes. If whole carcass(s) is (are) found take photographs, showing head, extended wing, and any other distinguishing characteristics.

A9.4.3.4.2. Encourage aircrews using Tatalina LRRS facilities to participate in the BASH Reduction Program by promptly reporting all bird strikes and hazardous conditions IAW this plan.

A9.4.3.4.3. Expedite in a timely manner all remains to the Smithsonian Bird and Feather Identification Laboratory, with shipping sheet provided by USDA-WS BASH biologist. For additional guidance on where to send bird remains, refer to DAFI 91-212 and DAFI 91-204.

A9.4.3.5. Conduct surveys of bird/wildlife activity on the airfield at least twice a month at established points. Surveys should be conducted for 30 minutes per point both morning and evening of each day. Data should be collected to include date, time, species, number, behavior, habitat use, and any other relevant BASH information. Collected data must be transmitted to the PRSC USDA-WS BASH Biologist at the beginning of each quarter.

## Attachment 10

### SPARREVOHN (PASV)

#### A10.1. Environment:

A10.1.1. Sparrevohn Long Range Radar Site (LRRS) is a long-range surveillance outpost located 129 statute miles south of McGrath, Alaska and 193.4 statute miles northwest of Elmendorf Air Force Base. The station was opened for operations in 1954. The airfield is situated southeast of the lower camp and is surrounded by higher elevation on three sides. To the north is a sudden rise in elevation to a ridge where the upper camp is located. The surrounding vegetation of the site is primarily coniferous boreal forest that transitions to alder/willow and finally to bare rock above the tree line toward the upper camp on the ridge.

A10.1.2. The runway, designated 16/34, is a gravel surface. The approach end of Rwy 34, consists of an up-sloping hill while the departure end contains the aircraft parking area. The Sparrevohn LRRS lower camp consists of the living/office quarters, shop structure, weather observation building, fueling area, and various other small outbuildings. The runway is constructed of packed gravel that is maintained year-round by the on-site mechanic. Along the runway edge there is trimmed grass/brush except for a 400-foot section along the east side of the runway that is deemed impassible by mowing equipment during summer months. ARCTEC personnel indicated that this area is typically trimmed during winter when the ground is frozen and allows access to heavy equipment. The airfield is surrounded by mixed coniferous forest, mainly consisting of white spruce with interspersed small patches of alders, willows and various other shrubs common to this region. Running along the west side of the runway is a small perennial stream. The stream has adequate drainage to prevent ponding that could attract wildlife. The airfield is cleared of trees by an average of 250 feet in any direction from the runway center line to alleviate BASH and potential collision hazards for incoming aircraft.

A10.1.3. The lower camp area is properly managed to inhibit consistent gatherings of large numbers of birds or regular use by ungulates and ursids. All organic refuse produced on-site is incinerated to further reduce attractiveness to wildlife. During the hour spent observing the airfield, one black bear (*Ursus americana*) was seen on the hillside to the southeast of the airfield.

**A10.2. Exclusion Zones:** These boundaries have been established to aid all agencies in defining when a bird hazard exists, dispersal priorities, and habitat management goals.

A10.2.1. Bird/Wildlife Exclusion Zone (WEZ) (**Figure A10.1**). The WEZ includes the area of the runway out 300' from centerline. This is an area where no bird/wildlife presence will be tolerated, and vegetation should be managed in a way to lower attractiveness to all wildlife. Dispersal priority is: large mammals, large birds, and flocking birds. Removing wildlife from the WEZ is the primary responsibility of individual/team charged with implementing the BASH program.

