Wildlife Management Program

Panama City – Bay County International Airport Relocation

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Panama City – Bay County Airport and Industrial District
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TABLE OF CONTENTS

Executive Summary

The purpose of the preliminary wildlife management plan for the Panama City-Bay County International Airport relocation is to provide guidance in the development and operation of the new facility to minimize damaging bird and wildlife strikes to aircraft. Wildlife management plans are typically developed from an ecological study at the airport following a significant bird or wildlife strike event. This plan was developed in advance of airport construction to ensure that design and operations include bird and wildlife hazard reduction practices before the habitat is altered. This will result in birds and wildlife being denied access and acclimation to potentially attractive airport habitats such as the extensive open areas surrounding the runways and taxiways.

The plan provides for habitat management practices and landscaping design to reduce bird and wildlife attraction as well as wildlife resistant fencing and gates. The plan also includes the implementation of a tactically designed harassment program along with detailed data collection and analysis for program review and improvements. Additionally, this plan provides for innovative wetland monitoring and management to minimize environmental impacts while ensuring flight safety. Oversight of the plan is the responsibility of the Executive Director of the Panama City – Bay County International Airport with support from the Wildlife Hazard Advisory Group who will bring a wide range of expertise to the program. The wildlife management plan meets all requirements specified under the provisions of 14 CFR Part 139.337 and will be incorporated into the Airport Certification Manual upon approval of the Federal Aviation Administration.

Chapter 1

Introduction

1.0 Introduction. This manual was developed to assist the airport operations staff in implementing a state-of-the-art wildlife management and control program for the relocated Panama City – Bay County International Airport. This document will become a part of the Airport Certification Manual once those operational plans are developed. The provisions of 14 CFR Part 139.337 provide the conditions that typically initiate an ecological assessment of bird and wildlife hazards at an airport. Following the formal ecological assessment, a report is prepared and sent to the Federal Aviation Administration (FAA) wildlife biologist for review. From this report, the FAA determines if a formal wildlife management program is necessary to mitigate potential hazards and provides the framework for such a program. Since the relocated airport is not yet operational, it is not possible to assess wildlife activity relative to the airport runways and air traffic patterns. Additionally, with no aircraft operations currently underway, the events that initiate a formal wildlife assessment will not occur (i.e. engine ingestion, multiple bird strike, strike with wildlife species other than birds). In an effort to be proactive in reducing wildlife hazards at the new facility, the airport development team will incorporate wildlife hazard management into the design and operation of the relocated airport. These efforts will ensure that habitat management practices, landscape design, and security fences and gates are designed, constructed, and implemented to minimize wildlife access and attraction to the airport. By taking these steps prior to construction, birds and other wildlife species are less likely to be attracted to the airport initially and subsequent control efforts may require fewer resources.

1.1. Background. Powered flight by man celebrates its 100-year anniversary this year. Scientists estimate that birds have been flying over the earth for approximately 150 million years. It was inevitable that the two would eventually meet. In 1912, Calbraith Rogers, the first person to fly across the continental United States, became the first aviator fatality due to a bird strike. Flying along the California coast near Long Beach, his Wright Pusher encountered a gull. The bird became entangled in the flight control cables and the aircraft crashed into the surf. Rogers was pinned beneath the plane and drowned. For many years after that event the interaction between birds and aircraft drew little attention. However, the introduction of jet-powered aircraft dramatically changed the issue. Higher aircraft speeds and more fragile engine components resulted in increased impact energy and increased damage. Structural components have seen great improvements in bird strike resistance, but quieter engines with greater inlet areas still experience potentially catastrophic strikes. Since 1960, 20 civil aircraft and 95 civilian lives have been lost in the U. S. due to wildlife strikes. In addition to birds, other wildlife also creates potentially dangerous conditions for aircraft operations. Mammals, such

as deer, coyote, rabbits, and bats as well as reptiles such as alligators and turtles cause their share of damage. Bird and wildlife strikes are reported to cost the U.S. civil aviation industry over $300 million in direct damage costs annually. Recent estimates, which include lost revenue due to cancellations and delays, as well as, out of service time extends this estimate to over a billion dollars each year. Most bird strikes (79%) occur at altitudes below 1,000 feet above ground level (AGL). Nearly half (49%) occur during approach and landing roll while 35% occur during take-off and climb-out. Because these altitudes and operations occur in and near the airport environment, bird and wildlife management programs can be extremely successful in reducing damaging and life threatening strikes to aircraft. A comprehensive plan that integrates habitat management and active control will insure safe aircraft operations at the relocated Panama City – Bay County International Airport.

