



**Belize Department of Civil Aviation**

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## **ADVISORY CIRCULAR**

**Subject:** Wild Life Hazard Management Plan

**DATE,** 07/02/2014

**Initiated by:** HWP

**AC No:** BDCA-006 2013

**Change:**

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**Purpose:** Wild life Management Plan guidance Material

### **1. THE PURPOSE OF THIS ADVISORY CIRCULAR.**

Provides private or public aerodrome operators (Directors or Operations Management) guidance in the Management of wild life hazards.

### **2. WHAT THIS AC CANCELS**

This AC is the first version of this subject.

### **3. WHO THIS AC AFFECTS.**

Operations managers and wild life Inspectors for national and international aerodromes, public or private.

### **4. WHERE TO GET A COPY OF THIS AC.** You can get a Copy of this AC in the Technical Library of the BDCA

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## 1 SUBJECT

This circular provides private or public aerodrome operators (Directors or Maintenance Management) guidance in defining the condition of the runway when is wet or flooded and how to inform air traffic control (ATS), and these in turn to pilots. Also it provides as well a procedure of transferring information of the runway conditions under these circumstances.

## 2 Authority for Implementing the Wildlife Plan

The authority for implementing the Philip Goldson International Airport Wildlife Hazard Management Plan is the responsibility of the Concessionaire under the direction of the Chief Executive Director or the Operations Manager of the airport. Other Airport departments that have a role in the plan include the following. Airport Planning and Engineering

§ Responsible for incorporating reduction of wildlife attractants in landscape design by reducing the number of trees planted and selecting species least desirable to wildlife.

§ Design of water retention ponds that automatically pump standing water off of the airfield.

§ Design of bridges to have enclosed understructure to prevent roosting and nesting areas.

### **Airport Maintenance**

§ Responsible for the maintenance of the airfield, which includes field mowing to keep the grass maintained at a length least desirable for wildlife.

§ Tree removal of nesting and roosting habitat.

§ Maintaining the airport's perimeter fence to keep mammals off the airfield.

§ Small scale pesticide and herbicide spraying on the airport.

§ Installation of netting to prevent roosting and nesting.

§ Filling and grading of low areas that collect standing water.

§ Grading of gopher mounds and operation of the "gophernator."

### **Vehicle Maintenance Shop**

§ Responsible for repair and maintenance of the Airport's vehicles and sirens used for wildlife control and the Airport's propane-powered bird cannons.

### 3 Habitat Management

It is the policy of the Airport to minimize, to the extent practical, the development of new wildlife habitat and eliminate existing habitat and land uses which attract birds and other wildlife. When determined to be a problem, the following actions will be taken to eliminate habitat and land uses identified as contributing to wildlife hazards. These changes will be made consistent with available resources and the Airport's ability to influence land use decisions.

§ Turf will be maintained in such a manner as possible that it will not constitute an attraction to wildlife.

§ Areas of standing water that are identified as strong wildlife attractants that are frequented by shorebird and other waterfowl will be drained or filled.

§ Storm water detention basins will be pumped out in a timely fashion to reduce the attraction to wildlife.

§ Trees, brush, and vegetation along canals and other areas that are found to provide food, shelter, or roosting facilities for wildlife will be cleared.

§ Water in canals that are considered to be strong wildlife attractants will be drained, covered, or have wire stretched above the canal in a zig zag pattern to discourage wildlife use.

§ Small mammal populations will be monitored and direct control will be initiated if necessary.

§ Buildings will be made as uninhabitable as possible as nesting or roosting sites with netting, bird spikes, or other suitable materials.

§ Waste receptacles containing food that may attract wildlife will be eliminated or rendered inaccessible, and "no feeding" signs will be posted in areas where tenants or the public may provide food for wildlife.

§ Construction debris that may provide cover for small mammals and perching sites for birds will be removed before it becomes an attractant.

§ Specialists will monitor insect populations, and insecticides will be applied if necessary.

§ Agricultural practices and livestock grazing are not allowed on the airport in any area that may attract wildlife and affect aircraft operations. Grazing and agricultural practices on airport property away from the airfield may be allowed on a case by case basis after review.