**Figure A10.1. Sparrevohn WEZ and Vegetation Management Zones.**



A10.2.2. For immediate response situations, the primary consideration is to drive birds/wildlife away from the direct path of an aircraft as quickly as possible. First employ use of “active” measures (non-lethal techniques & resources) to frighten birds/wildlife away from the airfield. Active measures include, but may not be limited to the following, as are available:

A10.2.2.1. Non-lethal dispersal cartridges launched from either a 15mm pyrotechnic pistol or a 12-Gauge Shotgun. Scare cartridges from a 12-Gauge Shotgun produce a secondary explosion to scare the birds from the area. Pyrotechnics are effective for temporary dispersal of most bird/wildlife species.

A10.2.2.2. As equipped on authorized vehicles, use of a vehicle horn, lights and/or siren may be used to disperse birds/wildlife.

A10.2.2.3. Use of other prescribed resources, such as but not limited to Propane Gas Cannons, bird/wildlife netting, bird balls, Falconry, etc., may be utilized as funding is available and considered value added.

**A10.3. Habitat Modification:** By incorporating specific practices into the local land management, Sparrevohn LRRS can maintain the airfield habitat less attractive to birds and wildlife. The site contractor is primarily responsible for habitat modifications at the site, with coordination from 611 CES, and PRSC USDA BASH Biologist.

A10.3.1. The Airfield Zone is the area included in the WEZ (centerline out to 300'). Vegetation should consist primarily of native vegetation and be maintained at a height of 7-14". Trees or shrubs should be maintained within the Airfield Zone as to not provide nesting/loafing habitat for birds.

A10.3.2. Clear Zone. Not applicable at Sparrevohn LRRS.

A10.3.3. Managing Grass Height. PRSC Contract Personnel in coordination with 611 CES, and PRSC USDA BASH Biologist will determine timing of mowing operations to keep grass height within tolerance (e.g., 7-14"). The intent of grass management is to cut during the period when birds are least likely to be attracted to short grass, to remove seed heads from the plants before they fully mature, late enough that alternate seed heads do not mature, and with adequate time for the grass to reach 11 inches.

A10.3.4. Managing Shrublands. Shrubs will be encouraged/planted to fill gaps to reach a desired canopy coverage of at least 60%. Shrubs will include native, non-berry producing trees and shrubs that easily regenerate after aggressive cutting which include alder, willow, cottonwood, and birch.

A10.3.5. Controlling Board-Leafed Weeds. Not applicable at Sparrevohn LRRS.

A10.3.6. Woodlands. Not applicable at Sparrevohn LRRS.

A10.3.7. Berry/Fruit Producing Trees and Shrubs. Mature berries/fruit can attract several species of birds during fall and winter. Trees and shrubs that produce berries or fruits should be eliminated, within the WEZ.

A10.3.8. Bird-Proof Buildings and Hangars. All structures within in the WEZ should be maintained as to not provide nesting/roosting cover for birds.

A10.3.9. Leveling of the Airfield Zone. Level or fill high or low areas within the Airfield Zone to prevent standing water and reduce attractiveness to birds.

A10.3.10. Maintaining Drainage Ditches. Regularly inspect ditches and culverts to keep them clear of obstructions. Maintain ditch sides as steeply as possible (minimum slope ratio of 5 to 1) to discourage wading birds and emergent vegetation.

A10.3.11. Minimize Open Water. Eliminate snowmelt ponds or standing open water within the WEZ, ensuring proper coordination with US Army Corps of Engineers, and 611 CES. If unable to relocate snowmelt pond, ensure it drains as soon as possible. Monitor ponds throughout the year and drain as necessary.

A10.3.12. Erosion Control Vegetation. Not applicable at Sparrevohn LRRS.

A10.3.13. Pest Controls. Not applicable at Sparrevohn LRRS.

A10.3.14. Controlling Waste Disposal. Waste control and disposal can be very effective in bird and wildlife hazards. Dumpsters and waste containers should remain closed and inaccessible to birds and wildlife at all times. Food scraps and other burnable trash should be promptly incinerated where such capabilities exist.

A10.3.15. Discourage Wildlife Feeding. Intentional and unintentional feeding of birds/wildlife is prohibited at Sparrevohn LRRS.