1.2. Statistics. Each year thousands of birds and other wildlife species are struck by civilian and military aircraft throughout the world. Most of these strikes do little or no damage and are often not reported. The FAA maintains a database of strikes reported within the United States. These strikes are not required to be reported and may represent less than 30% of the actual number. In the ten-year period from 1990 through 1999, 28,150 wildlife strikes were reported to the FAA (Cleary, Wright, and Dolbeer 2000). Even with the voluntary nature of strike reports, the large number reported over the years provides a sound basis for trend analysis. Over the past ten years there has been a gradual increase in the number of bird and wildlife strikes reported each year. This may be a result of improved reporting following FAA efforts to encourage reporting or may reflect the general increase in aviation activity over the period. Other factors such as conservation efforts to increase bird populations may also play a role in this general trend. Nationwide, there is a trend for most bird strikes to occur in the late summer and fall (Figure 1). This trend is common for most northern hemisphere nations where birds breed during the summer months and migrate

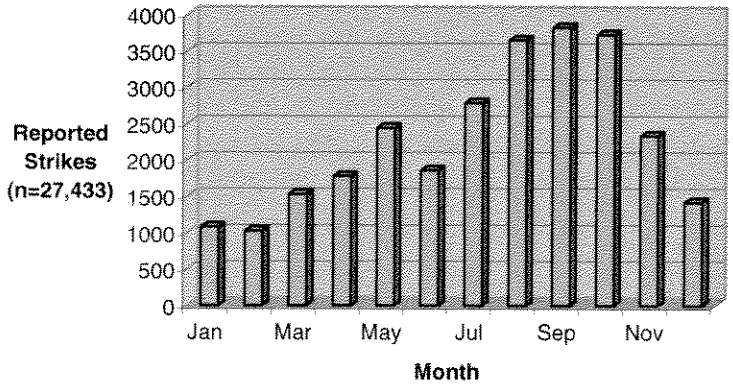


Figure 1. Strikes by Month, Nationwide (1990-1999)

south in the fall. The increase in strikes may reflect the increased number of birds following summer reproduction and the large-scale migration in the fall. Using strike data from the current Panama City – Bay County International

Airport, in the period 1990 through 2003, a similar trend is noticed (Figure 2). The trend becomes more meaningful when the species of birds struck are considered. Nationwide, the most commonly identified bird species reported in bird strikes are gulls (29%), doves (12%), waterfowl (12%), and raptors (11%). Using the reported strike data from current Panama City – Bay County International Airport the most commonly struck bird is the Mourning Dove (30 strikes; 55% of total). These birds are common at the airport in late summer due to the presence of seed-bearing vegetation. Gulls have been identified in 5

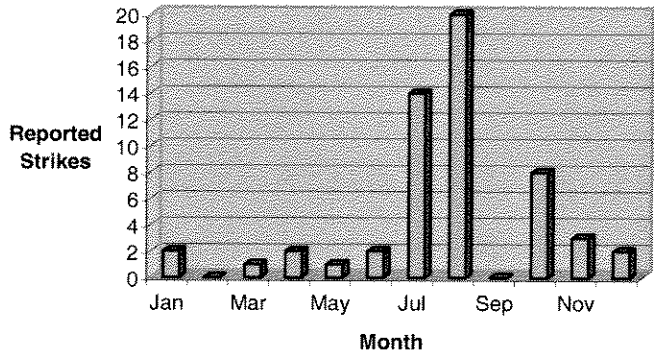


Figure 2. Strikes at Panama City-Bay County IAP 1990-2003

strikes (9 %) since 1990. The proximity of the airport to the St Andrews Bay system contributes to the attraction of the airport to gulls and wading birds (Table 1).

Table 1. Bird species struck at Panama City-Bay County IAP

Species	Strikes	Percent
Dove	30	54.5
Gulls	5	9.1
Hawks	1	1.8
Rock Dove	1	1.8
Unknown	15	27.3
Egret	1	1.8
Blackbirds	1	1.8
Sandpiper	1	1.8
Total	55	

1.3. Federal Regulations. A variety of federal regulations are associated with a comprehensive bird/wildlife management program. These regulations provide guidance concerning the initiation and implementation of wildlife programs, land use issues, control procedures and depredation. The following is a brief summary of these regulations.

1.3.1. TITLE 14, CODE OF FEDERAL REGULATIONS, PART 139. 14 CFR 139 governs the certification and operation of land airports which serve any scheduled or unscheduled passenger operation of an air carrier that is conducted with an aircraft having a seating capacity of more than 30 passengers. Part 139.337 specifically addresses the airport operator's responsibilities when dealing with the reduction of wildlife aircraft strike hazards on and around airports.

1.3.2. TITLE 40, CODE OF FEDERAL REGULATIONS, PART 258.10. The US Environmental Protection Agency (EPA), recognizing that birds can be attracted in great numbers to municipal solid waste landfills (MSWLF), and recognizing the potential threat posed by birds to aircraft safety, requires owners or operators of new municipal solid waste landfill (MSWLF) units, or lateral expansions of existing MSWLF units that are located within 10,000 feet of any airport runway end used by turbojet aircraft or within 5,000 feet of any airport runway end used only by piston-type aircraft, to demonstrate successfully that such units are not hazards to aircraft. The EPA also requires any operator proposing a new or expanded waste disposal operation within 5 statute miles of a runway end to notify the appropriate FAA Regional Airports Division Office and the airport operator of the proposal.

1.3.3. TITLE 50, CODE OF FEDERAL REGULATIONS, PARTS 1 TO 199. These regulations govern the management of federally protected wildlife within the United States and it's territories. It also establishes procedures for issuing permits to take federally protected species outside of the normal hunting season or beyond established bag limits. In general, protected species may not be taken outside of the normal hunting season or beyond established bag limits without first securing a Federal depredation permit from the U.S. Fish and Wildlife Service.