### 4 Species Specific Population Management

4.1) Canada Geese. Canada geese are a species of serious concern and often congregate on the

airport and surrounding wetlands and golf courses throughout the year. Canada geese are likely to cause damage to aircraft due to their size and flocking behavior. Attractants:

§ Much of the geographic area near the airport is wetland marshes that contain many private waterfowl hunting clubs that manage the habitat to promote waterfowl numbers. The Great Salt Lake, private waterfowl hunting clubs, and several wildlife refuges north of the airport contribute to very large waterfowl numbers near the airport. Geese often attempt to use the airport as a refuge to avoid hunting pressure from surrounding hunting clubs. The airport golf course and surplus canal at the south end of the airport are a strong attractant to geese with open water most of the year and acres of grass that geese use a primary food source.

Management Techniques:

§ Hazing

Propane cannons are utilized to assist in hazing geese from the airport. The cannons are placed on the airfield and golf course and are moved as conditions warrant. The cannons are numbered and activated by Operations personnel through the Airport Control Center radio system.

12-gauge shotguns are utilized to launch pyrotechnic cracker shells to haze birds from the area, and live ammunition is used if lethal control is necessary.

A paint ball gun is used as a non-lethal deterrent.

§ Population Control

Nest oiling and addling is utilized under the terms and conditions listed in the US Fish and Wildlife depredation permit to control future generations of geese being imprinted to the area.

§ Lethal Control

Lethal control is utilized under the terms and conditions listed in the US Fish and Wildlife depredation permit as a last resort after non lethal means have proven ineffective to haze geese from the area.

4.2) **Ducks.** Ducks are a species of concern that pose a threat to aircraft damage due to their size and tendency to flock. Small numbers of ducks are present at the airport throughout most of the year; however, very large numbers are present in surrounding wetlands during spring and fall migration periods. Attractants:

§ The Great Salt Lake, private waterfowl hunting clubs, and several wildlife refuges north of the airport contribute to very large waterfowl numbers near the airport. Ducks are attracted to areas of the airport that contain standing water, the golf course ponds, and the surplus canal. These areas are used for feeding, loafing, nesting, and roosting.

Management Techniques:

§ Hazing

Propane cannons are utilized to assist in hazing birds from the airport. The cannons are placed on the airfield and golf course and are moved as conditions warrant. The cannons are numbered and activated by Operations personnel through the Airport Control Center radio system.

12-gauge shotguns are utilized to launch pyrotechnic cracker shells to haze birds from the area, and live ammunition is used if lethal control is necessary.

A paint ball gun is used as a non-lethal deterrent.

#### § Lethal Control

Lethal control is utilized under the terms and conditions listed in the US Fish and Wildlife depredation permit as a last resort after non lethal means have proven ineffective to haze birds from the area.

4.3) Gulls. Gulls have been one of the most common species of birds involved in strikes with aircraft at the airport. Gulls are a serious threat and are likely to cause aircraft damage due to their size, low flight patterns, and the tendency to flock. The surrounding Great Salt Lake marshes are home to one of the largest breeding populations of California gulls in the world. Gulls are a seasonal problem in the spring, summer, and fall. Attractants:

Management Techniques:

#### § Hazing

Propane cannons are utilized to assist in hazing birds from the airport. The cannons are placed on the airfield and golf course and are moved as conditions warrant. The cannons are numbered and activated by Operations personnel through the Airport Control Center radio system.

12-gauge shotguns are utilized to launch pyrotechnic cracker shells to haze birds from the area, and live ammunition is used if lethal control is necessary.

A pesticide spray application is utilized for insect control if conditions warrant by licensed Airport Maintenance personnel or by personnel referred by USDA Wildlife Services.

#### § Colony Removal

USDA Wildlife Services and a local hunting club removed a large colony of approximately 10,000 gulls north of the airport that were established on the hunting club in 1999. The gull colony was a serious threat as their daily flight pattern was directly over the airport's center and east runways. The colony was removed by nest removal, egg oiling, and finally by pigs being put on the nesting colony island to consume eggs and destroy newly laid nests.