**A10.4. Specific Responsibilities:** This list is not all-inclusive and should be tailored, as necessary.

A10.4.1. PRSC USDA BASH Biologist. Is the BASH Program Manager/OPR for this instruction and will ensure is reviewed and/or revised annually; to include inserting updated maps and surveys.

A10.4.2. PRSC USDA BASH Biologist will:

A10.4.2.1. Manage all PASV reported bird strikes.

A10.4.2.1.1. Initiate Air Force Safety Automated System (AFSAS) investigation upon receiving notice of a strike at PASV.

A10.4.2.1.2. Electronically forward BASH shipping sheet to on-site personnel, for processing and shipping to the Smithsonian Feather ID Lab.

A10.4.2.1.3. After remains are identified, ensure AFSAS investigations are finalized.

A10.4.2.2. Complete annual Airport Hazard training for all required personnel.

A10.4.2.3. Reports all pertinent BASH information to BHWG.

A10.4.2.4. Provides guidance, when requested, on collection of bird/wildlife remains for identification (reference DAFI 91-212, paragraph 2.5.2). Also reference the Air Force Safety Center BASH website for the latest collection methods.

A10.4.2.5. Reviews this BASH plan, IAW AFI 91-202, and runs the Self Inspection Checklist (DAFI 91-212) annually. Document the review and self-inspection MFR.

A10.4.2.6. Engages in constant communication between the Contractor, the PRSC command, 611 CES, and 3 WG/SE to determine the best solution to any wildlife that may pose a threat to aircraft.

A10.4.3. BASH Site Specialists will:

A10.4.3.1. Engage in as needed active harassment of birds within the WEZ, using all available methods. When a BASH threat is observed on the airfield the specialist will respond. Harassment should not be limited to days with or just prior to aircraft movement. The specialist should maintain the exclusion zone daily.

A10.4.3.1.1. Maintain an inventory of paintballs, pyrotechnics, 12-gauge steel shotshells, and any other BASH supplies.

A10.4.3.2. Document all harassment and depredation events/data to include: date, time, species involved, location, estimated number, method of harassment/depredation, resulting action of bird(s). Records will be forwarded to PRSC USDA-WS BASH biologist.

A10.4.3.3. Monitor WEZ vegetation zone to ensure that vegetation is managed IAW this regulation and DAFI 91-212.

A10.4.3.3.1. As need will maintain vegetation in a way as to not attract birds to the WEZ.

A10.4.3.3.2. Record date, time, specific area impacted, and activity for habitat modifications that occur within the WEZ. Report to USDA-WS and 611 CES Natural Resources Manager on completed projects.

A10.4.3.4. Ensure all bird strikes are reported on AF Form 853, immediately forwarded to 3 WG/SE (Safety) and USDA – WS through the DET1/CC. Also forward all photographic evidence of the carcass(s), or damage to aircraft.

A10.4.3.4.1. Coordinate with aircrews and maintenance for collection of snarge after bird/wildlife strikes. If whole carcass(s) is (are) found take photographs, showing head, extended wing, and any other distinguishing characteristics.

A10.4.3.4.2. Encourage aircrews using Sparrevohn LRRS facilities to participate in the BASH Reduction Program by promptly reporting all bird strikes and hazardous conditions IAW this plan.

A10.4.3.4.3. Expedite in a timely manner all remains to the Smithsonian Bird and Feather Identification Laboratory, with shipping sheet provided by USDA-WS BASH biologist. For additional guidance on where to send bird remains, refer to DAFI 91-212 and DAFI 91-204.

A10.4.3.5. Conduct surveys of bird/wildlife activity on the airfield at least twice a month at established points. Surveys should be conducted for 30 minutes per point both morning and evening of each day. Data should be collected to include date, time, species, number, behavior, habitat use, and any other relevant BASH information. Collected data must be transmitted to the USDA-WS BASH Biologist at the beginning of each quarter.