1.3.3.1. Depredation permitting requirements and procedures. Federal law protects all migratory birds, including their nest and eggs. "A migratory bird [is]...any bird whatever its origin and whether or not raised in captivity, which belongs to a species listed in sect. 10.13 [of 50 CFR] or which is a mutation or a hybrid of any such species, including any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consist, or is composed in whole or part, of any such bird, or any part, nest, or egg thereof." (50 CFR 10.12). Exotic and feral species such as muscovy ducks, European starlings, English sparrows, and rock doves (common pigeons) are not listed in 50 CFR 10.13 and are therefore not protected by Federal law. All states protect migratory birds as well as resident game birds such as pheasants, wild turkeys, and Hungarian partridges. They may or may not protect exotic or feral species. With the exception of federally

listed or proposed threatened or endangered species, Federal law does not protect terrestrial mammals (i.e. deer, coyotes, raccoons, and groundhogs). Protection of terrestrial mammals, reptiles, and other taxa is left to the various states. Because of the wide variation in state laws, they are not discussed in this document. The local US Department of Agriculture (USDA), Wildlife Services (WS) office can provide information regarding the permitting requirements of their respective state wildlife management agencies. As part of an airport wildlife management program, persons wishing to take any migratory bird, bird nest, or bird egg(s), must secure a depredation permit from the U.S. Fish and Wildlife Service. Some state wildlife management agencies may require that a State Permit be obtained also. Persons wishing to take state protected species must first secure a permit from their respective state wildlife management agency. For assistance in obtaining the necessary Federal, and/or state depredation permits, contact the local USDA/WS office.

1.3.3.2. Standing Depredation Orders. Federal law allows people to protect themselves and their property from damage caused by migratory birds. Provided no effort is made to take nuisance migratory birds, "No permit is required to merely scare or herd depredating migratory birds other than endangered or threatened species or bald or golden eagles." (50 CFR 21.41) Certain species of migratory birds may be taken, without a Federal permit, under very specific circumstances. "A federal permit shall not be required to control yellow-headed, red-winged, rusty and Brewer's blackbird, cowbirds, all grackles, crows, and magpies, when found committing or about to commit depredation upon ornamental or shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such numbers and manner as to constitute a health hazard or other nuisance..." (50 CFR 21.43). Between May 1 and August 15 "In any county in California in which horned larks, golden-crowned, white-crowned, and other crowned sparrows, and house finches are, under extraordinary conditions, seriously injurious to agricultural or other interest, the Commissioner of Agriculture may, without a permit, kill or cause to be killed under his/her general supervision such of the above migratory birds as may be necessary to safeguard any agricultural or horticultural crop in that county..." (50 CFR 21.44). Between May 1 and August 15 "Landowners, sharecroppers, tenants, or their employees or agents, actually engaged in the production of rice in Louisiana, may, without a permit, shoot purple gallinules when found committing or about to commit serious depredation to growing rice on the premises owned or occupied by such persons..." (50 CFR 21.45). Between August 1 and December 1

"Landowners, sharecroppers, tenants, or their employees or agents, actually engaged in the production of nut crops in Washington and Oregon may, without a permit, take scrub jays, and Steller's jays when found committing or about to commit serious depredation to nut crops on the premises owned or occupied by such persons..." (50 CFR 21.46). Persons wishing to take any other migratory bird(s), or to take migratory bird(s) in situations other than those described above, must first secure a Federal Migratory Bird Depredation Permit from the U. S. Fish and Wildlife Service, and in some cases a State Depredation Permit. The first step in obtaining the necessary permit(s) is to contact the USDA WS State office.

1.3.4. THE MIGRATORY BIRD TREATY ACT OF 1918, as amended (16 U.S.C. 603-711; 40 Stat. 755). The United States of America, Great Britain signing for Canada, and the United Mexican States are signatories to the MBTA. This act provides the statutory foundation for the protection and management of migratory birds in North America.

1.3.5. THE ANIMAL DAMAGE CONTROL ACT OF MARCH 2, 1931, as amended (7 U.S.C. 426-426c; 46 Stat. 1468). This act authorizes and directs the Secretary of Agriculture to manage wildlife injurious to agricultural interests, other wildlife, or human health and safety, including wildlife hazards to aviation (Appendix B). The U. S. Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services (WS), carry out this mandate. Wildlife Services, formerly Animal Damage Control, because of the experience, training, and background of its personnel, is recognized throughout the world as an expert in dealing with wildlife damage management issues. Wildlife Services has an active presence in all U. S. states and territories.

1.3.6. FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT, as amended (7 U.S.C. 136; Pub. L. 104.317). This act governs the registration, labeling, classification, and use of pesticides, and is administered by the U.S. Environmental Protection Agency (US EPA). Before any substance may be used as a pesticide, it must be registered with the US EPA and with the respective state pesticide-regulatory agency. Anyone wishing to use restricted-use pesticides, applying any pesticides to the land of another, or applying any pesticides for hire, must be a Certified Applicator, or working under the direct supervision of a Certified Applicator, and then may only use pesticides covered by the Certified Applicator's certification.