#### § Lethal Control

Lethal control is utilized under the terms and conditions listed in the US Fish and Wildlife depredation permit as a last resort after non lethal means have proven ineffective to haze birds from the area.

4.4) White Faced Ibis. White faced ibis are a species of concern mostly during spring and fall migration periods. The nearby Great Salt Lake marshes are home to one of the largest breeding populations in the world.

Attractants:

§ This species is mostly an off airport concern, but will occasionally congregate on the airport in shallow areas of standing water in the spring and early summer.

Management Techniques:

#### § Hazing

Propane cannons are utilized to assist in hazing birds from the airport. The cannons are placed on the airfield and golf course and are moved as conditions warrant. The cannons are numbered and activated by Operations personnel through the Airport Control Center radio system.

12-gauge shotguns are utilized to launch pyrotechnic cracker shells to haze birds from the area, and live ammunition is used if lethal control is necessary.

#### § Lethal Control

Lethal control is utilized under the terms and conditions listed in the US Fish and Wildlife depredation permit as a last resort after non lethal means have proven ineffective to haze birds from the area.

4.5) Swallows. Barn and cliff swallows are a species of concern that are a seasonal problem in the spring and summer months. Swallows are small birds that congregate in nesting colonies. They tend to fly in loose flocks that generally do not cause serious damage when struck by aircraft, but aircraft strikes with swallows sometimes result in flight delays and downtime for inspection; and, as with any bird strike, the potential for serious consequences is always a concern to minimizing strikes with any species. Swallows do not respond well to hazing and unless an immediate threat, no action may be the best option.

#### Attractants:

§ Swallows are attracted to bridges and buildings for nesting sites. The surplus canal is a water source that supports a large insect population and nearby buildings and bridges are a strong attractant. Open fields are also an attractant the swallows use for hunting insects.

#### Management Techniques:

##### § Colony Removal

When swallows are attempting to establish a nesting colony in an area that may impact aircraft operations and it is not practical to construct a

permanent barrier, nests are destroyed prior to birds laying eggs. Nests are removed by knocking them down with a pole or high-pressure water hose. Airport ARFF units have been utilized in nest removal.

##### § Habitat Modification

Netting is installed on bridges to provide a permanent barrier in areas where swallow colonies may affect aircraft operations.

4.6) Starlings. Starlings are a species that inhabit the airport year round and are a concern due to the large migratory flocks that may include over 1000 birds and the tendency to fly in tightly dense flocks. Flocks of starlings often feed on the ground in open grass fields and move as a cohesive unit to other feeding areas a short distance away. Damage caused is generally related to flock size. Several birds seldom cause damage, but a large flock often causes damage. Attractants:

§ Open grassy fields, insects, above ground electrical wires, and trees attract starlings. Most trees have been removed.

Management Techniques:

§ Habitat Modification

Large groups of Russian Olive trees have been removed by Airport Maintenance from areas on the airport and adjacent properties. These trees were a strong attractant as nighttime thermal roosting sites.

§ Lethal Control

Lethal control is utilized when starlings present an immediate threat to aircraft operations. Starlings are not protected by state or federal policy.

4.7) **Horned Lark.** Horned larks inhabit the airport year round and generally are a concern during the winter months. They are small birds that congregate in flocks of approximately 100. Serious bird strike damage to aircraft is seldom caused, but strikes sometimes result in flight delays and down time for inspection. Horned larks do not respond well to hazing and unless an immediate threat to aircraft, no action may be the best option.

§ Horned larks are attracted to paved surfaces after measurable snowfall as a resting place and to gather grit placed as part of the airport snow removal operations.

Management Techniques:

Because horned larks are generally an immediate threat to aircraft operations while on a runway or taxiway, hazing with vehicle and sirens has proven to be most effective.

§ Lethal Control

Lethal control is utilized under the terms and conditions listed in the US Fish and Wildlife depredation permit as a last resort after non lethal means have proven ineffective to haze birds from the area.