1.3.7. FAA, AIRPORTS DIVISION, ADVISORY CIRCULAR 150/5200-33, HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS. This advisory circular (AC) provides guidance on locating

certain land uses having the potential to attract hazardous wildlife to or in the vicinity of public-use airports. It also provides guidance concerning the placement of new airport development projects (including airport construction, expansion, and renovation) pertaining to aircraft movement in the vicinity of hazardous wildlife attractants.

1.3.8. FAA, AIRPORTS DIVISION, ADVISORY CIRCULAR 150/5200-34. CONSTUCTION OR ESTABLISHMENT OF LANDFILLS NEAR PUBLIC AIRPORTS. This advisory circular (AC) provides guidance on separations distances between public airports and new municipal solid waste disposal facilities. The six mile separation requirement is limited to smaller public use airports that have primarily general aviation traffic and commercial air carrier service with aircraft having fewer than 60 seats.

Chapter 2

Program Management

2.0 Airport safety programs require formal lines of authority and responsibility. The wide-reaching nature of wildlife management programs often requires a team approach in both identifying and solving problems. The Executive Director of the Panama City – Bay County International Airport is responsible for the wildlife management program. The Director will establish the Wildlife Hazard Advisory Group (WHAG), conduct quarterly wildlife management meetings, and supervise all management objectives.

2.1. The Wildlife Hazard Advisory Group (WHAG) is a team that may include representatives from a range of offices and organizations. The WHAG will be dynamic, drawing on expertise on an as-needed basis. The initial WHAG will include representatives from the following:

- Executive Director of the Airport – Chair
- Airfield Operations
- Airport Security
- Grounds Maintenance
- Fire/Rescue
- Air carriers
- Fixed Base Operators
- Conservation groups
- Wildlife consultants (private, state, or federal)
- Other

2.1.1. The WHAG will:

2.1.1.1. Review habitat management objectives and establish priorities and estimated completion dates.

2.1.1.2. Review any bird/wildlife strikes that have occurred in the past quarter

2.1.1.3. Review wildlife control logs

2.1.1.4. Review wetlands monitoring program

2.2. Program Review. A review of the wildlife program will be conducted at least annually, or following any strike event that meets the 14 CFR Part 139.337 requirements for conducting an ecological assessment. This includes any of the following events: an engine ingestion, a multiple bird strike, a strike with

wildlife other than birds, or a report of hazard bird/wildlife activity near the airport or within aircraft movement areas. An appointed member of the WHAG will conduct the review.

2.3. Reporting. The wildlife management program at the Panama City – Bay County International Airport will include two reporting forms. These reports are the basis for developing management objectives and for formal program review.

2.3.1. Bird/Wildlife Strike Reports. Bird strike reporting to the FAA is a voluntary program. The airport will encourage reporting of all bird and wildlife strikes. FAA Form 5200-7 will be available for air carriers, grounds maintenance staff, security staff, and operations personnel. All participants in the WHAG will be trained on the importance of reporting as well as the methods for collecting bird/wildlife remains for identification. Reporting on-line will be encouraged for all participants in the reporting program. Strike remains will be forwarded to:

Dr. Carla Dove
Division of Birds
Room 607, MRC
National Museum of Natural History
10th St and Constitution Avenue
Smithsonian Institution
Washington D.C. 22302
e-mail: dovec@nmnh.si.edu
www.nmnh.si@edu.vert/birds.brdstaff.html

2.3.2. Patrol/Control logs. Airport Operations staff/designated control team will complete daily bird/wildlife patrol logs. These logs will document the wildlife control activities of the team including observations of birds and wildlife on and in the vicinity of the airport as well as active control measures implemented to disperse potentially hazardous species. Control logs will be compiled annually and maintained for three years.

Chapter 3

Airport Habitat Management

3.0 Airport habitat management is the single most important aspect of the bird and wildlife management effort at the relocated Panama City – Bay County International Airport. Often referred to as passive control, habitat management will serve to reduce the attraction of birds and other wildlife species to the relocated airport. Large open areas with high-level security are inviting to a wide range of wildlife species seeking shelter, food, and other habitat needs. The relocated airport will be designed and constructed to limit habitat features that commonly attract birds and wildlife. As an example, stormwater facilities will mainly be designed as dry detention areas with treatment volumes that drawdown in relatively short time periods. The relocated airport will be constructed in a region of Bay County that has many acres of wetland habitat, small ponds, creeks and associated riparian habitat. This location would lead to serious concerns if there were limited bird and wildlife habitat in the region. This, however, is not the case, as there is a great amount of suitable habitat for birds and wildlife in the immediate region outside the airport relocation site.

3.1. Management Priorities. Once the airport is constructed, the WHAG will convene to identify habitat features on the airport that will require monitoring. Daily wildlife control logs will be used to identify areas which may be experiencing wildlife attraction. The WHAG will assist the Airport Director in identifying the hazards, ranking the potential risk of each, and establishing a projected completion date for each management project. Habitat management initiatives will be reviewed quarterly at the WHAG meeting.

3.2. Airfield Turf. Management of airfield turf is aimed at several objectives. The first is to provide a ground cover that provides little or no nutrition for potentially hazardous wildlife species (limited seed production). Second, the turf should not attract insects or other prey items for foraging birds. Third, the turf should be a dense monoculture that supports few rodents, and fourth, the turf should be able to be maintained at an appropriate height to reduce attractiveness to flocking bird species such as gulls and blackbirds.

3.2.1. The sandy soils common to the area often make turf selection challenging. The preferred turf type for the new airport is Bermuda grass. Once established, the turf will create a dense cover without providing seed heads that attract potentially hazardous bird species.

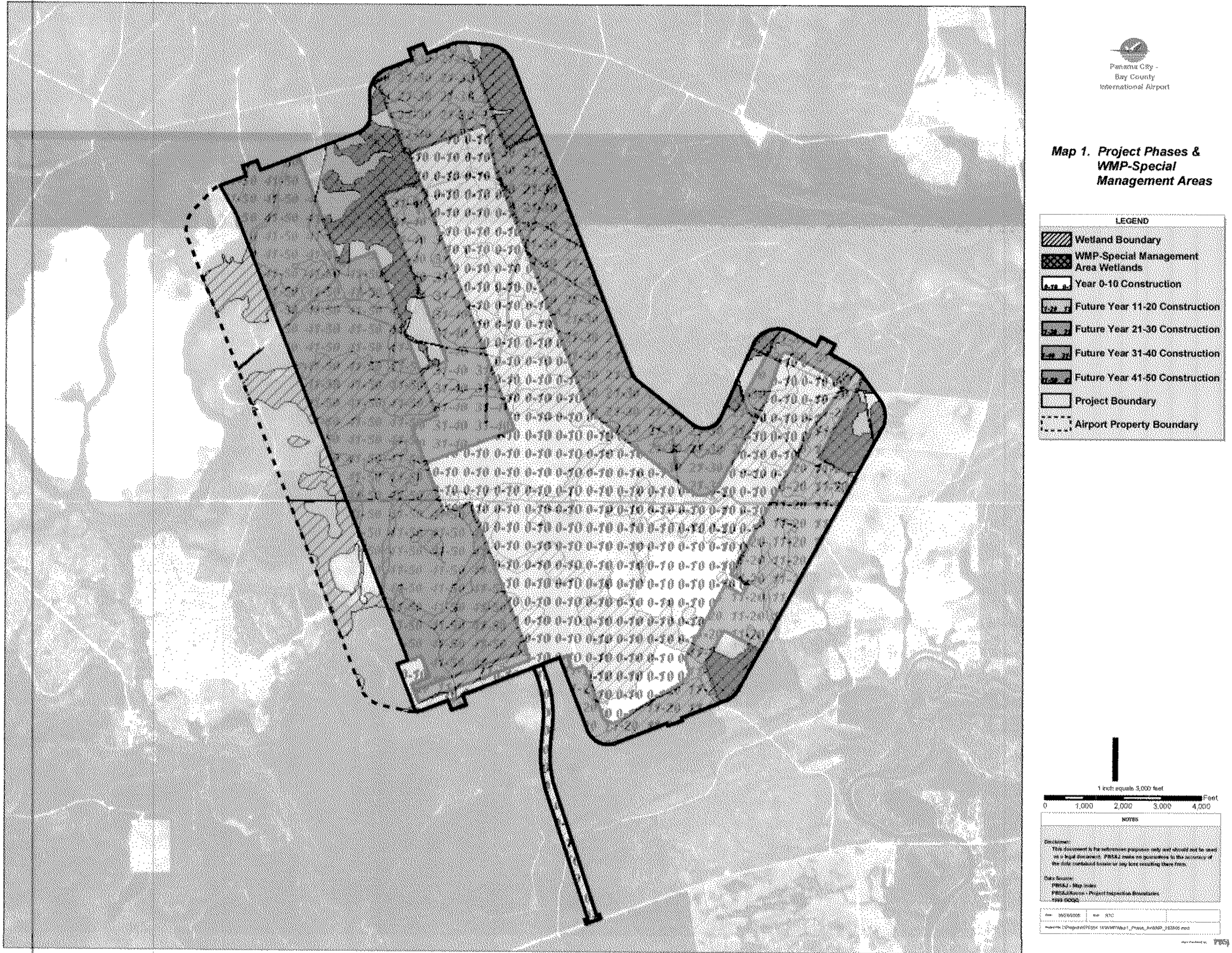
3.2.2. Turf mowing should be planned to maintain turf stands at the appropriate density and height to limit wildlife attraction and use. This could include limiting mowing to insure a dense, tall stand, particularly during the last

cut of the summer/fall-mowing season, leaving turf at the highest-level possible.

3.3. Airfield Drainage. The airport stormwater management plan has been designed to detain rather than retain water. Treatment volumes held near runways and taxiways are to be completely drained within relatively short time periods following rainfall events. Drainage areas will be monitored by the airfield operations staff for wildlife attraction during and immediately following storm events. Areas identified as potential hazards will be reviewed within the stormwater management plan and at the WHAG.