4.8) **Raptors.** Raptors are present at the airport throughout the year, but are most prevalent during spring and fall migration. The most common species are the American kestrel, red-tailed hawk, northern harrier, Swainsons hawk, rough legged hawk, barn owl, and turkey vulture, with bald eagles occasionally observed. Raptors are mostly observed alone or in pairs and are an occasional threat to aircraft. Raptors often cause aircraft damage due to their size. Attractants:

§ Raptors are attracted to open fields to hunt for small rodents and are often observed perched on fences, utility poles, airfield buildings and equipment. They also soar above the open field searching for prey.



Management Techniques:

## § Hazing

Propane cannons are utilized to assist in hazing birds from the airport. The cannons are placed on the airfield and golf course and are moved as conditions warrant. The cannons are numbered and activated by Operations personnel through the Airport Control Center radio system.

Electronic distress cry generators are also placed on the airfield to deter birds.

12-gauge shotguns are utilized to launch pyrotechnic cracker shells to haze birds from the area.

A paint ball gun is utilized as a non-lethal deterrent.

4.9) American White Pelican. American White Pelicans are a species of serious concern and are migratory birds that are present during spring, summer, and fall. Pelicans are very large birds that are likely to cause damage due to their size.

Attractants:Management Techniques:

## § Hazing

Propane cannons are utilized to assist in hazing birds from the airport. The cannons are placed on the airfield and golf course and are moved as conditions warrant. The cannons are numbered and activated by Operations personnel through the Airport Control Center radio system.

12-gauge shotguns are utilized to launch pyrotechnic cracker shells to haze birds from the area.

A paint ball gun will be utilized as a non-lethal deterrent.

## § Habitat Modification

Keeping the west golf course pond pumped dry during spring, summer and fall periods has reduced the attraction to pelicans at the airport.

Area duck clubs near the airport have joined together and plan to poison areas of standing water to remove fish that destroy habitat for aquatic vegetation utilized by waterfowl. This would reduce the attraction to pelicans that feed on the fish and have been a problem during late summer and early fall.

4.10) Foxes. Red fox inhabit the airport throughout the year and have been prevalent for many years. Although the potential for being struck by aircraft exists, strikes have been seldom and the Airport and USDA Wildlife Services generally do not consider the species a serious concern. The presence of the red fox has shown to be a benefit by controlling small rodents and deterring waterfowl use of the area.

**Resources Assigned**

The Airport Operations Division is responsible for implementing the Airport's WHMP in conjunction with

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Belice Department Of Civil Aviation, who is under contract with the Airport. The following is an inventory of equipment used for implementing the Airport's WHMP.

- § 12-gauge shotguns used to launch cracker shells and live ammunition
- § Pistol launcher used to launch "banger and screamer" cartridges
- § Pellet gun used for lethal control
- § Paint ball gun used as non-lethal control and to mark problem birds
- § Gun safe used as a secure storage area for firearms when not being used for wildlife control
- § Propane cannons
- § Vehicles, spotlights and sirens
- § Snare poles and nets used to catch wildlife and domestic pets
- § Binoculars, flashlights, cameras, waders, and bird field guides
- § Wildlife freezer used to store wildlife carcasses and remains until species can be positively identified
- § Polaris six-wheeled ATV

#### 7) Assigned Personnel and Procedures

Airfield & Terminal Operations An Airport Operations Officer is assigned to conduct wildlife control daily from dawn to dusk. The remaining Airport Operations Officers are also responsible for wildlife control as a part of their regular airfield patrol duties. Efforts to remedy any observed wildlife hazard will be taken as soon as it is safely possible. Personnel will advise Air Traffic Control (ATC) of wildlife that may affect aircraft operations. Additional inspections and control measures may be required and will be conducted as conditions warrant. Personnel are available 24 hours a day to respond to wildlife issues. The Airport Operations Officer (AOO) assigned to wildlife each shift also conducts daily bird counts at thirteen designated sites on the airport. The survey provides important data on actual bird numbers on the airport throughout the year, ensures the entire airport is being monitored for wildlife, assists in meeting environmental requirements for depredation and wetland mitigation permits, and requires Airport Operations personnel to identify birds on the airport. Occasionally, bird surveys are cancelled due to weather or unforeseen priority or emergency situations. Airport Maintenance Airport Maintenance is responsible for dragging airfield areas to reduce gopher mounds, operating the "gophernator", small scale pesticide and herbicide application, installation of bird nets, maintenance of propane bird cannons and assist with habitat management in the form of effective mowing practices and removal or management of wildlife friendly landscaping. Airport Police Airport Police will be dispatched for emergency lethal removal of large mammals if State or Federal wildlife personnel are not available.