3.4. Wetlands. A total of 1,936 acres of wetlands occur on the pre-developed airport property. Wetland impacts for the construction of airport infrastructure, safety areas, roads, stormwater management, industrial development, and other facilities necessary for the operation of the airport will need to be authorized prior to construction through state and federal permits. The necessary state permits are being addressed through an Ecosystem Management Agreement and an associated Wetland Resource Permit (WRP) with the Florida Department of Environmental Protection (FDEP). The necessary federal permits are being addressed through the Section 404 dredge and fill permitting process with the U.S. Army Corps of Engineers (USACE). Wetland impacts will be fully mitigated in offsite wetland mitigation areas in coordination with the state and federal regulatory agencies. A phased approach to the development of the airport, along with wetland impact minimization and avoidance measures, wildlife hazard monitoring, and wildlife hazard control and management actions, will provide an opportunity to potentially retain and manage some wetland areas on the airport property without direct impacts, or to delay such impacts for years or decades.

3.4.1. Wetlands policy. FDEP has issued a Notice of Intent (NOI) to issue a WRP permit for wetland impacts within the development footprint at full build-out (initial and future development phases through 50 years). USACE is currently considering an individual permit application for wetland impacts in the initial construction phase (Year 0-10) and a conceptual permit for future development phases. All wetlands identified in the initial construction phase (Year 0-10) of the airport (Map 1) are proposed to be filled to provide for airport infrastructure, safety areas, and stormwater management and to assure the safe and efficient operation of the airport. Wetlands in the areas identified for future construction phases in Year 11-20, 21-30, 31-40, and 41-50, will not be considered for impact until need or demand develops to a sufficient level to initiate development of these phases. Permitting approval will be required from the USACE for future construction phases. In the interim, future development areas may be managed for timber production in close coordination with the Airport Authority and the WHAG. All future airport development areas will be


Panama City - Bay County International Airport
Map 1. Project Phases & WMP-Special Management Areas
LEGEND
Wetland Boundary
WMP-Special Management Area Wetlands
Year 0-10 Construction
Future Year 11-20 Construction
Future Year 21-30 Construction
Future Year 31-40 Construction
Future Year 41-50 Construction
Project Boundary
Airport Property Boundary
1 inch equals 3,000 feet
0 1,000 2,000 3,000 4,000 Feet
NOTES
Disclaimer:
Data Source:

monitored for wildlife hazards to aviation, and management actions taken if a wildlife hazard develops (detailed in the following sections).

In addition, several wetland Wildlife Management Program (WMP) – "Special Management Areas" have been identified and defined within future construction phases in coordination with the regulatory agencies (see Map 1). Wetlands in the Special Management Areas will not be directly impacted for airport or industrial development, except for access roads and other features necessary for operational and development activities of the airport district. Wetland hardwoods and cypress within these areas will not be harvested strictly for timber production or other commercial wood/fiber production purposes. The FDEP permit authorizes impacts to wetlands in the Special Management Areas. Impacts to wetlands in the Special Management Areas will require USACE authorization. Although impacts are not planned in the Special Management Areas, compensatory mitigation has been provided for these areas, in the event that future impacts are required. The Special Management Areas will be monitored for wildlife hazards to aviation, and management actions taken if a wildlife hazard develops (detailed below).

3.4.2. Wetlands monitoring program. The areas identified above will be monitored monthly during the first year of airport operations. A summary of the airport bird/wildlife observation report will be presented at the quarterly meeting of the WHAG. The report will include detailed observations of birds and wildlife identified in the wetland habitat and/or moving towards or away from those areas.

3.4.3. Wetland Management. If potentially hazardous bird/wildlife species are observed using wetland habitats on the site, the airfield operations staff or designated control personnel will immediately use active control methods (e.g., harassment, hazing, etc.) to disperse wildlife. Passive control options (habitat management methods) that involve direct or indirect impacts to wetlands will be considered and/or applied in a progressive manner only when active control has not been effective, increasing in severity of wetland impact, up until the point that the wildlife hazard is adequately addressed. In other words, the effective control method(s) with the least severe wetland impact will be used. As a last resort, wetlands will be removed (fully impacted), pending required USACE authorization, to alleviate a wildlife hazard that cannot be addressed effectively by other means. If active dispersal methods fail, the WHAG will convene to discuss other harassment techniques as well as make recommendations for habitat management. Habitat management could include, but would not be limited to:

3.4.3.1. Prescribed burning of understory vegetation
3.4.3.2. Manually removing understory vegetation
3.4.3.3. Mechanically removing understory vegetation
3.4.3.4. Trimming trees

3.4.3.5. Thinning/removing trees
3.4.3.6. Exclusion fencing or netting
3.4.3.7. Management of water levels
3.4.3.8. Removal of food, prey sources
3.4.3.9. Extended draw-downs or selective draining
3.4.3.10. Selective filling

Any habitat management alternatives that are USACE regulated activities in wetlands would require USACE authorization before implementation.

If habitat management activities in a wetland area prove to be unsuccessful in controlling the wildlife hazard, the Airport and WHAG will propose removal of the wetland and seek authorization from the USACE.

3.5. Fencing. The areas surrounding the airport support a variety of wildlife species as well as feral dogs and feral hogs. The best long-term solution for managing this hazard is good fencing and gates. The perimeter fence should be a minimum of 10 feet high, topped with a three wire spreader bar. This will prevent white-tailed deer from vaulting the fence. The soft, sandy soils in the area allow burrowing and digging animals easy access under fences. For airport security and safety, the fence should have a 3-foot "bib" installed on the outside. This bib should be buried to allow proper mowing and trimming along the side. Gates should have a maximum of 3 inches of clearance to prevent coyote and feral dogs from sliding underneath. It is often advisable to build the gates over a paved section of the road to insure smooth operation of low-hanging gates as well as to prevent wildlife from excavating under the gate section.