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**Habitat Modification**

§ The Airport attempts to manage wildlife to the extent practical with land use and planning to reduce the risk of wildlife hazards.

**Hazing**

§ When an area is identified as a continual problem area for wildlife, a work order will be placed to have bird cannons moved to that location and additional inspections will be conducted.

§ All Airport Operations vehicles used for wildlife control are equipped with two-way ATC radios. Contact will be made with ATC whenever conducting wildlife control that may affect aircraft operations.

§ Species of birds respond differently to hazing tactics. Personnel should identify the species and be aware of its habits before hazing. Most waterfowl respond well to hazing and will find another area if hazing is aggressive and consistent. Horned larks and swallows do not respond well and generally fly only a short distance and will not leave the area. Often no action is the best option with some species if not an immediate threat to aircraft operations.

§ Large flocks of birds may be difficult to move by just one person and a joint effort may be necessary to move birds from the area.

§ The Airport Control Center and Airport Police will be notified of wildlife control that may elicit public or tenant response from the noise of firearms and pyrotechnics used.

**Lethal Control**

§ Lethal control will be used primarily as a last resort after other methods have proven to be ineffective, in emergency situations, or if necessary to destroy an injured animal.

§ As a general rule, for lethal control to be effective in hazing birds, it should be used on a sizeable flock to have an impact on other birds and deter them from coming back to the area. Certain problem birds that refuse to haze and can be identified may be taken as an exception to having a large flock present. In certain areas and circumstances, it may be beneficial to leave carcasses of birds taken by lethal means as a deterrent. If carcasses are left as a deterrent, the area should be monitored closely as other hazardous species, such as turkey vultures, may be attracted to the area.

§ Lethal control will be conducted under the terms established by the Minister of Health

**Documentation**

§ Wildlife inspections and control management measures will be called in by Operations and Maintenance personnel and logged by the Airport Control Center. Inspection reports should note all hazardous species hazed and should be called in even if no wildlife is observed during the inspection. Wildlife inspections should be conducted in all the airport area

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§ When a migratory bird or bird carcass is removed from the airfield or airport property as a result of lethal control, a bird strike, or other means, it will be documented in the Airport Wildlife Depredation/Salvage Log

§ All wildlife strikes and carcasses or wounded wildlife found within 200' of a runway centerline will be considered a wildlife strike and documented on BDCA's form. If possible, the aircraft crew or mechanics should be contacted to obtain as much information as possible to complete a report. If a bird strike is reported to be a possible bird strike (i.e. pilot reported he/she thought they hit a bird and no evidence can be found on the aircraft or runway), do not do a report. If the pilot is confident they hit a bird, do a report.

§ If species involved is unidentifiable, remains should be obtained by gathering carcass, remaining pieces or a blood sample and placing it in the wildlife freezer located in the shuttle bay for further identification. If necessary, remains will be sent to the Smithsonian for positive identification. Recovered carcasses that have been identified will be buried or incinerated.

§ Completed bird surveys will be kept on the designated board in the Airport Operations Office and given to the BDCA office.

### **Training**

§ All Operations personnel receive regular wildlife control and identification, firearms, and air traffic ground control training to effectively implement the WHMP.

## **5 8) Review and Evaluation**

The Executive Director, Director of Operations, Operations Superintendent, Airport Duty Manager in charge of wildlife, and a biologist with the BDCA will review the Airport WHMP annually. Operations personnel meet regularly with BDCA personnel to discuss current wildlife problems and procedures.