3.6. Landscaping. Airport landscaping designs will be coordinated with the WHAG. Landscaping designs will limit the use of open water features as well as plantings of fruit-bearing trees and shrubs. Trees will be planted to ensure that canopies do not eclipse when mature.

Chapter 4

Off Airport Habitat Monitoring Program

4.0 The relocated Panama City – Bay County International Airport is located between Pine Log State Forest and the St. Andrews Bay system. The nearby wetland habitats, rivers, creeks, and associated riparian habitats also provide habitat that will periodically attract birds and wildlife species that may pose a threat to safe aircraft operations. While the airport has little or no control over these areas, it is a good practice to periodically monitor these areas to determine if there are specific land uses that are increasing the hazard and if there are seasonal components to these risks. Areas of concern will be identified within a 6-mile range of the airport.

4.1. Mitigation Sites. Several wetland mitigation sites are to be located just south of the airport between CR 388 and the bay. These areas will undergo a series of management programs and will show succession over the years. As they are designed to enhance the habitat, it will be imperative to monitor these sites at least once a month to determine if potentially hazardous species are increasing in the area and how those species use the airspace relative to the airport approach and departure zones. Once it has been determined which organizations will be managing these areas, these organizations should be contacted and invited to participate in the airport WHAG.

4.2. Steelfield Landfill. This solid waste disposal facility is located approximately 6 miles to the west of the airport, but may periodically influence the movement of gulls and vultures in the region. The facility is currently used primarily for ash – waste disposal from the county-owned incinerator. Periodically, however, the incinerator will bypass municipal solid waste directly to the landfill. Gulls and vultures in the area are already used to foraging at this facility. The movement of gulls towards the landfill is not understood at this time. Additionally, if the facility becomes primarily a solid waste disposal facility, it is likely that an increase in gull activity at the site will occur. The landfill should be monitored at least once each month for gull and vulture activity.

4.3. Other sites. Other areas, particularly in the approach and departure corridors, should be observed at least once each quarter. This would include areas in the Pine Log State Forest and along Burnt Mill Creek and Crooked Creek.

Chapter 5

Active Control Program

5.0 Even with the most aggressive and comprehensive habitat management program, birds and other wildlife will be periodically attracted to the airport. The expansive regions of paved surfaces offer warmth during cold weather and the large open field of view, along with high-level security measures, allow many species to feel "safe" on airports. Periodically the airport staff will be required to disperse birds and wildlife with active control procedures. Airport staff designated for this task will be trained in the safe and proper use of these tools, as well as, in bird and wildlife identification. The use of depredation will be limited to a few specially trained individuals who will be named in a federal depredation permit. Dispersal of birds and wildlife on the airport must be carefully coordinated with air traffic control to insure that dispersed animals are not flushed into aircraft movement areas.

5.1. Strategy. Escalation is the primary strategy in dispersing birds and wildlife. It is important to understand the value of using the least invasive methods first in order to have more powerful tools available if the species become habituated to the initial harassment efforts. Dispersal techniques include auditory, visual, chemical, and biological stimuli. Dispersal techniques should be used sparingly as most bird and wildlife species will habituate to harassment if the technique is over-used.

5.2. Pyrotechnics. Pyrotechnics will be the most commonly used dispersal tool. Pyrotechnics are essentially "fire-crackers" that are launched from a device. The pyrotechnic round will travel a distance ranging from several hundred feet to nearly a thousand feet depending on the type of launcher and round selected. The round will generally produce a loud "report", or instead, may produce a screaming sound as it travels. The .22 cal pyrotechnic round is the least expensive and is generally effective at close range. The 12 gauge round is launched from a shotgun and has a slightly longer range and louder report. The Capa round is the most expensive at approximately $10.00 per shot, but has the longest range at nearly 1,200 feet. The safe and effective use of pyrotechnics will be included in initial control staff training and reviewed annually.

5.3. Propane cannons. Propane cannons are devices that use propane gas and an ignition system to produce a loud bang. Propane cannons are generally mounted on rotating bases to allow the barrel to swing into different directions in an effort to reduce habituation by making the birds or wildlife think the sound is coming from a different location. Generally propane cannons are set with a random fire timer, which may be adjusted for long and short intervals. Some propane cannons are now available with remote triggering capability and may be linked via computer into fields of fire. Habituation is the greatest concern with propane cannons, which are often turned on and left to run for extended

periods of time. Periodic moving of propane cannons dramatically increases their effectiveness.

5.4. Bioacoustics. Bioacoustics are recordings of bird distress and alarm calls. Not all bird species have distress or alarm calls and the use of this technique requires a general knowledge of the species being dispersed. Bioacoustics recordings are played through an external speaker or bullhorn. The key to successful use of bioacoustics is the identification of the species being dispersed and the appropriate use of the distress or alarm call. Species may react in many ways to distress calls. They may take immediate flight or they may simply become agitated. Some species may attack the source of the call in a mobbing fashion. All of these responses may be used to move and disperse birds from the airfield. The effective use of bioacoustics requires patience, but eventually this tool can be a valuable part of the active control program.

5.5. Lasers. Lasers have become an integral part of bird dispersal equipment. Some bird species, including waterfowl and gulls appear to become annoyed when laser light is flashed into their eyes. The birds generally respond by taking flight away from the light. The value of the laser system is that it can travel greater distances than pyrotechnics and bioacoustics. Additionally, lasers are a different type of stimulus (visual vs. auditory) and subsequently may reduce the effect of habituation. Laser dispersal systems must be used carefully around aircraft movement areas to insure light sources do not come in contact with aircrew and ground staff.

5.6. Dogs. The use of trained dogs, particularly border collies have gained interest in the past few years. Although dogs have been in use on and around airfields for decades, media attention has raised public awareness of this method of control. Dogs can be an effective means to disperse birds around the airfield, but require a great expenditure of time and resources to maintain. Both dog and handler must be trained initially and must continue training throughout the life of the program. Dogs are extremely effective in moving birds and provide excellent public relations programs. The use of trained dogs at the new Panama City-Bay County International Airport is not currently anticipated, but would be considered if persistent species become difficult to move using other techniques.

5.7. Wildlife Patrols. Initially bird and wildlife patrols will be included as part of the routine runway checks conducted by airport operations staff and by airport security officers as they patrol the airport. Additional observations will be made by grounds maintenance staff. If these reports indicate hazardous conditions, then the WHAG will designate staff to conduct regularly scheduled patrols.

Chapter 6

Training

6.0 Bird and wildlife management training will be provided prior to the first operations at the relocated Panama City Bay County International Airport. Initial training will be conducted by a biologist, experienced in airport bird and wildlife control programs. Advance training and refresher training will be conducted annually or as needed. Training will include but not be limited to the following topics.

6.1. Initial Training
- 6.1.1. A review of bird and wildlife strikes nationwide
- 6.1.2. History
- 6.1.3. Statistics
- 6.1.4. Federal Regulations
- 6.1.5. Introduction to wildlife biology
  - 6.1.5.1. Bird identification
  - 6.1.5.2. Mammal identification
  - 6.1.5.3. Animal behaviors
  - 6.1.5.4. Habitat requirements
  - 6.1.5.5. Movement Patterns
- 6.1.6. Habitat Management
  - 6.1.6.1. Turf management
  - 6.1.6.2. Drainage
  - 6.1.6.3. Vegetation
  - 6.1.6.4. Fencing
- 6.1.7. Active Control
  - 6.1.7.1. Pyrotechnics
  - 6.1.7.2. Propane Cannons
  - 6.1.7.3. Bioacoustics
  - 6.1.7.4. Lasers
  - 6.1.7.5. Other methods
  - 6.1.7.6. Safety
- 6.1.8. Program administration
  - 6.1.8.1. Reporting
  - 6.1.8.2. Communications
  - 6.1.8.3. Record Keeping
  - 6.1.8.4. Airport Driving
- 6.1.9. Hands-on Training
  - 6.1.9.1. Weapons safety
  - 6.1.9.2. Pyrotechnics
  - 6.1.9.3. Propane cannons
  - 6.1.9.4. Other

6.1.10. All training materials will be provided on CD-ROM (PowerPoint)
6.1.11. A quiz will be given at the end of the training session. Training materials will be kept for two years.
6.1.12. A record of all staff attending training will be maintained for two years.

6.2. Advanced Training. Advanced training will be provided upon request and will include as a minimum the following topics.

6.2.1. Tactics in wildlife control
6.2.2. Data management and analysis
6.2.3. Tracking
6.2.4. Remote sensing technologies
6.2.4.1. Radar
6.2.4.2. Telemetry

6.3. Professional Training. There are several professional organizations dedicated to the science and technology of bird and wildlife hazard reduction. These organizations meet periodically in the United States and overseas.

6.3.1. Bird Strike Committee – USA. This organization was formed in 1991 as a joint effort by the FAA, USAF, and USDA, to facilitate the exchange of information, promote the collection and analysis of accurate wildlife strike data, promote the development of new technologies for reducing wildlife hazards, promote professionalism in wildlife management programs on airports through training and advocacy of high standards of conduct for airport biologists and bird patrol personnel, and to serve as a liaison to similar organizations in other countries. The organization is directed by an 8-person steering committee consisting of 2 members each from the FAA, USDA, Department of Defense, and the aviation industry Wildlife Hazards Working Group. Bird Strike Committee - USA meets every other year.

6.3.2. Bird Strike Committee – Canada. This organization is sponsored by Transport Canada and the Department of National Defense and is aimed at providing a mechanism for discussion of matters relating to bird hazard awareness and wildlife control at Canadian airports. The organization includes membership from various government departments including Agriculture Canada, Canadian Museum of Nature, and Canadian Wildlife Service. Associate members include representatives from all major Canadian airlines, aviation industry members and associations, and others. BSCC meets every other year opposite Bird Strike Committee -USA.

6.3.3. American Association of Airline Executives (AAAE). In recent years the AAAE has offered periodic courses in bird and wildlife control programs.